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ARGUMENT STRUCTURE IN LANGUAGE SHIFT: MORPHOSYNTACTIC VARIATION
AND GRAMMATICAL RESILIENCE IN MODERN CHUKCHI

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Dedicated to the Chukchi people, who exemplify resilience

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Abstract

Despite the growing interest in endangered languages, relatively little attention has been paid to the ways in which the structure of these languages is conditioned by the language shift setting, even among conservative older speakers. This thesis investigates how the social circumstances of language endangerment—which include disrupted intergenerational transmission, loss of a cohesive speech community, pressure to master a new dominant language, and stigmatization of the traditional language—can have significant grammatical effects.

I investigate morphosyntactic variation among different groups of speakers of the highly endangered polysynthetic indigenous language Chukchi, which is spoken in northeastern Russia. Following a series of disruptive social and educational policies implemented in the mid-20th century, speakers of Chukchi rapidly shifted to Russian; today, virtually all speakers are bilingual in Russian and transmission of Chukchi to children has ceased entirely. In order to systematically compare linguistic patterns among speakers of different backgrounds (proficient older speakers, attriting speakers, and young L2 or heritage learners), I utilize a combination of traditional fieldwork techniques and controlled experimental production tasks. I focus on several distinct reflexes of the encoding of argument structure, which cuts across multiple morphosyntactic domains and thus affords us the opportunity to examine not only individual grammatical changes due to language shift, but also system-wide grammatical restructuring that can only be seen as a direct result of the modern sociolinguistic setting.

Modern Chukchi speakers evidence variation across the following domains: agreement marking, morphological and syntactic ergativity, valency-changing derivational morphology, verbal and nominal incorporation, and argument drop. While older, highly proficient speakers display patterns that are largely consistent with existing grammatical descriptions, attriting speakers and L2 speakers show deviations from the expected patterns, though not always in identical ways. Attriting and L2 speakers reanalyze agreement marking across different dimensions, and while both groups make little productive use of verbal derivation and incorporation, this tendency is more pronounced among L2 learners. However, these varieties are alike in that the changes present in the grammars

of these speakers are entirely consistent with cross-linguistic tendencies and a shift away from a polysynthetic configuration. Furthermore, while similar changes in other moribund languages have often been characterized as “linguistic loss,” the Chukchi data show that as certain features are lost, speakers innovate new patterns to replace them, often making use of existing resources in the language (rather than borrowing from or replicating patterns in the contact language).

Glossing Conventions

1, 2, 3	1st, 2nd, 3rd person	CVB	converb
A, S, O	transitive subject, intransitive subject, object	DAT	dative
ABL	ablative	DECL	declarative mood
ABS	ablative	DEM	demonstrative
ACC	accusative	DIM	diminutive
ADJ	adjective	DUR	durative
ADV	adverbial	EMPH	emphatic
ADVERS	adversative	EQU	equative
AGT	grammatical agent	ERG	ergative
ALL	allative	F	feminine
ANIM	animate	FUT	future tense
ANT	anterior	GEN	genitive
ANTIP	antipassive	HAB	habitual
APPL	applicative	HORT	hortative
ASS	associative	INAN	inanimate
AUG	augmentative	INCIP	incipient
AUTH	authentic	INESS	inessive
AUX	auxiliary verb	INF	infinitive
CAUS	causative	INST	instrumental
CISLOC	cislocative	INT	intentional mood
COLL	collective	INTJ	interjection
COM	comitative	INTS	intensifier
COND	conditional	INTR	intransitive
COP	copula	INV	inverse
		IPFV	imperfective

ITER	iterative	PROG	progressive aspect
LOC	locative	PROX	proximal
M	masculine	PRS	present tense
MAN	manner	PRT	particle
MID	middle	PL	plural
NEG	negation	REFL	reflexive
NFUT	non-future tense	REL	relative
NOM	nominative	SEQ	sequential
NMLZ	nominalizer	SG	singular
NPST	non-past tense	SIM	simultaneous
OBJ	object	SING	singulative
ORI	orientative	STA	stative
PART	participle	SUBJ	subject
PASS	passive	SUBLAT	sublative
PERL	perlative	TH	theme affix
POSS	possessive	TR	transitive
PREP	prepositional	VBASE	verb base
PRF	perfect	VBLZ	verbalizer
PRIV	privative		

Chapter 1

Introduction

1.1 The position of endangered language grammars in linguistics

Language endangerment occupies a prominent position at the intersection of many current questions in linguistics. The knowledge that hundreds of languages have come and gone over the course of human history, and that hundreds are on the verge of extinction today, poses a problem for linguists that deal in absolutes or tendencies: how can we have a comprehensive catalog of the possible features of language and how, in turn, can we develop a theory of the underlying structure of language when there may exist so many unknowable exceptions to our rules and generalizations?

This impending deadline has culminated in a rush to document endangered languages and amend our theories accordingly, while there are still sufficient numbers of fluent speakers of these languages. However, what does it mean to be a fluent speaker in a linguistic community comprising only a handful of speakers in total, who may or may not use the language with one another? How do the decisions that linguists make in these scenarios—whom to document, what features to include or exclude—condition the available data from these languages, which can in turn affect the viability of our theories?

It would be unfair to claim that these questions have not occurred to the scholars working in these communities and with the resulting materials. Given the difficulty of accessing these communities and the limited numbers of speakers, it is true that we may never have the same level of confidence in descriptions of endangered languages as majority languages that have been well-studied by scholars. Fieldworkers have attempted to eschew potential doubts about their descriptions by exclusively working with the “best” remaining speakers in the community—that is, the most proficient speakers who are likely to speak a conservative variety of the language. These speakers are often assumed to be the “last” speakers of that language, a distinction that has

long been criticized as fraught (Evans 2001). The focus on this group of speakers is problematic for a number of reasons: (i) it necessarily privileges certain idiolects over others, running the risk of missing certain “fluent” features; (ii) it assumes that the best speakers have been unaffected by contact effects from the sociolinguistic situation; and (iii) it implies that less fluent speakers are not using valid versions of the language (and in extreme cases, not making use of language at all).

This thesis directly engages with the issues of fluency and validity in the language endangerment context. I document the extent of morphosyntactic variation in a presently highly-endangered language—Chukchi, spoken in northeastern Siberia—by eliciting comparative data from speakers from several geographic areas where Chukchi is spoken, across all different levels of proficiency. By examining this variation I identify the mechanisms that produce differences in the speech of modern Chukchi users relative to earlier descriptions of the language, and therefore provide an account of apparent change in the language. I show that incipient changes in Chukchi cannot be merely explained by resorting to interference or imposition from Russian; nor can they be explained by dismissing the linguistic behavior of less-proficient speakers as language loss, decay, or structural breakdown. I argue that less-proficient speakers continue to make use of a linguistic system that, while at times variable, is in line with universal tendencies of language and can therefore be analyzed by existing morphosyntactic theories.

1.1.1 Questions of language contact and change in shifting communities

Endangered languages are, by definition, embedded in a language contact context: if speakers are shifting from using a language, there must be another dominant language that they are using instead. This shift is seldom instantaneous, and there are often intermediate generations where both languages are spoken to some extent. The effects on the language to which speakers are shifting (typically called *substrate effects*) are a well-researched topic within contact linguistics; however, the effects on the disappearing language have been comparatively less well-studied. The literature on structural changes in obsolescing languages is discussed at length in Chapter 2. These sources have in common a tendency to focus on what is missing in these languages, rather than the ways

they continue to be spoken in spite of these losses. While a characteristic of these languages is indeed the absence of certain linguistic features compared to earlier, more robustly-spoken varieties, it is a mistake to regard simplification or reduction in one aspect of the grammar as indicative of structural collapse without considering whether there are compensatory changes taking place elsewhere in these speakers' systems. I argue in this thesis that this is exactly what is taking place in Chukchi: changes in one morphosyntactic domain feed changes in others.

An important observation of the early literature on language obsolescence is that language shift produces profound changes in the grammar of the endangered lect. However, the causes of these profound changes have not been thoroughly explored. Two conditioning factors that come to mind immediately are interference from the dominant language—Russian, in the case of Chukchi—or gaps from low proficiency. Neither of these mechanisms, if they can be considered separate mechanisms at all, is well-understood. What does it mean for someone to speak a language poorly—that is, what do the features of non-proficient speech look like, and what conditions them?

The ways in which linguistic contact can produce broad, system-wide changes in even a widely-spoken language is still a relatively open question. Many studies of language contact focus on highly specific, local changes such as the borrowing of words or grammatical structures; even studies of paradigmatic changes due to contact often eschew the question of how such changes interact with other aspects of the same grammatical domain. Nevertheless, contact has often been proposed as a motivating factor for major typological shifts in languages, such as the development of ergativity in Chukchi (Fortescue 1997, Kantarovich 2019). This should not be considered a failing of these studies, as it is often not clear how to identify the level of structure that has been impacted by contact-induced change.

In the case of language shift, we cannot necessarily speak of contact-induced changes in the language as a whole: many endangered languages have limited numbers of speakers who do not necessarily interact with one another. Thus, there is not a full-fledged linguistic community where changes can propagate at the level of the entire language, or even the entire local dialect. It is therefore necessary to carefully examine what is taking place in individual speakers' varieties

and discuss tendencies rather than language change, per se. Within individual grammars, any morphosyntactic variation compared with earlier documented varieties can be due to the following factors:

- (i) direct influence from Russian (i.e., the mapping of Russian grammatical patterns onto Chukchi)
- (ii) interrupted acquisition
- (iii) language loss across the lifespan (attrition)
- (iv) pre-existing dialectal variation, which is underdocumented in Chukchi (see section 1.4.2)
- (v) speaker innovation

Factors (i)-(iii) should all be considered different types of variation induced by language contact and multilingualism: although (ii) and (iii) may not directly replicate a pattern in the dominant language, they are still a product of the contact setting. The concept represented by (v) is something of a black box for all other difficult-to-trace changes in speakers' varieties. For example, (v) includes what has often been isolated as a theoretically separate source of variation and change in a language: language-internal innovation. In line with previous work (Mufwene 2001, Joseph 2013, Malkiel 1967), this thesis seeks to problematize the notion of a strict divide between language-internal and contact-induced change. If a language is situated in a multilingual context (which is true of Chukchi, historically and today), it is difficult to demonstrate that shared features in the languages developed completely independently of one another and were not at least reinforced by concomitant features or changes in neighboring languages. By the same token, even language-internal change in entirely monolingual contexts is spread through some form of speaker-to-speaker contact. Still, it is equally problematic to claim that any change is specifically due to the mechanism of transfer from a different language; if two languages share a typologically well-attested feature, it is difficult to assert that they would not have developed that feature in the absence of contact (see Kantarovich 2019 for a discussion about the viability of contact-based explanations for ergativity).

Thus, for much of the variation described in this work, it is often difficult to uniquely attribute any individual pattern to a single mechanism; (i)-(v) can all participate in multiple causation, if they are possibilities given the speaker's social background. Nevertheless, I attempt to adjudicate among these different mechanisms as much as possible. In particular, it is valuable to identify those features that belong to (iv), variation (or change) that predates the modern shift situation, in order to assess which features have resulted from the current context specifically.

1.1.2 Mixed grammars and syntactic theory

It should be noted that similar questions about the nature of linguistic systems in multilingual settings have been asked by various fields in linguistics, which have unfortunately seldom been in dialogue with one another.

Despite the fact that multilingualism is the norm throughout much of the world, formal syntactic theorizing usually restricts analyses to individual languages. This is also true of work on endangered languages that have no remaining monolingual speakers. Of course, there are good reasons to focus on modeling monolingual utterances, especially as a baseline for our theories. In many contexts, speakers are aware of the fact that they speak multiple distinct languages and actively try to use one instead of the other. In these cases, when there are intrusions from another language, they often take the form of *code-switches*, or constrained pieces of another language that are inserted in the frame of the main language of the utterance, or alternate with the main language (Muysken 2000). The nature of code-switching has received some attention from linguists attempting to systematically model what sorts of code-switches are possible in which parts of an utterance. Sankoff and Poplack (1981) model these possibilities in terms of constraints. Another popular model for insertional code-switching is the matrix language-frame model (Myers-Scotton 1993), which focuses on how morphological mismatches block certain types of insertional code-switches. Patterns of code-switching have also been productively analyzed within the same minimalist syntactic approaches that typically focus on monolingual speech. Examples include Merchant (2015) on ellipsis in Greek-English utterances, MacSwan (2016) on a Distributed Morphology approach to

lexical insertion in code-switching, González-Vilbazo and Lopéz (2011) on code-switching inside light verbs, and many others. The exoticism of so-called “mixed languages”—a possible result of language contact where elements of two unrelated languages combine to produce an entirely new language unrelated to either variety—has also been called into question. For example, Gillon and Rosen (2018) examine the mixed language Michif, a supposed blend of Cree and French, and conclude from syntactic evidence that Michif is simply an Algonquian language with heavy lexical influence from French.

Thus, there is a fairly rich body of syntactic literature that demonstrates that language mixing phenomena are not “special”—they are a regular part of human language and are analyzable by the same theoretical approaches. Still, this literature has avoided confronting the messier dimensions of simultaneous multilingual language use. Recent scholarship on *translanguaging* has dismissed the idea that speakers truly maintain a separation between different languages (García and Wei 2015), citing language mixing phenomena (especially in language classrooms) that cannot be easily segmented into code-switches.¹ Muysken (2000) also discusses a kind of code-switching that has received comparatively little attention from syntacticians: *congruent lexicalization*, where mixing occurs between two languages that have similar morphosyntactic structures and it is difficult to tell which language is supplying what material. The picture is even more complicated in cases of *fluent dysfluency*, a kind of congruent lexicalization in unbalanced bilingualism between similar or related languages, where syntactic and inflectional material from the dominant language is used to rescue utterances in the weaker language (Lipski 2001).

Relatedly, formal analyses of endangered languages rarely attempt to reconcile the range of idiolectal variation one inevitably encounters in a language shift situation. The speech of less-proficient speakers is excluded entirely if fluent speakers are available. Furthermore, the very notion of “fluency” in a shift setting is problematic: in the absence of early, comprehensive documentation, it is difficult to tell if modern fluent speakers have the same linguistic features as fluent

¹MacSwan (2017) addresses the issue of translanguaging by arguing that there is a difference between speakers’ grammars and repertoires: a speaker has a single repertoire of multilingual language features to draw upon, but a combination of different multilingual grammars.

speakers prior to the onset of shift. These facts make the choice of working with “fluent” speakers somewhat arbitrary; perhaps these speakers are better able to produce the kinds of complex utterances that are of interest to syntacticians, but the validity of this data remains questionable.

These limitations are noted here not to invalidate previous work, but to highlight the need for more comprehensive syntactic analysis of all manner of speakers of endangered languages. If we assume that code-switching data should adhere to the same language universals that apply to monolingual utterances, the same should be true of bilingual language use that is more heavily mixed, of the kind that we tend to see in less-proficient speakers. These speakers do not simply produce gibberish in attempting to speak their non-dominant language; they draw on existing resources in their dominant language or else innovate new ways of reconciling gaps in their grammar. In this way, these types of speakers can also afford us the opportunity to test not only syntactic theories of language universals or Universal Grammar (UG), but also language-specific theories of morphology and syntax through the types of variation exhibited by these speakers.

1.1.3 L1 and L2 acquisition and heritage speech

The notion that less-proficient speakers of an endangered language are still native speakers who make use of some type of linguistic system is not entirely novel. It has been advanced in studies of heritage speakers of majority languages, most thoroughly and convincingly by Polinsky (2018), who surveys a range of work with heritage speakers and demonstrates that their grammar is different but not deficient. Cross-linguistically, heritage speakers resort to similar strategies in resolving uncertainty or acquisitional gaps in their grammars, and display similar (dis)preferences and difficulties with different aspects of morphology and syntax. Heritage speakers who have been surveyed so far prefer analytic morphology with a one-to-one mapping between form and meaning (Polinsky 2018: 184-185), and struggle with multi-functional or polysemous morphology, such as the dative case in Russian, which can mark both indirect objects and experiencers of certain predicates. Polinsky (2018) also makes the case for including endangered language speakers within the scope of heritage language studies, much as this dissertation does. Indeed, many of the variables

that condition heritage speech overlap with those that produce linguistic variation in endangered language communities. The linguistic input the speaker receives is often limited to immediate family members, as the language is not spoken in the broader community. Thus, this input can disproportionately affect the speakers' grammars, and it is necessary to understand the exact nature of their acquisition background and whether it is possible to pinpoint the variety they may have acquired.

Nevertheless, there are several reasons why semi-speakers of endangered languages and heritage speakers of majority languages should not be conflated. There are clear sociolinguistic differences between these two contexts. Kantarovich (2016) makes the case for restricting the notion of *heritage language* to include only those cases where there is a larger community of fluent speakers somewhere in the world—the reason being that such speakers always have the possibility of tapping into this larger community. There is media for them to consume (television, film, literature, music) and decent textbooks for learning the language. Many immigrant communities also establish language centers for children to maintain the heritage language; the quality of instruction in such schools is quite variable, but typically we can expect the instructors to themselves be fully fluent in the language, with access to reliable language-learning materials. In many cases, heritage speakers in immigrant communities maintain the language out of necessity, to communicate with their parents or help them navigate situations outside the immigrant community. While these communities certainly face stigma (and in many cases, heritage speakers assimilate to the majority society and do not pass on their language), it is not comparable to that experienced by marginalized communities that shift from their language in situ. Ultimately, the degree of access to acquisition opportunities is far greater for heritage language speakers.

Most heritage language research has also focused on a relatively typologically homogeneous pool of languages: Indo-European languages (especially Spanish and Russian) and other languages with large immigrant populations worldwide, such as Chinese, Korean, and Arabic. The Indo-European heritage languages typically exist in contexts where the majority language is also Indo-European, so that it is difficult to disentangle linguistic transfer from many of the other pos-

sible contributing factors outlined in section 1.1.1. Thus, a highly morphologically complex (i.e., polysynthetic) language like Chukchi presents an opportunity to widen the scope of this type of research and better answer questions about the different factors that condition heritage speech.

Heritage speaker studies and endangered language studies should be further contrasted from studies of L1 and L2 acquisition. Heritage speakers of majority and endangered languages are more like native speakers than L2 language learners; however, their lack of experience with the language due to disrupted acquisition (or the less-charged term used by Polinsky 2018, “divergent attainment”) means that that we cannot take information about L1 acquisition for granted with them, and their gaps are not always predictable. Their acquisition may also be immediately affected by the majority language, to which many such speakers are exposed as soon as they are born—in this way, there are like L2 learners, who have competing linguistic systems they try to reconcile, but unlike in the case of L2 learners, the majority language may not become the speaker’s dominant language for a number of years. Nevertheless, bearing these important differences in mind, both L1 and L2 acquisition studies provide useful insights into the role that acquisition specifically—in contrast to general universals of language—plays in shaping these speakers’ grammars. Relevant acquisition studies of the morphosyntactic phenomena explored here—the encoding of argument structure—are discussed in Chapter 2.

1.2 The encoding of argument structure in Chukchi

Let us turn now to the specific case study that informs this thesis’ answers to questions about multilingual grammatical systems in shift. I focus on several reflexes of the encoding of argument structure in Chukchi, a heavily endangered indigenous language of Siberia. Chukchi is primarily spoken in the northeastern-most part of Siberia, the Chukotka Autonomous Okrug (or simply Chukotka), and two regions which border Chukotka: the northeastern part of the Republic of Sakha (Yakutia), and the northern part of Kamchatka. The findings in this thesis are based on my own fieldwork with speakers from these different regions who now reside in urban areas: Yakutsk, the

capital of the Sakha Republic and the fastest growing city in northeastern Siberia, and Anadyr, the capital of Chukotka.

Taking an areal perspective, Chukchi is genealogically and typologically distinct from most of its neighbors, which tend to be of the Altaic type. Its morphosyntax is closest to Siberian Yupik (an Aleut-Inuit-Yupik language), but these languages are not related. Chukchi is an ergative language, displaying both morphological and syntactic ergativity. It is also polysynthetic and fusional, with both prefixing and suffixing morphology. Like other prototypical polysynthetic languages, Chukchi makes use of verbal modification where other languages might express similar changes in meaning analytically. The following template provides a simple representation of the Chukchi verbal complex:

(1) Agreement/Mood-Tense-(Voice/Incorporation)-Stem-(Voice)-Aspect-Agreement

The Chukchi verb has obligatory person/number agreement with both subjects and objects, expressed in two different slots. For transitive verbs, the prefix slot agrees with the subject and the suffix slot with the object. For intransitive verbs, both slots agree with the subject. Subject agreement and mood (neutral, intentional, or conditional) are fused, while tense (non-future/future) and aspect (neutral/progressive) are expressed through separate affixes. The verbal complex often stands alone as an entire clause in Chukchi (a phenomenon known as *holophrasis*), since free-standing core arguments, especially personal pronouns, can be freely dropped.

The voice slots in this template represent the position of valency-changing morphology in Chukchi. Chukchi has a number of these types of operations:

- (i) antipassive (expressed either by the prefix *ine-* or the suffix *-tku*)
- (ii) object noun incorporation (resulting in a reduction in the valency of the verb, with the expected changes to inflection)
- (iii) valency-rearranging applicative (expressed by the prefix *ine-*)
- (iv) causative or applicative (expressed by a circumfix: *r-/n- -et/-ew*)

This template is not an exhaustive representation of the inflectional and derivational possibilities for the Chukchi verb and focuses instead on the ones that are investigated in this thesis. See Dunn (1999: 254) for a template that includes additional derivational affixes and their ordering with respect to one another.

Unusually for a polysynthetic language (especially as defined by Baker 1996), Chukchi has dependent-marking of grammatical relations (case marking on nouns) in addition to head-marking. Case marking of core arguments follows an ergative-absolutive pattern: transitive objects and intransitive subjects receive the (often unmarked) absolutive case, while transitive subjects are marked with the ergative case (also syncretic with the instrumental/locative cases).

Chukchi word order (the relative order of the verb and its arguments, if expressed overtly) is free—that is, it is conditioned by pragmatic factors, which also condition when incorporation is more likely. In long streams of speech, focused elements (i.e., those that are most newsworthy) appear earlier in the sentence; these elements can be arguments or the predicate itself. The previously-understood topic of the discourse (i.e., that which the new information is about) occurs later in the sentence, or can be dropped entirely if it is understood from context. There is a tendency for focused elements to be in the absolutive case; if the focus is a transitive subject argument, the object is often incorporated so that the subject receives absolutive case instead. Similarly, arguments that are only mentioned once, or where the event is more important than the argument that is undergoing it, are more likely to be incorporated (Dunn 1999: ch. 19).

This study examines how all of these different morphosyntactic mechanisms for expressing argument structure are changing among modern Chukchi speakers. Today, virtually all Chukchi speakers are bilingual in Russian; most have had rigorous Russian-language education. Russian differs markedly in terms of its encoding of core arguments. Russian is a synthetic language which, although more morphologically complex than English or Spanish, has far fewer derivational or inflectional opportunities for verbal modification than Chukchi. (Russian lacks the antipassive voice or incorporation, and causatives/applicatives are not created through verb stem modification.) Verbal agreement is with one argument, the subject, and agrees with person and number in all

tenses except the past tense (where verbs agree in number and gender). Russian word order can be variable under the right discourse conditions, but the default order is typically accepted to be SVO. Similarly, argument drop is possible only in certain pragmatic contexts (Gribanova 2013).

Argument structure and its encoding is a particularly apt case study for investigating whether there are systematic changes working in tandem across different morphosyntactic domains in an obsolescing language. Cross-linguistically, languages tend to group certain argument structural features together. For example, languages that have no grammatical case marking tend to have a dominant word order (usually SVO). Languages with a high degree of inflectional synthesis of the verb tend not to display morphological case marking. Antipassives are commonly (though not exclusively) found in ergative languages. If there is an underlying motivation that drives these tendencies, we may expect changes in one expression of argument structure to affect other domains. Argument structure is known to be especially prone to flux in unbalanced bilingual speakers (see the discussion of L2 acquisition studies of argument structure in section 2.2); however, research on this subject has usually systematically investigated one feature, rather than changes across the entire grammatical system of one or more speakers.

The question of an underlying motivation driving the clustering of features in a language has been well-explored in the case of polysynthesis. Some researchers have argued that this clustering is epiphenomenal, and that the individual features associated with polysynthesis actually represent constellations of different phenomena (Mithun 2017). Others have claimed that the reason these features tend to be grouped together is due to a higher order property of the language itself, which can be thought of as a *macro-parameter* that is switched on or off in a language (Jelinek 1984, Baker 1996). Still other researchers have argued that a single macro-parameter is too broad, and that polysynthesis in any one language is conditioned by different mechanisms or micro-parameters (Ershova 2019, Bruening 2001). By examining whether these different facets of Chukchi can be shown to change in tandem, we can better adjudicate among these different explanations.

1.3 Findings among modern Chukchi speakers

To summarize, we are interested in answering the following questions in this study of modern Chukchi morphosyntax:

- (i) How have the different morphosyntactic reflexes of argument structure in Chukchi changed among the different groups of modern speakers, relative to previous descriptions of the language? (Specifically, what is the modern state of ergativity, verbal agreement marking, and degree of verbal synthesis?)
- (ii) Do these changes operate at a local level (affecting very specific structures, in specific contexts) or on the level of broader system-wide restructuring?
- (iii) How do different mechanisms of variation and change (dominant language transfer, divergent acquisition, language attrition, innovation) operate in situations of language shift?
- (iv) How should language use by less-proficient speakers be analyzed—are these speakers' utterances systematic?
- (v) What do the grammatical systems of less-proficient speakers tell us about theories of Chukchi morphosyntax, and of universal theories of morphosyntax, such as theories of polysynthesis?

First, it is not trivial to assert that there is variation and change in a community of speakers across all different levels of proficiency; simply observing a certain linguistic feature among one or more speakers (or, even more dubiously, the lack of a feature) is not necessarily evidence of a change or even a change in progress. We must distinguish between features that have actually taken root in a speaker's grammar from nonce productions or "mistakes," i.e., cases where a consultant misspoke and produced something they did not intend. It is not difficult to imagine why these types of distinctions are even more relevant with the endangered speaker population. To contend with the possibility of one-offs, this study employs a range of different tasks that are designed to target the features of interest in different ways (through elicitation, acceptability judgment tasks,

and both controlled and free production tasks). The methodology used in this research is described in detail in section 1.5.²

Although it is not always possible to tell an error from an intended utterance, a set of recurrent patterns emerges among the different speakers consulted for the study. There have been clear changes to ergativity, especially syntactic ergativity, which stem in part from the loss of the functional morpheme *ine-*, which is used for antipassivization, applicativization, and inverse agreement marking in the language. This particular change can be understood as a local change to one morpheme that triggers system-wide restructuring in the language. Even the most fluent speakers did not produce finite antipassive or dative shift constructions, which suggests that this pattern predates the shift situation. However, fluent speakers continue to antipassivize transitive verbs as appropriate in participial constructions—transitive verbs must be antipassivized before they can relativize on a transitive subject argument. Attriting speakers and semi-speakers relativize all subject arguments in the same way, thereby producing a nominative syntactic pattern.

Antipassive morphology was historically pulled into the transitive agreement system in Chukchi in cases of animacy hierarchy violations (inverse combinations); the inverse agreement patterns have either been eliminated by some speakers or reanalyzed as having other functions. However, speakers maintain a sensitivity to dispreferred animacy combinations; they avoid producing active voice constructions with an inanimate subject and an animate object. This sensitivity to animacy also carries over to the (somewhat unexpected) preservation of ergative case, where some speakers have created a strict divide between two markers: one for human nouns and one for all other nouns.

Other changes to agreement marking include increased syncretism between different affixes, especially in the object agreement markers. Subject agreement marking (both prefixes and affixes) are comparatively well-preserved; this is another instance of a move away from an ergative (or more aptly, absolutive pattern) toward a nominative one where agreement is mostly with the sentential subject, not unlike what we find in Russian. However, in most cases speakers maintain some

²While this work attempts to differentiate between intended production and “errors” that the speaker did not intend, the nature of the errors themselves may nevertheless point to tendencies as to which types of features are likely to be in flux in this setting.

kind of agreement prefix and suffix, so while Russian is a possible influence on the direction of this change, it is not the case that they have straightforwardly reproduced the Russian pattern in their Chukchi.

The weakening of subject and object cross-reference goes hand in hand with other changes that can be thought of as a reduction in the overall degree of polysynthesis in modern Chukchi. In addition to the loss of derivational morphology such as valency-changers, attriting speakers and semi-speakers make use of less noun incorporation and less argument drop. (These speakers display less incorporation overall—they do not incorporate nominal or adjectival modifiers into nouns to produce complex, multi-root stems, another hallmark of polysynthesis.) These concurrent changes in individual grammars suggest that there is reason to view polysynthesis as a property of language, along the lines of a parameter, rather than a conglomeration of different features. However, there are notable differences in the degree of polysynthesis present in finite verb forms compared with nominal participials, which is consistent with an approach that assumes multiple potential avenues for a polysynthetic configuration (i.e., the existence of several micro-parameters as opposed to one macro-parameter).

As expected, it is not the case that all speakers (or even all speakers of similar backgrounds, e.g., all semi-speakers) exhibit the same patterns or can be said to have a shared grammatical system. Similarly, at this stage, it is difficult to evaluate whether any of the recurrent features have propagated throughout a community (though this possibility can be targeted by future work that looks at social networks among speakers). Nevertheless, the features exhibited by individuals can be understood to be systematic efforts to resolve inconsistencies in their knowledge of Chukchi relative to conservative varieties. These changes should not be treated as dysfluencies or systemic breakdown, nor should they be treated as language loss or simplification: where one aspect of the grammar, such as verbal synthesis, is reduced, other aspects of the grammar (such as case marking and overt argument specification) are brought in to compensate for the change. Thus, it is not fair to characterize the overall speech patterns among these speakers as less complex, or as linguistic loss: they can instead be viewed as a kind of linguistic innovation.

1.3.1 Significant conclusions beyond Chukchi

These specific findings in Chukchi point to several large-scale implications about the language use of non-normative speakers, with respect to the questions posed at the beginning of section 1.3.

First, it is apparent that there are several unique mechanisms of change at work in the language shift context. These are: direct interference or imposition due to speakers' higher proficiency in Russian, attrition across the lifespan, and disrupted acquisition. While these mechanisms work in tandem and tend to produce similar changes in polysynthetic languages, it is possible to isolate their distinct effects by examining speakers with different acquisition backgrounds. It is also important to note that all three of these mechanisms are *contact-induced*: similarly to Thomason (2001), I argue that changes due to any of these mechanisms are the direct result of a social setting that conditions unbalanced bilingualism and is therefore within the scope of change due to language contact. Nevertheless, I show that in the Chukchi case, change that is directly due to interference from Russian grammar—that is, the mapping of Russian morphosyntactic patterns onto Chukchi speech, i.e., the type of change that is most quintessentially associated with language contact—accounts for few of the patterns in modern grammars.

Taken together, these disparate mechanisms of contact-induced change have the capacity to produce both local changes and system-wide restructuring. That is, contact-induced change is not limited to the adoption of specific features, constructions, or patterns. In the Chukchi case, we find that contact has produced both individual changes and system-wide changes that reinforce one another, and that have the cumulative effect of fundamentally altering the language's morphosyntactic type.

A corollary of this finding is that non-normative speakers—specifically those whose speech has been affected by a multilingual setting, either via disruptions to language acquisition and maintenance or via influence from a dominant language—do in fact make use of linguistic systems that are analyzable with our existing theoretical tools. In the Chukchi case, even the least proficient modern speakers with the greatest gaps in their knowledge of the traditional language display sys-

tematic changes to compensate for these gaps. Furthermore, none of these compensatory changes display exceptions to cross-linguistic tendencies. In fact, in certain cases, these varieties provide evidence for certain theories of morphosyntactic phenomena (notably, polysynthesis, incorporation, and verbal agreement).

1.4 A sociolinguistic introduction to Chukchi

1.4.1 A historical and typological profile of the Chukchi language

Chukchi is a Chukotko-Kamchatkan language spoken in several parts of northeastern Siberia (the Russian Far (North) East). The Chukchi people are generally divided into two groups that reflect their ways of life and cultural development: the maritime Chukchi (called *Aŋqalʔət* ‘those from the sea’ in Chukchi) and the tundra (or reindeer) Chukchi (sometimes called *Emnuŋəlʔət* ‘those from the tundra’). The ethnonym the Chukchi use for the entire group is *Ləgʔorawetlʔat* ‘the true people’. The reindeer Chukchi were nomadic and economically dependent on their herds, traveling with them year round. The maritime Chukchi are a group of Chukchi that settled along the Bering Coast in the 16th-17th centuries—they have been sedentary for longer than the rest of the Chukchi and have historically had more contact and intermarriage with Siberian Yupiks. The divide between the maritime and reindeer Chukchi was significant, but they nevertheless maintained strong ceremonial ties, with some trade and intermarriage (Dunn 1999: ch. 1).

Historically, Chukotko-Kamchatkan has been considered part of the Paleosiberian or Paleoasiatic language group, a group of languages spoken in Siberia that do not obviously belong to any other neighboring language family (i.e., Tungusic, Uralic, Mongolic, or Turkic). Chukotko-Kamchatkan includes two main subdivisions: (i) Chukotkan, which comprises the closely-related Chukchi and Koryak and the more distant—and lesser studied—Kerek and Alutor; and (ii) Kamchatkan, whose only surviving member is Itelmen (also called Kamchadal in some sources). The Chukotkan languages display many linguistic features that are not found among other Siberian languages. These include a system of dominant-recessive vowel harmony, polysynthesis, and mor-

phonological and syntactic ergativity. Chukchi also has distinct men's and women's dialects (which differ lexically and phonologically).

The divisions between the different Chukotkan languages have been the subject of some debate. Scholars have generally regarded Chukchi and Koryak as distinct languages and ethnic groups (although there is some evidence of a dialect continuum between the two languages). Meanwhile, Kerek and Alutor have variably been classed as dialects of either Chukchi or Koryak (de Reuse 1994b: 332). In the earliest grammar of Chukchi, Bogoras (1922) lists Kerek and Alutor as dialects of Koryak. One of the earliest comprehensive comparative studies of the four languages was undertaken by Skorik (1958), who concluded that it was not possible to determine whether Kerek and Alutor were closer to either of the other languages and suggested they be treated as separate languages alongside Chukchi and Koryak (see also Skorik 1961).

The relatedness between the Chukotkan and Kamchatkan languages was debated until fairly recently. Itelmen differs substantially from the Chukotkan languages in its phonology. Furthermore, unlike Chukotkan, Itelmen does not have noun incorporation or ergative case marking. Both groups are polysynthetic, but Itelmen differs in its overall preference for suffixation on the verb (compared to the Chukotkan languages, which have verbal prefixes, suffixes, and circumfixes).

Archaeological findings suggest that the Chukotko-Kamchatkan people are autochthonous to the coast of the Sea of Okhotsk (Levin 1963: 210); the group that would eventually become the Chukchi spread north-east and north-west from this region, while the Koryaks and Itelmens generally spread east and south into the Kamchatka Peninsula. A particularly compelling case for the unity of the Chukotko-Kamchatkan family was made by Fortescue (2003), drawing on morphological correspondences and providing plausible reconstructions of the proto-Chukotko-Kamchatkan nominal and verbal inflectional systems. This position challenges earlier claims by scholars such as Volodin (1992), who argued in favor of an areal relationship between the Chukotkan languages and Itelmen. It is impossible to rule this possibility out entirely; however, given the extent of the similarities between the languages, such a contact scenario would have to have been very intense and very sustained. At present, scholars working on these languages generally agree that they

belong to one family, which looks something like Figure 1.1.

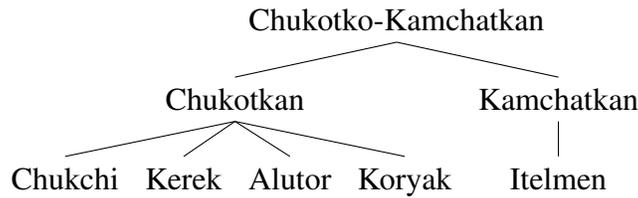


Figure 1.1: The Chukotko-Kamchatkan language family

Historically, the Chukchi were the dominant ethnic group in the northeastern Siberian region, and speakers of other languages (such as Even, Yukaghir, Yupik, and Koryak) frequently learned Chukchi in order to communicate with them (meanwhile, the Chukchi were notoriously unwilling to learn other languages). This historical context is explored in greater depth in Chapter 2.

1.4.2 Documentation and variation

Although Chukchi is relatively underdocumented, there have been several grammars of the language that attempt to comprehensively cover different linguistic domains. The earliest grammar is Bogoras (1922), published in the *Handbook of American Indian Languages*. Bogoras' grammar is a true ethnographic undertaking. While exiled to Siberia for political activities, Bogoras lived among the Chukchi and learned the language; he later also served as a member of the American Jesup North Pacific Expedition (1897-1902), headed by Franz Boas.³ This grammar systematically covers the phonology and morphosyntax of the language, though it does not contain many examples of complex syntactic relations (e.g., those that emerge in cross-clausal syntax). Of the grammarians that have worked on Chukchi, Bogoras covered the most ground geographically: he lived among the Chukchi near the Anadyr region as well as along the Kolyma River, and documented the language of Chukchi living along the Bering Coast as part of the Jesup Expedition. This grammar is also the only one that dates to a time when Chukchi was robustly spoken (i.e., before the onset of shift).

³Bogoras also collected an enormous number of texts, some of which are still waiting to be digitized at the New York Public Library.

The second thorough grammar of Chukchi was written by Pjotr Skorik (1961, 1977), who worked mainly with speakers of the “eastern” (i.e., coastal) variety of the language. This work is arranged more like a modern grammar, with a clear outline of the phoneme inventory and inflectional morphological paradigms. Although issues have emerged regarding the description of some syntactic patterns in this grammar (discussed below), in terms of overall coverage this is the most comprehensive existing grammar of the language. By his own admission, Skorik’s goal in writing this grammar was not necessarily to document the full scope of Chukchi variation, but to create a reference on which to base the Chukchi “literary” (standard) language (Skorik 1961: 12-13). Indeed, this grammar would form the basis of virtually all reference and educational materials on the language; however, most speakers regard the literary language as an artificial construct distinct from everyday, colloquial use of the language. It is unclear whether Skorik took any liberties in describing the language in order to make it appear more regular or easily learnable within a Russian-like grammatical framework. Skorik does note that there are problems inherent in attempting to render the grammar using an Indo-European-based model (Skorik 1961: 10), but it is difficult to say whether the grammar attempts to reconcile these issues in any way.

The most recent complete grammar of Chukchi is the dissertation of Michael Dunn (1999), which comprehensively covers many aspects of phonology, morphology, and syntax. Dunn also introduced new aspects of Chukchi grammar, including the coding of information structure through word order and incorporation, and more clearly laid out Chukchi spatial language. Dunn’s work is based on the Telqep variety of Chukchi, spoken in the village of Tavajvaam (located only several kilometers away from Anadyr). Although this grammar covers considerable ground given the limitations of a dissertation project and timeline, there are unsurprisingly only a few examples that illustrate each phenomenon that is discussed, leaving many outstanding questions about the morphosyntax of the language.

At the time of writing, there is also an ongoing effort by several researchers in Moscow to document the Amguema variety of Chukchi, spoken along the Amguema River in the central region of Chukotka. Sketches of different aspects of the grammar of Amguema Chukchi are currently avail-

able online⁴; so far, they cover narrow topics such as number, spatial cases, converbs, causatives, incorporation, and so on. However, this is a work-in-progress and more descriptions are likely to be forthcoming. Each sketch also delves deeply into the specific topic and provides much-needed additional information.

One clear advantage of the existence of these different grammars at distinct points in time is that they allow us to trace potential changes in Chukchi across the 20th century. However, a comparison across these sources is far from straightforward: we have already seen that they document the language not only at different times but in different locations. They also employ different methods, a fact that is discussed at length in Dunn (1999: 19-20). Dunn's data is based primarily on Chukchi texts and is more naturalistic than Skorik's, which was likely derived from strict elicitation schedules in Russian. By the same token, if Dunn did not explicitly try to elicit the same exact features or constructions (or elicit judgments about Skorik's examples) it is not surprising that individual elicited sentences should differ from language use in context. Dunn identified the following issues (or put more neutrally, differences) in Skorik's data compared to his own:

- (i) missing grammatical particles that are common but difficult to translate (and may have therefore been excluded as a way of sanitizing the data)
- (ii) examples tend to have the same word order (verb-final), which is unexpected because Chukchi word order is fairly free
- (iii) analysis of the antipassive as productive, which is not the case in Telqep Chukchi
- (iv) presence of the demoted direct object marked by an oblique case with the antipassive voice (the demoted direct object was usually unexpressed in Dunn's data)
- (v) lack of identification of the additional (valency-rearranging) applicative function of the antipassive morpheme *ine-*

⁴<http://chuklang.ru/sketch>

(vi) claims that noun incorporation is disappearing (compared with Dunn’s speakers, who use it rather productively)

There are several factors that might be behind these differences: dialectal variation, change over time, the previously-mentioned differences in methodology, and idiolectal differences. It is not clear from either grammar whether there is much intra-community variation across these different aspects of the syntax. The lack of applicative *ine-* in Skorik’s grammar appears to be a genuine oversight; this function of this morpheme was later discussed as another kind of antipassive by Polinskaja and Nedjalkov (1987), who worked with the same variety as Skorik. Polinsky (2017) also notes that in her own later work with these speakers, they maintain productive use of the antipassive and do not make use of noun incorporation; in fact, they use the antipassive in exactly those cases where Dunn’s speakers use noun incorporation.

Our consideration of the available documentation of Chukchi alludes to an obvious caveat when it comes to identifying and explaining modern argument structural variation: a firm baseline with which to compare modern speech patterns is elusive. The available data differs, especially with respect to valency-changing operations and their productivity, or else does not discuss the same features at all, so that it is difficult to know if those features were not in use with the relevant population, or were simply missed by the researcher.

Overall, the possibility of significant morphosyntactic variation among the different regions where Chukchi is spoken has been repeatedly dismissed by scholars working on the Chukotko-Kamchatkan languages. Bogoras (1922: 639) noted that Chukchi “has no dialects, the dialect of the maritime Chukchee of the Pacific coast being almost identical with that of the reindeer-breeders of the Kolyma river.” It is not clear what sorts of differences would rise to the level of dialect differentiation for Bogoras, as later in his grammar he notes that there are indeed at least some regional lexical and phonological differences in Chukchi. He does not describe any significant grammatical differences that would impede mutual intelligibility, however.

Skorik (1961: 12-13) lays out several dialects of Chukchi, with a primary division between eastern dialects (i.e., those he describes) and western dialects, which he claims have only minor

differences (which therefore make them difficult to identify). He specifically notes the Enmylinskij dialect (presumably spoken in Enmelen, a village along the Bering Sea) as being phonologically divergent and the Nunligranskij dialect (spoken in neighboring Nunligran) as being morphologically different. He also isolates a morphologically-distinctive Xatyrskij dialect (spoken in Xatyrka, along the southeastern border between Chukotka and Kamchatka). The morphological differences in the Xatyrka variety include verbal agreement inflectional differences that were first identified in the dictionary of Moll and Inenlikej (1957), affecting the expression of inverse relations. These features are also associated with speakers in the more northerly village of Vaegi. Pupynina (2013: 249-250) notes that this is likely due to their close personal ties, as Chukchi in Vaegi and Xatyrka used to herd together. Other unique differences associated with these varieties include the existence of a possessive construction similar to that found in Koryak, and lexical/derivational differences. Dunn (1999: 24) also observed similar features among speakers around the town of Markovo to the southwest. These differences can likely be attributed to substrate influence from Koryak, which has identical verbal inflectional patterns. (These differences are discussed in greater detail in section 2.6.)

At present, Chukchi is spoken to some extent in several regions: in the Chukotka Autonomous Okrug, in the northern part of Kamchatka (just to the south of Chukotka), and in the Nizhne-Kolymskij region of the Republic of Sakha (Yakutia) (along the southwestern border of Chukotka). There have been more recent efforts to formalize the classification of regional dialects, and tellingly they all arrive at similar groupings on the basis of the phonological, lexical, and minor morphosyntactic differences observed across these different areas. Fortescue makes mention of three dialect groups: northeastern, southern, and northwestern (Dunn 2000). Pupynina (2018) claims a similar division between western, eastern, and southern varieties; her classification is replicated in the map in Figure 1.2.

These zones are distinguished in part by their different contact situations: the eastern dialects have had the most contact with Siberian Yupik, the southern dialects with Koryak (and Even, to an extent), and the western dialects with Yukaghir and Even. The ways that contact with these differ-



Figure 1.2: Regional dialects of Chukchi (based on Pupynina 2018: 114)

ent languages may be conditioning dialectal differences via substrate effects is an open question and is beyond the scope of this work; here, we are concerned with any morphosyntactic variation that may have existed prior to the onset of shift. The western varieties spoken in the Republic of Sakha that are described by Pupynina (2018) have several small inflectional morphological differences: (i) comparatives make use of ablative case marking on the standard of comparison instead of the locative (which is typical of the standard/eastern dialects) and (ii) possession of body parts is expressed through ablative case marking on the body part rather than possessive marking on the possessor.

As it turns out, none of these particular morphosyntactic variants surfaced among the speakers consulted for this study. I outline them here for the sake of completeness and because changes in these domains demonstrate which areas of the language may be most prone to variation, or at least which domains may be especially salient for speakers and researchers.

Speakers themselves are very aware of dialectal linguistic differences and strongly identify with their own regional varieties, although most of them say that they do not impede mutual intelligibil-

ity. One of the consultants for this work has undertaken his own research project to systematically investigate regional variation (Ranavrol'tyn 2007); to the best of my knowledge, this work is not yet complete and findings have not been published anywhere. In general, speakers tend also to speak of at least three regional varieties and point mainly to phonological and lexical differences, especially in greetings and interjections. The most significant division, or at least the one that looms largest for speakers, is between the maritime varieties along the coast and the tundra varieties of the reindeer herders. These do not straightforwardly map onto the regional dialectal classifications; the eastern dialects include both maritime and tundra varieties. Lexicon is the most significant difference between these varieties; maritime varieties have borrowed numerous terms from Yupik as well as English, dating to a time when Chukchi and Americans worked together aboard whaling vessels. While these lexical differences are not directly investigated by this work, they did prove problematic for my methodology, which required speakers to construct sentences using pre-selected words. It was also the case that the lexical variation in this study did not correlate with differences in traditional lifestyles: there are significant differences between speakers across semantic fields that have nothing to do either with reindeer herding or coastal life.⁵

Another important dialectal distinction that speakers recognize is the difference between men's and women's speech, which is best described by Dunn (1999; 2000). Like most distinct Chukchi dialects, these varieties exhibit lexical differences and synchronically unpredictable phonological differences.⁶ For example, in certain lexical items, the /r/ phoneme is realized as /tʂ/ in women's speech; one prominent instance of this is the progressive marker, which is *-rkən* for men and *-ccən* (/tʂ:ən/) for women. In the late '90s, Dunn reported that the gender dialects were still being maintained and acquired by children; however, in my work, I encountered few people who used the

⁵To name one example, there was significant disagreement about the correct verb root to use for 'to drown' when someone is in the process of drowning, but has not yet died. In one of the stimuli, the word is *ergeetə-k* 'drown-INF' and accompanies an image of a boy in the process of drowning, about to be rescued by his dog. Several speakers rejected this verb because of a completive connotation; i.e., the verb could only be used if the boy had drowned and was dead. Use of this verb apparently could not be rescued by inflectional progressive aspect, so speakers instead offered *pəlqetə-k* 'drown/dive-LOC'.

⁶Although it is not synchronically predictable, Dunn reconstructs these differences to a set of regular sound correspondences that have been conflated in the modern language but which can be traced to different substrate effects from the other Chukotkan languages in men's and women's speech.

women's dialect. In developing the standard language, Skorik primarily consulted male speakers. As a result, formally educated female speakers tend to use the men's dialect as a marker of their education, and female semi-speakers who have been learning the language on their own typically only learn the standard. One of the fluent female consultants regularly used the women's variety and was not self-conscious about it; her daughter, a semi-speaker, also makes an effort to use the women's pronunciation. Many female speakers seemed neutral about whether it was important to use the standard pronunciation instead of the women's variety, although one educated female speaker strongly disavowed women's speech (or as she referred to it in Russian, *tsakat* 'to use /ts/').⁷

1.4.3 Social change in the 20th century and its effects on language maintenance

Social disruption in the Russian North under the Soviet Union

At the turn of the 20th century, the Chukchi language was relatively robust. Unlike the distantly related Itelmen, which had long been subjected to significant Russian influence due to intermarriage by the time of Bogoras' expeditions, the continued nomadic lifestyles of the Chukchi and fierce resistance to Russification and Christianization insulated them from language shift until the Soviet period. At this point, the rapid implementation of changes to social structure and education severely ruptured traditional Chukchi social ties and lifestyles, and interrupted natural language transmission.

There were several important social policies that were implemented across Siberia and the Russian North during this time. The first was the collectivization of reindeer herds, beginning in the 1930s. This process was far from seamless, as Chukchi herders (especially those with large holdings) did not quietly acquiesce to the policy. Throughout the period of collectivization there

⁷This assessment of women's pronunciation is a clear example of the ways that the Russian glorification of the standard language has been mapped onto Chukchi, using the same metalinguistic terminology. (Russian dialects differ as to how certain vowels are realized, e.g., *a-kat*, *o-kat*, and *ja-kat*.)

were outbreaks of violence between Chukchi men and state authorities. In many cases, herders killed their reindeer to avoid turning them over to the government (Demuth 2019). However, despite the resistance, Chukotka was considered fully collectivized by 1945 (Dikov 1989: 249). Many of these *sovkhozy* (collective state-owned farms) are still in existence today, with reindeer brigades still associated with them (Pupynina 2013).

The process of collectivization was accompanied by a general effort to stamp out indigenous lifestyles and cultural practices. Efforts were undertaken to eradicate shamanism: shamans were arrested, as were Chukchi caught practicing shamanic rituals or wearing amulets (Demuth 2019). Officials targeted nomadism by forcibly settling Chukchi in towns and villages between 1953 and 1967 (Forsyth 1992: 367). These settlements were frequently reconfigured and residents redistributed, creating a cycle in which the state continuously uprooted the people it was trying to settle. Chukchi were often assigned to villages without any consideration of their pre-existing social structures or clans, which disrupted the traditional ties they had maintained for centuries (Forsyth 1992: 296-299). Indeed, the Soviets worked deliberately to disrupt these ties and explicitly prohibited traditional clan gatherings.

Perhaps the most disruptive policy implemented during this era—and the one that contributed most to language loss—was the *internat* boarding schools, in which Chukchi and other indigenous children were forcibly taken from their families to be educated in remote schools from September until June. Russian language instruction was the priority in these schools and in many cases Chukchi children were beaten or otherwise severely punished for speaking their native language, or even for eating traditional foods they brought with them. Some Chukchi managed to avoid being taken to the *internat* by hiding from the helicopters that came to round up the children at the end of every summer, but most nomadic Chukchi who were of primary school age in the 1960s and 1970s spent at least some time in the *internat*.

Unsurprisingly, eradicating nomadism did not have the stabilizing effect the Soviet authorities promised. Villagers were starving (Demuth 2019); the housing that had been erected in settlements was derelict and overcrowded. By 1988, about one-tenth of the population in North Siberia lived in

tents throughout the year instead of permanent housing (Forsyth 1992: 398). Traditional lifestyles were replaced with industrial work in factories, which felt unnatural to indigenous Siberians. Rates of unemployment, alcoholism, and violence, especially among men, rose rapidly; the average life expectancy in the Russian North was 18 years less than the national USSR average (Forsyth 1992: 400).

Many of these problems persist to this day. Unemployment remains high, with many people migrating to cities such as Anadyr and Yakutsk in order to find jobs or pursue an education. Few young people are interested in carrying on traditional practices, such as herding in reindeer brigades, which often pay a meager wage (Pupynina 2013). The low interest in this type of work is further exacerbated by the fact that young Chukchi do not feel a connection to their heritage, do not speak Chukchi, and are often aiming to move to major cities in western Russia.

Linguistic and educational reform

The history of educational reforms throughout this period, especially as they pertain to language use, is a complicated one, with numerous changes and ideological inconsistencies. The USSR was very active in instituting educational reforms in both western and eastern parts of the country. An important—and arguably admirable—goal was eliminating illiteracy. Toward that end, a standard Latin orthography was developed for all of the native languages of Siberia in 1931; Bogoras assisted with adapting the alphabet for Chukchi (Forsyth 1992: 284, Skorik 1961: 8). An ostensible goal of developing written languages for the indigenous peoples was to allow them to be educated in their own native language.

However, by 1937, a new law was passed that required that a new standardized “indigenous” alphabet be developed based on Cyrillic. This was shortly followed by compulsory Russian language instruction beginning in the 1st grade. In 1959, legislation was passed that would allow parents to select a preferred language of instruction for their children (with Chukchi as an available option); however, by this point, the intense stigmatization of northern cultures had taken its toll and parents typically chose Russian anyway (Forsyth 1992: 406). Furthermore, the use of

indigenous languages (or any foreign languages) in public spheres could be dangerous if it was perceived by Soviet leadership as “nationalist” or a form of dissent.

Still, during this period, there were teachers being trained to teach Chukchi, who were dispatched to areas across Chukotka. One stronghold of pedagogical training in the indigenous Siberian languages was (and still is) the Herzen State Pedagogical University of Russia in St. Petersburg, which established a department dedicated to the peoples and cultures of the Far North in 1929. (Indeed, this is where much of the work on developing orthographies and standard dialects of the indigenous languages took place.) A major goal of this institute was the training of indigenous language teachers, who would be assigned to particular schools in different regions upon graduation, in an effort to distribute instructors. However, the lack of demand proved problematic. One of my consultants was trained at Herzen and taught Chukchi in the Kamchatkan village of Ayanka for just one year, before being asked to teach Russian instead.

The present state of the Chukchi language

Chukchi is presently highly endangered. It is best maintained among speakers in northeastern Chukotka and speakers who are over the age of 60, although it is possible to find speakers in their 40s and 50s in more remote villages (Pupynina 2013). The total number of speakers is likely around 1000, and it will be interesting to see how many Chukchi continue to self-identify as speakers in the next Russian census, due to be conducted in 2020. Transmission to children in the home has ceased almost entirely, except in some rare cases where children learn to herd with their relatives. The current state of education in the language is not promising: even throughout Chukotka, it is not offered in all schools, and when it is offered, instruction is confined to an hour or two per week. The teachers I have interviewed focus on imparting cultural knowledge over grammatical knowledge: they prioritize lexical items and conversational language over inflectional paradigms. Thus, a major gap for the students that complete any amount of Chukchi schooling is the ability to productively inflect verbs or to sustain actual conversations beyond exchanging pleasantries.

Language instruction is also negatively impacted by a lack of teachers and a lack of Chukchi

language materials. When I visited Herzen in 2018, there was only one student specializing in Chukchi. The Chukchi specialist in the department, a very fluent and highly-educated speaker, recently passed away, leaving a vacancy that will be difficult to fill. Her passing highlights the precariousness of endangered language preservation, as the loss of even a single fluent speaker can be devastating.

Still, Chukchi instructors across Chukotka are doing what they can with the limited resources available to them. Beyond in-person classroom instruction, some teachers have begun offering classes online to anyone of any age who wants to participate. Others offer classes through WhatsApp groups, which are more easily accessible given the lack of high-speed internet in Chukotka. Neither of these is a viable option for providing complete instruction in Chukchi grammar—between the different levels of experience of the participants and the technological difficulties, interested speakers once again only manage some basic lexical and phrasal knowledge. However, these spaces are an important venue for preserving interest in the language and culture.

A final tension that is worth noting is the dubious role language standardization has played in the maintenance of Chukchi. Virtually all of the pedagogical materials for Chukchi are based on Skorik's grammar which, as we have already seen, exhibits some important differences compared to the spoken varieties, especially with respect to word order, argument drop, and noun incorporation. Speakers with some formal education in the standard exhibit certain dysfluencies or reanalyses that are clearly the result of their education. For example, Dunn (1999) notes that speakers tend to conflate homophonous morphemes. In the case of *ine-*, which functions as an antipassive marker, an applicative marker, and an inverse marker occurring only with 1sg objects, speakers have a tendency of providing translations involving a 1sg argument regardless of which meaning the morpheme has in the sentence. This may arise from the low occurrence of the derivational uses of this morpheme in non-standard varieties, or the difficulty of giving a translation for a functional morpheme—speakers may intuitively understand that the marker changes the valency of the verb, but they fall back on a meaning that is salient or easy to verbalize.⁸

⁸I have found similar trends among the speakers I have worked with in reconciling these different meanings; as I

Most of the differences between the standard and vernacular varieties are minor, in the sense that they do not impede intelligibility. While pragmatically-odd, rigid SOV or SVO word order with consistent use of free-standing pronominal arguments is not difficult to understand for speakers without a formal education. However, these differences affect a dominant aspect of the grammar about which speakers have strong intuitions. Speakers who have not received a formal education (as well as some who have) regard the literary language as alien and overly Russian-like. Still, these speakers often defer to the standard as the “correct” variety; many of them apologized during their participation in this study because they could not provide answers in the literary language.

It is possible that the distance between the standard variety and speakers’ local vernaculars creates an obstacle to continued language transmission. Heritage learners do not have the opportunity to learn vernacular varieties; meanwhile, the standard language they have the easiest access to may not be considered the “real” language by potential fluent interlocutors. This sentiment is conveyed by many speakers in one form or another—they refer to the absence of the “spirit” or the “essence” of the language in the literary variety.

1.4.4 Speaker groups

The turbulent circumstances of the 20th century in northeastern Siberia produced the exact conditions for language shift: we see the loss of a linguistic community, the promotion of the language of the colonizer at the expense of native languages, and the active suppression of indigenous language use. Chukchi continues to be used only in certain environments; with the exception of reindeer brigades, there are few domains where speakers can get together to use the language on a regular basis.⁹

argue in Chapter 4, this is largely being driven by a loss of productive use of the valency-changing marker.

⁹There are WhatsApp groups with hundreds of members exchanging a few words or phrases in Chukchi, although discussion of complicated topics generally entails a switch to Russian. There are also some local clubs in cities where speakers can meet and use Chukchi. The cultural museum in Anadyr regularly hosts *Eek* ‘Lamp’, a group for learning about Chukchi language and culture, which is followed by tea and conversation. In Anadyr there is also a group called *Murgin Wetgaw* ‘Our Language’ that is devoted to Chukchi conversation; however, it meets at most once a month.

However, it is not sufficiently explanatory to relegate the changes that are described in this work to one broad, unqualified category of “contact-induced change” or “change due to shift.” All of these speakers exist within a multilingual setting; in fact, Chukchi has existed alongside many other languages for centuries. Nevertheless, it is not the case that we find the same changes (or even the same types of changes) among the speakers at a single moment in time, historically or today. As I argue in Chapter 2, the types of changes that result from language contact are firmly entrenched in the social circumstances of language use. This work contributes to that understanding by centering language acquisition and maintenance across the lifespan as factors that can produce different kinds of changes in a contact setting without necessarily invoking features of the contact language (i.e., it is not always the case that new Chukchi feature A is borrowed or otherwise derived from feature B in Russian).

Toward this end, it is necessary to consider the unique circumstances of each speaker’s experience acquiring and using the Chukchi language, in addition to broader macro factors such as location (e.g., we know that Chukchi is more robust in villages and in herding brigades than in more urban areas). The remaining speakers of Chukchi can be loosely grouped into three categories on the basis of comparable linguistic experiences (roughly corresponding to their generation, although there is some overlap): (i) speakers in their 60s and older, who grew up in the tundra or in maritime communities; (ii) speakers between the ages of approximately 35 and 60, who acquired Chukchi in childhood but entered the boarding school system at the age of 7 or 8; and (iii) speakers in their 30s and 40s, who may have grown up hearing some Chukchi spoken, but have limited grammatical knowledge except where they have made an active effort to learn the language as an L2. It is possible that there are (or will be) younger speakers in all of these categories; these are simply the best estimated demographics based on my own fieldwork and the findings of Pupynina and Koryakov (2019).

The speakers in the first group are the last generation of fully-proficient speakers. Although all Chukchi speakers are bilingual in Russian to an extent, the oldest members of this group are dominant in Chukchi and may not be fully proficient speakers of Russian. Many of the speakers

Speaker type	Age range	Number of female participants	Number of male participants
Highly proficient	60s-80s	5	2
Attriting	30s-50s	4	1
Semi-speakers	30s-40s	3	1

Table 1.1: Study participants by group

consulted in this study who belong to this category are themselves actively involved in efforts to bolster the Chukchi language, such as through the creation of textbooks and dictionaries, teaching Chukchi, or pursuing their own scholarly studies of the language. This group should be further subdivided into two smaller groups on the basis of formal education in Chukchi, which does seem to produce a difference in their grammars. That is, speakers who have received a higher education in Chukchi (e.g., at Herzen) and continue to think metalinguistically about the language on a regular basis differ from speakers who were never educated in Chukchi and primarily have knowledge of a vernacular variety.

The second group of speakers are termed *attriting speakers* throughout this work: they grew up using Chukchi with their families until the age of 7 or 8, at which point they started school and were primarily educated in Russian. The experiences of this generation are varied. Not all boarding schools were equally ruthless about actively suppressing indigenous language use. In addition, some schools only boarded the students for part of the week (if their families were settled in a nearby town or village), as opposed to most of the year. Some speakers managed to avoid spending much time in the school system by hiding from the helicopters when they came to collect students at the start of the school year in September. Nevertheless, a focus on Russian-based education in addition to repeated separation from their families and communities interrupted these speakers' acquisition of Chukchi at least to some extent. Some of the speakers in this group also went on to study at Herzen in preparation for becoming Chukchi language instructors. However, unlike the first group, they are Russian-dominant and have few occasions to hold actual conversations in Chukchi, which presents further difficulty for their continued language maintenance.

The final group, the youngest generation of speakers, encompasses the heritage speakers and L2 learners in the community. By and large, their parents did not transmit Chukchi to them at

home. In many cases, they did not grow up hearing much Chukchi at all, especially if they were born into mixed households (where one parent is not Chukchi). Most of these speakers cannot construct full sentences and have difficulty with verbal and nominal inflection. The speakers from this group who could participate in at least some of the study tasks are those who have made an effort to study the language on their own as an L2, using the existing resources on the language and with the help of their parents. (The available education in Chukchi at schools is insufficient to impart grammatical knowledge.)

In the endangered language literature, these speakers have gone by many names and have often been conflated with the second group. They are variously referred to as *semi-speakers*, *rememberers*, or *terminal speakers* (see Grinevald and Bert 2011 for an overview of terminology).¹⁰ More recently, in the European context, heritage speakers of endangered languages or revitalized languages have been called *new speakers of minority languages* (O'Rourke et al. 2015, Smith-Christmas et al. 2017). I refer to this youngest group of Chukchi speakers as *semi-speakers* as a whole, although I discuss *L2 learners* and *heritage speakers* as separate subsets of this group (where “L2 learners” picks out those speakers who are actually studying the language actively, and “heritage speakers” includes those who rely on passive knowledge from their families).

It is not the case that every speaker consulted for this study easily fits into one of these categories. (To name one example, one of the highly proficient speakers in the first category is an ethnic Russian man who grew up in a Chukchi-dominant community and played with Chukchi children, and in this way acquired the language.) Thus, beyond these generalizations, throughout this work I delve into individuals' specific backgrounds as well as their roles in contemporary Chukchi society, where appropriate.

¹⁰In Grinevald and Bert 2011, “semi-speakers” appears to refer instead to the group I am terming “attriting speakers,” with speakers at the lowest end of the proficiency continuum called “terminal speakers.”

1.5 Methodology

A major goal of this work is the development of a methodology (ultimately, a combination of methodologies) to appropriately target specific linguistic phenomena across different speaker groups in a language endangerment context. Such work differs, in some ways, from traditional documentary fieldwork: the goal is not necessarily to document as much of the language from as many fluent speakers as possible, but to derive a comparable data set for a limited number of phenomena across as many speakers of the language as possible, regardless of their degree of fluency or entrenchment in the linguistic community.

These methodologies include a combination of experimental tasks and qualitative elicitation. Many of the tasks used in this study are undergoing further development within the context of a larger pan-Siberian project¹¹. The tasks are designed so as to globally target aspects of the argument structure of Chukchi with different types of speakers—that is, they have not always been designed to explicitly investigate individual constructions. (This is a goal of future work, which is discussed in greater detail in the concluding chapter.) While psycholinguistic work with majority languages tends to have tightly-controlled variables and conditions, this is not feasible or necessarily desirable in working with an endangered language community for two reasons: (i) the language is underdescribed and in many cases it is not clear what the baseline or expected pattern is, and (ii) in focusing on certain constructions that less-proficient speakers may not use at all, we run the risk of missing what they would say instead in those contexts.

The study comprised a combination of the following approaches (note that due to differences in degree of proficiency and time limitations, not every consultant was able to participate in every task):

- Biographical/sociolinguistic interview (which some speakers offered in Chukchi)

¹¹Readers can refer to the outputs of a grant from the National Science Foundation’s Behavioral and Cognitive Sciences Division, # 1761551, titled “Investigating language contact and shift through experimentally-oriented documentation.”

- Traditional elicitation of specific constructions, where possible
- Freeform text collection (folk stories, childhood stories, biographical stories)
- Targeted text collection using cartoons and picture books
- Experimental production tasks
- Acceptability judgment tasks

1.5.1 Targeted text collection

While narrative data provides a rich alternative to the elicitation of individual constructions or sentences, it can vary greatly from speaker to speaker on the basis of genre, style, and lexical and grammatical knowledge. The use of picture books and cartoons (familiar from such tried-and-true approaches in field work as the Frog Story¹² and the Pear Story¹³) derives a much more readily comparable set of narratives, where different speakers are asked to describe the same events involving the same sets of participants. In my work with Chukchi speakers I opted for a set of stimuli that were more culturally palatable, as previous work with speakers of other languages in Siberia (e.g., Evenki) found that they balked at the more tropical and temperate climates of the Frog Story and the Pear Story (Lenore Grenoble, *pers. comm.*). Chukchi speakers were asked to tell stories on the basis of four separate stimuli:

- “The Dog Story”: a series of four pictures printed on one sheet of paper, in which a boy and his dog go fishing and the dog saves the boy from drowning (taken from a Nanai language textbook)
- “The Bridge Story”: a brief (2-minute) cartoon in which different animals negotiate taking turns crossing a bridge¹⁴

¹²*Frog, Where Are You?* by Mercer Mayer

¹³<http://www.pearstories.org/>

¹⁴“Bridge” by Ting Chian Tey, https://www.youtube.com/watch?v=_X_AfRk9F9w

- “The Girl and the Bear”: an 18-page picture book based on a Russian folktale (currently a very popular cartoon in Russia, called *Maša i Medved’*, or “Masha and the Bear”); in the course of the story, a little girl stumbles upon the house of a bear, who tries to become her new family before eventually returning her home.¹⁵
- “Little Polar Bear”: a 22-page picture book about a polar bear cub that gets separated from its father and is swept across the ocean to a tropical rain forest, meets many different animals, and is ultimately offered a ride home by a whale¹⁶

As with the Pear and Frog Stories, the materials were presented without any text or dialogue, so speakers could construct narratives with minimal input from the contact language. The video was shown in its entirety and speakers were asked to save their stories for after they had watched the entire video. With the written materials, speakers were told they could look through the entire book first to give them a sense of the flow of events; however, most speakers opted to narrate on the fly as they flipped pages. (Since the story of “The Girl and the Bear” is familiar to most of them, this, at least, was not problematic.)

In general, speakers responded positively to the selected materials, which had more familiar flora and fauna. (Speakers also enjoyed “The Girl and the Bear” which, although depicting a more Western Russian setting with a phenotypically Russian protagonist, is familiar to them from their childhoods and is still watched by their children.) A few of the materials did have animals that are either not found or uncommon in the tundra environment (such as raccoons and the various tropical animals in *Little Polar Bear*); however, this proved to be unproblematic for more fluent speakers, who simply substituted a word for a similar animal, or else just called them ‘animals’ or ‘creatures.’ (Indeed, stumbling over the lack of availability of a particular lexeme turned out to be a hallmark of less-proficient speakers’ language use, which may have been the cause of speakers’ rejecting the Frog Story in Grenoble’s work.)

¹⁵The version used in this study is called *Devočka i Medved’ [The Girl and the Bear]*, written by V. Golovanov and illustrated by T. Sokol’skaya, published in 1993.

¹⁶*Little Polar Bear (Where are you going, Lars?)* by Hans de Beer

The availability of different materials was also useful in accommodating speakers' different abilities. The longer stimuli (i.e., the cartoon and picture books) were simply too long and complicated for the semi-speakers; however, the semi-speakers at least attempted "the Dog Story," which had a short, clear-cut series of events.

1.5.2 Experimental production tasks

Another subset of the study included several controlled production tasks, in which speakers were shown pictures with a set of words and asked to construct sentences using the words provided. Words were provided in the standard Cyrillic orthography and in citation form: verbs were given in the infinitive and nouns in the absolutive case. The pictures were taken from a variety of textbooks on indigenous Siberian languages (again, to appear less alien to the speakers). Verbs were always provided first to avoid inadvertently priming speakers into generating Russian-like word order (SVO) and potentially inducing other Russian syntactic patterns. However, as word order is free (pragmatically-conditioned) in Chukchi, this study is not designed to assess word order differences between speakers or stimuli.

Chukchi speakers participated in two different controlled production tasks. The first was a series of 27 pictures, which varied according to the following conditions: verbal valency (intransitive, simple transitive, ditransitive), argument semantic role (agent, patient, location, recipient, instrument, beneficiary, and force), and argument animacy (animate vs. inanimate). The goal of this experiment was to assess differences in the use of Chukchi case and verbal inflection, also checking to see whether grammatical or spatial cases are better maintained in the language and whether there have been any changes to the language on the basis of animacy, which I have previously argued conditioned important changes in case and argument alignment in the Chukotkan language family (Kantarovich 2019). A total of 21 speakers of varying backgrounds completed this task.

The second production task was designed to target valency-changing operations in Chukchi; specifically, valency-reducing operations (antipassives, noun incorporation), valency-increasing

operations (applicatives), and valency-rearranging operations (dative shift, also referred to as another kind of applicative). This task included a series of 38 stimuli and stricter instructions to use only the words provided. 10 of the stimuli were controls (simple transitive/intransitive sentences) similar to those in the first task. In the remaining stimuli, speakers were shown certain pictures multiple times with different sets of words associated with them. For transitive verbs where antipassivization is possible, speakers were shown the picture once with the verb and both the subject and object, and once only with the subject. For transitive verbs that undergo dative shift, speakers saw the same picture with all arguments twice, once with the object and indirect object swapped. Finally, for intransitive verbs that can be applicativized, speakers were shown the same picture twice, once only with the subject argument, and once with an additional object argument. This task proved to be very taxing for speakers and only one speaker completed the entire task; however, her performance on the task was highly informative and is discussed in Chapter 4.

Different speakers approached the production tasks differently, generally in ways that did not correlate with their linguistic backgrounds. Speakers were told they could provide as many alternations per stimulus as they could think of; some proficient speakers used this as an opportunity to provide different tenses or voices. Other proficient speakers provided whatever they thought was the most logical (or default) syntactic configuration for the stimulus and moved on quickly. Most of the less-proficient speakers only offered one sentence for each stimulus (and on occasion requested to skip certain stimuli entirely).

The stimuli and associated conditions for the first (and more widely used) production task are provided in Appendix A.

1.5.3 Challenges in employing experimental methods in the field

There are certain challenges in attempting to conduct a rigorous and replicable study (i.e., on a par with experimental work in majority language communities) in an endangered language community. Speakers in these settings have varying and unique needs, depending on their degree of language proficiency, prominence in the community, and overall psycho-social well-being. Most researchers

in endangered language settings who have prioritized work with highly proficient speakers (“the last speakers”) have found that these speakers are often elderly and may not have the stamina for lengthy elicitation sessions multiple times a week. In certain communities, these highly valued speakers are overburdened by requests from anthropological and linguistic researchers who, while investigating theoretically disparate topics, may make use of very similar methodologies or questionnaires that can become tiresome or monotonous for the speakers themselves. (In fact, once these speakers agreed to work with us, they were pleasantly surprised at how novel many of the tasks seemed to them, which is indicative of some level of research fatigue.)

A reluctance to participate was also exhibited by members of the semi-speaker group, for predictably different reasons. One of the most difficult hurdles to clear in working with these speakers is challenging linguistic ideologies within the community itself. Semi-speakers are difficult to identify as they are, in many cases, not regarded as “real” or “authentic” speakers either by themselves or others. When they do come forward, they are often reluctant to fully participate in study tasks, as they are self-conscious about making mistakes despite repeated assurances from the researchers that we are interested in how different people make use of the language. Indeed, a number of semi-speakers were eager to speak with us about their experiences with the Chukchi language, or to sing Chukchi songs and recite poetry, but declined to participate in the study once they discovered it would ask them to actually produce sentences in the language.

Relatedly, there are limitations to the kinds of experimental tasks that semi-speakers can reasonably be expected to perform, and the sort of data that is meaningful to gather from these tasks. For example, many of these speakers have limited reading proficiency, and could not participate in acceptability tasks targeting complex morphosyntactic phenomena such as valency-changing operations (although they were literate enough to participate in the production tasks). We also know from the considerable work done with heritage speakers of majority languages (who are similar in terms of their backgrounds to the less-proficient speakers in endangered language communities) that certain experimental measures tell us very little about their actual grammars. For example, acceptability tasks with simple ratings (as on a Likert scale) may not actually tell us any-

thing about heritage speakers' judgments of these sentences, as opposed to their confidence in their judgments—some of these speakers have a tendency to overaccept things they find ungrammatical, because they do not trust their own judgments (Polinsky 2018: 96). For this reason, rather than administering acceptability tasks via computer without discussion with the speakers, I conducted them orally, asking speakers to explain what they found incorrect about a sentence and to provide a suitable alternative. This also counteracted the problem of significant lexical variation among different dialects of Chukchi, which became an issue almost immediately in the production tasks: when faced with an unfamiliar lexical item, proficient speakers frequently rejected it entirely and made no effort to accommodate the unfamiliar word based on context. As this was an issue for almost every speaker, we allowed participants to substitute their own preferred lexical items provided they still captured what was occurring in the pictures; since this did not result in a change to any of the experimental conditions (e.g., animacy, valency, semantic role), this is not likely to have affected the integrity of the experiment. Nevertheless, it is less than ideal in the experimental context.

In general, there are many reasons why it is difficult to preserve pristine experimental conditions in the field, especially in an endangered language community that largely exists outside of a Western society. These issues ultimately result from the fact that indigenous speakers do not recognize the sociological frame of the experimental setting and are not well-behaved research subjects. Most linguistic experimental studies heavily recruit university students, who more-or-less understand the experimental method, strive to follow the experimenter's directions, and do not question the experimental design.¹⁷ This differs significantly from the reality of attempting to do tightly-controlled experimentation in a minority language community in Siberia. Older proficient speakers of endangered languages such as Chukchi rightfully regard themselves as experts on their language; however, this translates into an unwillingness to cede control of the session to the researcher and to complete tasks without questioning their purpose, and without providing

¹⁷Indeed, this was our experience conducting similar studies with Sakha-speaking students at the North-Eastern Federal University in Yakutsk (Grenoble et al. 2019).

commentary on responses. Speakers also have no sense that there is anything “special” about the experimental setting or our work together—for them, it is a kind of socialization. Thus, it is normal (and in fact, expected) to take frequent breaks to drink tea and chat. Speakers would also interrupt the task to take phone calls, would try to phone a family member for help, or would try to look things up in dictionaries they had brought with them or on their phones. As a result, the times to complete the production task varied widely, irrespective of the speaker’s linguistic ability—a highly educated, fluent speaker spent about an hour on the task because she could imagine so many possible constructions, while other proficient speakers took as little as 15 minutes to get through the entire task. Similarly, some less-proficient speakers spent a long time thinking through each stimulus, while others would quickly decide they could not produce the expected sentence and ask to skip the item. For this reason, we cannot meaningfully examine response time, which is a common comparative measure in heritage and L2 language studies.

Occasional breaks even in the middle of a task were sometimes necessary due to speaker fatigue. Use of a language one does not know well—or in the case of highly fluent speakers, does not use often—can be very taxing. This is also true of elicitation schedules—for example, when eliciting transitive verbal paradigms, speakers could not always get through the entire paradigm without becoming tired and growing increasingly confused. At this point the data become questionable and it is prudent to sacrifice doing the task in one sitting in favor of responses that are not colored by fatigue (where it is difficult to disassociate a meaningful grammatical difference from a mistake). In some cases, speakers were never able to provide full verbal paradigms—while not ideal, this data can still be analyzed productively.

Ultimately, these issues mean sacrificing one’s expectations of a pristine experimental setting. Data for each speaker was not procured in exactly the same way: not in the same order, within the same number of sessions, or within comparable time frames. However, there is no obvious reason why this is problematic for the kinds of tasks in the study, or that these data cannot be directly compared to one another. There is also a richness of information that comes from allowing the speakers to control the flow of the tasks and provide metacommentary.

1.6 A note on phonology and transcription

The transcription used here is not entirely phonetic; nor does it align entirely with that used in previous literature on Chukchi. It overlaps for the most part with the Chukchi orthography (written in Cyrillic), with the exception of glottalization and other needlessly complicated factors (e.g., the Chukchi orthography retains aspects of Russian orthography in prohibiting unpalatalized vowels after /l/). Most of the symbols used in the Chukchi examples in this dissertation are equivalent to IPA; where a symbol has been used in place of the expected IPA, the corresponding IPA symbol is noted in brackets below.

Consonants: **p t k q m n ŋ l** [ʈ] **s c** [s, tʃ, ts] **w** [w, v] **r** [r] **j g** [ɣ]

Vowels: **i e u ə a o**

In several cases, more than one sound is associated with a particular symbol; these variants are allophones or in free variation. For a thorough understanding of dialectal variation and the conditioning environments of consonantal allophones, see Dunn 1999 and Skorik 1961.

In addition to these segmental consonantal sounds, Chukchi exhibits glottalization, here represented as secondary articulation per Dunn 1999: /C^ʔ/ or /V^ʔ/. Other sources represent glottalization as a separate segment (/ʔ/). Dunn (1999: 48) presents compelling evidence that glottalization should not be treated as a separate segmental phoneme as it differs distributionally from other segmental consonants in the language (for example, it does not participate in phenomena such as reduplication). I leave discussion about this distinction to other scholars, as I largely do not consider phonology in this work.

Finally, Chukchi displays a kind of vowel harmony known as dominant-recessive harmony. The vowel phonemes in the language are /i e u/; the presence of dominant harmony results in a lowering of these phonemes at the level of the entire phonological word, or respectively: [e a o]. (The presence of [a] or [o] always indicates dominant harmony while [i] and [u] always indicate recessive harmony; [e] appears in either harmony pattern.) Schwa [ə] does not participate in the

vowel harmony alternation. Throughout this work, vowel sounds are given in their surface forms, i.e., dominant harmonic allophones are overtly expressed.

1.7 A note on Chukchi glosses

All Chukchi examples here, including those elicited from less-proficient speakers who may intend different meanings for certain morphemes, are glossed according to the expected meanings in the standard (i.e., robustly-spoken) language. This is to facilitate easier comparison with existing descriptions as well as these speakers' likely inputs. The intended meanings are provided in the translations within glossed examples.

It should also be noted that the use of standard glosses is not a reflection on the “correctness” or authenticity of these speakers' language use, but rather is a choice for the sake of clarity. By now it should be clear that this work considers attriting and semi-speaker language to be valid, real use of the language. However, I distinguish between mistakes made in the moment—i.e., patterns that the speaker did not intend—and deviations from the standard that older, conservative speakers consider to be mistakes, but that I consider to be a neutral example of variation and change in Chukchi.

1.8 The roadmap

The following chapter presents an overview of the relevant theoretical and experimental literature about argument structure in multilingual contexts. It also provides a more thorough description of the particular phenomena that are being investigated in Chukchi, as well as predictions that can be made based on the underlying structure of Chukchi and other documented changes in similar sociolinguistic settings. Chapters 3-5 delve deeply into the specific argument structural phenomena introduced in Chapter 2: Chapter 3 deals with issues of ergativity and agreement marking, Chapter 4 outlines changes to valency-changing morphology and noun incorporation, and Chapter 5 shows how changes to agreement, incorporation, and argument drop point to a loss of polysynthesis in

Chukchi. Chapter 6 restates the claims of the thesis, discusses broader implications for theories of language contact and linguistic universals, and proposes avenues for future work.

Chapter 2

Language contact, argument structure, and polysynthesis

Although the broad theoretical questions outlined in the introduction are still open, there has been considerable research in the areas of language contact, argument structure, and polysynthesis, including some studies of how these different areas interact with one another. In this chapter, I provide an overview of the prominent theories of language contact and present what is already known about argument structure and polysynthesis in situations of contact and shift (sections 2.1-2.3). In section 2.4, I introduce, with examples, the particular phenomena that are investigated in the Chukchi language and the possible changes we expect to be taking place due to the endangerment setting.

2.1 Theories of language contact

The possibility that the speakers of different languages (or lects) could impact one another's language use or linguistic systems has not always been implicitly assumed. One of the earliest modern accounts of *language contact* appears in Weinreich 1953/1968, where it is defined as a situation in which "two or more languages...are used alternately by the same persons" (Weinreich 1953/1968: 1), producing rearrangements in phonology, morphology, and syntax due to the introduction of foreign elements, a process which he termed *interference*. Since Weinreich's monograph there have been a number of competing approaches to studying language contact (Thomason and Kaufman 1988 and Thomason 2001; Mufwene 2001; 2008; van Coetsem 1988; 2000; among others). The notion of contact has been revised to include cases where contact occurs over a distance (contact with texts, which travel independently of speakers) and cases where there is no true bilingualism among individual speakers (situations where speakers never fully acquire the contact language, but still exhibit the effects of pressure from another language, as in cases of abrupt language shift).

Throughout this dissertation, I primarily engage with the framework first developed by Weinreich and updated most recently in Thomason 2001, which establishes a loose typology of types

of changes that can occur due to contact, emphasizing that social factors are the primary variables that condition these different types. This approach is also compatible with Mufwene's framework of contact-induced change as a product of the particular ecology of a language, where language-internal and external sources of variation are equal contributors to change (Mufwene 2001: 166). An ecological approach is particularly advantageous in a situation like that of Chukchi, which is spoken in a region that has been highly multilingual for centuries. Individual speakers of Chukchi have been reported to speak up to 4 other languages to varying degrees (Pupynina and Koryakov 2019), some of them knowing more than merely basic lexical items in the languages. All of the current speakers of Chukchi are also bilingual in Russian. As a result, it is not always possible to neatly delineate various "external" changes if speakers are shown to have a high degree of mixing. Thus, I will assume (as Thomason (2001) does) that any change that is less likely to have occurred outside the context of the particular contact scenario is a contact-induced change, even if we cannot immediately identify an isometric source construction or feature in the contact language.

Another popular theory taken up in the literature on language contact is van Coetsem's (1988, 2000) borrowing-imposition framework. Winford (2003) presents a case for the advantages of this framework in its careful attention to terminology and the way it attempts to classify the psycholinguistic processes that are involved in situations of bilingualism, irrespective of the nature of the contact situation. The field of contact linguistics is plagued by terminological inconsistency—for example, the term "borrowing" can refer either exclusively to the adoption of lexical material from another language (e.g., a word is a borrowing) or to any contact-induced linguistic change in a stable contact situation, including phonological and grammatical change (see below for a discussion of *maintenance* in language contact). Neither use of this term claims anything about what is happening cognitively for an individual speaker—that is, about the psycholinguistic mechanisms responsible for the adoption of the change. Van Coetsem instead proposes two different mechanisms based on the speaker's dominance in the respective languages. In situations of recipient language (RL) agentivity, the speaker's dominant language undergoes a change—this is what van Coetsem terms *borrowing*. In situations of source language (SL) agentivity, the speaker's domi-

nant language is the source of the change in his or her weaker language—van Coetsem calls this *imposition*. Since this distinction prioritizes whether the dominant or weaker language is being changed, both mechanisms can be at play for a single speaker in one contact setting.

This framework is outlined here for the sake of completeness. The borrowing-imposition distinction is largely compatible with the more socially-oriented theories of Thomason and Kaufman (van Coetsem’s definition of borrowing is essentially what Thomason and Kaufman propose in language maintenance, and imposition corresponds to what happens under language shift for Thomason and Kaufman), so I will defer to their uses of terminology, which I explain below. I also do not directly investigate what may be happening “psycholinguistically” among the Chukchi speakers I work with, and focus instead on social and ecological explanations for linguistic changes. However, van Coetsem’s framework does point to an area of vagueness in Thomason and Kaufman’s proposal—namely, the lack of attention to each individual language in contact. I attempt to clarify the disparate contact effects on the different languages in the following pages.

Thomason and Kaufman’s model sets up a distinction between two broad types of language contact: *language maintenance*, situations of long-term, stable contact in which both languages continue to be spoken, and *language shift*, in which one language ceases to be spoken in favor of another (this produces the situations of endangerment discussed in the preceding chapter). As Winford (2003) notes, the difference between these two types is not one of cognitive processes: the changes that result from these scenarios are all ultimately due to the use of multiple languages by the same sets of speakers, to varying levels of proficiency. However, there are strong generalizations that can be made about the linguistic reflexes of these two scenarios, particularly the ways in which they progress over time.

Broadly, language contact produces three kinds of linguistic results:

- i. contact-induced change
- ii. extreme language mixture (pidgins, creoles, mixed languages)
- iii. language loss (or “death”)

Both situations of language maintenance and language shift can produce contact-induced change and language loss, but in slightly different ways. These differences are expressed schematically in Figure 2.1, taken from Thomason and Kaufman (1988: 53).

In language maintenance, the intensity of the contact between speaker groups produces different linguistic results, or different *contact-induced change*. In cases of casual contact with little bilingualism, change is often restricted to the borrowing of non-basic vocabulary. In cases of more intense contact over a prolonged period of time, lexical borrowing in other domains (including core vocabulary) is possible, along with phonological and morphosyntactic structural borrowing. When a maintenance situation is intense and highly unbalanced, the less dominant language may also undergo massive grammatical replacement, changing so much so as to no longer resemble the original recipient language. In these cases, the language may simply be absorbed as a variant of the dominant language, and is therefore one of the pathways to *language death*.¹

A language shift scenario is one of transitional multilingualism, in which one speaker group moves to speaking a new language while abandoning their original “traditional” language. There are two dimensions which must be considered in a shift scenario: the linguistic changes introduced by new speakers learning the language of shift (the target language, or TL), known as *interference*, and the effects of linguistic loss on the original language of the shifting speakers. Some of these latter changes may appear to directly resemble the TL, and can be analyzed as heavy structural borrowing, or there may be a breakdown of the linguistic system, producing a loss of linguistic structures, conflation of categories, and reduced proficiency in different pragmatic domains, or

¹Readers familiar with situations of language death will note that it is not immediately clear how this proposed pathway to death differs from the more commonly observed scenario of language shift, which is further expounded upon below. Thomason (2001: 232-235) is clear to treat language death via grammatical replacement in situations of long-term, sustained contact (i.e., maintenance) as a separate theoretical possibility. This type of language death is likeliest to arise where the languages are close enough, structurally, so as to facilitate massive lexical borrowing and grammatical replacement without attrition—that is, speakers do not display “loss without replacement of lexicon and structure” (Thomason 2001: 233), or put differently, speakers are able to continue to incorporate borrowed material into their traditional language without exhibiting stages of obsolescence, in which they would be losing some expressiveness. As an example of this type of language death scenario, Thomason suggests the case of Laha, a Malayo-Polynesian language that has changed dramatically due to contact with a distantly-related language, Ambonese Malay. The key differences compared with death due to language shift here seem to be (i) very gradual changes due specifically to borrowing, rather than interference or imposition and (ii) no intervening periods of language loss.

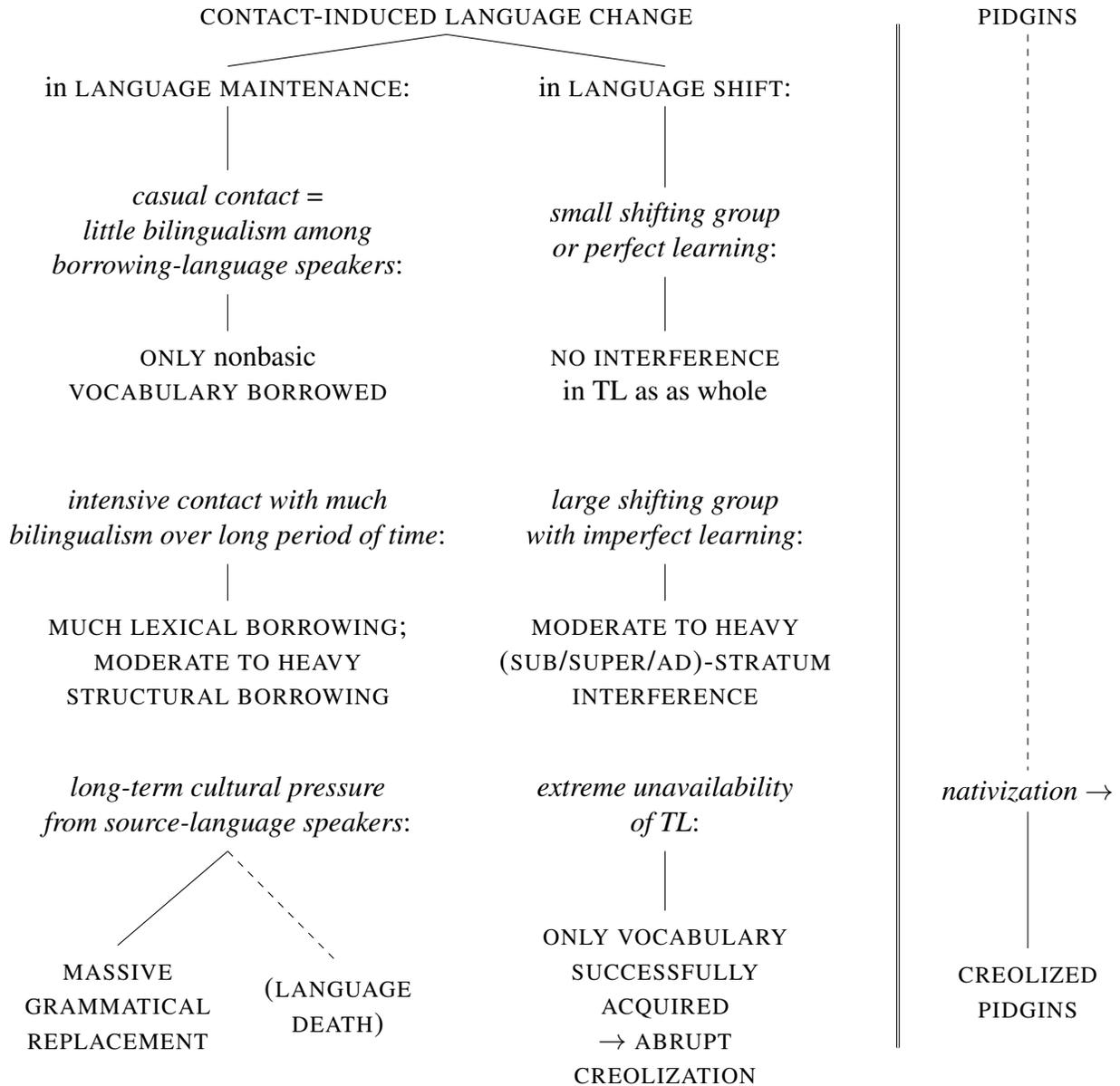


Figure 2.1: Linguistic results of language contact (adapted from Thomason and Kaufman 1988, Table 3)

“stylistic shrinkage” (Campbell and Muntzel 1989: 195). There are two processes that contribute to linguistic loss of this kind: *attrition*, or loss of linguistic knowledge across a speaker’s lifetime (Schmid 2011), and *incomplete acquisition*, gaps in the speaker’s knowledge due to having never learned these parts of the language in the first place. Attrition and incomplete acquisition need not produce changes that resemble features of the contact language, and in fact there are some cross-linguistic similarities in the types of changes attrition produces (Polinsky 1995). It can also be difficult to meaningfully distinguish between either attrition and incomplete acquisition, as the linguistic changes that occur due to either can appear very similar. Terms that avoid making this distinction when discussing change in a shifting language include *language loss* and *obsolescence* (Dorian 1989).

The extent of interference in the TL depends on the size of the shifting population and the availability of the TL to these speakers. If the shifting population is small or is able to perfectly acquire the TL, there will be limited interference. If the shifting population is both large and learns the language imperfectly, it may produce interference at the level of the TL as a whole (in the historical linguistics literature, this is usually termed *adstratum effects*). Complete linguistic shift generally results in the loss of the original language of the shifting population (language death).

In cases where the TL is largely unavailable for learning by the shifting group, these speakers may shift to an entirely different language composed only of TL vocabulary with massive interference effects from the shifting speakers’ original language—pidgins and creoles (or, if they are short-lived or restricted to limited contexts, such varieties have also been referred to as jargons). There is an enormous body of work on pidgins and creoles in their own right, as well as some disagreement as to how to distinguish the two. Both pidgins and creoles are structurally based on the language speakers are shifting from, with lexical material from the target language, called the lexifier language in this context. These varieties have mostly been observed in cases of colonization, where the language of the colonizer is the TL, to which the colonized peoples have little access. Pidgins typically arise where there is mass migration without social integration, as in cases of trade or slavery. Pidgins are expected to be grammatically impoverished and used

only as a lingua franca, and therefore are not the first or primary language of any group (Meakins 2014: 364). Meanwhile, creoles are associated with the formation of a new speech community (when the newcomers form settlements) and are actually acquired by speakers as a first language, and are more linguistically complex as a result (Meakins 2014: 375). According to some schools of thought, creoles are thought to be continuations of pidgins—that is, the result of pidgin users forming communities and transmitting the pidgin as a first language to children. Meakins (2014: 379) argues that this was the case for north Australia Kriol, which originated from Pidgin English. Other scholars, including Mufwene (2000), argue that pidgins and creoles are completely disparate products of different ecologies under colonization. Under this proposal, creoles are a variety of the colonizer language (or target language) that has been especially impacted by interference—not a complexified version of a pidgin.

The status of “mixed languages” is more uncertain (Matras and Bakker 2003). They are set apart from pidgins and creoles by the more equal mixing of the two languages in contact, with both languages supplying grammatical and lexical material. Such languages tend to emerge in situations of long-term maintenance rather than language shift. Noted examples of proposed mixed languages include Copper Island (Mednyj) Aleut (a mix of Russian and Aleut, see Golovko and Vakhtin 1990), Media Lengua (a mix of Spanish and Kichwa, see Muysken 1996), and Michif (a mix of Cree and French, see Bakker and Papen 1996).

I will not expand on language mixing varieties further, as none of the scenarios that are expected to produce these varieties obtains in the Chukchi case. All Chukchi speakers have access to Russian and are in fact expected to learn the language, so the emergence of a pidgin or creole is unlikely, and we are unquestionably looking at a situation of language shift, so the existence of a new mixed language is similarly not expected. Historically, however, several mixed varieties have existed briefly throughout northeastern Siberia—I touch on these below.

Although the Thomason and Kaufman model appears to set up a categorical dichotomy, identifying whether a particular contact situation is one of maintenance or shift is not trivial. While the linguistic patterns given above frequently correlate with either maintenance or shift, changes

in a language are a poor diagnostic of shift or language death. It is possible, for example, to have language shift with no evidence of attrition, as in a scenario where there is a loss of speakers without structural linguistic loss. This could potentially happen in situations where speakers abruptly cease transmitting the language, so there simply are no generations of semi-speakers who have incompletely acquired the language, but at the same time, the last generation of speakers shows no signs of language loss over the lifespan. This type of scenario is likely to be rare, and would require a setting where the older speakers continue to regularly use the language with one another. This exact situation has been reported by Thomason (2001: 236-7) for Montana Salish, where the remaining elder speakers show no signs of linguistic deterioration even though the language is no longer spoken by younger generations. This is undeniably a case of language shift; however, there seem to be no structural consequences of this shift in Salish.

The nature of the changes themselves is also not always unambiguous—it is clear from the model that one cannot identify shift or maintenance on the basis of linguistic changes alone, since we find lexical and grammatical changes in both scenarios, provided the right conditions are met.

Nevertheless, language obsolescence is unique in that the languages involved do display some shared changes, which take the form of some kind of “loss:” loss of lexical repertoire (shrinking vocabulary), loss of agreement marking, decline in word order flexibility, and morphological leveling or a reduction of irregular inflectional morphology, to name several examples (Polinsky 1995, Campbell and Muntzel 1989). But it is not clear whether any of these patterns is necessarily expected of a moribund language—indeed, the nature of change in a language as it is being lost is an active area of research, and one of the major topics of inquiry in this dissertation. For example, in more recent systematic work on word order variation in heritage languages, Namboodiripad (2017) shows that a flexible word order language like Malayalam does seem to develop a more rigid constituent order when it is in contact with another language that has a rigid order, but it is not clear that this can be linked to linguistic reduction directly. Heritage speakers of Malayalam in contact with English continue to rate most of the word orders as grammatical. A similar pattern was also demonstrated for Korean heritage speakers (Namboodiripad et al. 2018). These examples

introduce another confounder in work that attempts to distinguish contact-induced change from language loss, which is that the possible source languages for the changes are usually part of a small, structurally-similar group: the dominant language of heritage speakers is frequently English (or another European language), while most endangered languages are also giving way to a European language.

Thus, the most useful diagnostic of whether shift is taking place has specifically to do with choices about language use: are there cultural, political, or economic factors that are generating pressure for speakers to move toward using another language in more day-to-day domains, and most importantly, is this *external setting (ES)* (Sasse 1992: 9-10), causing speakers to cease to transmit the language to their children? As I discuss in Chapter 1, it is clear that based on social criteria, we can confidently conclude that the contact setting for Chukchi is one of language shift, even before examining the linguistic effects in the language.

Lastly, it is important to note that these are generalizations about the types of changes that are likely to occur under different sociolinguistic conditions; however, there are exceptions to these patterns, and contact linguists acknowledge that any type of linguistic change can result from contact.

2.1.1 Language contact involving Chukchi

Siberia and the Russian Far East have historically been highly linguistically dense regions, and Chukchi in particular has been in contact with speakers of a diverse group of languages, including Yupik, Yukaghir, Even (Fortescue 2003, de Reuse 1994b, Forsyth 1992), and, more recently, Russian. The sociolinguistic history of Chukchi can be divided into two distinct periods: (i) around the time of initial Russian contact with Chukchi on the Kolyma River (1644), until (ii) the early 20th century onward.

17th to 19th centuries

It is well-established that the Chukchi were a dominant ethnic group in Siberia after they made contact with the Russians in the 17th century. They were particularly resilient in the face of Russian colonization and were perhaps the only indigenous population to resist complete submission to Russian officials and their demands for tribute in the form of sables and seal skins (Forsyth 1992). Their higher status is largely attributable to their economic dominance (Dunn 1999), which in turn allowed them to occupy ever expanding territory in the region. The Chukchi were highly economically opportunistic, and frequently took up new lifestyles and professions (de Reuse 1994b: 333). It is likely that they (and the Koryaks) originated in the tundra west of the coast, and were predominantly hunters at this time. De Reuse (1994b: 296) contends that the Chukchi and Koryaks adopted the practice of reindeer herding from the more technologically advanced Evens to the west, which led to population growth as well as the need to seek out new pastures. While the Koryaks presumably traveled south into Kamchatka, the Chukchi continued expanding north and west toward the coast. By the 4th-5th centuries A.D., the Chukchi had made it to the Anadyr River, which drains into the Bering Sea, and by the 16th-17th centuries a subset of the Chukchi population had made it to the northeast coast, where they took up fishing and whaling and displaced (or potentially absorbed) many of the Yupiks already living on the Bering coast (de Reuse 1994a: 296). Some of this spread is evident in certain Chukchi toponyms for villages along the coast, which have clearly been borrowed from Yupik (see Table 2.1).

Meanwhile, during the early 18th century, the “tundra” Chukchi expanded south and west of the Anadyr River, where they were in contact with and ultimately assimilated the Chuvan Yukaghirs (Forsyth 1992: 81).

The tundra Chukchi, who were not sedentary like the maritime Chukchi, militantly resisted Russian influence in the first two centuries following the establishment of contact. They had several violent conflicts with Russian explorers (Forsyth 1992, ch. 3), and a number of Russian missionaries lost their lives attempting to Christianize them (Dunn 1994). Indeed, almost all of the indigenous populations that the Russians encountered as they made their way across

Yupik Toponym	Chukchi Toponym
Imtuk	Imtun
Egheghaq	Regian
Ugriileq	Wugrel
Avan	Ivunmon
Qiwaaq	Khyuven
Tasiq	Techin
Ingleghnaq	Ilkegen
Ungaziq	Unil
Napaqutaq	Nepyakhut
Kiginin	Khyignen
Nunak	Nunegnin
Nuvuqaq	Nōōkan
Mamruaghpak	Memerepen

Table 2.1: Yupik Village Names Borrowed into Chukchi (Krupnik and Chlenov 2013)

Siberia violently resisted being forced to pay tribute, which was heavily disruptive to their existing economies (Forsyth 1992). As sable populations became depleted and the furs increasingly harder to obtain, indigenous Siberians were devoting so much time to procuring tribute for the Russians that they lost their economic self-sufficiency, increasingly coming to rely on Russian grain for sustenance. These factors, coupled with smallpox outbreaks, caused significant population decline among many Siberian ethnic groups. The Chukchi were an exception to this general trend. In part because of the difficulty of subjugating a migratory people who were used to living under harsh conditions, and also due to the general lack of sables in the Chukotkan tundra, the Russians ultimately abandoned their fort Anadyrsk in 1764. The Chukchi continued to trade with the Russians but retained their economic independence, and their population actually flourished in the 18th century (Forsyth 1992: 150).

Unfortunately, we have fairly little information about language use among the different groups the Chukchi encountered and assimilated. However, based on their economic prominence, it is generally assumed that Chukchi was a lingua franca among the indigenous peoples of the region until it was supplanted by Russian during the Soviet era. Chukchi was also used for trade and communication aboard whaling vessels manned by Yupiks, Russians, and Americans—there is ev-

idence of the existence of both Chukchi and English trade jargons from the 1700-1800s (de Reuse 1994a). The Chukchi generally insisted on using their own language with their trading partners, and prior to the arrival of the Americans, the Yupik apparently learned Chukchi, but not the other way around. The arrival of American whalers in 1846 changed the linguistic ecology of the Bering Strait area: Yupiks became the middlemen between the Americans and Chukchi, who in turn began learning some Yupik (de Reuse 1994b).

Given the density of different languages in this region, and the fact that the Chukchi assimilated so many different ethnic and linguistic groups, we expect to find linguistic effects in Chukchi and these other languages. The question is what types of effects, and whether they constitute contact-induced change (borrowing) in stable multilingualism, or are consistent with interference (substrate effects) due to shift.

The most well-studied contact situation is between the Yupiks and Chukchi. Most scholars agree that the effects of Chukchi on Yupik have been much greater than the reverse. Fortescue (1997) has argued for deep structural effects of Yupik on Chukchi (and proto-Chukotkan more broadly). He claims that Chukotkan ergative case emerged due to substrate effects from Yupik. There are a number of reasons why this particular proposal is implausible, which I discussed in detail in Kantarovich (2019). Overall, while more recent substrate effects in Chukchi from Yupik may be possible (due to increased Yupik-Chukchi intermarriage and adjacent sedentary living), it is highly unlikely that there would be a Yupik substrate in Chukotkan or Chukchi dating to this first time period. While there may have been small Yupik populations that shifted to Chukchi, there must have also been considerable sustained bilingualism, due to the fact that Yupik was maintained long enough for borrowings from Chukchi to make their way into the language.

In particular, Yupik has borrowed a number of Chukchi adverbial expressions and other particles (de Reuse 1994b). This constituted a typological shift for Yupik, which had previously expressed these functions through verbal affixes and clitics (Comrie 1996).

Many of the non-particle borrowings are for flora and fauna, but it is difficult to imagine that these represented novel concepts for the Yupiks, who had been living on the Bering coast for

Chukchi	Central Siberian Yupik (CSY)	Gloss
<i>enmec</i>	<i>inmis</i>	‘already’
<i>ewər</i>	<i>iwin</i>	‘if’
<i>ənqom</i>	<i>inkam</i>	‘then, following that’
<i>iŋqun</i>	<i>inqun</i>	‘in order to’
<i>lureq</i>	<i>luraq</i>	‘probably’
<i>panena</i>	<i>paninaŋ</i>	‘after all’
<i>qeciqun</i>	<i>qisiqun</i>	‘apparently’
<i>qənwer</i>	<i>qinwam</i>	‘finally’
<i>rəpet</i>	<i>ripatɫ</i>	‘even’
<i>weler</i>	<i>waran</i>	‘although’
<i>wenləgi</i>	<i>wanligi</i>	‘all the same’
<i>wətku</i>	<i>witku</i>	‘if only’

Table 2.2: Examples of Chukchi adverbial particles borrowed into Central Siberian Yupik (Comrie 1996, Menovščikov 1967)

centuries longer than the Chukchi. Examples include *ulghaagh-* ‘sea lion’ (from Ch. *o²tleg*), *ivisa-* ‘flounder, halibut’ (from Ch. *ewec*), *qughsatku-* ‘large polar bear’ (from Ch. *q²ocatko*), and *tenuupa-* ‘silver fox’ (from Ch. *tənu²p* ‘blue fox’). Other content word borrowings represent abstract concepts: *gaymaawi-* ‘to be engrossed in what one is doing’ (from Ch. *gajmawək* ‘to be carried away’), *kentate-* ‘to be successful’ (from Ch. *kəntetək*), and *sisawwi-* ‘to guess or surmise’ (from Ch. *cicewək*).

Meanwhile, the demonstrable contact effects on Chukchi from this period of contact with Yupik are mainly limited to material such as the toponyms mentioned earlier, and terms for flora and fauna (which would have been new to them as they made it to the coast), such as *puwreq* ‘beluga whale’ (Dunn 1999). There also appear to be some borrowings specific to the trades that the Chukchi adopted at this time (de Reuse 1994b): *kupren* ‘net’ (from CSY *kuuvragh-*), *menemen* ‘bait, lure’ (from CSY *managh-*), *t²ejut²ej* ‘salt; sea water’ (from CSY *taghyugh-*), etc.

The facts are all consistent with a scenario of language maintenance in intense contact with a higher status language, but not language shift.

Pupynina (2009) also makes the case for Chukchi influence on Even, claiming that Even privative case (circumfix *ač-* *-la/le*) was borrowed from the Chukchi privative case (*e-* *-ke*). This seems a likely explanation for an otherwise typologically exceptional pattern (Tungusic languages tend

to be suffixing and postpositional, and prefixes or circumfixes are not attested elsewhere in these languages). There do not appear to be any Even effects on Chukchi, so once again this appears to be a case of borrowing or stable contact-induced change. (If there were Even speakers who completely shifted to Chukchi, there were not enough of them to produce interference effects.)

Unsurprisingly, Russian influence on Chukchi is lacking during this era, except for some borrowings that can be traced to the Bering Sea whaling contact. These are restricted mainly to words for commodities that the whalers might have had, such as *taa*q ‘tobacco’ (< Russian *tabak*), *ca*qar ‘sugar’ (Russian *saxar*), and *col* ‘salt’ (Russian *sol*) (Comrie 1996: 36). (Chukchi also has some thematically similar, superficial lexical borrowings from English: *para*par ‘butter’, *kenti*kej ‘candy’, *cop* ‘soap’ (de Reuse 1996).) Despite the existence of these borrowings, during Bogoras’ expeditions to the region during this same time period, he noted that a common strategy for naming new concepts and objects was innovation using Chukchi linguistic resources (Comrie 1996: 35), e.g., *tin-uqqem* ‘bottle’ (lit. ‘ice-deep.vessel’) and *rije-nej* ‘airplane’ (lit. ‘fly-thing’).

Thus, unlike many of the other indigenous languages (notably the related language Itelmen, which had already undergone complete shift to Russian in some regions by the end of the 19th century (Comrie 1996, Forsyth 1992)), Chukchi resisted significant Russian influence during this first period.

20th century through the present

While Chukchi’s role as a lingua franca in northeastern Siberia (and the unfriendly relations between Russians and Chukchi) seems to have insulated it from Russian borrowing during the first two centuries of contact, the status of the Chukchi language has changed dramatically in the last century.

All of the Siberian indigenous languages are presently undergoing shift to Russian, a process which has been accelerated since the middle of the 20th century. Prior to the introduction of problematic Soviet policies in the 1950s, most of the indigenous languages of the Far East had had ongoing contact with Russian-speaking traders and government administrators, but had managed

to avoid significant linguistic loss. At the turn of the 20th century, much of the Russian (and later, Soviet) interest in these languages was academic. Under Stalin, however, Chukchi language transmission was interrupted by the *internat* system, in which Chukchi (and other indigenous) children was separated from their parents and sent to live in boarding schools, where they were forbidden to speak their language. The reorganization of indigenous communities into collective farms (known as *kolkhozy*), usually without consideration of their ethnic or clan affiliation (Forsyth 1992, ch. 17), further disrupted cultural and linguistic transmission.

The most recent Russian census (2010) shows that Chukchi has resisted pressure to shift to Russian somewhat more effectively than most of the other northeastern Siberian languages.

Language	Number of Speakers (% of Respondents)
Russian	137,494,893 (99.4%)
Chukchi	5,096
Even	5,656
Evenki	4,802
Ket	213
Koryak	1,665
Nenets	21,926 (0.02%)
Nivkh	198
Yakut (Sakha)	450,140 (0.33%)
Yukaghir	370
Yupik	508

Table 2.3: Number of Speakers of Siberian Languages (Russian 2010 Census)

Nevertheless, there has been a decline in the use of Chukchi, particularly in Siberian cities. In 1999, Dunn reported that it was already rare to hear Chukchi spoken in Anadyr, the capital city of the Chukotka Autonomous Okrug. (Although, at this time, language retention was better in villages, where speakers as young as 30 were still fairly proficient.) This distinction between rural and urban maintenance appears to be ongoing, based on my own consultation with speakers and other linguists familiar with the region. However, the linguistic effects this shift may be having on Chukchi, particularly in the cities, remains underdescribed. Dunn’s (1999) Chukchi grammar has occasional instances of Russian borrowings and code-mixing, but most documentation of Chukchi has ignored potential contact effects in order to provide a pristine grammar of the “original” lan-

guage.

However, based on what is known about the social factors surrounding Russian-Chukchi contact, it is possible to predict the likely changes that have taken place in Chukchi, according to the typology of language contact reviewed above.

It is clear that the present Chukchi situation is not one of stable multilingualism: learning of Russian is taking place on a massive scale, with Russian taking over most day-to-day domains (particularly in urban settings). By and large, the speakers whom I have consulted report that children are not acquiring Chukchi as a first language, except in cases where they participate in reindeer herding with their parents at a young age. One speaker suggested that Chukchi have just become aware of this decline, and are lamenting the loss of their language, but are willing to forgo teaching their children Chukchi because they believe it will be at the expense of a more useful language, such as English. Such reports indicate that the relative status of Chukchi in the linguistic ecology of Chukotka, the main Chukchi region, has diminished considerably from its time as a *lingua franca*. The notion of linguistic competition (Mufwene 2001, 2008) is very apt here: despite the cultural and symbolic value of the language among ethnic Chukchi, both Russian and English have a considerable economic and political advantage over Chukchi, and are winning out over Chukchi because learning Chukchi seems somehow more laborious and less rewarding. Chukchi's historical dominance has not shielded it from present-day shift—this is not entirely surprising, since *lingua francas* often lose ground when the sociopolitical or economic situation that made them prominent disappears (Thomason 2001).

Thus, we expect to see unidirectional change, with at least some Russian influence among more-proficient speakers and change due to obsolescence among semi-speakers. (Unlike in the Montana Salish case, there do appear to be transitional levels of language acquisition in Siberia.) Of course, we may also expect some contact effects in the Russian varieties spoken by Chukchi and other indigenous people, though not at the level of the standard Russian language. Research into Russian dialectal variation in Siberia is ongoing by Russian linguists at the Institute of Linguistic Inquiry in St. Petersburg and the Institute of Linguistics in Moscow, particularly focusing on

phonological differences compared to standard Russian.

It is important to reiterate that the Chukchi situation is not of the social type that is expected to produce extreme language mixture (extreme unavailability of the target language, Russian). Chukchi speakers across all regions (Chukotka, the Republic of Sakha, and Kamchatka) presently begin learning Russian when they start primary school (ages 7-8) at the latest.

A somewhat surprising aspect of this contact scenario is that there have been no reported effects of Sakha (Yakut) on Chukchi in the Republic of Sakha. Based on speakers' responses to a sociolinguistic questionnaire in October 2017, Chukchi speakers (as well as speakers of Even and Evenki) are by and large not acquiring Sakha at the expense of their ethnic languages, and are instead learning Russian. Sakha is regionally dominant in the Republic, where it is one of the official languages of the government (in addition to Russian) and is also the language of primary and secondary education outside the capital city, Yakutsk. Many of the Even and Evenki students are also learning English in school. This represents a significant change in the dominance of the Sakha language compared even to the 1970s, when 70% of Evens and Evenki spoke Sakha (compared to only 53% who spoke Russian) (Forsyth 1992).

2.1.2 Outstanding theoretical questions about language contact

The modern contact setting of Chukchi is an apt one for addressing many of the outstanding questions about language contact and shift that have been laid out in this section. First, the Chukchi case study seeks to inform our understanding of the contact typology proposed by Thomason and Kaufman (1988), examining what changes are possible in contact and shift, and whether they line up with what is predicted.

A priori, we can assume that several different categories of contact-induced change are possible in Chukchi, and the following chapters attempt to adjudicate among them when considering particular changes. The first possibility is, of course, Russian-based contact-induced change (or imposition, to take van Coetsem's terminology): these changes are expected to take many possible forms and can include wholesale borrowing of lexical and grammatical material (MAT borrow-

ing), or the adoption of patterns and processes present in Russian, but not in older varieties of Chukchi (PAT borrowing). (See Sakel 2007 for a discussion of matter and pattern loans.) MAT borrowings are easier to identify in some ways because they clearly resemble the form of a lexical item or construction in the contact language; demonstrating that something is conclusively a PAT borrowing is more complicated, and requires an evaluation of whether the language could have independently innovated the pattern without the influence of another language. In general, if there was any contact between speakers of the languages involved, no matter how superficial, the linguistic effects of such contact cannot be ruled out entirely, although we can make predictions about the likelihood of certain contact-induced changes depending on the intensity and duration of the social contact (see Kantarovich (2019) for further discussion). Studies of particular historical changes frequently attempt to attribute them either to contact or to “internal” change; however, this is misguided because it is not clear that these are truly separate processes in a language. Contact can potentially reinforce changes that may have been occurring independently: this is known as *multiple causation* (Malkiel 1967, Joseph 2013). Mufwene (2001: 14-15) questions the distinction of internally-motivated vs. externally-motivated change altogether, since the propagation of any change at the level of a language or dialect arises from contact between individual speakers’ idiolects. (What bears explaining in these cases is not whether a change is “internal”—which is to say, “normal”—but how or why the competition between different communicative systems results in the particular change.)

Nevertheless, changes due to contact may be more evident in situations where two structurally-distinct languages are in contact, and where there is a change in one that is typologically unlikely or unattested but resembles a feature in a contact language. This is a particular advantage of the Chukchi contact setting: Chukchi is presently in contact with languages that are typologically distinct from it (Russian and Altaic language families, such as Turkic and Tungusic). Chukchi is somewhat of an outlier among the major remaining indigenous languages of the area in that it is ergative and polysynthetic, with fusional morphology. (For comparison, Even, Evenki, and Sakha are synthetic but agglutinating, and are accusatively aligned.) Of course, at the level of broad

typological classification, Chukchi is very similar to the Yupik languages in Siberia, which are also polysynthetic and ergative, although the nature of these aspects of the two languages differs in important ways. While the existence of significant previous contact between Yupik and Chukchi is clear, especially along the Bering coast, Yupik is presently heavily endangered and is unlikely to be conditioning changes among modern speakers, who would have had limited exposure to it. (This is true to a lesser extent of Yukaghir as well.)

The second type of contact-induced change we can expect in Chukchi is, broadly, *obsolescence* or *linguistic loss*: changes that are directly linked to language shift and the resulting loss of the speech community. This type includes *attrition*, i.e., linguistic loss among speakers due to the absence of a setting in which to use the language, as well as *incomplete acquisition*, where speakers failed to fully acquire the language in childhood. These are theoretically distinct categories that produce different effects: although they mostly converge on similar patterns for the Chukchi speakers in this study, there are several key differences in the behavior of attriting speakers and semi-speakers that are explored in the following chapters.

Attriting speakers in the Chukchi context (the generation of speakers that experienced the boarding school system) present a case of both lifespan language loss and, if not entirely interrupted, at least disrupted or inconsistent acquisition. Section 2.6.5 of this chapter introduces several incipient changes in Chukchi by describing the linguistic system of a single speaker for whom it is often difficult to draw the line between attrition and incomplete acquisition. This speaker is a woman in her 50s who was speaking Chukchi at home with her family before she started boarding school at age 9, following which she would only see her family during the summer. In her case, she was permitted to continue to use Chukchi so the government could single her out as an example of the success of the *internat* system; she also completed higher education in Chukchi and has served as a Chukchi tutor on and off for many years. Nevertheless, she has not been a member of a Chukchi-speaking community since childhood; while she was finishing her degree, she wed a Sakha man, and has since lived in the Sakha Republic. Her children acquired Russian and Sakha, but not Chukchi. Ultimately the only opportunities she has had to speak Chukchi for

some time are with interested students and researchers. Thus, she has been impacted by both incomplete acquisition—due to the separation from her family in childhood—and attrition, due to limited opportunity to use Chukchi since she graduated school.

To further complicate matters, an additional possible source of deviation from proficient Chukchi speech among speakers such as this one is *imperfect instruction*. The Siberian languages present an interesting case where highly educated scholars of their ethnic languages were educated in a “standard language” of occasionally dubious construction. In Chukchi, materials for language instruction are based on Skorik’s (1961) grammar, which is noted to have several errors by Dunn (1999). The pressure to defer to this standard language is very strong among Chukchi speakers who were educated in it (echoing an overall trend in Russian education of strongly favoring and promoting standard or “literary” language use). Some of the errors in Skorik’s grammar have thus proliferated among Chukchi learning their own language in school, and are maintained even though they may be unnatural compared to any spoken variety they may have acquired.

Let us turn now to the particular linguistic phenomena that I consider in modern Chukchi speech. The focus of this work is several grammatical domains that have been relatively understudied from a contact perspective: core argument alignment, argument structure and its morphosyntactic encoding, and polysynthesis. This case study also informs an open question in contact linguistics: what exactly changes under contact influence? Are changes sporadic, occurring in small pieces of the grammar, or are they systemic—that is, does contact produce a system-wide restructuring of a language? These possibilities are not mutually exclusive: for example, it is possible that a series of local changes, introduced through mechanisms such as code-switching or reanalysis, can ultimately produce a system-wide shift. (Indeed, this appears to be true of some of the restructuring of Chukchi verbal morphology.) Again, it may be challenging to tell these differences apart; one diagnostic will be to see how often certain changes coincide in the grammars of individual speakers, and whether any changes can be seen to trigger other changes in the language (that is, if they cannot both be linked to disparate sources and tend to co-occur in individual grammars).

Another open question is whether different types of change (attrition vs. interference) actually operate on different levels of structure. Focusing on alignment and aspects of argument encoding as a whole in Chukchi allows us to begin to address these questions.

2.2 Argument structure in contact

The particular areas of argument structure and argument alignment have rarely received focused attention in studies of language contact and shift. Work on changes in obsolescing languages has especially tended to cast a wide net, considering numerous unrelated changes in the morphological and syntactic domains. This is to be expected, given the particular difficulties of working with attriting (or not fully proficient) speakers, who can exhibit significant idiolectal differences and who may not be able to provide any information about specific constructions. (If a speaker does not remember, or never learned, how to say something, then of course we cannot conclude how that form may have changed; nor can we necessarily conclude that it has disappeared from the language.) Still, we are able to glean some information about changes in argument structure from such studies, even if those areas were not an especial target of the research.

Based on what we know about language use in situations of multilingualism, we do not expect argument structure to be exempt from either contact-induced change or shift-related changes, such as interference or attrition. However, the mechanisms and motivations for these changes may be different. In her work with heritage speakers of Russian and Korean whose dominant language is English, Polinsky (1995; 2006; 2007) notes that a prominent feature of “reduced languages” is deficiencies in morphosyntax, many of which directly impact argument structure. Some examples include (i) loss of subject-verb agreement, (ii) inability to construct relative clauses, (iii) loss of control structures and null-copying (increased use of illicit resumptive pronouns), and (iv) decline in word-order variation (Polinsky 1995). A loss of subordinate clauses of various types was observed in work on two Uto-Aztecan languages spoken in southern California, Cupeño and Luiseño, in one of the earliest studies which directly investigates linguistic loss in endangered languages,

Hill 1973. These changes are not directly due to influence from the contact language: though impoverished, English does have subject-verb agreement, and of course also makes use of relative clauses and control structures. These changes also do not signal that there has been a cohesive restructuring of the system of encoding arguments; rather, it seems to result from deficits in linguistic knowledge specifically at the morphology and syntax interface.

While these types of changes are representative of the languages that Polinsky examined, they are not necessarily diagnostic, and they are not guaranteed even in a shifting language. For example, in my work on Alaskan Russian (Kantarovich 2012), speakers did exhibit a loss of subject-verb agreement, but were still able to construct relative clauses and control structures with the proper null argument. These speakers were certainly attriting, and in fact they exhibited changes elsewhere in their Russian morphology (including collapsing the genitive-dative distinction as well as gender), but not (yet) in the domains affected among other heritage speakers of Russian.

Some aspects of argument structure in contact have been studied directly, in particular, changes to alignment. Mithun (2008: 331-2) claims that contact contributed to the spread of split-S alignment in indigenous North American languages. Coghill (2016: 39, 168-9) argues that the alignment changes in Eastern Aramaic (the development of an ergative construction as well as semantically-conditioned alignment) mirror those that occurred in Iranian, and can be partially attributed to contact between the two families (which dates back to at least 500 BC). Butt and Ahmed (2011) argue that the strictly agentive use of the ergative marker *ne* in Urdu/Hindi (compared to other closely related languages, in which the ergative is also used as a dative/accusative marker) is due to contact with the more distant Indo-Aryan language Haryani. Differential object marking has also been shown to spread through contact: DOM has developed in varieties of Basque that are in contact with Spanish, such as Gernika Basque, but not those that have been in contact with French (Rodríguez-Ordóñez 2017).

The most thorough examination of a changing alignment system in contact is documented in Schmidt 1985, which examines the grammatical system of “young people’s Dyirbal”—that is, the effects of language death on the aboriginal Australian language, Dyirbal, as its population shifts

to using English in most everyday contexts. Prior to the onset of shift, Dyirbal was a thoroughly ergative language (Dixon 1979), marking ergative case on NPs according to a nominal split (nouns inflect on an ergative-absolutive pattern, pronouns on a nominative-accusative pattern). It was also syntactically ergative—coordination and ellipsis of nominal arguments was done according to an absolutive pivot, as in the following examples (Dixon 1979: 61-62):

(2) *ŋuma banaga+n^yu* ‘Father returned’

(3) *ŋuma yabu+ŋgu buṛa+n* ‘Mother saw father’

(4) *ŋuma banaga+n^yu yabu+ŋgu buṛa+n* ‘Father returned and was seen by mother’ (Or: ‘Father returned and mother saw \emptyset (him)’)

Schmidt’s interviews with several Dyirbal attriters reveal a cline of loss of ergative marking: beginning with a loss of allomorphy of the ergative case marker and culminating in the absence of any type of ergative marking and a loss of the ergative category altogether (1985: 46-52). “Young Dyirbal” appears to be organized entirely along nominative-accusative lines, including within the syntax. The syntactic role of an argument (A, S, or O) is indicated through rigid word order, as in English, with A and S always preceding the verb and O always following it. (This contrasts with traditional Dyirbal, which has free word order.) The new pattern is given in (5-6) (Schmidt 1985: 52):

(5) *gugar buga-bin*
goanna dead-INTR.VBLZ
 ‘The goanna is dead.’ (SV)

(6) *gugar baja-n ban jugumbil*
goanna bite-NFUT she woman
 ‘The goanna bit the woman.’ (AVO)

Although the speakers of Young Dyirbal were shifting to English, the linguistic effects of this shift are quite different from the reduced languages studied by Polinsky: there is not simply unstructured morphosyntactic degeneration, but a system-wide transition from ergative-absolutive case marking to nominative-accusative argument encoding through strict word order. The Dyirbal

case demonstrates that contact-induced change, even in a shift situation, can effect deep argument structural change (as opposed to simply arbitrary loss, or restricted localized change).

Studies of valency and voice in language contact are comparatively limited. The only study of noun incorporation (and other changes to polysynthetic morphology) under contact or shift of which I am aware is Mithun's (1989) report on Cayuga, an Iroquoian language then spoken in Oklahoma and Ontario. Speakers in the United States show a much greater extent of linguistic loss. Overall, the degree of polysynthesis in Cayuga is declining for these speakers: they tend to opt for equivalent constructions with separate words instead of affixal forms. However, even among these speakers, noun incorporation is still an active process, although it appears to be limited to familiar, recurring constructions (Mithun 1989: 248-9), which might signal that these particular instances of incorporation have been lexicalized. Based on these observations, it is difficult to assess whether we would necessarily expect changes in other valency-changing operations or voice alternations. While noun incorporation still exists, it seems to no longer be pragmatically-conditioned (a fact that is unsurprising, given that the pragmatic system is often most susceptible to loss under shift). Languages with both noun incorporation and related functions like the antipassive tend to use them under certain discourse conditions; thus we might expect voice alternations to also be sensitive to frequency effects.

Interestingly, the word order of Cayuga appears not to have been influenced by English: New York-based Cayuga speakers still displayed the newsworthy-first order expected for the language, instead of the theme-rheme order of English (Mithun 1989: 246). This case can be contrasted with the Dyirbal case, where the rise of a stable SVO word order was a salient effect of English contact. There are numerous plausible reasons for the lack of word order effects in Cayuga; however, one open question is to what extent polysynthesis might prevent such changes (and whether changes to "word order" may instead manifest via changes in the ordering of affixes on the verb stem). The shift to rigid word order in Dyirbal also may have to do specifically with the loss of overt case marking on nouns—as in English, it has become the primary means by which the subject and object are distinguished.

Two other areas where argument structure has been well-studied, and which are relevant for questions of contact and shift, are first- and second-language acquisition. Surprisingly, the literatures on contact and acquisition do not often engage with one another, although it is clear that issues of acquisition bear directly on the cognitive mechanisms that produce contact-induced change. In situations of shift, both FLA and SLA can inform our predictions about what elements of the languages may change. FLA provides information about when certain aspects of language are acquired to begin with (and which features may fail to be acquired in incomplete or interrupted acquisition), while studies of SLA hint at how one's dominant language can produce dysfluencies in the weaker language. (Studies of SLA also directly investigate the types of phenomena that become substrate effects in the target language in a shift situation, during earlier stages of shift when speakers have incomplete access to the language and are still fairly proficient in their original language.)

Montrul (2001) conducted several related studies examining the second-language acquisition of argument-structure-changing morphology. The participants in these studies were speakers of English, Spanish, Turkish, and Japanese learning English, Spanish, and Turkish as second languages, and focused on two types of causative verbs: (i) physical change of state verbs with agentive subjects and (ii) psychological change of state verbs with experiencer objects. The languages surveyed use several typologically-distinct means of encoding these voice distinctions, including overt causative and anticausative morphology as well as zero morphology. Most of the results of these studies showed some kind of direct interference from speakers' L1 in their acquisition of the L2. For example, Spanish learners of English showed a significantly higher preference for 'The window got broken' than the zero-derived intransitive form, 'The window broke', because they seemed to liken 'got' to the required reciprocal form in the equivalent Spanish verb form, *romperse* (Montrul 2001: 166). Similarly, Turkish speakers learning English showed a preference for explicit causative marking on the verb (which is how both types of change of state verbs behave in Turkish): they rated sentences such as 'The lion frightened the hunter' as ungrammatical, but accepted the actually ungrammatical form 'The lion frightened' (to mean 'the lion was frightened')

(Montrul 2001: 168).

Such difficulties in the acquisition of causative/anticausative alternations have also been observed in first language acquisition. For example, children learning English will use intransitive verbs in a transitive construction to express a causative: for example, ‘I’ll disappear something under the washrug’ (Bowerman 1982). Similar issues such as systematic over- and undergeneralization of morphological marking of causatives and anticausatives has been noted in a diverse set of languages, including Inuktitut, Turkish, Japanese, and K’iche Maya (Montrul 2001: 154).

2.2.1 Expected effects in Chukchi

How or even whether argument structure might be changing in Chukchi has been underdescribed, as has variation within this domain. Recall from Chapter 1 that grammatical variation in Chukchi has until now been considered to be non-existent; this is improbable, and we cannot rule out the effects of regional variation without actively attempting to document these different communities first.

Scholars working on Chukchi throughout the second half of the 20th century have variously noted the retention of some features that will be investigated here; noun-incorporation and antipassivization have received particular attention, though researchers disagree about both the structure of these phenomena and their frequency. For example, Skorik (1958) reported that noun incorporation was being lost by the speakers he worked with in Chukotka but that the use of antipassive marking was very productive. However, Dunn (1999) encountered very robust noun incorporation among his speakers of Telqep Chukchi (a more southern variety than the ones that Skorik worked with). In addition, he found that antipassive marking was lexically-restricted and only possible with certain verbs. Another striking difference in the description of antipassivization between these two sources is that Skorik’s examples always include an overt (demoted) object; however, Dunn notes that the presence of an oblique object with antipassivized verbs is rare in his data. Maria Polinsky, who worked with Chukchi speakers in Leningrad in the 1980s, reported data much closer to Skorik’s, with productive antipassivization and a preference for the expression of an overt oblique

object with antipassives (Polinskaja and Nedjalkov 1987). She has also noted that her speakers used noun incorporation rarely, and would prefer the more abstract antipassive morphology in the same constructions where Dunn's speakers used incorporation (*pers. comm.*).

Without more information, there are several possible explanations for these differences. The first is, of course, regional variation: Dunn's grammar is based on the speech patterns of one village located south of Anadyr, called Tawajwaam, while Polinsky and Skorik worked with some of the same speakers, and so it is not surprising that their data are similar. The second possibility is what we are presently concerned with: change taking place in Chukchi, especially due to language shift. Although Dunn worked with proficient older speakers, the context of Telqep Chukchi is still one of shift—at the time, he noted that the youngest fluent speakers were in their 30s, which indicates that transmission to children was already under threat in villages in the 1990s.

A final possibility has to do with the different fieldwork approaches taken by the linguists, rather than true differences between the varieties they were studying. Dunn focused on collecting naturalistic data, such as narratives and conversations, while Skorik mainly performed elicitation in the contact language, Russian. Noun incorporation in Chukchi is context-dependent: it tends to occur when a speaker wishes to de-emphasize an argument, especially if it will not occur again in a narrative or if the event itself is more important. If Skorik was eliciting specific constructions (via Russian), without any explicit ranking of the arguments involved, he would have been less likely to elicit incorporation. It is also not surprising that Dunn encountered more noun incorporation in narratives, where individual constructions are necessarily situated in a broader context. It is very plausible that these differences in data collection are conditioning at least some of the variation in noun incorporation rates; methodological differences also explain some other troubling tendencies in Skorik's data, such as frequent use of external pronominal NPs and SVO order, which, while grammatical, are both likelier to occur following Russian priming. (Indeed, this is a pattern I have encountered in my own work with Chukchi speakers.)

In addition to these differences, Dunn (1999) notes the presence of other dysfluencies, which he attributes to the proliferation of errors in the standard language. This includes the overuse of

not-fully-productive morphology (such as the antipassive) in contexts where it should not apply. The antipassive/applicative morpheme *ine-* is formally identical (and diachronically related) to the inverse marker used when an object is 1sg. Chukchi schoolteachers, who have received linguistic training based on Skorik's grammar, are able to segment morphemes, but tend to describe *ine-* as being inherently associated with some kind of 1sg argument (Dunn 1999: 35). It is not necessarily the case that speakers are unaware of the multiple functions of *ine-*, but the strong link to 1sg could potentially lead to a reanalysis of antipassive or applicative uses of this morpheme, especially among the less-proficient speakers receiving Chukchi instruction.

While these types of patterns are not due to Russian influence per se, Dunn did observe at least some Russian contact effects on Chukchi speech. For example, even proficient speakers have a high number of spontaneous Russian loans (i.e. code-mixing), including for concepts that have Chukchi equivalents. Code-mixing is a potential mechanism for contact-induced change (Thomason 2001: 131, Myers-Scotton 1992), although it is not in and of itself indicative of change—it is entirely possible for speakers to code-switch fluently, without producing changes in either language. Some code-switching is laden with social meaning: it can be used to foment group identity (as with Spanish in the United States), or to index something about the persona or identity of an interlocutor or third party. Some Chukchi speakers make use of this latter type of code-switching, using Russian to discuss people who are urban or stuck up (that is, who belong to a more Russian lifestyle). Among these speakers, code-switching is a fluent phenomenon, rather than a sign of interference from Russian, but it may nonetheless be an avenue for change.

This is the extent of the attention that has been paid to grammatical structural changes occurring in Chukchi in the last few decades. Still, despite the lack of explicit documentation of change or loss in either morphology or syntax, there are reasons to suspect that such changes are taking place in Chukchi. Given what we know about how languages change under shift, it would be highly surprising if complex morphosyntactic phenomena were not undergoing change. (Language shift without changes in the language that is being lost tends to be restricted to situations of rapid shift, as when the speaker population abruptly disappears, or situations where the older

generation ceases to transmit the language entirely, as with the Montana Salish case noted earlier). As we have seen from studies of L1 and L2 acquisition, as well as the limited studies that directly investigate argument structural phenomena in contact, these are areas that are susceptible to variation, change, and interference from other languages. The goal of this dissertation is not simply to identify the changes in Chukchi, but also to attempt to attribute them to one of these three causes, and to understand how they fit within the system of the language as a whole.

This latter goal touches on another important feature of Chukchi that may be affected by language contact: polysynthesis. Both alignment and argument structure are aspects of a language that straddle the morphological and syntactic domains; this is especially true of a polysynthetic language, where certain syntactic relations are expressed morphologically. The following section explores what the Chukchi case study could potentially teach us about how polysynthetic languages change, as well as how to properly analyze what it means for a language to be “polysynthetic” in the first place.

2.3 Implications for theories of polysynthesis

The notion of polysynthesis as an actual feature of language has been approached by linguists in various ways, and even a universally agreed-upon definition remains elusive. One basic, but not entirely uncontroversial definition, is that polysynthetic languages are those which are especially synthetic—those which have a particularly high morpheme-to-word ratio, especially in verbal morphology. The problems with this definition are obvious—which parts of the language should we consider in the overall determination of its morphological complexity? How much synthesis is considered sufficient for a language to be *polysynthetic*? Other definitions focus on the number of roots or stems in a single grammatical word, with multiple incorporated stems pointing to polysynthesis (Bickel and Nichols 2007: 192-193). This definition is also not entirely satisfactory—do we wish to say that noun compounds are polysynthetic? If we constrain this definition only to verb forms with incorporated nouns (i.e., roots of different grammatical categories), as work on polysynthesis

often does, we must still explicitly rule out expressions like those found in English, e.g., ‘We went {trout-fishing/berry-picking} yesterday.’

In lieu of these sorts of nebulous characterizations, polysynthetic languages are often identified according to a constellation of linguistic features that may not all be present in a single language. Frequently-cited polysynthetic features include noun incorporation and core argument agreement affixes on the verb. Other features typical of polysynthetic languages include applicatives (and other voice and valency-changing morphology, such as causatives) and elaborate systems of adverbial morphology (Mithun 2017). This group of features can be unified by another oft-cited quality of polysynthetic languages: *holophrasis*, or the expression of a full clause (a predicate and its arguments) within a single verb complex.

Perhaps as a result of these morphological facts, these languages also tend to have pragmatically-conditioned word order (in contrast to more configurational languages, where word order is closely linked with argument structure) and generally, fairly impoverished case systems (Baker 1996) (though as we will see this does not hold for Chukchi).

Mithun (2017) claims that while these features do tend to co-occur, they do not necessarily develop (or function synchronically) in tandem; nor do they supply any predictive information about which features are likeliest to be found together (i.e., we cannot form an implicational hierarchy, wherein the presence of one feature reliably signals another). Each of these criteria for polysynthesis also displays a tremendous amount of variation from language to language, which Mithun argues is indicative of polysynthesis not being a unified phenomenon. Agreement marking is particularly prone to variation: although most languages that make use of both subject and object agreement encode 1st and 2nd persons, whether or not (and how) 3rd person agreement is indicated varies widely. Many languages lack agreement with 3rd person objects entirely (e.g., Barbareño Chumash, Navajo); some languages do not have agreement with 3rd person subjects (e.g., Limbu). In other languages, the realization of 3rd person agreement is possible but not obligatory, and can be conditioned by factors such as animacy (Mohawk), definiteness (Central Alaskan Yupik), and specificity (e.g., Yimas).

Noun incorporation is also treated as a uniform process in polysynthesis (and, as noted earlier, is frequently cited as one of the tell-tale signs that a language is polysynthetic). This, too, is problematic for Mithun, since noun incorporation is also subject to considerable cross-linguistic variation. While in some languages (like Chukchi and its related languages), the incorporated noun enters into a grammatical relation with the verb, for many languages incorporation is a lexical process of compounding, which can be seen in the idiosyncrasy of which nouns may be incorporated with which verbs, and the resulting meanings. In Mohawk (which serves as the basis for Baker's polysynthesis parameter), incorporated nouns qualify the verb, and can occupy a variety of semantic roles: those typically associated with objects (goals, themes, and patients) but also subjects and oblique categories such as instruments, sources, and locations (Mithun 2017: 41). Some verb stems cannot be used without some incorporated noun. Additionally, while some noun-verb combinations in Mohawk are restricted, verbs such as *-itahke-* 'be (in) moving' can incorporate a variety of semantic roles, such as the undergoer of the verb and the manner in which it occurs (Mithun 2017: 41, ex. (27)):

- (7) a. toka' otia'ke akte' ni-hati-**ia't**-itahke-'
 maybe other nearby PRT-M.PL.AGT-**body**-be.in.moving-STA
 'Maybe **some of them** were riding in another car.'
- b. onen ohni' ken' ta-hon-at-**hah**-itahke-'
 now also here CISLOC-M.PL.AGT-MID-**road**-be.in.moving-STA
 'And now here they come **down the road**.'

What also appears evident in these examples is that neither instance of incorporation has obviously affected the valency of the verb. In languages such as Chukchi, incorporation of the object or, more rarely, the subject causes a decrease in verbal valency: transitive nouns that incorporate the object are detransitivized, which is evident in the use of the intransitive verbal agreement prefixes and case marking on nouns. In Mohawk, the valency of the verb stem with incorporation is entirely lexical—intransitive verbs generally remain intransitive under incorporation, but unlike in Chukchi, transitive verb stems do not necessarily become intransitive under incorporation (Mithun 2017: 42).

What unites all of these different features, then, is not something about the underlying structure of a polysynthetic language, but generalizations about grammaticalization processes. Mithun argues that the adoption of affixation on the verb (agreement, incorporation, applicatives) results from cognitive facts about language use: certain things are more likely to fuse to the verb because they are common collocations, and are stored in memory as chunks. This explains why verbal agreement affixes frequently develop from external pronouns, why applicatives develop from adpositions, and why noun incorporation is no longer an active syntactic process in many polysynthetic languages. (It is also true that nouns which are frequently incorporated tend to be lexicalized and that, at least with some attriting speakers such as the Oklahoma Cayuga speakers surveyed in Mithun 1989, lexicalized incorporations tend to be better retained in situations of obsolescence).

Under this account, polysynthesis is therefore simply the result of many stages of grammaticalization, which “presupposes a non-trivial prehistory” (Dahl 2017).

While it may be the case that polysynthetic languages gradually build up their morphological complexity, which results in variation as to the processes that are synchronically involved in generating the verb complexes (lexical vs. grammatical), it is not clear that this is actually a problem for analyses that treat polysynthesis as a feature of language. It is an explicit goal of generativist theories to account for cross-linguistic variation through a single set of rules and principles, and the lack of uniformity among the phenomena associated with polysynthesis is explicitly acknowledged by them.

One approach that tackles this variation head-on is Baker’s 1996 *Polysynthesis Parameter*, which works within the “principles and parameters” program (Chomsky and Lasnik 1993). In the P&P framework, there is a universal set of principles of grammar and a set of parameters which are configured (turned on or off) for individual languages. The polysynthesis parameter is an example of a *macro-parameter*, one that operates at the level of the language’s entire syntactic structure.

(8) *The Polysynthesis Parameter* (Baker 1996: 14)

Every argument of a head element must be related to a morpheme in the word containing that head.

Crucially, for Baker, the fundamental feature of polysynthetic languages is that syntactic argument relationships are expressed morphologically. The statement of the parameter in this way captures the generalization that the subject and object (arguments) of a verb (the head) have some kind of morphological realization in the form of the verb itself. Noun phrases can only be interpreted as arguments (i.e., assigned a semantic θ -role) either through agreement marking or noun incorporation (movement). Formally (Baker 1996: 17):

(9) *The Morphological Visibility Condition (MVC)*

A phrase X is visible for θ -role assignment from a head Y only if it is coindexed with a morpheme in the word containing Y via:

- (i) an agreement relationship, or
- (ii) a movement relationship

This provides a very narrow definition of polysynthesis: specifically, only those languages which make use of agreement marking and syntactic noun incorporation. This perspective excludes many languages that have been regarded as polysynthetic due to their morphological complexity, because it makes several predictions about the broader syntax of languages for which the MVC holds. First, it implies that agreement for both subjects and objects is obligatory on the verb (unless there is object incorporation); external NPs cannot be made visible for θ -role assignment without agreement marking. This excludes languages in which object agreement is optional, such as Chichewa and Slave (Baker 1996: 24). Similarly, the condition implies that polysynthetic languages should not have non-finite verb forms such as infinitives, because such forms lack agreement with the subject. An ancillary prediction of this statement is that these languages will lack obligatory control structures. This again excludes languages that have long been considered notable examples of polysynthesis, such as Chichewa, Yimas, and members of the Aleut-Inuit-Yupik family including Greenlandic, as all of these languages seem to have non-finite clauses (Baker 1996: 475).

There is another important theoretical consequence of framing polysynthesis in this way. It necessitates that the agreement marking on the verb is simply coindexed with the actual arguments

of the verb; agreement markers are not themselves verbal arguments. This contrasts directly with another P&P approach to polysynthesis: Jelinek's pronominal argument hypothesis, which states that the agreement affixes on the verb are actually the verb's arguments (Jelinek 1984). Both approaches, however, draw the same conclusion that fully-realized noun phrases are merely adjuncts, to account for the generalization that they can be freely dropped in these languages (argument drop). For Baker, the verb's syntactic argument positions are occupied either by *pro* or the trace of an incorporated noun; he provides justification for why it appears that noun phrases are not arguments (Baker 1996: ch. 2).

Baker's definition of polysynthesis includes Chukchi, so it is worth considering within the context of this work. Chukchi meets the basic requirements outlined by the polysynthesis parameter and the MVC: there is syntactic incorporation of objects and obligatory agreement affixes for subject and object (although, as we will see in the following section, this is complicated by fusional and null morphology, as well as the existence of a system of inverse marking that on the surface seems to override either subject or object agreement). Indeed, Baker goes out of his way to include Chukchi among the languages he surveys in his monograph, even though it is clear that Chukchi presents some challenges for many of the predictions of the MVC. For example, Chukchi has ample non-finite clausal strategies. An additional domain where Chukchi proves problematic is in the structure of the NP. Polysynthetic languages usually have sparse dependent-marking (such as morphological case)—Baker accounts for this by arguing that agreement marking absorbs structural case, and case is not assigned to argument positions in polysynthetic languages (Baker 1996: 86).

Another consequence of the statement of the MVC is that it applies to NPs as well as VPs—thus, we expect some kind of head-marking on nouns instead of dependent-marking. This works well for Baker's primary test case, Mohawk, which has agreement marking on nouns and therefore further supports the existence of the condition.

Chukchi, however, has a robust system of case marking (with obligatory ergative and absolutive case, as well as a large inventory of semantic cases), which is problematic for the analysis if case is absorbed by agreement marking. Baker explains away this potential problem by claiming

that these are not proper grammatical cases—the semantic cases have their origins in a locative expression and the ergative is derived from the instrumental, so perhaps these can best be described as adpositions rather than case (Baker 1996: 131-132). (The absolutive case is presumably not a problem here because it is frequently unmarked. Still, it is explicitly realized in some noun classes, where it also cannot be explained through syncretism with a locative expression; this is unaccounted for in Baker’s analysis.)

What implications do these different analyses have on the study of Chukchi in language shift? What all of the work on polysynthesis seems to capture, one way or another, is that the structure of the verb is the essence of a polysynthetic language. This is why we expect argument structural changes in a language such as Chukchi to be a useful avenue for studying the system-wide impact of contact- and shift-induced change. If polysynthesis is indeed a syntactic phenomenon that encodes whole clause meaning in the verb, with null or pronominal verbal arguments coindexing full adjunct noun phrases, it is difficult to imagine that a change in the morphology of the verb would not have far-reaching effects on the overall syntax.

Our task in the present study of Chukchi is to assess the following: (i) as morphological loss is taking place, is there a point at which the language ceases to be polysynthetic, and (ii) before that point has been reached, can individual changes help us adjudicate between different theories of polysynthesis? Ultimately, the changes in the Chukchi verb should help us understand the extent to which polysynthesis is actually a unified process in a language, instead of a set of disparate phenomena.

Let us now consider some of the changes that are possible in Chukchi, and what they would mean for these analyses. If the generative theories are accurate, then in the earlier stages of shift—among speakers who are still fairly conversant in the language—we should not encounter changes that are entirely contrary to generalizations about polysynthesis. For example, agreement morphology and incorporation should remain robust for these speakers; there should also not be instances where external NPs are realized in place of either of the agreement markers. If there are changes to the degree of polysynthesis among more fluent speakers (for example, due to contact effects

from Russian, Sakha, or the other indigenous languages), we might expect a complete overhaul of the syntax to compensate, which would signal the “switching off” of the parameter: an increase in more “configurational” phenomena, such as loss of argument drop, strengthening of case-marking, or more rigid word order. If, however, polysynthesis does not exist as an actual feature of language and is simply an assortment of various structures, it would not be surprising to find individual changes in any of the structures typically associated with polysynthetic languages.

As speakers become less-proficient, however, agreement morphology is one of the major areas we expect to be impacted by loss; here, it will be difficult to claim that the changes taking place tell us anything about polysynthesis in a theoretical sense. The focus in these cases is therefore on identifying which polysynthetic structures change when, and if there are compensatory changes in the syntax (such as those seen in Dyrirbal) that are consistent with syntactic restructuring rather than indiscriminate structural breakdown. Even if we assume, as Mithun (2017) does, that verb structure in polysynthetic languages develops via multiple processes of grammaticalization, we cannot presuppose that these structures will change individually. But if collocation frequency does play a role in what gets grammaticalized, we may expect it to be apparent in what is preserved (or lexicalized) in language loss, such as the retention of especially frequent incorporated noun-verb combinations, or asymmetric preservation of person agreement marking for some verbs (e.g., verbs which are more likely to be used between interlocutors vs. about a 3rd person who is not present). Increased lexicalization of syntactic processes has been reported of obsolescing languages specifically; we have already seen the example of noun incorporation in Cayuga (Mithun 1989). Another example is “broken” Wasco-Wishram Chinookan, in which complex verb forms (resulting from active grammatical processes) were reanalyzed as stems which could be further inflected (Moore 1988).

Vakhtin and Gruzdeva (2017) provide a comprehensive survey of the changes that have been reported in obsolescing polysynthetic languages (though they do not examine any individual language across its entire system of argument encoding). They argue that the processes that are at work in attriting polysynthetic languages are the same that we expect of any attriting language:

morphological loss, via either *simplification* (which includes processes such as morphological leveling and regularization) or *reduction* (the loss of structural elements without replacement through language-internal resources). In polysynthetic languages, morphological loss manifests as: (i) loss of morphological “slots,” (ii) reduction of bound morphemes and substitution by free ones, (iii) “fossilization” of markers and their reanalysis, (iv) loss of productivity in word formation, (v) loss of noun incorporation, and (vi) reduction of allomorphy (Vakhtin and Gruzdeva 2017: 428).

Vakhtin and Gruzdeva make a prediction similar to the one mentioned earlier (though perhaps causally reversed): that these morphological reductions anywhere in the grammar are bound to have an effect on the verb, because “for a polysynthetic language verbal morphology is, by definition, the core of its grammar” (Vakhtin and Gruzdeva 2017: 433). What is interesting to note here, however, is that not all of these changes necessarily affect how polysynthetic a language is. For example, a reduction of allomorphy and even the fossilization and reanalysis of certain forms does not imply the reduction of morphological complexity. The biggest area of morphological loss in these languages is reported to be in the derivational morphology, notably affecting adverbial modifiers. This is readily apparent in the following examples from Traditional and Modern Tiwi (Vakhtin and Gruzdeva 2017: 439, ex. (11)):

- (10) a. a-mpi-ni-watu-wuciŋi-ma-cirakiŋiŋi-yaŋu[imay-ami
 she-NPST-LOC-morn-DUR-COM-light-walk-MOVEMENT
 ‘She (the sun) is shining over there in the morning’ (Traditional Tiwi)
- b. capinar wokapat/mup a-mpi-ciki-mi kutawa with layt
 morning walk/move she-NPST-DUR-do there with light
 ‘She (the sun) is shining over there in the morning’ (Modern Tiwi)

In the Traditional Tiwi example, the location, time, and instrument of the action is indicated by an affix on the verb ‘walk’; the example in Modern Tiwi has a much simpler verb form (‘do’, which appears to have retained all of the inflectional morphology, such as agreement and tense) with separate words conveying the adverbial information.

If we adopt Baker’s notion of polysynthesis or, less narrowly, that holophrasis is necessary for polysynthesis, it appears that obsolescing polysynthetic languages actually aggressively retain the

qualities necessary for these definitions to hold—namely, inflectional agreement morphology on the verb. The retention of inflectional morphology is apparent in the Tiwi example above. This is highly surprising, given that other, non-polysynthetic languages (such as the heritage languages analyzed by Polinsky (1995)) are consistent in displaying loss of agreement. Nor can this difference be explained away by influence from the dominant language, which is English in all of these cases. Vakhtin and Gruzdeva give ample other examples of agreement morphology being preserved, including in Ainu and Kabardian.

This might suggest that the importance of verbal inflection for conditioning the rest of the grammar insulates it from wholesale morphological loss; indeed, as we will see in Chapter 3, less-proficient Chukchi speakers evidence changes to their agreement systems, but have not lost either subject or object agreement entirely.

Another tendency reported by Vakhtin and Gruzdeva that is puzzling in light of these facts is a change we do find in Chukchi: a weakening of argument drop. Consider their examples from Kabardian (Vakhtin and Gruzdeva 2017: 435, ex. (3)).

- (11) a. \emptyset -q^o-ša-yə-t+a-ś
 3sg.OBJ-to-1sg-3sg.SUBJ-give+PRF-DECL
 ‘She gave me that/it’
- b. abə ša q^o mər \emptyset -zə-yə-t+a-ś
 3SG:ERG 1sg to/for it 3sg.OBJ-1sg-3sg.SUBJ-give+PRF-DECL
 ‘She gave that to me’

Kabardian speakers appear to retain agreement morphology, but also redundantly include overt pronominals: they reject examples without overt pronouns (11a), insisting instead on paraphrases like (11b). This presents a puzzle for the claim that these NPs are just adjuncts, since they appear to be obligatory for these speakers (if the language should in fact still be considered polysynthetic).

One open question is whether we expect certain changes in languages that are polysynthetic, stemming directly from their morphological complexity. As we saw in section 2.2, attriting speakers develop a variety of strategies to reduce morphological complexity, whether by outright elimination of morphemes or through the resolution of irregularities. Another pattern of morphological

reduction that has been observed in attrition is the replacement of synthetic constructions with analytic ones (Sasse 2001): a numerical reduction of the degree of synthesis (by reducing the number of synthetic constructions that exist in the language). This type of change has also been reported in healthy (i.e., non-obsolescing) polysynthetic languages—one example has already been discussed in section 2.1.1 of this text (the reduction of adverbial affixes in Siberian Yupik due to contact with Chukchi, which has a comparatively simpler verbal structure and expresses many adverbials using particles). This pattern is consistent with the changes reported by Vakhtin and Gruzdeva in affecting mainly derivational morphology.

It has also previously been suggested that morphological attachment—that is, whether a language is analytic or synthetic—is itself something that can feed linguistic change. Such proposals have been discussed in the literature on linguistic cycles, which claim that certain types of linguistic changes are cyclical, passing through a predictable trajectory repeatedly throughout the world's languages as well as within the same language. This is easily seen in so-called micro-cycles, such as Jespersen's cycle for negation, which can be explained as resulting from pragmatic or phonetic factors that repeatedly produce the same sets of changes (van Gelderen 2013: 238). With macro-cycles, or cyclic changes affecting the entire linguistic system, the trigger that sets the cycle in motion and continually reinforces change is harder to identify or demonstrate, in part because the changes may be taking place across hundreds of years. The attachment cycle, which proposes cyclic change between analytic and synthetic systems, is one example of a macro-cycle that has been suggested for languages such as Egyptian, which began as analytic (at the level of Proto-Afro-Asiatic), became synthetic in the Old Egyptian phase, analytic again as Late Egyptian, and finally synthetic as Coptic (Hodge 1970). It is unclear what is motivating these system-wide changes (or if it is attributable to one recurrent cause, as in micro-cycles), and whether cyclic change towards or away from polysynthesis is actually expected of the world's languages.

2.4 Alignment and argument structure of Chukchi

Let us turn now to the specific aspects of Chukchi alignment and argument structure that I investigate among modern speakers of the language. These phenomena are: (i) morphological and syntactic ergativity, (ii) derivational verbal morphology (applicatives, antipassives, and noun incorporation), and (iii) the interaction of verbal agreement, argument drop, and word order. Each of these domains is explored individually in the following subsections: for each, I first provide a description of the relevant facts from accounts of traditional Chukchi, then I discuss predictions for the changes we might expect based on what we know about language contact and shift, and finally I discuss findings from in-depth work with one speaker across two separate field trips. This speaker is a fairly-proficient attriting speaker in her 50s. My work with her touches upon all of these different aspects of argument structure and alignment, and serves as an opportunity to examine one Chukchi speaker's changing linguistic system as a whole.

2.4.1 Morphological and syntactic ergativity

Chukchi evidences both morphological and syntactic ergativity, although as we will see shortly, there are reasons not to consider it a “thoroughly ergative” language (the ergative nature of some of these phenomena has been disputed; the language also displays many accusative patterns in the syntax).

We will consider two kinds of morphological ergativity (case marking and agreement marking) and two kinds of syntactic ergativity (formation of negative passive participles and incorporation within NPs).

Morphological ergativity

Perhaps the most unambiguously ergative aspect of Chukchi is case marking on nominals. Unusually for a polysynthetic language, Chukchi has an elaborate system of grammatical and semantic cases. Although full NPs may be freely dropped in the language when they occur as core arguments

Case	Common Nouns		High Animate		Personal Pronouns	
	SG	PL	SG	PL	SG	PL
ABS	-ø/-ŋə/-n	-t(i)	-ø/-n	-nti	(see table)	
ERG/INST	-e/-te		-ne	-rək	-(n)an	-gənan
LOC	-k		-ne	-rək	-k	
EQU	-u		-nu		-ku	
DAT/ALL	-gtə		-ne	-rəkə	-kagtə/-kə	
ABL	-jpə		-jpə	-rgəpə	-kajpə	
ORI	-gjit		-gjit	-rəgjit	-kegjit	
INESS	-cəku		-cəku	-rəcəku	-kecəku	
PERL	-jekwe		-jekwe	-rəjekwe	-kejekwe	
SUBLAT	-jikwə		-jikwə	-rəjikwə	-kejikwə	
COM	ge- -e		ge- -e	ge- -re	ge- -ke	
ASS	ga- -ma		ga- -ma	ga- -rəma	ga- -gma	
PRIV	e- -ke		e- -ke	e- -rəke	e- -ke	

Table 2.4: Case marking in Chukchi (adapted from Dunn 1994 & Dunn 1999)

1sg	<i>gəm</i>	1pl	<i>muri</i>
2sg	<i>gət</i>	2pl	<i>turi</i>
3sg	<i>ətlon</i>	3pl	<i>əttri</i>

Table 2.5: Absolutive Personal Pronouns in Chukchi (Dunn 1999)

(or are coindexed with core arguments, if we treat them as adjuncts), they are obligatorily marked with either absolutive or ergative case. The full system of case marking is given in Tables 2.4 and 2.5. Chukchi also has a system of loosely-semantic noun classes, distinguishing a small class of “high animates” (which includes personal names, kin terms, and talking animals in folklore) from all other nouns. Absolutive and ergative marking is robust for all classes. The high animate class has a number distinction (singular/plural) for all cases except the equative; common nouns only have a number distinction in the absolutive.² (The high animate plurals are associative plurals used to refer to the group the addressee heads.)

Due to the prevalence of argument drop, speakers do not typically use both ergative and absolutive free-standing nominals in a sentence, especially if they are pronominal. However, separate

²Personal pronouns are considered a subclass of common nouns and also do not encode a number distinction in the case affix, although this distinction is encoded in the pronominal stem itself.

pronouns are easily elicitable, and are marked for the appropriate core argument case if they are used:

- (12) opopə ɲelwəl mɔrgə-nan mən-gənritə-n
 must herd.ABS.SG 1pl-ERG 1plA.INT-guard-3sgO
 ‘We’ll have to guard the herd’ (Non-pronominal 3rd person NPs, Dunn 1999: 113)

(13) Pronominal examples (Comrie 1979)

- a. gəm tə-wiri-g¹ek
 1sg.ABS 1sgS-descend-1sgS
 ‘I descended’
- b. gəm-nan turi tə-l¹u-tək
 1sg-ERG 2pl.ABS 1sgA-see-2plO
 ‘I saw you’
- c. turi ø-wiri-tək
 2pl.ABS 2plS-descend-2plS
 ‘You descended’

The second type of morphological ergativity in Chukchi, which has been the subject of some theoretical debate (Bobaljik 1998, Spencer 1996), is verbal agreement marking. There are three types of verbal agreement affixes: those that agree with the subject, those that agree with the object, and inverse marking. For transitive verbs, the prefix agrees with the subject and the suffix with the object; for intransitive verbs, both the prefix and the suffix agree with the subject. Thus we have a split-ergative pattern, with nominative alignment of prefixes and absolutive alignment of suffixes. The alignment patterns here are of the positional type: while the prefix slot always encodes either A or S, and the suffix slot encodes S or O, there are separate systems of affixes used for transitive and intransitive verbs. The agreement affixes for the non-future aspectually-neutral tense are given in (14).

For transitive verbs, inverse marking operates according to a 1 > 2 > 3sg > 3pl animacy hierarchy. For situations in which the subject outranks the object, the appropriate subject/object agreement affixes are used for each argument. In cases where the object outranks the subject, three possible inverse marking strategies are used: (i) the prefix *ine-* which is used in place of a subject

prefix when there is a 1sg O; (ii) the suffix *-tku*, used in addition to an agreement suffix, for cases where there is a 1pl O; and (iii) *ne-*, which is used for all cases where there is a 3rd person A (except 3sgA-1sgO, where *ine-* is preferred).

(14) Traditional Chukchi non-future (“aorist”) agreement forms (Bobaljik 1998, Dunn 1999)

	Intr. Subj. Prefix	Intr. Subj. Suffix	Trans. Subj. Prefix	Obj. Suffix
1sg	<i>t-</i>	<i>-g^ʔek</i>	<i>t-</i>	<i>-gəm</i>
1pl	<i>mət-</i>	<i>-mək</i>	<i>mət-</i>	<i>-mək</i>
2sg	∅-	<i>-g^ʔi</i>	∅-	<i>-gət</i>
2pl	∅-	<i>-tək</i>	∅-	<i>-tək</i>
3sg	∅-	<i>-g^ʔi</i>	<i>(ne)-</i>	<i>-(g^ʔe)n, -nin</i>
3pl	∅-	<i>-g^ʔet</i>	<i>ne-</i>	<i>-(ni)net</i>

Table 2.6 displays the agreement marking patterns for all possible combinations of subject and object in transitive aorist verbs. (The full intransitive intentional paradigm, which makes use of a more contrastive system of subject agreement prefixes, is given for comparison.)

Kantarovich (2019) discusses how both of these patterns of morphological ergativity in Chukchi are later developments in the history of the Chukotkan language family as a whole, which emerged from a language-wide tendency to deploy strategies of encoding animacy distinctions between arguments. I argue that the different ergative patterns in Chukchi should be viewed as separate phenomena from the perspective of language contact, especially because they appear to have developed at separate times in the history of the languages (with the split system of agreement marking developing early in both Chukotkan and Kamchatkan, but ergative case arising at a later point in Chukotkan only). Put differently, ergativity seems to be even less of a unified linguistic phenomenon than polysynthesis; while we might expect any of these kinds of ergativity to be individually susceptible to change due to influence from the surrounding accusative contact languages, we have no reason to anticipate that these constructions will change in tandem.

Bobaljik (1998) argues convincingly that the agreement morphology is only epiphenomally “ergative”; rather, the synchronic system is a nominative-accusative one that exhibits required

Subj	Intrans	1sg O	2sg O	3sg O	1pl O	2pl O	3pl O
1sg	<i>m- -g^ʔek</i>	–	<i>t- -gət</i>	<i>t- -g^ʔen</i>	–	<i>t- -tək</i>	<i>t- -net</i>
1pl	<i>mən- -mək</i>	–	<i>mət- -gət</i>	<i>mət- -g^ʔen</i>	–	<i>mət- -tək</i>	<i>mət- -net</i>
2sg	<i>q- -gi</i>	<i>ine- -g^ʔi</i>	–	<i>-g^ʔen</i>	<i>-tkug^ʔi</i>	–	<i>-net</i>
2pl	<i>q- -(gə)tək</i>	<i>ine- -tək</i>	–	<i>-tkə</i>	<i>-tkutək</i>	–	<i>-tkə</i>
3sg	<i>n- -g^ʔen</i>	<i>ine- -g^ʔi</i>	<i>ne- -gət</i>	<i>-nin</i>	<i>ne- -mək</i>	<i>ne- -tək</i>	<i>-ninet</i>
3pl	<i>n- -net</i>	<i>ne- -gəm</i>	<i>ne- -gət</i>	<i>ne- -g^ʔen</i>	<i>ne- -mək</i>	<i>ne- -tək</i>	<i>ne- -net</i>

Table 2.6: Agreement affixes in Chukchi transitive aorist and intransitive intentional, with inverse marking highlighted in bold (adapted from Fortescue 1997)

feature copying from S in the suffix slot if there is no object argument available to supply features for it. This is supported by the fact that in the related language Itelmen, 3rd person objects are considered featurally null and do not supply features for the suffix, as well as the fact that non-core arguments, such as datives, can also supply features for this slot. Kantarovich (2019) shows (following Fortescue 1997) that this system of synchronic feature copying is not unlike how this agreement system emerged diachronically. There is some evidence that Chukotkan was initially entirely suffixing, but later developed subject prefix slots for transitive clauses. The suffix slot that originally encoded the sentential subject was repurposed for object agreement in transitive clauses, or else redundant subject agreement. The form of the object suffix developed according to an animacy-conditioned direct-inverse pattern: for direct cases, the object suffix was either directly copied or adapted from the subject suffix (resulting in the existence of the “absolutive” suffixes); for inverse cases, antipassive and passive marking replaced the agentive prefix marking.

An interesting question that emerges from this account is whether any further changes that occur in the marking of core arguments will follow the same pressures: that is, will case marking change to further express animacy distinctions (which are also encoded to a limited extent in Russian), or will future restructuring of the system occur along different dimensions? Another possibility is that these changes will not follow a cohesive pattern, as paradigmatic leveling and random loss are also expected of a language undergoing attrition (Thomason 2001, Polinsky 1995, Sasse 1992; 2001).

Syntactic ergativity

Another aspect of ergativity in Chukchi that may render it more susceptible to change under contact is that it is fairly marginal. Dunn (1999) notes that the presence of an ergative-marked external argument is relatively rare, and where it does occur, it does not function as a full NP. According to Dunn's analysis (1999, ch. 9), the only full NPs in Chukchi are absolutive, as they are the only nominals that can have syntactic dependents (co-indexed, separate modifiers). Possible syntactic dependents include:

- free pronouns (except personal pronouns, which are suffixed to the nominal itself, as in the case of the participial above)
- other nouns (participles, possessive and relational derivations, oblique case nouns)
- adjectives
- numerals

An example of an absolutive NP with several syntactic dependents is the following:

- (15) ən-kə wəjan-nenat ənqen ŋawə-n-ragt-at-kena-t
there-LOC untie-3sgA.3plO DEM.ABS woman-CAUS-house-go.to-TH-REL-ABS.PL
qora-t nə-wilulget-qinet
reindeer-ABS.PL HAB-hang.earrings-3pl
'There he untied them, the marriage reindeer, they hung earrings on them.' (Dunn 1999: 160)

Nominals of all other cases (including the ergative) necessarily incorporate their modifiers:

- (16) ga-ppəlo-ra-ta ø-n[?]el-g[?]i remkən taŋ-əməl[?]-etə=[?]m
COM-little-house-COM 3sgS-become-3sgS folk.ABS.SG INTS-all-ADV=EMPH
'The people in their entirety came to be in little houses' (Dunn 1999: 168)

The status of ergativity is less clear-cut when we consider the grammatical system as a whole. The literature on Chukchi has been particularly focused on the ambiguous nature of ergativity

(Nedjalkov 1979, Comrie 1979), pointing to a number of syntactic criteria which alternately suggest both ergative and accusative alignment. Nedjalkov and Comrie both argue that there is only one aspect of Chukchi syntax that seems to be organized on an ergative-absolutive basis: the negative passive participle, which can relativize on either S or O, but not A (Comrie 1979).

- (17) a. **e-tip^ʔ ejne-ke-l^ʔ-in** ŋewəcɣət ø-ragtə-g^ʔe
 NEG-sing-NEG-PART-ABS.SG woman.ABS.SG 3sgS-go.home-3sgS
 ‘The woman who was not singing went home’ (‘the not-singing woman’)
- b. igər **a-j^ʔo-kə-l^ʔ-etə** enm-etə mən-əlqən-mək
 now NEG-reach-NEG-PART-ALL hill-ALL 1plS.INT-go-1plS
 ‘Now let us go to the hill which (someone) didn’t reach’ (‘the not-reached hill’, not
 ‘the one who does not reach’)

All of the other nominal participles in Chukchi relativize only on S or O, or both S/A. Similarly, cross-reference between infinitive and matrix verb arguments is also aligned accusatively (S and A can be omitted from the infinitive, but not O, just as in English) (Comrie 1979):

- (18) a. gəm-nan gət tite mə-winret-gət ermetwi-k
 1sg-ERG 2sg.ABS sometime 1sgA-help-2sgO grow.strong-INF
 ‘Let me help you some time to (S) grow strong.’
- b. morg-ənan gət mət-re-winret-gət riwl-ək əməl^ʔo
 1pl-ERG 2sg.ABS 1plA-FUT-help-2sgO move-INF all
 gece-jo-t
 collect-PASS.PART-ABS.PL
 ‘We will help you to (A) move all the collected items’

In (18a), the S of the verb ‘grow strong’ is omitted; in (18b), the A of the verb ‘move’ is omitted—an accusative pattern.

However, there are several other syntactically ergative patterns that Comrie and Nedjalkov do not note. The first has already been mentioned: the fact that only absolutive-marked nominals can have syntactic dependents. Another ergative pattern in Chukchi syntax is that A is much more readily dropped than O and S: it is very uncommon to find cases where the object has been dropped but the transitive subject is still expressed as an overt nominal (Dunn 1999, ch. 4).

Regardless of whether Chukchi is “truly ergative,” a split between morphological and syntactic ergativity is not a typologically uncommon pattern: few languages are ergative according to every possible diagnostic. Dyrbal is frequently held up as a thoroughly ergative language, although even it manifests a nominal split in ergative case marking. Thus, it would be incorrect to claim that the Chukchi system is somehow unstable. However, given the fact that the Chukchi alignment system has been prone to change historically—and that these changes did not occur strictly in order to produce ergative patterns, but rather to emphasize animacy distinctions—it is reasonable to expect further reanalysis in this system. The overall low frequency of ergative-marked nominals and their marginal role in the clause could result in their being the locus of change, especially among shifting speakers.

Expected changes

Having established that further changes to the morphological alignment system would be unsurprising, the question is what types of changes we might expect to take place due either to Russian interference among more-proficient speakers, or attrition and loss among less-proficient speakers.

The case of Young Dyrbal discussed in section 2.2 may provide some clues as to what we might expect from changes due to Russian interference, since Young Dyrbal appears to have entirely adopted the English system of distinguishing core arguments using word order. This is one obvious hypothesis for the changes that may take place in Chukchi: that Chukchi speakers will map the Russian pattern of nominative-accusative case marking onto the ergative-absolutive case markers they already have.

Table 2.7 gives a simplified account of case marking in Russian across all declensions. There are several ways in which ergative and absolutive case in Chukchi might be reinterpreted according to the Russian model. One possibility is that the ergative reading of the ERG/INST morpheme may simply be lost in Chukchi; if this occurs, the absolutive in Chukchi could be reanalyzed as neutral (marking all subjects and objects), thereby returning to the system that was in place before ergative case developed. Such a process could be bolstered by the fact that neuter nouns and

certain masculine C-stem nouns in Russian display nominative-accusative syncretism. One of the masculine NOM/ACC syncretic forms is unmarked (- \emptyset), which is one of the absolutive markers for common nouns in Chukchi, so a change of this sort is very plausible.

	Singular				Plural		
	masc	neut	fem		masc	neut	fem
NOM	cons. -j -ɸ	-o -e -jo	-a/-ja	-ɸ	-y/-i	-a/-ja	-y/-i
ACC INAN ANIM	=NOM =GEN	=NOM	-u/-ju	-ɸ	=NOM =GEN		
GEN	-a/-ja		-y/-i	-i	-ov/-ev/-ej		- \emptyset /-ej
DAT	-u/-ju		-e	-i	-am/-jam		
INST	-om/-em/-jom		-oj/-ej/-joj	-ɸju	-ami/-jami		
PREP	-e			-i	-ax/-jax		

Table 2.7: Case marking in Russian (Wade 1992: 53)

Another possibility is that ergative case may be interpreted as a marker of all syntactic subjects, not just the agent (nominative). In principle, any of the ergative case forms could be used for this function. However, the Russian pattern of differential object marking (according to animacy) shows that there is a slight tendency for the nominative to signal inanimate objects; thus, we might expect a non-pronominal ergative marker to become nominative in Chukchi, if Kantarovich (2019)'s proposal about *-nan* being historically more associated with a higher degree of agentivity is correct.

These are potential changes that would be directly attributable to Russian influence. However there is another class of changes that are possible among semi-speakers in particular. These are changes that stem from attrition processes or incomplete acquisition. The likeliest attrition-related change in case marking is morphological leveling. The Chukchi case marking system as a whole is fairly complex, with lexically-specified (i.e., not easily learnable) noun classes and numerous semantic cases in addition to the core grammatical cases we are mainly concerned with. One way in which leveling may occur is collapsing the noun classes (either preserving the marking from one class, or merging the patterns of the two main classes). Another possibility, which may also occur in conjunction with class-based leveling, would be further syncretism of the case forms. In addition

to the ERG/INST syncretism of all the noun classes, high animate plural nouns show ERG/INST/LOC syncretism, and high animate singular nouns show ERG/INST/LOC/DAT syncretism—this is likely due to the fact that the LOC form with these nouns is lower frequency. However, we may expect attrition-driven reduction in the class of common nouns to follow this same pattern.

A final question is how changes to ergative case would inform (or be informed by) the accepted synchronic analysis of case in Chukchi. Ergative case in Chukchi has prototypically been used as evidence of ergative as structural/dependent (rather than inherent) case (Baker and Bobaljik 2017, Baker 2015). Inherent theories of ergative case are based on languages where the ergative appears to be tied to the agent theta role, with subjects of certain intransitive verbs receiving ergative case (i.e., unergatives). Since the ICT requires the external argument to receive its theta role from little *v*, a derived subject cannot be marked ergative. Conversely, in a dependent theory of ergative case, the thematic roles of the NPs are not relevant: ergative case is triggered by the presence of two NPs in the same local domain (Baker and Bobaljik 2017: 115). The dependent theory certainly seems to be correct for Chukchi, as ergative-marked agentive arguments can easily become absolutive through incorporation of the subject or antipassivization (even though their thematic role has not changed). There are several examples of these types of alternations in the following section.

There is also a small set of labile Chukchi verbs that can be used as either transitive causatives or intransitive inchoatives, without a change in the verb stem (Baker and Bobaljik 2017: 118):

- (19) a. ətłəg-e $\text{jər}^{\text{ʔ}}\text{en-nin}$ $\text{ə}^{\text{ʔ}}\text{tw}^{\text{ʔ}}\text{et}$ miml-e
 father-ERG fill-3sgA.3sgO boat.ABS.SG water-INST
 ‘Father filled the boat with water’ (causative)
- b. $\text{ə}^{\text{ʔ}}\text{tw}^{\text{ʔ}}\text{et}$ $\text{ø-jər}^{\text{ʔ}}\text{et-g}^{\text{ʔ}}\text{i}$ miml-e
 boat.ABS.SG 3sgS-fill-3sgS water-INST
 ‘The boat filled with water’ (inchoative)

It is also possible to project the locatum PP argument (*miml-e* ‘water-INST’) as an NP:

- (20) $\text{ə}^{\text{ʔ}}\text{tw}^{\text{ʔ}}\text{et}$ $\text{jər}^{\text{ʔ}}\text{en-nin}$ miml-e
 boat.ABS.SG fill-3sgA.3sgO water-ERG
 ‘Water filled the boat’

In this example, both NPs are internal arguments and there is a missing agent—the locatum argument (water) cannot be considered agentive here, yet it still receives ergative case marking. This can be easily explained by the DCT (ergative case is triggered by two internal NPs in the clause), but not the ICT.

Ergative as structural case in Chukchi is also consistent with how I have claimed ergative case marking emerged: it would be difficult to account for the INST > ERG reanalysis if ERG were restricted to solely to an agentive role.

Assuming that this analysis is correct, we can make the following predictions in a contact scenario. If ergative case is not obviously reanalyzed as a nominative (or lost) under Russian contact, we should not encounter ergative case marking without an associated absolutive-marked argument. The presence of a seemingly ergative-marked argument on its own will mean one of several things: ergative has been reanalyzed as nominative; ergative has been reanalyzed as neutral; ergative has been reanalyzed as absolutive (not really expected except in cases of attrition); and ergative has been reanalyzed as inherent. The best way to diagnose the difference between nominative case and inherent ergative case would be to test whether both unaccusative and unergative verbs trigger the same patterns, as well as to test the zero-marked causative/inchoative constructions above.

2.5 Valency-changing operations

To gain a complete picture of alignment and argument structure in Chukchi it is necessary to consider valency-changing operations, which can serve as points of reanalysis that contribute to system-wide change. We have already seen an instance of this in Chapter 1, with the two different passive-like constructions producing ergative case marking in Chukotkan. The reverse change, with an ergative-absolutive case marking system becoming nominative-accusative, has been observed in some of the world's languages due to a reanalysis of, unsurprisingly, antipassive constructions. In most of the documented cases of this type of change, it has produced a tense-conditioned ergative split, with accusative alignment in the imperfective/present and erga-

tive alignment in the perfective/past (Coghill 2016: 26). A typical antipassive reanalysis takes the following form (adapted from Coghill’s schema):

(21) Antipassive source of ABS > NOM reanalysis

king.Y(ABS) kill(-AP).IPFV slave.Z(OBL) > king.Y(NOM) kill.IPFV slave.Z(ACC)

‘The king is killing a slave.’

slave.Y(ABS) die.IPFV > slave.Y(NOM) die.IPFV

‘The slave is dying.’

The pattern on the right is already accusatively aligned, with A and S being marked with one marker and O another. The required reanalysis involves a loss of the antipassive voice in the construction on the left, with a reanalysis or loss of the antipassive marker (if present—some languages construct their antipassives without overt marking on the verb). This type of change has been proposed for Georgian, where an antipassive construction emerged in the imperfective aspect, as well as the Pama-Nyungan language Lardil (Coghill 2016: 26-27). One account of apparent split ergativity in Basque person indexing on the verb involves positing a hypothetical earlier stage of the language in which antipassive imperfective constructions were accusatively aligned (Aldai 2000).

The following sections (2.5.1-2.5.3) detail the valency-changing operations that exist in Chukchi, as well as the changes that might be expected among them.

2.5.1 Antipassives

There are two antipassivizing markers in Chukchi that are similar in function: the prefix *ine-* and the suffix *-tku*, which also functions as a marker of iterativity without an antipassive function. The primary difference between *ine-* and *-tku* is semantic: *-tku* always indicates iterativity, even when it is used as an antipassive (Dunn 1999, ch. 11).

Antipassivization in Chukchi is canonical: the ergative-marked A is demoted to S and is marked with the absolutive case. Whether obliquely-marked arguments occur with antipassivized verbs is a matter of some debate. Skorik’s (1958) data and the examples considered by Polinskaja and

Nedjalkov (1987) show numerous instances of antipassives with oblique-marked (locative or instrumental) nouns. However, Dunn did not encounter any instances of an oblique noun with an antipassive, which does not rule out their existence but may point to their low frequency.

This discrepancy is consistent with a broader issue in the classification of the *ine-* marker, which can alternately function as an applicative (the verbs that are antipassivized vs. applicativized by *ine-* are mutually exclusive). Skorik’s grammar contains no discussion of the *ine-* applicative; this could be because it was not used by the speakers he consulted, or because he failed to notice that it was distinct from the antipassive use. Polinskaja and Nedjalkov (1987) do distinguish two distinct types of *ine-* constructions, but refer to the applicative function as a “transitive antipassive.” The applicative *ine-* function will be discussed in the following section.

A standard example of the antipassive in Chukchi follows; the antipassive morpheme is highlighted in boldface (Dunn 1999, ch. 11):

- (22) a. ʔaatcek-a piri-nin roolqəl
youth-ERG take-3sgA.3sgO food.ABS.SG
‘The youth took the food’ (active voice)
- b. ʔaatcek ø-**ine**-piri-gʔi
youth.ABS.SG 3sgS-ANTIP-take-3sgS
‘The youth took (something), the youth won the prize’ (antipassive voice)

(22b) also illustrates that there is a corresponding change in the agreement on the verb, with intransitive agreement affixes showing up instead of the transitive affix from (22a).³

2.5.2 Applicatives

There are also two distinct types of applicative markers in Chukchi: *ine-* and *r-/n-*, which can also function as a causative. The *ine-* applicative is of the valency-rearranging type: it applies to transitive verb stems and shifts the underlying O to a peripheral role, and elevates an oblique argument to the O role. The *r-/n-* applicative is of the valency-increasing type: it applies to intransitive

³Further explanation about verbal agreement is provided in section 2.6.

verb stems and promotes both arguments associated with the intransitive: S to A and the oblique argument to O.

Unlike both uses of *ine-*, which can only occur with certain verbs in Telqep Chukchi (the variety examined by Dunn), *r-/n-* is entirely productive and can be used with all intransitive verb stems. The use of *r-/n-* as applicative or causative is entirely predictable from the verb form: when it is applied to unaccusatives, it results in a causative; when it is applied to unergatives, it results in an applicative. The choice of the *r-* or *-n-* affix is morphophonological: *r-* is used word-initially and *-n-* is used at morpheme boundaries. *r-/n-* also obligatorily co-occur with the suffix *-ew* or *-et*: the choice of suffix is determined by whether either suffix already appears elsewhere in the verb (in a homophonous but distinct form).

The following example illustrates the contrast between the causative and applicative uses of *r-/n-* (Dunn 1999, ch.11):

- (23) a. *ləgen anŋin wetca-ta qegnew-nin=?m*
 really thus stand-MAN.CVB shoot-3sgA.3sgO=EMPH
taŋə-n-peqet-aw-nen wolka
 INTS-CAUS-fall-CAUS-3sgA.3sgO wolf
 ‘Simply so, standing up he shot at the wolf, and knocked him right down.’ (causative)⁴
- b. *qərəm ləgen xoroshij ?ənə-n-wetga-at-g?e-n*
 NEG really good 3A.INT-APPL-speak-APPL-TH-3sgO
 ‘They don’t speak to him very nicely.’ (applicative)

A typical example of the *ine-* applicative is the following (Dunn 1999, ch.11):

- (24) *ətɫ²a-ta ena-pela-nen ŋewmirgən coqar-a*
 mother-ERG APPL-leave-3sgA.3sgO granny.ABS.SG bread-INST
 ‘Mother left granny some bread.’

In (24), ‘granny’ has been promoted to object and the theme, ‘bread’, has been demoted to an oblique case. There is no change to the valency of the verb (and therefore no change in agreement marking); the argument structural change is instead reflected in the swapping of grammatical roles between ‘granny’ and ‘bread’.

⁴Refer to section 5.3.4 in Chapter 5 for a description of the “manner” or instrumental converb.

2.5.3 Noun incorporation

Noun incorporation is fairly productive in Chukchi and can occur with both transitive and intransitive verbs to produce constructions that are comparable to both functions of *ine-*. As with the *ine-* prefix, the result of incorporation (whether it is valency-reducing or valency-rearranging) is dependent on the verb stem. The following are the possible types of noun incorporation in Chukchi (Dunn 1999: 221-222), arranged by the role of the incorporated argument and verb valency.

- (25) (i) VALENCY-REDUCING: noun (S) + intransitive verb = zero intransitive (no S argument)
- (ii) VALENCY-REARRANGING: noun (S) + intransitive verb = intransitive (new S argument)
- (iii) VALENCY-REDUCING: noun (O) + transitive verb = intransitive verb (A → S)
- (iv) VALENCY-REARRANGING: noun (O) + transitive verb = transitive verb (new O argument)

Incorporation is an ergative syntactic pattern: S and O may be incorporated, but A cannot. (In fact, this is typical of incorporation cross-linguistically.) This pattern gives us further motivation to liken incorporation to *ine-*.

Unlike the antipassives and applicatives, incorporation in Chukchi has a well-described set of discourse functions. Arguments tend to be incorporated when they have low discourse salience or low topicality: for example, if an argument is introduced and will only play a role in one clause, it can be incorporated right away. Arguments are also frequently incorporated if they have low specificity or low individuation, or if there is a need to emphasize the action itself over the undergoer of the action (e.g., ‘reindeer-catching’ is a common example of incorporation). Incorporation is also used as a strategy to resolve the mismatch between the semantic salience of A and the syntactic salience of the ABS argument (recall that only ABS arguments can have syntactic dependents). Thus, the ABS-marked object will frequently be incorporated so that the agent can assume the syntactically more salient position.

The following example shows the behavior of the verb *gəcci-/gərki-* ‘collect’, which is antipasivizing and which we therefore expect to be reduced in valency under incorporation (Dunn 1999, ch.12, ex. 004 & 005). Note that in (26b) *qora-* ‘reindeer’ has been incorporated and that the argument structure of the sentence is that of an intransitive verb:

- (26) a. *gəm-nan tə-gəcci-ccən* *ləg-oon[?]ə-lgə-n*
 1sg-ERG 1sgA-collect-PROG.3sgO AUTH-berry-SING-ABS.SG
 ‘I collected shiksha berries’
- b. *ø-qora-gərke-g[?]e* *in[?]e=[?]m* *jara-gtə* *gekeŋ-e*
 3sgS-reindeer-collect-TH.3sgS morning=EMPH house-ALL drive-ADV
ø-qət-g[?]i
 3sgS-set.off-TH.3sgS
 ‘He caught the reindeer in the morning, he set off home on his team...’

An example of an applicativizing verb is *jo-/təjo-* ‘put’, which we expect to remain transitive under incorporation (Dunn 1999, ch.12, ex. 12 & 13). This is indeed the case in (27), where the destination of putting has been promoted to O, and the theme has been demoted to an oblique or incorporated in the two examples. The incorporation of *taq[?]a-* ‘supplies’ vacates the object grammatical role, which is then satisfied by ‘sack’ (resulting in a meaning akin to ‘she supply-filled the sack’).⁵

- (27) a. *kojŋə-n* *ena-təjo-nen* *uun[?]-e*
 cup-ABS.SG APPL-put-3sgA.3sgO berry-INST
 ‘She filled the cup with berries’ (applicative)
- b. *tejucə-n* ***taq[?]a-təjo-nen***
 sack-ABS.SG supplies-put-3sgA.3sgO
 ‘She put food for the road in the sack.’ (incorporation)

Incorporation by intransitives does occur and can be directly elicited, but it is rare in natural discourse. Thus, it is not included as part of this study.

⁵The *jo-/təjo-* verb is peculiar in that it only occurred with incorporation or an applicativizing affix in Dunn’s data; however, speakers in my study did use the verb in simple active transitive constructions.

2.5.4 Expected changes

As with alignment, there are a number of possible changes that could take place within this system of voice alternations. The particular operations that were covered in the preceding sections have no obvious correlates in Russian, so one possibility is that the overall system will be reduced. A reduction in these processes could also be motivated by the density of functions each affix has, and the specificity of the contexts that condition the different functions. The causative/applicative uses of *r-/n-* may be more likely to be maintained because they are conditioned by a clear semantic rule (agentivity), but the distinction between applicativizing and antipassivizing verbs appears to be entirely arbitrary, and may be especially difficult for semi-speakers to acquire.

There are other reasons why *ine-* might be especially susceptible to change. The first has already been mentioned: Skorik (1958) described the prefix as being fully productive (that is, able to combine with any verb), and failed to describe its applicative function. It is Skorik's data that was by-and-large used in the construction of pedagogical materials for Chukchi, so this account of *ine-* is the one that many speakers will have been exposed to in school. It is worth repeating that Skorik and Dunn worked with different populations—Skorik with a more northern variety—so this may be a dialectal difference, and not necessarily an error in his analysis. Nevertheless, Dunn's account suggests that for at least some speakers, the presentation of the language (and particularly of the antipassive) in school will not always line up with the variety they may have been exposed to at home or in their community, and speakers are likely to accept the version they learned in school as the more “correct” one.

Another possibility is the loss of the antipassive entirely, due to its homophony with the 1sg O inverse. (Of course, the reverse—the reinterpretation of the inverse as an antipassive—is also possible.) Despite the fact that the antipassive always has intransitive agreement and the inverse is necessarily transitive, there is occasional complete overlap between the two verb forms. (This homophony may even point to how antipassive marking was imported for the expression of inverse relations in the first place.) For example, the prefix/suffix combination for the transitive aorist when

it agrees with a 1sgO and either a 2sgA or 3sgA is *ine-* $-g^?i$. This is identical to the prefix/suffix combination for antipassivized verb stems with a 3sg S:

- (28) a. $^?aatcek$ \emptyset -**ine**-*piri-g[?]i*
 youth.ABS.SG 3sgS-ANTIP-take-TH(.3sgS)
 ‘The youth took (something), the youth won the prize’ (antipassive)
- b. (gəm) (gə-nan) \emptyset -**ine**- $l^?u-g^?i$
 1sg.ABS 2sg-ERG 2sgA-INV-see-TH(.2sgA)
 ‘You (sg.) saw me’ (inverse)

A reanalysis where one meaning is lost would be fairly straightforward, especially with argument drop: as these morphological combinations only occur with transitive verbs, there would be no additional clues as to which reading is intended if there are no external arguments present.

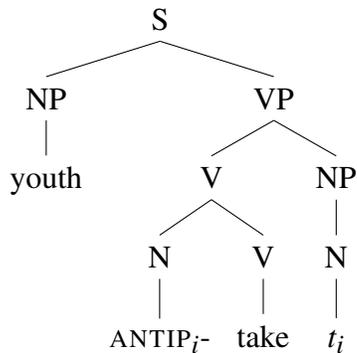
We can also posit some predictions about how this system will change based on the syntactic structure of these operations. It is clear from the data above that noun incorporation and antipassivization are constructed very similarly in Chukchi: both processes result in the demotion of A to S, and involve the addition of a prefix immediately before the verb root. In the case of antipassivization, it is the antipassive *ine-* morpheme, and in the case of noun incorporation, it is the incorporated O. The rest of the construction is formed in the same way: there is intransitive suffixal agreement with the derived S.

These facts are easily accounted for using an analysis of grammatical function-changing rules like that of Baker (1988). Baker explains processes such as antipassivization and possessor raising (which also occurs in Chukchi) as a kind of incorporation in which the antipassive morpheme is generated in the direct object position, and the object theta role of the transitive verb is simply assigned to the antipassive morpheme itself (Baker 1988: 131-133). Skorik and Dunn differ as to whether oblique-marked demoted objects ever occur with the antipassive form; however, if these arguments are present they can simply be analyzed as adjuncts.

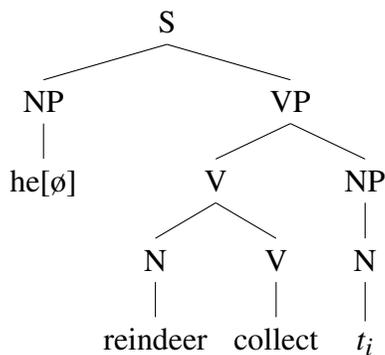
Abstracting away from the full complexity of the Chukchi clause (such as agreement and whether the core argument NPs are actually adjuncts that form a chain with *pro*, which is actually in argument position), these two processes are illustrated in the following tree structures

(following Baker 1988: 133):

(29) Tree structure for antipassive (22b)



(30) Tree structure for noun incorporation (26b)



The valency-rearranging applicative and valency-rearranging O incorporation could also both be analyzed as having identical underlying structures, where the applicative and O are incorporated in the same manner as in the preceding tree, but at the same time an oblique argument is promoted to the position vacated by the object.⁶

If there is in fact a correspondence at some level of deep structure between these pairs of constructions, then we might expect them to undergo comparable changes, either simultaneously or through analogy. (For example, if there is a change in case-marking with valency-reducing incorporation, we might expect that change to also occur with the antipassive *ine-* prefix.) If such changes do proceed in tandem, it may give us more evidence that the incorporation analysis of *ine-* is correct.

⁶Of course, Baker updates his analysis of the underlying structure of languages that make use of noun incorporation and antipassives in his monograph on polysynthesis (Baker 1996); for example, the NP arguments of the verbs here would also be adjuncts under his revised proposal. However, this does not impinge on the overall symmetry between the underlying structures of antipassivization and noun incorporation.

2.6 Syntactic operations: the interaction of word order, argument drop, and agreement

The final area explored in this study is verbal agreement and how (or whether) it interacts with argument drop. Section 2.4.1 introduced the complexity of the Chukchi agreement system. The agreement paradigms for the aorist and intentional are repeated below, as Table 2.8.

Subj	Intrans	1sg O	2sg O	3sg O	1pl O	2pl O	3pl O
1sg	<i>m- -g^ʔek</i>	–	<i>t- -gət</i>	<i>t- -g^ʔen</i>	–	<i>t- -tək</i>	<i>t- -net</i>
1pl	<i>mən- -mək</i>	–	<i>mət- -gət</i>	<i>mət- -g^ʔen</i>	–	<i>mət- -tək</i>	<i>mət- -net</i>
2sg	<i>q- -gi</i>	<i>ine- -g^ʔi</i>	–	<i>-g^ʔen</i>	<i>-tkug^ʔi</i>	–	<i>-net</i>
2pl	<i>q- -(gə)tək</i>	<i>ine- -tək</i>	–	<i>-tkə</i>	<i>-tkutək</i>	–	<i>-tkə</i>
3sg	<i>n- -g^ʔen</i>	<i>ine- -g^ʔi</i>	<i>ne- -gət</i>	<i>-nin</i>	<i>ne- -mək</i>	<i>ne- -tək</i>	<i>-ninet</i>
3pl	<i>n- -net</i>	<i>ne- -gəm</i>	<i>ne- -gət</i>	<i>ne- -g^ʔen</i>	<i>ne- -mək</i>	<i>ne- -tək</i>	<i>ne- -net</i>

Table 2.8: Agreement affixes in Chukchi transitive aorist and intransitive intentional, with inverse marking highlighted in bold (adapted from Fortescue 1997)

The intransitive forms in Table 2.8 correspond to the intransitive intentional (also called the optative), and the transitive forms are for the transitive aorist (or the non-future neutral, to use Dunn 1999’s terminology). These two moods demonstrate the full range of unique agreement markers; however, these markers are not used in every tense/mood, and some of them are fusional (that is, their presence serves to signal mood in addition to agreement). The earlier generalization that prefixes generally denote the sentential subject (A/S – a nominative pattern) and suffixes denote S/O (an absolutive pattern, though with distinct marking for either S and O) is generally correct, with some exceptions. A full analysis of the synchronic operation of the agreement system is given in Chapter 3. Examples (31) and (32) provide a basic descriptive account of the surface agreement patterns.

From (31) we can see that the pronominal prefixes also encode mood (neutral, intentional, and conditional). The future/non-future tense distinction in the neutral mood is not encoded by the pronominal prefix, but by the presence of a separate prefix (*re-* for the future, null marking for the non-future) that is attached immediately before the verb.

(31) Pronominal prefixes (A/S) (Dunn 1999, fig. 10.12)

	future/non-future	intentional	conditional
1sg	<i>t-</i>	<i>m-</i>	<i>m^ʔ-</i>
1pl	<i>mət-</i>	<i>mən-</i>	<i>mən^ʔ-</i>
2sg	<i>∅-</i>	<i>q-</i>	<i>n^ʔ-</i>
3pl			
3sg		<i>n-</i>	
3pl			

The pronominal suffixes solely encode either S or O and are not fused with any other category:

(32) Pronominal suffixes (Dunn 1999, fig. 10.13)

	S	O
1sg	<i>-∅ (-k)</i>	<i>-gəm</i>
1pl	<i>-∅ (-mək)</i>	<i>-mək</i>
2sg	<i>-∅</i>	<i>-gət</i>
2pl	<i>-tək</i>	<i>-tək</i>
3sg	<i>-∅</i>	<i>-n</i>
3pl	<i>-t</i>	<i>-net</i>

The forms in parentheses only appear in aspectually neutral paradigms (i.e., the form is null in the progressive). Dunn has also further decomposed some of the suffix forms into a pronominal suffix and a theme suffix (*-g^ʔi*, *-g^ʔe*), resulting in null suffixes for the 1sg object and *-n* for the 3sg object.

The 3rd person S forms also display some irregularities in certain TAM combinations. For example, in intentional/conditional neutral forms, intransitive verbs unexpectedly use 3rd person O suffixes instead of the S suffixes used by future/non-future and progressive verbs (*-net* instead of *-t* and *-n* instead of null).

There are also certain suppletive suffixes that encode both A and O (there is no prefix form in these cases): *-tkə* signals a 2pl A with a 3rd person (sg or pl) O, *-nin* signals 3sgA/3sgO combina-

tions, and *-ninet* signals 3sgA/3plO.

Finally, recall that Chukchi has a system of inverse marking that operates according to a $1 > 2 > 3\text{sg} > 3\text{pl}$ hierarchy. The *ne-* prefix is used with 3sg and 3pl subjects whenever they are ranked lower than the object (so we find *ne-* with 3plA/3sgO combinations). *ine-* is used with 1sgO (except in the case of 3plA/1sgO), and *-tku* is used with 1plO (except for 3sgA/1plO and 3plA/1plO). Thus, there appears to be an overall tendency for the *ne-* inverse to outrank the other inverse markers.

There have already been some changes to the agreement system in certain dialects of Chukchi. In the Markovo region, which represents the extreme southern inland varieties of Chukchi, there is no *-tku* inverse;⁷ instead, the *ne-* inverse is used in these contexts (which supports the earlier assertion that the form is somehow more dominant). Dunn (1999) also argues that this pattern is evidence that *ne-* is not overtly linked to 3rd person.

This complex system of agreement marking coincides with relatively free word order. According to Dunn (1999), although it is easy to elicit constructions with both A and O in addition to the verb, maximal specification of verbal arguments is rare in actual discourse (likely because it is redundant, especially with pronominal arguments). Overt A nominals are generally rare, and it is more common to find an AV order (with no externally-specified O) than any order that has both core arguments as external NPs. However, clauses with a specified S or O but no overt A are still more common.

Dunn (1999: ch. 4) provides a relative ranking of the frequency of different word orders and the likelihood of dropping A, S, and O arguments in the instances of quoted speech in his corpus (where arguments are specified more frequently than in everyday, conversational speech).

- (33) intr. V > tr. V > tr. OV > intr. SV > VS > VO > AV > OAV > AVO > VA > OVA >
AOV/VAO/VOA

⁷This is also the pattern in Koryak, which is spoken in neighboring regions.

2.6.1 Expected changes in degree of polysynthesis

Overall, both contact-induced change due to Russian and attrition predict some kind of simplification of the agreement system (and the polysynthetic verb more generally). Mithun's (1989) study of Cayuga suggests that attrition (or perhaps contact with a non-polysynthetic language like English) results in a reduction in the degree of polysynthesis and an increased preference for non-affixal forms. A reduction in polysynthesis (that is, shorter words) has also been observed in languages that are not being lost but have contact with a morphologically simpler language. One example is West Greenlandic (Kalaallisut), which has been in contact with the colonizing language, Danish, since the 1700s. Speakers anecdotally report that words have been getting shorter amid increasing Greenlandic-Danish bilingualism (Alliaq Kleist Petrussen, Tikaajaat Geraae Kristensen, *pers. comm.*).

Thus, we expect the overall degree of polysynthesis in Chukchi to decline as well. The Chukchi verb is not as productively polysynthetic as, for example, that of Greenlandic, but is still fairly dense in terms of the number of morphosyntactic and semantic categories encoded, and some reduction in the use of the full system is expected.

Chukchi already shows some tendency to simplify verbal marking in conversational speech, in which there is a tendency to use non-inflecting verb bases without the corresponding inflected auxiliaries, which are required of proper speech (Dunn 1999: 92). These forms are used instead of the corresponding inflecting verb forms. This pattern is not directly investigated here, but is possibly related to some of my findings, such as the relative robustness of certain derivational morphology in participle forms compared to inflecting verbs (see Chapters 4 and 5).

2.6.2 Potential effects of argument drop

As I have noted throughout, Chukchi makes extensive use of argument drop. A basic transitive clause such as the following is easy to elicit directly, but occurs rarely in spontaneous speech (Dunn 1999, ch. 4):

- (34) qənwɛr jara-lgə-jɪə-n ɲew-ʔəttʔ-qej-e tejkə-nin
 finally house-SING-AUG-ABS.SG woman-dog-DIM-ERG make-3sgA.3sgO
 ‘Finally, the female dog made a big house.’

Argument drop is most prevalent with pronominal arguments, as they are also marked on the verb. The use of overt nominals vs. zero pronominals is governed by clear pragmatic principles (such that violating them would likely be perceived as a sign of lower proficiency among fluent speakers). In short: focused (i.e., newsworthy) arguments are indicated by overt nominals, and topical arguments (that is, those that have already been introduced into the discourse context) are indicated through verbal agreement (Dunn 1999: 350). Perhaps trivially, this classification does not apply to arguments that cannot be referenced on the verb (i.e., non-core arguments). Non-focused arguments can also be specified for purposes of disambiguation (as when 3rd person marking on the verb can refer to multiple possible arguments in the discourse context).

Thus, given what is known about how easily pragmatics is lost in situations of shift, one change we might encounter among less-proficient speakers is consistent overt specification of external arguments, including in contexts where they are not needed or expected. This could, in turn, lead to increased functional load on external arguments, and a decreased need for verbal cross-reference. A result of this reconfiguration could pattern like Russian: with nominative agreement (preservation of the subject prefixes, but loss of the suffixes).

We may also expect the opposite type of change: where null external NPs will be reinterpreted as absent rather than unexpressed, and null pronominals will cease to be used entirely. A change of this type could motivate further reanalysis of the entire structure of the clause; one possible reanalysis would involve interpreting the pronominal agreement markers as full arguments in their own right. (Many of the agreement markers are derived from overt pronouns to begin with, and still resemble them to some extent, which could facilitate such a reanalysis.) Russian word order could also promote such a change in Chukchi: the basic (unmarked) word order for transitive clauses is SVO, which is incidentally the order of affixation of transitive verbs in Chukchi.

2.6.3 Inverse marking

Inverse marking occupies a particularly endangered position within the overall agreement system. As we have seen, certain Chukchi dialects have already shown a reduction in the number of distinct inverse markers they maintain in the system. Under Russian influence, inverse marking may be especially susceptible to loss or reanalysis because it has no clear correlates with any Russian forms. It is difficult to predict what may happen with the *ne-* inverse, since it is particularly widespread in the agreement system; although Dunn (1999) claims that the dialectal evidence shows that *ne-* is not obviously linked to 3rd person objects, it may nevertheless be reanalyzed as a 3rd person subject prefix. Similarly, it is likely that the *ine-/tku-* inverses will be preserved in some function, as they appear to be salient markers of a 1st person object for some speakers, even in cases where these forms are actually antipassives. Thus, they may be reanalyzed as object agreement forms (albeit in a very marked position).

In general, we might predict that forms which require multiple agreement (that is, simultaneous agreement with multiple arguments) will be dispreferred or lost by semi-speakers due to their higher degree of morphosyntactic featural complexity. This characterization is true of the inverse markers, which necessarily agree with specific configurations of person/number marking on arguments, but also the suppletive suffixes *-tkə* and *-nin*, which as we saw encode specific A/O combinations.

2.6.4 Implications for a feature-copying analysis

Recall from section 2.4.1 that one proposal for the synchronic status of the agreement affixes is Bobaljik 1998, which argues that the pattern of A/S prefixes and S/O suffixes is actually a nominative-accusative one, with feature copying under certain conditions to ensure that the suffix slot is filled. Crucially, feature copying is necessary when there is no additional argument to fill the suffix slot, such as an object. Thus the S suffixes are the reflexes of feature copying from the S prefixes, which themselves agree with the actual NP subject.

This analysis makes certain predictions about the likelihood of different types of changes to the agreement system: neither slot should appear empty without some kind of restructuring of deep morphological processes. One of the predicted types of Russian interference outlined above—preservation of the A/S prefixes but loss of the suffixes—would signal a loss of the obligatory feature copying processes that are currently active in the language. This would be a significant morphological change, but it is essentially allowed under Bobaljik’s analysis. The alternative possibility—loss of subject prefixes but maintenance of the suffixes—is unlikely to occur if Bobaljik’s theory is correct, particularly in the case of the S suffixes. This is because this slot necessarily receives its features from the agreement prefix in intransitive clauses—an empty prefix slot would prevent the suffix from being valued with any features. A change of this type would either signal that Bobaljik’s feature copying account is incorrect, or that there has been a thorough change in the nature of these slots in the verbal template, with actual agreement (not redundant feature copying) taking place in this suffixal position.

2.6.5 Case study: The linguistic system of one Chukchi speaker in Yakutsk

I investigated all of these features comprehensively with one attriting speaker living in Yakutsk (the capital of the Sakha Republic). While many of these domains display no changes, some of them differ dramatically from previous descriptions of the language.

First, let us consider ergative alignment in this speaker’s system. The ergative-absolutive marking of core arguments is very robust for this speaker. There appears to be no restructuring according to a nominative-accusative system: intransitive subjects and objects receive the expected absolutive marking, while transitive subjects are the only arguments which receive ergative marking. The following are several freely-constructed sentences from this speaker, which illustrate the use of ergative and absolutive marking with a range of lexical items:

- (35) ətla-ta kojŋə-cəko tekicgə-n jo-nen
 mother-ERG cup-INESS meat-ABS put-3sgA.3sgO
 ‘The mother put the meat inside the cup’ (ERG A with ABS O)

- (36) $i^?g$ -a qora- $\eta\theta$ ga-penrə-len
 wolf-ERG reindeer-ABS.SG PRF-attack-3sg
 ‘The wolf attacked the reindeer’ (ERG A with ABS O)
- (37) η wəcqet nə-migciret-qin
 woman.ABS.SG HAB-work-3sg
 ‘The woman was working’ (ABS S)

There is also no evidence of morphological reduction of the different absolutive or ergative case markers, at least for common nouns. The preceding examples contain both *-e* and *-te* for ergative marking, as well as the different absolutive markers (unmarked, *- $\eta\theta$* , and *-n*). This speaker produced no high animate nouns in elicitation or any of the experimental tasks, so it is not possible to conclude whether she has retained these forms.⁸

The other type of morphological ergativity in Chukchi, verbal agreement marking, has not escaped changes in this speaker’s system. The following is a complete transitive aorist paradigm I was able to elicit from the speaker, using the verb *l²u-* ‘see’. The bolded affixes are changes that have affected the agreement affixes; the italicized affixes are changes to inverse marking.

(38) Consultant’s full transitive aorist agreement system

	1sg O	1pl O	2sg O	2pl O	3sg O	3pl O
1sg A	–	–	tə- $g^?en$	tə- tək	tə- $g^?en$	tə- -net
1pl A	–	–	mət- $g^?en$	mət- -net	mət- $g^?en$	mət- -net
2sg A	<i>ine- $g^?i$</i>	<i>ine- $g^?en$</i>	–	–	$g^?en$	-net
2pl A	<i>ine- tək</i>	<i>ine- tək</i>	–	–	-tək	-tək
3sg A	<i>ine- $g^?i$</i>	<i>ine- -ninet</i>	ne- $g^?et$	<i>ine- -ninet</i>	-nin	-ninet
3pl A	ne- $g^?en$	ne- -mək	ge- gət	ne- tək	ne- $g^?en$	ne- -net

What is immediately striking is that 3rd person object marking has not undergone any changes; we find the expected prefix/suffix combinations for each part of the paradigm. However, we find

⁸The same cannot be said of the many other cases in Chukchi. The speaker could not remember some of the spatial cases, such as the sublative; in these situations, she did not substitute a different form but simply could not devise a way to express something being under something else. It is perhaps not surprising that the speaker does not remember, or perhaps never learned, some of the spatial cases; though it would be difficult to claim that ‘under’ is an infrequent concept in everyday language use.

that 3rd person object suffixes are spreading to objects of other persons (this includes the spread of highly semantically marked forms, such as *-ninet*, which is a portmanteau suffix used only in case of a 3sg subject and 3pl object, and only in the aorist tense). The result is the complete leveling of certain combinations of subject/object: these have been highlighted in different colors in (38) to illustrate the new syncretic forms.

The pattern here can best be described as the neutralization of the person feature of the object in the newly-syncretic cases; the distinction between whether the object is singular or plural is maintained.

The changes to inverse marking involve the complete loss of the 1plO inverse, *-tku*, and the spread of the 1sgO inverse *ine-* to replace *-tku* as well as several uses of the 3rd person A inverse, *ne-* (specifically, combinations of 3sgA with 1plO and 2plO). The motivation for the spread of *ine-* in these cases is not obvious, but it remains restricted to inverse argument combinations, suggesting that the inverse function is maintained.

It is worth noting that this is a markedly different pattern from other syncretisms that exist in the agreement patterns of traditional Chukchi. The overwhelming tendency in the non-future tenses in Chukchi is to neutralize prefixal subject agreement. Some examples include:

(39) a. *ine- -g^ʔi*

Encodes:

2sgA-1sgO

3sgA-1sgO

Neutralized feature: [SUBJ.PERS]

b. *ne- -gət*

Encodes:

3sgA-2sgO

3plA-2sgO

Neutralized feature: [SUBJ.NUMB]

c. *ne- -mək*

Encodes:

3sgA-1plO

3plA-1plO

Neutralized feature: [SUBJ.NUMB]

d. *ne- -tək*

Encodes:

3sgA-2plO

3plA-2plO

Neutralized feature: [SUBJ.NUMB]

The changes to this speaker's system have actually had the effect of undoing some of the syncretisms that exist in the standard system: *ne- -mək* now exclusively occurs with 3plA-1plO combinations, and *ne- -tək* exclusively occurs with 3plA-2plO combinations. The result is an increase in the number of distinctions in subject agreement in these cases.

From the outset, there are several possible explanations for the emergence of this pattern in the speaker's grammar. The first is that she acquired it: the speaker grew up in Kamchatka, not in Chukotka (where most of the documented varieties are spoken), so this may be an instance of regional variation. This explanation is highly unlikely, as this pattern of agreement is unattested among other speakers from this consultant's home town, with whom linguistic work has been carried out (Maria Pupynina, *pers. comm.*). The other possibility is that there has been a change in her system due to contact effects from Russian, the dominant language of her milieu, or due to attrition.

One way of characterizing this pattern is decreased object agreement; this would make sense due to either influence from Russian agreement (where verbs only agree with the subject) or morphological loss. What is interesting about this system from a loss perspective, however, is that it still maintains a tremendous number of distinctions and special morphology (recall that some of

these affixes are only encountered in the aorist). Thus, while we do have some simplification of the system, the speaker does not display the kind of wholesale paradigmatic leveling (within or between paradigms) that is expected of obsolescence.

Perhaps unsurprisingly given the additional syncretism of the agreement system, the speaker also displays changes in the frequency of argument drop. This includes the redundant use of non-3rd person pronominal arguments that are already encoded in the verbal agreement marking, as well as the use of 3rd person pronouns in a context where only 3rd person singular referents are involved (and where the use of the pronoun does not serve to disambiguate between the two different referents).

(40) ənq^ʔom=^ʔm luur=^ʔm ə-**nan** kejnən l^ʔu-nin
 then=EMPH suddenly=EMPH 3sg-ERG bear.ABS.SG see-3sgA.3sgO
 ‘Then suddenly she saw a bear’

(41) ə**tlon**=^ʔm kejiŋ-e ge-piri-lin **ŋeekkeqe**j
 3sg.ABS=EMPH bear-ERG PRF-grab-3sg girl.ABS.SG
 ‘The bear grabbed her, the girl’

(42) n-iw-qin, “kita qun qə-jet-gi gəmə-kagtə, waj mə-nu-gət
 HAB-say-3sg INTJ 2S.INT-go-2sgS.INT 1sg-DAT here 1sgA.INT-eat-2sgO
gət”
 2sg.ABS
 ‘He says, “Why don’t you go to me, here, I eat you”’

Looking to other interactions among different elements of this speaker’s morphosyntax, the retention of case marking may explain the robustness of her free word order. For each of the stimuli in the sentence production task, the speaker would provide all possible permutations; similarly, she produced a variety of word orders in constructing narratives. There is no evidence that word order is becoming linked to argument structure in any way.

One final domain where this speaker’s grammar differs in marked ways from existing descriptions is valency-changing operations: as predicted, this speaker appears to have lost the valency-changing functions of the *ine*- prefix entirely. In the experimental task designed to target these operations specifically (where transitive verbs were presented with too few arguments, and in-

transitive verbs with too many) the speaker opted to produce forms that were infelicitous for the stimulus context, while noting that they were incorrect. For example, for a stimulus which targeted the antipassive, the speaker was shown a picture of a boy holding onto a tree, but was only supplied the lexical items for ‘boy’ and the transitive verb ‘hold’ and was asked to construct a sentence using only these words. The speaker provided the following sentence, while noting that it was missing an object unless the object were already clear from the context:

- (43) ninqej-e rənrə-nin
 boy-ERG hold-3sgA.3sgO
 ‘The boy held (something)’

What this example shows is that although the overall rate of argument drop has decreased in her speech, it is still an accessible process for the speaker (under the right pragmatic conditions, which were not met for a context-less picture stimulus).

Crucially, however, she did not provide the expected antipassive construction using *ine-* and intransitive verbal agreement—the speaker was also uncertain about the meaning of antipassive constructions when asked about them directly. However, we cannot conclude from a lack of production of these forms that they have entirely disappeared from her grammar. The antipassive appears to be on the decline across many Chukchi speech communities (Maria Pupynina, *pers. comm.*); the grammaticality judgments in Chapter 4 test the extent to which these forms are no longer acceptable to modern speakers.

Also as predicted, the decline in the use of antipassive marking for this speaker coincides with very low rates of noun incorporation. While noun incorporation is abundant in the narratives collected by Dunn, this speaker produced only one instance of verbal incorporation across a 10-minute narrative:

- (44) qol nə-ppəlu-qine-qej ɲekkeqej nə-**jara**-twa-qen
 one ADJ-small-3sg-DIM girl.ABS.SG HAB-**house**-COP-3sg
 ‘One little girl lived in the house’

Note that this is not the core argument (valency-changing) incorporation described above, but rather the incorporation of an oblique without a resulting change in the valency of the verb at

all. It is possible that this is a lexicalized case of incorporation like those discussed by Mithun (1989), where the combination of *jara-* ‘house’ and the copula *twa-* are used together to mean ‘live’ (literally, ‘be in the house’).

2.7 Conclusion

2.7.1 Other signs of language shift

The speaker whose linguistic system is considered in section 2.6.5 demonstrates, in no uncertain terms, that there have been linguistic consequences in Chukchi due to language shift. The changes in her system cannot be explained as resulting from regional variation she acquired growing up in Kamchatka; they are the direct result of the language ecology. Whether the particular changes she displays are due to Russian influence or attrition (combined with incomplete acquisition) is more difficult to say. The aspects of her argument structure that have been affected are all features that are either lacking or constrained in Russian: antipassives and applicatives, object agreement on verbs, and argument drop. However, it is not the case that they have been replaced with an obviously Russian-like system; antipassives and applicatives are absent entirely and object agreement is somewhat reduced but some kind of affixation is retained. Both subject and object drop are possible in Russian under the right discourse conditions. To verify whether the speaker’s rates of argument drop in Chukchi mirror those of Russian, we would need to compare them with the Russian patterns in the storytelling genre specifically (for the speaker’s Russian and among L1 speakers of Russian). Overall, the changes are explained equally well by either Russian interference or morphological loss in obsolescence.

There are other less ambiguous signs of attrition in this speaker’s speech, beyond the areas of alignment and argument structure. The first is phonological: the speaker does not always maintain the Chukchi system of vowel harmony, which operates according to a lexically-specified dominant-recessive pattern. The vowel phones in Chukchi are: [i e a ə o u]. Only the vowels /i/, /e/, and /u/ are phonemic. [ə] is an epenthetic vowel that is inserted where necessary to break up consonant

clusters or to resolve illicit syllable structures; it does not participate in vowel harmony. (See Dunn 1999: ch. 2 for an in-depth account of Chukchi phonology.) [e], [a], and [o] are the dominant harmonic allophones of the vowel phonemes, respectively.

All words and morphemes in Chukchi are underlyingly-specified for either dominant or recessive harmony—the presence of a single dominant morpheme triggers dominant harmony throughout the phonological word. This is not always obvious from the surface form of the word; for example, morphemes that contain no vowels at all can still trigger dominant harmony. This is observable in the behavior of two different markers of absolutive singular case: $-n^{-VH}$ and $-n^{+VH}$:

- (45) Root: /tələ/ $^{-VH}$ ‘walk, go’
 Absolutive noun: tələ- n^{+VH} ‘path-ABS.SG’
- (46) Root: /kəmlilu/ $^{-VH}$ ‘kamlejka’
 Absolutive noun: kəmlilu- n^{-VH} ‘kamlejka-ABS.SG’

Although these are lexical patterns that must be learned (and which we therefore expect will be easily lost in attrition), there are some purely phonological patterns to this system. While [e] or [ə] are present in both recessive and dominant harmony, the presence of [a] and [o] always indicate that dominant harmony is in effect, and [i] or [u] always signal recessive harmony. Yet the speaker occasionally produced harmonic mismatches, which suggests that this is no longer an active phonological process in her system. The following is one clear example:

- (47) qlawəl-a **ga-nmə-lin** qoraŋə
 man-ERG PRF-kill-3sg reindeer.ABS.SG
 ‘The man has killed the reindeer’

The verbal inflectional morphemes *ge-* and *-lin* are both underlyingly recessive, but become *ga-* and *-len* if any of the verbal derivational morphology is dominant harmony. Here, the speaker has not just produced a harmony violation for the whole word (which is expected to be recessive); she has produced phonology that is phonotactically disallowed by the language (both dominant and recessive allomorphs of different morphemes within one phonological word).

Another sure sign of attrition for this speaker is difficulty with lexical retrieval. In multilingual settings speakers will often code-switch or nonce-borrow from their dominant language when they cannot remember a particular lexical item. In addition to this strategy, the speaker makes heavy use of a language-internal resource to deal with difficulty remembering verbs specifically: the use of the pro-verb form *req-* ‘do so’.

(48) naqam=[?]m tələtəl rə-**req**-ew-nin
 at.the.same.time=EMPH door.ABS.SG APPL-PROVERB-APPL-3sgA.3sgO
 ‘At the same time, the door did something’ (Intended: ‘opened’)

(49) am opopə cinit əmel[?]o mən-**req**-ewə-net=[?]m
 well okay REFL all 1sgA.INT-PROVERB-APPL-3plO=EMPH
 ‘Well okay then, I (myself) will do something (to all of them)’ (Intended: ‘gather’)

It is important to note that the use of these forms is not ungrammatical; in fact, even the verbal inflection is entirely intact. The choice of the pro-verb is simply infelicitous: it is not being used as a question or standing in for an action that is known from the context. We can think of this as a kind of pragmatic change happening due to obsolescence, related to the facts about stylistic shrinkage discussed in section 2.1.

2.7.2 A broader survey of argument structure

This case study has demonstrated the challenges involved in isolating the causes of contact-induced change in the system of a single speaker. The following chapters explore the argument structural changes happening across a variety of speakers and locations in Siberia.

Chapter 3

Ergativity and transitivity phenomena in Modern Chukchi morphology

3.1 Loss and maintenance of ergative patterns

In Chapter 2, we saw that Chukchi has been held up by scholars as having a wealth of both morphologically and syntactically ergative phenomena. These include: ergative alignment of case marking, relativization of absolutive arguments only, and positional absolutivity of suffixal agreement in verbs. In Chapters 3 and 4, I discuss the fate of these different phenomena among modern Chukchi speakers. These patterns have not simply uniformly declined, as we might expect in a setting where the dominant language is accusative. While syntactic ergativity is preserved among only the most proficient conservative speakers, ergative case marking remains fairly robust among native speakers, attriting speakers, and semi-speakers. However, attriting speakers and semi-speakers evidence increased instability in their verbal agreement systems, especially in the transitive object suffixes.

The decline of syntactic ergativity is motivated (at least in part) by the loss of the antipassive markers *ine-* and *-tku*. In standard Chukchi, these markers have an additional function as inverse agreement markers throughout the transitive paradigms; the inverse affixes have also been reanalyzed by many less-proficient speakers as having some other function, but unlike the antipassive morphemes, they have not vanished entirely. Thus, we should not analyze the changes to functions encoded by *ine-* and *-tku* as a trivial, local change to a single morpheme. The loss of an association of these morphemes with an antipassive function has implications throughout the entire argument structural system of these speakers, who resolve this loss in different ways.

3.1.1 The status of ergativity in Chukchi

Before we turn to the specific ergative phenomena that are investigated by this study, it is necessary to unpack what it means for a language (or an idiolect) to cease to be ergative or to lose

ergativity. Despite the fact that alignment typology classifies languages as ergative, accusative, tripartite, etc., ergativity has not been shown to be an absolute property of a language. Even early scholarship on this subject has highlighted the fact that no language is completely ergative across all morphological and syntactic parameters (Dixon 1979). Silverstein (1976; 1981) attempts to de-exoticize the phenomenon of ergative-absolutive case marking, claiming it is just one possible reflex of a universal system operating in languages that tends to label some arguments as agents and others as patients with respect to an animacy hierarchy. Under this type of analysis, the existence of an agent-specific case is in and of itself not that interesting and does not rise to the level of a unique phenomenon that must be explained. Such a pattern only necessitates a special explanation in syntactic theories that must reconcile the process of case assignment with a syntactic division between sentential subjects (which can be marked nominative, absolutive, or ergative) and objects (absolutive or accusative).

Ergativity itself is also not a uniform phenomenon that can be manipulated through language contact or change. As Tuite (1999) shows in the case of the Balkan languages and as I have argued for the Chukotkan languages (Kantarovich 2019), it is individual reflexes of ergativity (i.e., patterns where agents are treated in a special manner, or where subjects of intransitives and patients of transitives are grouped to the exclusion of agents) that undergo change. Thus, we should not be surprised by differences in the maintenance of ergative case and the absolutive syntax of relativization in Chukchi—there is no single, underlying motivation for these patterns.

The lack of an “ergativity” feature in Chukchi may explain why ergative case marking does not appear to be under threat from the accusative pattern of case marking in Russian, even among semi-speakers who are unambiguously dominant in Russian. While there is no special agentive case in Russian, the instrumental case can be used as the marker of the agent of a transitive verb in the case of passives. Recall that ergative case in Chukchi is syncretic with the instrumental case (and, in fact, derives from the reanalysis of a passive construction). Thus, the instrumental as the encoding of ‘the one by whom something is done’ creates a natural link between these languages, and in this respect, Russian poses no issue for Chukchi ergative/instrumental case.

In Kantarovich (2019), I question to what extent the Chukotkan languages should be thought of as ergative at all, or if their ergativity phenomena are, to echo the general sentiment of Silverstein (1976), merely the ways that they resolve issues of argument animacy. While animacy certainly conditions the patterns that we find in the use of ergative and absolutive case in Chukchi, and while we cannot necessarily point to an “ergative mechanism” that drives the structure of the language, it is not the case that ergative phenomena do not manifest in the structure of the language in important ways. However, these phenomena should be better thought of as absolutive: rather than there being special treatment of the ergative (transitive subject) argument, the language instead has a tendency to group together absolutive arguments (transitive objects and intransitive subjects). In fact, most of the so-called “ergative” patterns in Chukchi work to eliminate the ergative argument entirely via antipassivization, so that the ergative argument becomes absolutive.

There is considerable evidence that absolutive-marked nominals have a special status in the language, from both a morphological and syntactic perspective. The absolutive case has the greatest number of allomorphs and explicitly encodes a plurality distinction, which is collapsed in the other cases in the inanimate noun class. According to Dunn (1999: 159), only absolutive nouns can be co-indexed with separate nominal or adjectival modifiers. All non-absolutive nominals (including ergative nouns) obligatorily incorporate their modifiers. Absolutive nouns can also incorporate modifiers under the right discourse conditions (i.e., to downplay the importance of these modifiers to the conversation and avoid putting them in focus). Thus, the only pattern that is explicitly prohibited is complex noun phrases headed by an ergative NP. Differences between absolutive and non-absolutive incorporation were not explicitly targeted by any of the study tasks described in Chapter 1, but there is some evidence from collected narratives that older proficient speakers maintain these patterns better than the other groups, as part of a wider pattern of greater polysynthesis in their speech. Modificational incorporation will be discussed in greater detail in Chapter 5, which deals with the present status of polysynthesis.

Overall, conservative Chukchi nominal syntax is structured so as to have one focused core argument, which is marked by the absolutive case. The occurrence of ergative-marked arguments is

statistically rare in the language. In transitive constructions, the focused argument is the undergoer of the verb (the object), unless there are reasons the act itself or the one performing the act must be made more salient, in which case the undergoer argument is either incorporated, or eliminated or demoted to an oblique through antipassivization. (Whether it is demoted or eliminated is subject to variation; see the discussion in Chapter 1.) Often, if the object is inanimate (and is something that commonly undergoes the act conveyed by the verb), it is demoted or incorporated, though this is a pragmatic feature of the language, not a syntactic one. Nevertheless, it underscores the importance of animacy in conditioning the occurrence of ergative case.

Although this is a functional explanation of the facts, it is entirely compatible with the analysis of the ergative as a structural or dependent case in Chukchi. As we have already seen in Chapter 2, Chukchi does not display any evidence of the kind of split-S patterning in case assignment that has been used to argue for ergative case as an inherent case—unergative and unaccusative intransitive verbs occur with an absolutive-marked argument only. Ergative case surfaces only when there is also an absolutive argument in its c-command domain, i.e., only in transitives (although the absolutive argument may not be overtly expressed due to the availability of argument drop). The analysis of ergative case as a dependent case holds for all present-day speakers of the language: speakers who make use of ergative case marking only do so for transitive subjects, not for intransitive subjects of any kind.

3.1.2 Other transitivity phenomena

A number of phenomena in Chukchi can be likened to ergativity, in that they are restricted to argument encoding in transitive verbs and can therefore be thought of as transitivity phenomena. The most important of these patterns for the present investigation is the use of *ine-* and *-tku* inverse marking, which, as already noted, operates according to a $1 > 2 > 3\text{sg} > 3\text{pl}$ animacy hierarchy. This inverse system is baked directly into the agreement paradigms of transitive Chukchi verbs; that is, it does not take into consideration different degrees of animacy of 3rd person arguments, such as animals vs. humans vs. inanimate objects.

Throughout the transitive active paradigms in Chukchi, the notion of the “inverse” (where the subject is outranked by the object according to the animacy hierarchy) adequately explains where we find *ine-* and *-tku*. However, “inverse” marking also occurs in the stative paradigms, which are morphologically reduced. These two paradigms, the perfect and the habitual, only have one slot for agreement in both transitive and intransitive verbs, the suffix slot. (They also do not combine with any other TAM marking; for example, there is no such thing as a future habitual or future perfect.) In these paradigms, *ine-* and *-tku* show up in direct combinations as well: for example, the 1sgA > 2sg/3sgO form of the habitual is *n-ine- -igə̃m*. Thus, in these paradigms, these affixes are not inverse markers, but by virtue of their appearing at all, they signal transitive agreement. (*ine-* and *-tku* do not occur at all in the intransitive stative agreement paradigms.)

Although it is not visible in the stative paradigms, it is apparent in the active paradigms that inverse marking co-occurs with a seeming antipassivization of the verbal morphology: the verb displays intransitive agreement with the subject argument and no agreement with the object. The overall clausal syntax is still that of a transitive verb, however: when overt case-marked arguments are present, they take the expected ergative and absolutive case. This mismatch between the morphology and syntax of the inverse parts of the paradigm has been called the “spurious antipassive” in Chukchi (Halle and Hale 1997, Bobaljik and Branigan 2007).

Historically, it is clear that the inverse marking is derived from antipassive morphology and driven by animacy considerations: in inverse combinations, it is plausible that antipassivization was a preferred strategy to demote the higher-ranked argument and focus on the lower-ranked argument as the doer of the act, in accordance with the pragmatic tendencies we have already considered (Fortescue 1997, Kantarovich 2019, Comrie 1980). However, it is not the case that there is a synchronic process of antipassivization that occurs whenever inverse combinations are invoked: these are simply instances of a fossilized antipassive construction that require a separate synchronic explanation. In section 3.3.1, I offer a synchronic analysis of agreement marking in conservative Chukchi that treats the “inverse” as a kind of elsewhere subject morpheme that surfaces whenever the subject has valued the agreement position typically reserved for objects. This analysis accounts

for the facts particular to both the active and stative paradigms. I also explain how the structure of these forms is adapted by the less conservative Chukchi speakers who were able to produce more-or-less complete transitive paradigms.

Finally, this chapter also considers the process of semantic role assignment among different Chukchi speakers: semi-speakers in particular struggle to make use of the expected active voice argument structure in cases of unusual animacy combinations, such as inanimate objects acting as agents of transitive verbs with animate patients. This pattern is clearly the result of interrupted/divergent acquisition and the lower confidence that heritage speakers show in producing and assessing lower frequency constructions.

3.2 Case marking in modern Chukchi

In Chapter 2, I identified several possible predictions for changes to the marking of core grammatical cases in Chukchi, and the possible driving factors behind them. There are a number of changes that could possibly result from direct contact-induced transfer/interference from Russian: (i) reanalysis of ergative case as a nominative case (and absolutive case as accusative), (ii) loss of the ergative reading of the ergative-instrumental(-locative) syncretic forms, accompanied by the use of absolutive marking for all core arguments (a neutral system), and (iii) the reanalysis of the absolutive as a nominative subject case and the adoption of another case as the accusative, such as the genitive. (ii) could conceivably be facilitated by the nominative-accusative syncretism that occurs for neuter nouns and inanimate masculine nouns in Russian, while (iii) could similarly occur due to the genitive-accusative syncretism found in animate masculine and feminine (plural) nouns.

Morphological reduction of the kind typically found among attriting and heritage speakers is another possibility, and could produce a number of possible results: (i) merging of the two noun class systems or the loss of one class altogether, and (ii) syncretisms within the individual noun classes (which could also produce a pattern of neutral case marking of core arguments).

None of the Chukchi speakers consulted for this research appear to have developed accusative

alignment of case marking; most speakers continue to maintain an ergative pattern for marking core arguments. There are some exceptions to this pattern: a number of semi-speakers make use of a neutral system of case marking where all core arguments (A, S, and O) are marked with the absolutive. This could be an instance of Russian interference or, more probably, a case of morphological reduction. Even if this latter explanation is the correct one, I emphasize that this is not evidence of linguistic breakdown: such speakers, by and large, consistently only used the absolutive case for core arguments, and made use of at least one other case in the marking of oblique arguments. Thus, these speakers maintain a system in which they distinguish core grammatical case—a neutral system—from non-core (oblique/spatial) cases. This points to the continued assignment by their linguistic system of semantic roles (or theta-roles) from the predicate, and the corresponding assignment of case features.

The maintenance of the case marking system was directly investigated by the picture production task and indirectly investigated through narrative collection. Older fluent speakers found the task simple (although they balked at certain lexical items and supplied their own instead). Attriting speakers and semi-speakers had less difficulty supplying core argument forms than oblique argument inflection. The controlled production task required speakers to produce sentences with oblique arguments, but it is conceivable that less fluent speakers avoid this in their typical language use. The oblique cases that were directly targeted by the picture task were the dative/allative, the locative, and the instrumental.

Recall from Chapter 2 that Chukchi has two major noun classes: one for high animates and one for everything else. Pronouns generally fit into the common noun class, except they have a special ergative/instrumental case, *-(gə)nan*. In the conservative variety of the language, the high animate class includes proper names and kin terms when they are used as a form of address. Most animate nouns (including those for humans) belong to the common noun class, unless they are being used as terms of address. The cases that were systematically investigated by the production task are repeated in Table 3.1.

Although most speakers maintained some kind of ergative/absolutive distinction, there are

Case	Common Nouns		High Animates		Personal Pronouns
	SG	PL	SG	PL	
ABS	-ø/-ŋə/-n	-t(i)	-ø/-n	-nti	(stem)
ERG/INST	-(t)e		-ne	-rək	-(gə)nan
DAT/ALL	-gtə		-ne	-rək	-kagtə/-kə
LOC	-k		-ne	-rək	-k

Table 3.1: Select cases in conservative Chukchi, by noun class

noteworthy differences between the three speaker groups.

3.2.1 Animacy and noun class membership

First, the fluent speakers made use of the noun classes as expected: the only animate nouns that were marked by the high animate class were the kin terms ‘grandmother’ and ‘grandfather’ (although some of these speakers preferred to mark ‘grandfather’ with the common noun class). All other animate nouns—including human nouns such as ‘woman’ and ‘boy’ that are not kin terms—were marked by the common noun class. We can see this contrast in (50), where the only noun that is declined as a high animate is ‘grandmother’; all other human nouns (‘girl’, ‘woman’, ‘child’) are declined as common nouns:

- (50) a. wəŋə-rkə-nin epeqeŋ-**ne** ŋaakkaqaj-**etə** k^ʔeli
 sew-PROG-3sgA.3sgO grandmother-ERG.ANIM.SG girl-DAT hat.ABS.SG
 ‘The grandmother is sewing a hat for the girl’
- b. ŋewəcqeŋ-**e** rəqamətwaw-nen nenene əpa-ta
 woman-ERG feed-3sgA.3sgO **child.ABS.SG** soup-INST
 ‘The woman feeds/fed the child (with) soup’

A number of attriting speakers had a tendency to extend high animate declension to human nouns that were not kin terms, such that terms like ‘girl’, ‘woman’, and ‘boy’ showed up with the animate ergative marker *-ne* instead of the more expected *-(t)e*. At first glance, this could be misinterpreted as the development of a split-ergative system based on animacy. However, each speaker that displayed this tendency declined most human nouns as high animates across different

Nevertheless, it is interesting to note the tendencies of these speakers to only use the high animate declension with certain human nouns, but not all. For example, no speaker declined *kal[?]elawəl* ‘teacher’, *kelitkul[?]in* ‘student’, or *o[?]rawetl[?]at* ‘people’ as a high animate, and only one speaker declined *qlawəl* ‘man’ as a high animate. These patterns are summarized in Table 3.2¹.

Lexical item	Expected noun class	Noun class used by attriting speakers
<i>epeqej</i> ‘grandmother’	High Animate	High Animate
<i>apajŋən</i> ‘grandfather’	High Animate/Common	High Animate/Common
<i>qlawəl</i> ‘man’	Common	High Animate/Common
<i>o[?]racek</i> ‘youth’	Common	High Animate/Common
<i>ŋeekkeqej</i> ‘girl’	Common	High Animate
<i>ŋinqej</i> ‘boy’	Common	High Animate
<i>ŋewəcqet</i> ‘woman’	Common	High Animate/Common
<i>o[?]rawetl[?]at</i> ‘people’	Common	Common
<i>ə[?]lgətumgətum</i> ‘close friend’	Common	Common
<i>kelitkul[?]ən</i> ‘student’	Common	Common
<i>kal[?]elawəl</i> ‘teacher’	Common	Common
<i>əpaŋə</i> ‘soup’	Common	Common
<i>agtatwan</i> ‘yard’	Common	Common
<i>ə[?]l[?]əl</i> ‘snow’	Common	Common
<i>a[?]nelgən</i> ‘fishing rod’	Common	Common
<i>gilgil</i> ‘ice’	Common	Common
<i>jomromkət</i> ‘bush’	Common	Common
<i>jənqergən</i> ‘lightning’	Common	Common
<i>kətəjgən</i> ‘wind’	Common	Common
<i>parapar</i> ‘butter’	Common	Common

Table 3.2: Summary of declension patterns of nouns tested in production task

There are a number of conceivable explanations for this possible trend. One is phonological: many of the words that are unexpectedly declined as high animates end in the diminutive suffix *-qej*, so speakers might be analogizing *ŋeekkeqej* ‘girl’ and *ŋinqej* ‘boy’ to *epeqej* ‘grandmother’, which regularly declines as a high animate. Another possibility is sociolinguistic: this could be an example of pre-existing inherited variation in Chukchi, although it is unlikely to be regional, as the speakers who display these patterns live in separate dialect zones. The final possibility is,

¹This table does not include data for the speaker who makes no use of the high animate class at all, discussed below.

of course, morphological leveling motivated by attrition. Less fluent speakers prefer to maintain a morphological system with a one-to-one mapping between form and function; thus, the maintenance of a noun class system that does not have an obvious semantic motivation is dispreferred by them to begin with. Thus, they may be moving toward inflecting human nouns as high animates to resolve the lack of a semantic motivation for the split. The high animate class may also be easier to learn as there are fewer overall case forms, although these speakers show no signs of losing the corresponding common noun cases.

Although these patterns may be motivated by a kind of morphological simplification, we once again cannot treat this as evidence of dysfluency or systemic breakdown. Declension of human nouns as high animates, while possibly infelicitous in this context, is not strictly ungrammatical, as membership in the high animate class is fluid. Any noun can be declined as a high animate if it is a form of address or a name; animals can be high animates in folklore. Similarly, demonstratives that modify a high animate noun accordingly take high animate inflection.

It is also not clear that we can truly speak of “simplification” in this system: while the ergative, instrumental, and dative do not have a number distinction in the common noun class, there are separate singular and plural forms in the high animate class, which continue to be maintained by the speakers for these unusual cases. Note the plural ergative marking on ‘boys’ in the following example:

- (52) *ŋinqej-rək* *ne-npə-rkə-n* *uttuut*
 boy-ERG.ANIM.PL 3plA-plant-PROG-3sgO tree.ABS.SG
 ‘The boys planted a tree’

Another case of morphological leveling that can be more straightforwardly analyzed as paradigmatic simplification is that of another attriting speaker, who exclusively declines all nouns as common nouns, including *epeqeje-e* ‘grandmother-ERG’. I did not have the opportunity to systematically elicit the high animate class from this speaker, so it is impossible to say that she has “lost” this marking altogether. (In fact, given that this speaker was formally educated in Chukchi at the Herzen Institute, I suspect she would at least recognize it.) Nevertheless, it is telling that she

refrains from using it in any controlled or naturalistic production.

3.2.2 Changes to the alignment of core grammatical case marking

While most speakers across the three groups maintain an ergative-absolutive system of core argument case marking, two semi-speakers show a tendency to use the absolutive case for all three possible core argument types, resulting in a neutral alignment pattern (A=S=O). These speakers produce constructions such as the following:

- (53) a. η inqeg-**ti** nə-rəpə-qinet uttuut
boy-**ABS.PL** HAB-plant-3pl tree.**ABS.SG**
'The boys planted a tree'
- b. η inqej ge-peqetat-len
boy.**ABS.SG** PRF-fall-3sg
'The boy has fallen'
- c. η ewəcqet ø-rəkametwawə-ccən nenene
woman.**ABS.SG** 3sgS-feed-3sgS.PROG child.**ABS.SG**
'The woman is feeding the child'

One of these L2 speakers maintains the ergative-absolutive alignment system for lexical nouns, but tends to produce only absolutive case-marked personal pronouns. Note the use of all-absolutive arguments in (54):

- (54) **muri gət** n-ine-l[?]u-muri
1pl.**ABS** 2sg.**ABS** HAB-INV-see-1pl
'We see you'

instead of the expected:

- (55) mur-gənan **gət** n-ine-l[?]u-muri
1pl-**ERG** 2sg.**ABS** HAB-INV-see-1pl
'We see you'

While the loss of ergative case in this way could be seen as a kind of simplification of the system, it is interesting that the speaker who produced no instances of ergative case marking at all

nevertheless has a fairly robust system of oblique case marking, especially spatial cases such as *jomromkə-cəku* ‘bush-INESS’ and *jiljil-tkən-ək* ‘ice-on.top-LOC’. Most interestingly, she maintains the use of the instrumental case (from which ergative marking is derived):

- (56) *ŋewəcqet* *n-enarkele-qin* *kawkaw* *parapar-a*
 woman.ABS.SG HAB-spread-3sg bread.ABS.SG butter-INST
 ‘The woman spreads the bread with butter’

The lack of the expected ergative case on the transitive subject (‘woman’), but the presence of the same affix as an instrumental on ‘butter’, indicates that this speaker lacks the ergative reading of this affix, but not the form itself. This may be another instance of the resolution of multiple meanings associated with one form, which heritage speakers disprefer. More importantly, this pattern demonstrates that her linguistic system *does* differentiate between core arguments and non-core arguments, so that the assignment of theta-roles and the appropriate case marking is still taking place. Once more, we can see that this is rule-governed, systematic language use, not linguistic decay.

3.3 Agreement marking in modern Chukchi

Let us turn now to the issue of agreement marking among present-day speakers of Chukchi. In 3.3.1, I review the agreement marking patterns in traditional Chukchi and propose a formal synchronic account of the patterns. In sections 3.3.2-3.3.3, I describe how agreement marking is maintained by modern speakers of Chukchi and what we can conclude about the available analyses of agreement marking, in light of the changes occurring in their systems.

3.3.1 Syntax of agreement marking in traditional Chukchi

Morphology and syntax of agreement marking in active verbal paradigms

Agreement marking is possibly the most well-studied aspect of Chukchi grammar, in part because it poses challenges for virtually any theory of morphology. The full verbal inflectional system in the

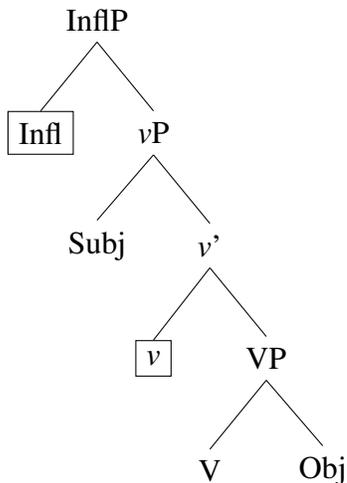
language is highly morphologically complex, both in a quantitative sense (with numerous affixes) and in the sense of being fairly irregular. The agreement markers are especially variable, with portmanteau forms that surface only for certain combinations of arguments, different agreement forms in different tenses, and thematic suffixes that appear with certain tenses and certain argument combinations. No synchronic analysis has been able to neatly account for all of these dimensions of the verbal complex; such accounts must make recourse to highly unique lexical entries (in lexicalist frameworks) or highly specified vocabulary insertion rules (in a Distributed Morphology framework).

To review, the Chukchi verb has roughly the following templatic structure:

(57) Agreement₁/Mood-Tense-(Voice/Incorporation)-Stem-(Voice)-Aspect-Agreement₂

Syntactically, we can understand the verbal complex to result from the following structure. The proposed sites of agreement are enclosed in boxes.

(58) Basic transitive structure in Chukchi



Broadly, Infl encodes subject agreement and *v* encodes object agreement and the various other suffixal agreement possibilities. We can assume that mood is also located on Infl, as mood and subject agreement are fused. Note that this is a simplified structure; I set aside the particulars about the locations of tense and aspect, as they do not interact with argument agreement. It should also be noted that other scholars have proposed different underlying positions of agreement in Chukchi

and the related Chukotko-Kamchatkan languages (e.g., Bobaljik 2008). I leave a comparison of the merits of the different proposals for future work.

Keeping this structure in mind, let us delve into some descriptive generalizations about the morphology of the Chukchi verb.

The Agreement₁/Mood slot in the template contrasts 3 mood categories (realis, intentional, conditional). All three moods have distinct forms for 1sg and 1pl arguments. In the intentional mood, there are distinct forms for 2nd person and 3rd person (with no number distinction). In the realis and the conditional, there is just one form for non-1st person arguments.

(59) Subject Agreement + Mood Prefixes (based on Dunn 1999, fig. 10.12)

	realis	intentional	conditional
1sg	<i>t-</i>	<i>m-</i>	<i>m-^ʔ-</i>
1pl	<i>mət-</i>	<i>mən-</i>	<i>mən-^ʔ-</i>
2sg	∅-	<i>q-</i>	<i>n-^ʔ-</i>
2pl		<i>n-</i>	
3sg			
3pl			

In transitive paradigms, there is a specific prefix in the case of 3rd person subjects, *ne-*. This form has also been analyzed as a kind of inverse marker, as all 3rd person subjects by default are outranked by 1/2 person objects. There is evidence that this marker is distinct from subject agreement marking and occupies a different slot immediately before the subject agreement slot: in the transitive conditional mood, *ne-* shows up alongside the conditional 3rd person agreement prefix *n^ʔ-*. In the same parts of the paradigm where this is expected in the transitive intentional mood, instead of *ne-n-* we find the form *^ʔn-*. This can be analyzed as the merger of these two slots, occurring only in the intentional mood.

The tense slot distinguishes future and non-future (aorist). These tenses are only possible in the realis mood (e.g., there is no ‘future intentional’ or ‘future conditional’).

(60) Tense Prefixes

FUT: *re-*

NFUT: \emptyset -

The two slots for voice on either side of the verb stem are the positions for the valency-changing affixes, which can take the form of a prefix, suffix, or circumfix. An incorporated noun is always preposed to the verb stem. These slots are also where the inverse markers show up (appearing in the same position they appear in when they function as antipassives/passives). Thus, the inverse marker *ine-* is prefixed to the stem and the marker *-tku* is suffixed to the stem.

The Aspect slot distinguishes two possible aspects in Chukchi: neutral and progressive.

(61) Aspect suffixes

PROG: *-rkə(n)*

NEUTRAL: $-\emptyset$

The suffix agreement slot encodes either subject (S) or object (O) agreement, and the forms of these suffixes vary as to whether they are encoding S or O. The form of the S suffixes also changes depending on mood (realis vs. irrealis). Some of the 2/3 person suffixes show up following a specific theme suffix in the future tense and irrealis moods. These patterns are summarized in the following numbered examples. Note that forms in parentheses are also theme suffixes, which are always possible but are obligatory with monosyllabic verb stems.

(62) Agreement suffixes

	subject agreement			object agreement
	non-future	future	irrealis	
1sg	<i>-(g^ʔe)-k</i>	$-\emptyset$	<i>-(g^ʔe)-k</i>	<i>-gəm</i>
1pl	<i>-mək</i>	$-\emptyset$	<i>-mək</i>	<i>-mək</i>
2sg	<i>-(g^ʔ)-i</i>	$-\emptyset$	<i>-gi</i>	<i>-gət</i>
2pl	<i>-tək</i>	<i>-n-tək</i>	<i>-tək</i>	<i>-tək</i>
3sg	<i>-(g^ʔ)-i</i>	$-\emptyset$	<i>-(g^ʔe)-n</i>	<i>-(g^ʔe)-n</i>
3pl	<i>-(g^ʔe)-t</i>	<i>-ŋə-t</i>	<i>-net</i>	<i>-net</i>

(63) Additional theme suffixes (preposed to object agreement suffixes)

- ŋə*: transitive FUT, 1/2 person objects, 3pl objects
- n*: transitive FUT, 1st person subjects with 2pl objects
- gə*: transitive INT, 2nd person subjects with 3rd person objects

Finally, there are several portmanteau agreement suffixes in transitive paradigms, that encode the transitive subject and object simultaneously, and do not occur with other object agreement affixes (or the 3rd person A inverse, *ne-*).²

(64) Portmanteau agreement suffixes

Subject/Object Combination	Suffix
3sgA/3sgO	<i>-nin</i>
3sgA/3plO	<i>-ninet</i>
2plA/3rd person O	<i>-tkə</i>

Unsurprisingly, the sheer volume of affixes in the verbal complex is difficult for L2 learners to master or for attriting speakers to maintain without regular use. This learning difficulty is mirrored in the analytical difficulty of this paradigm: it is difficult to account for all of these affixes in terms of feature-based generalizations. The subject/mood agreement prefixes are easy enough to explain, with 1st person being the most-marked category and syncretisms obviating 2/3 person number in the intentional mood, and complete 2/3 person syncretism in the realis and conditional moods. We could capture this with the following Vocabulary Items.³

(65) Infl Vocabulary Items: First person subject/mood prefixes

- a. [+author, –plural, +realis] ↔ *t*
- b. [+author, +plural, +realis] ↔ *mət*
- c. [+author, –plural, –realis] ↔ *m*

²As noted previously by Bobaljik (1998), the 3 > 3 portmanteaux look to transparently be derived from two agreement suffixes. The 3sgA/3sgO form, *-nin*, could decompose to two 3sg suffixes *-n-n*, while the 3sgA/3plO form, *-ninet*, could decompose to a 3sg and 3pl suffix: *-n-net*.

³The features for person used in this analysis are those proposed by Halle (1997): [+author] and [+participant]. 1st person is [+author, +participant], 2nd person is [–author, +participant], and 3rd person is [–author, –participant].

d. [+author, +plural, –realis] ↔ *mən*

(66) Infl Vocabulary Items: Non-first person subject/mood prefixes

a. [–author, +participant, –realis, –conditional] ↔ *q*

b. [+realis] ↔ ∅

c. [–realis] ↔ *n*

(67) Infl Vocabulary Items: Conditional mood prefix

a. [+conditional] ↔ *ʔ*

These forms are realized through Vocabulary Insertion according to the Subset Principle: that is, the most specific feature combinations supersede less specific ones. This is why the form of the 2nd person in the intentional mood is *q-*, rather than the less specific (but still applicable) *n-*. The [+conditional] VI is exponed in the same terminal alongside the other applicable [–realis] VIs due to Fission (Noyer 1997), in which all of the possible VIs whose features match the fissioned morpheme (here the subject/mood morpheme) can be inserted.

The choice of theoretical apparatus here is not especially important: we simply want to capture the generalizations about where and how we find syncretism in the system, and the number of distinctions the system has.

An entirely different set of items and features accounts for the distribution of the agreement suffixes. There are about as many affixes available for this slot as the agreement prefix slot, but their distribution is more erratic. There are fewer person/number syncretisms in this paradigm, and a limited number of agreement markers only occur once, in a very specific context. (For example, the 2sg irrealis suffix *-gi* only occurs for that particular configuration; it is the only part of the irrealis subject agreement paradigm that receives a unique suffix.) The syncretisms across TAM categories are also not consistent: 1pl suffixal agreement is the same across all categories, but 1sg suffixal agreement has a special object form, and 3sg agreement has a special realis subject form. We can account for the distribution of these suffixes through the following Vocabulary Items, which are inserted into *v*.

(68) *v* Vocabulary Items: First person suffixes

- a. [+author, –plural, +accusative] ↔ *gəm*
- b. [+author, –plural] ↔ *k*
- c. [+author, +plural] ↔ *mək*

(69) *v* Vocabulary Items: Second person suffixes

- a. [–author, +participant, –plural, +accusative] ↔ *gət*
- b. [–author, +participant, –plural] ↔ *gi*
- c. [–author, +participant, +plural] ↔ *tək*

(70) *v* Vocabulary Items: Third person suffixes

- a. [–participant, +plural, +realis] ↔ *t*
- b. [–participant, –plural] ↔ *n*
- c. [–participant, +plural] ↔ *net*

(71) *v* Vocabulary Items: Non-first person suffixes

- a. [–author, –plural, +realis] ↔ *i*

As with the Infl Vocabulary Items, the selection of the *v* marker from among these options is driven by the Subset Principle. To clarify a potentially confusing example, I assume that (71a) outranks (70b) by being more specific than (70b) (in the sense of having more features than (70b)), due to the presence of the [+realis] feature. Thus, for example, (71a) outcompetes (70b) in the 3sg non-future, and results in *v* being filled by *-i*.

These rules do not account for what is going on in the future tense, which has zero marking of the subject in most cases. This pattern can be analyzed as an instance of Obliteration (Arregi and Nevins 2012), in which the entire agreement suffix is deleted in the future tense when the agreement marker is specified for [+author] or [–plural]:

(72) Obliteration of subject suffixal agreement in the future tense

If the suffixal agreement marker (Agr_2) is [+future, +author] or [+future, –plural], delete Agr_2

This operation has the effect of reproducing the syncretism between 2sg and 3sg agreement that exists in the other realis tense (the non-future), while also reducing the markedness of 1st person agreement (which is already maximally expressed through prefixal agreement). This operation, along with all of the Vocabulary Items specified for TAM, do not apply at all in transitive verbs where there is object agreement. This is expected if we assume, as I note above and in (58), that agreement with the object takes place on v and TAM features and subject agreement are expressed on Infl.

Once again, the choice of Distributed Morphology machinery and these particular sets of morphosemantic features simply illustrates the complexity of the system, which is here evidenced by the sheer number of asymmetrical rules that Chukchi grammar requires to generalize the patterns. The asymmetry is the crucial observation here: certain forms encode additional information besides person/number (TAM and semantic role), while other forms neutralize argument features (such as the person feature of non-author singular arguments in the non-future). Such a system is notoriously difficult for less-proficient speakers to maintain.

As we consider the status of ergativity in Chukchi, it should be noted that, despite the appearance of positional absolutivity in the suffix slot, nothing about the morphology of the agreement system should necessarily be thought of as absolutive. The syncretisms in the agreement suffixes regularly dissimilate subject and object agreement in different ways. In fact, there are two suffixes—1sg *-gəm* and 2sg *-gət*—that are uniquely associated with object agreement and could therefore be described as accusative suffixes. In VIs (68a) and (69a), these suffixes are distinguished by a feature specific to structural objects, which I am calling the [+accusative] feature.

Thus, we can think of both slots—the nominative prefix slot and the suffix slot—as actually evidencing morphological accusativity, with a limited number of accusative suffixes and a set of suffixes that are not marked for case at all. The appearance of absolutivity in this slot is a syntactic

accident based on the unavailability of object agreement in certain cases (which is illustrated in the discussion about the syntax of agreement below). The existence of object-specific suffixes in this system points to the possibility that the overall alignment system in Chukchi may be indeed be a kind of split system, with nominative-accusative agreement and ergative-absolutive case marking, where the nominative and accusative cases are collapsed into a single, inherent non-agent case in the marking of external nominals.

An attentive reader will notice that we have not considered the theme affixes that occur alongside the agreement suffixes. The optional suffixes (those in parentheses in (62)) appear to be a kind of phonological process that bolsters syllabically weak affixes (i.e., those without a vowel nucleus) when they occur following a monosyllabic stem. The theme suffixes listed in (63) can be understood as additional morphemes (perhaps in an additional TAM slot) that occur in the context of certain person/number/TAM combinations. The point about morphosemantic complexity has already been made, so I will not delve further into the distribution of these forms.

There are several complications in the Chukchi verb that are problematic from a syntactic perspective as well. These are the following:

- (i) the different treatment of the suffix slot by agreement in intransitive vs. transitive verbs
- (ii) the possibility of portmanteau forms in the suffix slot that simultaneously encode subject and object agreement in transitive verbs
- (iii) the existence of inverse marking (or the “spurious antipassive”) which de-transitivizes verbal morphology in certain subject/object combinations, but does not alter the actual transitivity of the entire clause (evidenced by ergative-absolutive case on subject and object nominals)

These three patterns have in common that a single agreement position (the suffix position) has several functions, and choosing among them requires the syntax to reference both core arguments. In (i), it must check to make sure that there is not an object form that should fill the suffix slot; in (ii), the suffix slot agrees with both arguments simultaneously; and in (iii), it must check the features of both subject and object to determine whether subject or object agreement will occur in

the suffix slot. Thus, at a minimum, we have to allow for the possibility of Multiple Agree (Hiraiwa 2001, van Koppen 2005): the part of the syntax that determines object agreement (typically assumed to be ν or Voice) must have the ability to probe both arguments. The analysis adopted here follows from that proposed by Oxford (2019) for the Algonquin languages, where certain argument feature combinations on Infl and ν trigger the Impoverishment of ν features, resulting in the presence of an underspecified elsewhere form for object agreement. However, there are several differences between the analysis proposed here and Oxford’s, which arise due to language-specific facts about Chukchi: (i) in Algonquin, Infl is the probe that agrees with both the subject and the object, whereas in Chukchi it is the lower ν probe; and (ii) ν probes both upward (for the subject) and downward (for the object), meaning there is both upward and downward Agree (Baker 2008, Himmelreich 2017). Both of these differences result from the fact that in Chukchi it is the higher subject argument that is multiply agreed with, whereas in Algonquin it is the object, which is lower in the syntactic structure.

The full agreement paradigm for transitive verbs in the non-future aspectually neutral tense is given in Table 3.3. This pattern is representative of all active verbs in the language in terms of where different agreement types (inverse, direct, portmanteaux) show up.

	1sgO	1plO	2sgO	2plO	3sgO	3plO
1sgA	–	–	<i>t- -gət</i>	<i>t- -tək</i>	<i>t- -gʔen</i>	<i>t- -net</i>
1plA	–	–	<i>mət- -gət</i>	<i>mət- -tək</i>	<i>mət- -gʔen</i>	<i>mət- -net</i>
2sgA	<i>ine- -gʔi</i>	<i>-tku-gʔi</i>	–	–	<i>-gʔen</i>	<i>-net</i>
2plA	<i>ine- -tək</i>	<i>-tku-tək</i>	–	–		<i>-tkə</i>
3sgA	<i>ine- -gʔi</i>	<i>ne- -mək</i>	<i>ne- -gət</i>	<i>ne- -tək</i>	<i>-nin</i>	<i>-ninet</i>
3plA	<i>ne- -gəm</i>	<i>ne- -mək</i>	<i>ne- -gət</i>	<i>ne- -tək</i>	<i>ne- -gʔen</i>	<i>ne- -net</i>

Table 3.3: Non-future non-progressive transitive agreement in Traditional Chukchi

Let us first consider the simplest case of agreement in this system: suffixal agreement with the object (and no portmanteaux). This occurs in a few of the direct cases as well as most of the 3rd person inverse cases (all except 1sgO and 3rd person O).

(73) Suffix agrees ONLY with the object

All 1st person A

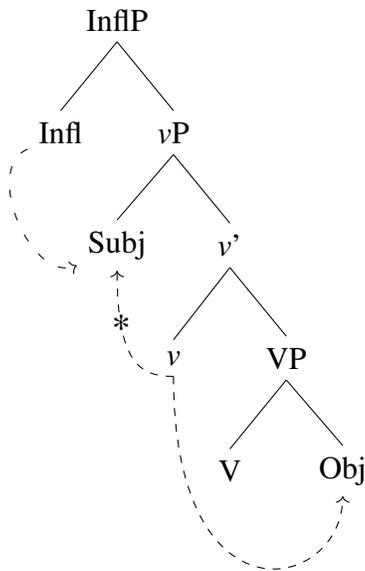
2sgA > 3sg O

3sgA > 1plO, 2nd person O

All 3plA

These cases have the following basic structure:

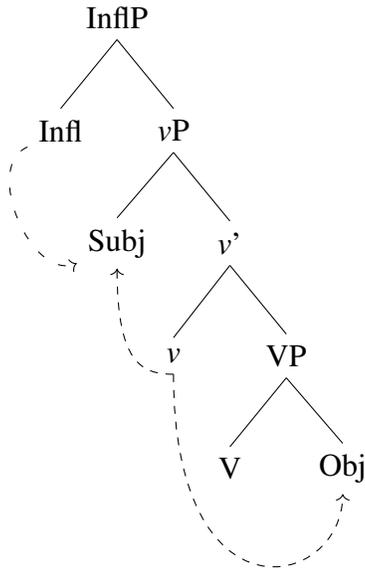
(74) Multiple Agree in direct cases (no portmanteaux)



In this scenario, Infl probes the subject for agreement without issue. (In fact, agreement in Infl with the subject occurs straightforwardly in every argument structural scenario in Chukchi.) v probes both the subject and object for agreement simultaneously. The fact that the agreement patterns in Chukchi are sensitive to the identity of both the subject and object in different ways require both Multiple Agree and the ability for v to probe upwards (outside its c-command domain). (An alternate possibility is that subjects in Chukchi are VP-internal, and are probed by v before they raise to a position where they can be probed by Infl for prefixal subject agreement.) For the argument combinations indicated in (73), v does not agree with the subject at all, and what surfaces is simple object agreement.

In the portmanteau cases, which are specifically combinations of 2plA > 3rd person O (-*tkə*) and 3sgA > 3rd person O (-*nin* and -*ninet*), *v* agrees with features of both the subject and object (i.e., subject agreement is not blocked).

(75) Multiple Agree in portmanteaux



Before we turn to the inverse cases, let us revisit the issue of suffixal subject agreement. In Chapter 2, we considered the analysis put forth by Bobaljik (1998), in which only the prefixes represent true subject agreement, and the suffixes were the result of feature copying from the prefixes. One interesting piece of evidence for this proposal comes from the fact that, of all the suffixal agreement markers, only subject agreement markers encode any kind of tense/mood distinction, which would make sense if features were being borrowed wholesale from Infl (which is also the locus of tense and mood marking). In principle, nothing about this type of analysis is incompatible with the structure proposed in (74): in intransitive cases, *v* would not probe for anything, while Infl would probe the subject as usual.

Another possible account that is available following from Multiple Agree is one in which *v* agrees with the subject directly, since *v* can simply probe the subject when it does not find an object in its c-command domain. In this account, the feature bundles of the agreement suffixes

would not directly include any TAM features; the form of the suffixes would instead vary in the environment of certain TAM features being present on Infl.

These analyses do make different predictions, especially in creating different possibilities for the types of operations that could be lost by shifting speakers. For example, feature copying stipulates that the subject suffix agreement slot is dependent on the prefix slot, which predicts that a loss of prefixal agreement would entail a loss of subject suffixal agreement, but not necessarily the other way around. No such prediction is made by an analysis where the suffix slot straightforwardly agrees with the subject. However, Multiple Agree makes a different set of predictions: namely, if the operation itself is lost by speakers, we can expect to see instability across all types of suffixes, but especially those where both arguments must be referenced, i.e., all transitive inflection types across all paradigms.

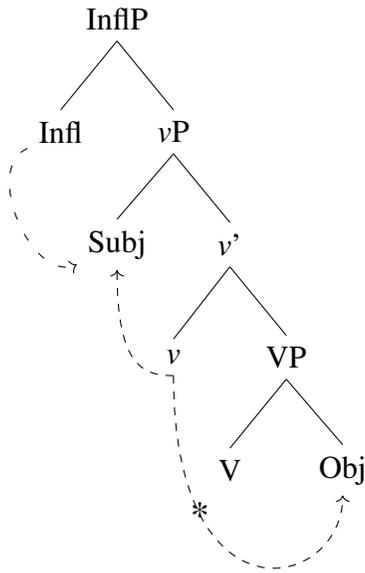
Let us now turn to the slightly more complicated cases of inverse marking in traditional Chukchi. First, let us consider the antipassive-derived inverse cases, which occur for most 1st person O arguments:

(76) Instances of (antipassive-derived) inverse agreement marking

	1sgO	1plO
2sgA	<i>ine-</i> <i>-gʔi</i>	<i>-tku-</i> <i>-gʔi</i>
2plA	<i>ine-</i> <i>-tək</i>	<i>-tku-</i> <i>-tək</i>
3sgA	<i>ine-</i> <i>-gʔi</i>	<i>ne-</i> <i>-mək</i>
3plA	<i>ne-</i> <i>-gəm</i>	<i>ne-</i> <i>-mək</i>

If we consider the distribution of *ine-* and *-tku*, it is clear that in the traditional Chukchi agreement system, these forms do not straightforwardly encode agreement with a single argument. For example, if we were to analyze *ine-* as 1sgO agreement in an unusual position, we could have to explain why it does not occur with 3plA. We would also still have to explain why subject agreement occurs in the suffix position in these cases. Again, we must make recourse to a system where both arguments are probed before object agreement is spelled out, but we have to allow for another possibility in addition to the process illustrated in (74):

(77) Multiple Agree in antipassive-derived inverse cases



In these cases, v probes both the subject and object and, for the relevant argument combinations, blocks agreement with the actual object. However, this differs from the process in intransitive verbs in that the result is not straightforwardly subject agreement: *ine-* and *-tku* surface as elsewhere object agreement forms that are unspecified for any person/number features. The suffix agreement slot (which is obligatory in Chukchi) is then filled either through the same process of feature copying proposed by Bobaljik (1998) or through a process where v probes the subject for agreement directly.

We can account for the allomorphy of *ine/tku* (i.e., the fact that *ine-* only occurs in parts of the paradigm with 1sgO and *-tku* only in parts with 1plO) by saying that they only occur in the environment of certain object features, but they do not necessarily encode those features. Additional evidence that *ine-* does not encode 1sg features directly comes from its use in non-active verbal paradigms, where it occurs with objects specified for different persons/numbers.

Thus, the “inverse” markers are not 1st person object agreement or a kind of antipassive that fails to produce syntactic detransitivization. They are also not metasyntactic morphemes that directly provide information about the relationship between arguments in a transitive clause (Bobaljik 2020). They are an instance of elsewhere object agreement that occurs due to blocked object agree-

ment in the context of certain argument combinations.

An advantage to treating *ine-* and *-tku* as elsewhere object agreement forms is that this captures the generalization of Baker’s (1988) analysis, that the syntactic antipassive is another kind of object incorporation, where an underspecified form is incorporated instead of a lexical noun.

A similar analysis is available for the passive-derived inverse prefix *ne-*. For certain inverse combinations, prefixal agreement with the subject is blocked, and an elsewhere underspecified subject agreement form surfaces. This is an alternative to the other available analysis of *ne-*, that it is simply a case of 3rd person transitive subject agreement (and that Chukchi simply has different prefixes for A and S in the case of 3rd person). The advantage to the former analysis is that it avoids the stipulation of separate ergative affixes in an otherwise nominative prefix system.

Both possibilities run into problems in the irrealis moods, where it is clear that *ne-* occupies a separate position to the left of the fused agreement/mood markers. We can see this in the following subset of the transitive conditional inflectional paradigm:

(78) Instances of 3rd person A in transitive conditional verbs

	1sgO	1plO	2sgO	2plO	3sgO	3plO
3sgA	$n^?$ - <i>ine-</i> - $g^?$ <i>en</i>				$n^?$ - <i>-nin</i>	$n^?$ - <i>-ninet</i>
3plA	<i>ne-n^?</i> - <i>-gəm</i>	<i>ne-n^?</i> - <i>-mək</i>	<i>ne-n^?</i> - <i>-gət</i>	<i>ne-n^?</i> - <i>-tək</i>	<i>ne-n^?</i> - <i>-g^?en</i>	<i>ne-n^?</i> - <i>-net</i>

Fortunately, this issue has already been resolved by the formulation of the Vocabulary Items for this slot—the mood markers for the 3rd person are underspecified to begin with, and do not actually encode 3rd person subject agreement explicitly (they simply surface as the only possible choice for non-participant arguments). Thus, a process that obviates subject agreement would not keep these forms from showing up, as they are only specified for mood.

Morphology and syntax of agreement marking in stative paradigms

There is a second class of verbal inflection that has not received as much attention in the formal literature on Chukchi agreement: Dunn (1999) refers to this class as the stative paradigms, because they express whether an action is taking place over a period of time or has ended (habitual vs.

perfect). Both inflections are possible with any verb—the semantics of the verb itself need not refer to a particular state.

The major difference between these stative paradigms compared to the active paradigms we have already examined is that they have only one agreement slot (a suffix), and fewer agreement allomorphs that can fill the slot. In this sense, they are not as complex as the active paradigms; however, the choice of which argument supplies agreement features for the sole slot in transitive verbs is not straightforward.

The stative verbs have the following templatic structure:

(79) HAB/PRF-(Voice/Incorporation)-Stem-(Voice)-Agreement, where

HAB = *n-*

PRF = *ge-*

The stative paradigms have also been called participial inflections—while they are syntactically treated like finite verb forms, the agreement suffixes for non-third person are the same as those that are used in nominal agreement. The shape of these suffixes does not vary according to whether agreement is with the subject or object:

(80) Stative argument agreement

1sg	<i>-igə̃m</i>	1pl	<i>-muri</i>
2sg	<i>-igət</i>	2pl	<i>-turi</i>
3sg	<i>-qin</i>	3pl	<i>-qinet</i> (habitual)
	<i>-lin</i>		<i>-linet</i> (perfect)

Even though there is only one slot for agreement in stative verbs, the “spurious antipassive” inverse affixes continue to show up in the agreement paradigms of the perfect and habitual, which provides the clearest evidence that these forms do not uniquely encode inverse relations. Tables 3.4 and 3.5 give the transitive stative paradigms in traditional Chukchi. The “spurious antipassive” cases are shaded.

In the perfect, *ine-* and *-tku* occur exactly where they do in active paradigms: with 1st person objects acted on by 2nd person/3sg subjects. However, they do not take over other inverse parts of

	1sgO	1plO	2sgO	2plO	3sgO	3plO
1sgA	–	–	<i>ge- igət</i>	<i>ge- turi</i>	<i>ge- lin</i>	<i>ge- linet</i>
1plA	–	–	<i>ge- igət</i>	<i>ge- turi</i>	<i>ge- lin</i>	<i>ge- linet</i>
2sgA	<i>g-ine- igət</i>	<i>ge- -tku-igət</i>	–	–	<i>ge- lin</i>	<i>ge- linet</i>
2plA	<i>g-ine- -turi</i>	<i>ge- -tku-turi</i>	–	–	<i>ge- lin</i>	<i>ge- linet</i>
3sgA	<i>g-ine- -lin</i>	<i>ge- -muri</i>	<i>ge- igət</i>	<i>ge- turi</i>	<i>ge- lin</i>	<i>ge- linet</i>
3plA	<i>ge- -igəm</i>	<i>ge- -muri</i>	<i>ge- igət</i>	<i>ge- turi</i>	<i>ge- lin</i>	<i>ge- linet</i>

Table 3.4: Transitive perfect paradigm in traditional Chukchi

	1sgO	1plO	2sgO	2plO	3sgO	3plO
1sgA	–	–	<i>n-ine- -igəm</i>			
1plA	–	–	<i>n-ine- -muri</i>			
2sgA	<i>n-ine- -igət</i>	<i>n- -tku-jgət</i>	–	–	<i>n-ine- -igət</i>	
2plA	<i>n-ine- -turi</i>	<i>n- -tku-turi</i>	–	–	<i>n-ine- -turi</i>	
3sgA	<i>n-ine- -qin</i>	<i>n- -muri</i>	<i>n- -igət</i>	<i>n- -turi</i>	<i>n-ine- -qin</i>	<i>n-ine- -qine-t</i>
3plA	<i>n- -igəm</i>	<i>n- -muri</i>	<i>n- -igət</i>	<i>n- -turi</i>	<i>n- -qin</i>	<i>n- -qine-t</i>

Table 3.5: Transitive habitual paradigm in traditional Chukchi

the paradigm where we find *ne-* in the active paradigms; 3rd person A cases are not encoded in a special way in the perfect.

In the habitual, we again find *ine-* and *-tku* in the same inverse cases; however, *ine-* also occurs throughout most of the paradigm. In fact, the only row where no inverse marking occurs at all is cases of 3plA, which is the lowest feature combination according to the animacy hierarchy in Chukchi. This is contrary to expectations for a straightforward inverse marker.

There are two agreement facts that must be accounted for in the stative paradigms: (i) which feature combinations trigger the “spurious antipassive,” and (ii) what argument (subject or object) the suffix slot agrees with. By considering both tables, we can see that the suffix slot, by default, agrees with the object, except in cases where we find *ine-* or *-tku*, in which case the slot agrees with the subject. We can analyze these cases in exactly the same way as the antipassive-derived inverse cases in the active paradigms: certain feature combinations of the subject and object block the ability for *v* to agree with the object. In these cases, *v* agrees with the subject and the object is marked through an underspecified elsewhere form (*ine-* or *-tku*).

No further explication is necessary for the perfect paradigm (underspecified object agreement occurs for a particular subset of inverse combinations: the same subset as in most other verbal inflections). However, a different process applies in the habitual: obviation of object agreement is the norm *except* in cases with a non-participant (3rd person) subject, where the preference is to agree with the participant argument. In this way, the system remains sensitive to encoding animacy: agreement with low agency arguments (non-participant arguments) is minimized. 3/3 argument combinations also reflect this tendency: recall that 3sg outranks 3pl in the Chukchi system. This is why we get object agreement in the 3plA/3sgO combination: within non-participant combinations, agreement is with the “more animate” argument (3sg).

This claim is not entirely obvious when we consider the full subset of 3/3 marking in the habitual paradigm. There is a complication to the analysis outlined above if we consider the 3sgA/3plO case, where there appears to be object agreement with the lower ranked argument, and underspecified object agreement (*ine-*) is present anyway:

(81) 3/3 agreement in the transitive habitual paradigms

	3sgO	3plO
3sgA	<i>n-ine- -qin</i>	<i>n-ine- -qine-t</i>
3plA	<i>n- -qin</i>	<i>n- -qine-t</i>

Despite appearances, the 3sgA/3plO case (*n-ine- -qinet*) is not actually an exception to the analysis: the relevant suffix slot in this form *does* agree with the subject, so *ine-* surfaces as underspecified object agreement, as expected. The reason for the appearance of 3plO marking in this form has to do with a peculiarity of suffix agreement in Chukchi: there is an additional slot for *number* agreement with the relevant argument. (One slot agrees with person/number, and the second slot only agrees with number.)

(82) Suffixal agreement in Chukchi

Agr₂

...**Stem-(Voice)-**[ϕ - Num]

(83) Vocabulary Items for Num agreement

[+pl] ↔ *t*

[-pl] ↔ ∅

If we consider all of the 3rd person agreement suffixes, it becomes clear that the 3plS and 3plO suffixes can be decomposed into two forms: an underspecified 3rd person agreement affix for the first slot, and a separate plural affix (*-t*).

(84) 3rd person agreement suffixes

	3sg	3pl
S (Realis)	-(gʔ)i	-(gʔe)-t
S (Irrealis) & O	-n	-ne-t
3sgA/3rd person O portmanteaux	-nin	-nine-t
Perfect	-lin	-line-t
Habitual	-qin	-qine-t

Thus, in the 3sgA/3sgO case, we can analyze the first slot (the slot that encodes ϕ features) as agreeing with the subject, as expected, and the second agreement slot as encoding object number agreement. Despite the suffix syncretism with the 3plA/3plO case, in this latter case, both suffixes agree with 3plO, which explains why *ine-* does not surface.

Here, the question arises as to why we never find overt instances of additional number agreement in the [+participant] cases. This is due to an Impoverishment operation that deletes the number agreement feature in participant contexts:

(85) Impoverishment of Num agreement slot

When the Agr₂ marker contains two affixes such that Aff₁ is [+participant] and Aff₂ is [+plural], delete Aff₂

This operation occurs in order to resolve a markedness constraint that prohibits the co-occurrence of two separate expressions of marked categories ([+participant], [+plural]). A similar process is

observed by Arregi and Nevins (2012: 226) in several Basque dialects, where plural clitics are deleted in the context of a participant clitic.

Reviewing the morphosyntactic processes in Chukchi agreement

As we turn to the differences in the agreement patterns of modern Chukchi, the following are the relevant morphosyntactic processes that we have considered in the preceding section:

- (i) a system of nominative-accusative agreement prefixes and suffixes, where the suffix slots are obligatory and preferentially filled with object features (except in certain cases)
- (ii) a syntax of agreement that must reference both arguments in transitive verbs in order to determine whether object agreement can take place (Multiple Agree)
- (iii) a syntactic process that allows for subject agreement to be duplicated in the suffix for intransitive verbs and inverse marking cases (direct agreement by *v* with the subject, or feature copying from the prefix slot)
- (iv) a set of distinct agreement prefixes and suffixes that reflect different features, with numerous asymmetrical syncretisms

3.3.2 Alignment of agreement affixes in modern Chukchi

Some general differences in verbal inflection among the 3 groups of modern Chukchi speakers

There are two ways to determine how modern speakers maintain these agreement patterns: through direct elicitation of the paradigms (which is challenging due to a lack of directly comparable tenses and moods in Russian) and by observation of how speakers spontaneously use different paradigms in their production data. These two types of data may not always align for speakers, as they result from different cognitive tasks that are not equally easy. Speakers may produce different patterns when they are forced to reconcile the entire system of agreement marking across all types

of subjects and objects (as in elicitation of paradigms) as opposed to when they produce a single sentence, using the argument structure of their choice. Some amount of inconsistency is expected among attriting speakers, who may remember more of their original grammar in the course of a task, and heritage speakers, who often have a fluctuating systems depending on the nature of a task (for example, they often produce different patterns in perception, production, and acceptability tasks). Fully-proficient speakers without an education in the language may also struggle with paradigmatic elicitation of forms, since the task is unnatural to them.

In this study, all of the consultants provided sentence data through the controlled production task, and most were able to produce spontaneous narratives. (The exceptions were semi-speakers at the lowest level of proficiency, who could only attempt to produce descriptive sentences when supplied with relevant lexical items.) Only two speakers provided full paradigm data: one attriting speaker (whose speech is discussed in Chapter 2) and one L2 learner. Neither speaker, not even the attriting speaker, was able to provide data for all of the paradigms across all tenses and moods, and both speakers had gaps within individual paradigms. The attriting speaker was interviewed on two separate occasions (once in 2018 and once in 2019), and thus provides some indication as to how entrenched her system is across time.

Given time constraints, a decision was made in the course of conducting fieldwork with fluent Chukchi speakers not to elicit verbal paradigms from them and to prioritize text collection. Given the reported lack of dialectal variation in inflectional morphology in Chukchi, it is assumed that these speakers would produce the standard, conservative patterns. However, since most of these speakers lack a proper speech community (and sometimes any other fluent interlocutors), it is certainly possible that they will have developed gaps in this system, especially in lesser-used moods (such as the conditional). But it is unlikely that they will exhibit dramatic changes to their use of agreement marking, since the system largely transcends any single tense or mood. Overwhelmingly, the evidence from the texts produced by fluent speakers shows that they maintain command over a range of paradigms and do not exhibit any deviations from the standard patterns. However, a targeted, comprehensive account of their verbal inflection must be left for future work.

The lack of full paradigms from the less-proficient speakers should not be seen as a problem; nor is the fact that speakers' use of agreement marking may change day-to-day or year-to-year. This data still provides clues as to the types of argument encoding processes that are especially susceptible to restructuring in a language shift situation and the ways that speakers reconcile the different pressures on their system. Variation in modern Chukchi argument encoding, even if it fluctuates in the speech of an individual, still adheres to a recognizable system of rules consistent with the typology of languages of the world.

The most generalizable difference between less-proficient speakers and fluent speakers in this domain is the sheer number of paradigms they maintain. Semi-speakers prefer to use the stative paradigms in the production task, creating a basic distinction between the perfect for events that can be thought of as complete, and the habitual for events that are obviously ongoing in the associated picture, or that do not have a particular telicity associated with them. (Although all of these speakers had at least one occurrence of the 3sg > 3sg non-future portmanteau form, *-nin*, which is very well-preserved.)

In contrast, fluent speakers and attriting speakers made use of both stative and active paradigms (which are more morphologically complex), often providing both types of inflection for individual pictures. Overall, these speakers seemed more sensitive to event structure, and would reject verb stems that did not faithfully represent the nature of the event in the associated picture (either because the chosen verb was odd with certain types of arguments, or the verb had specific connotations that did not make sense for the picture). They also displayed more fine-grained distinctions about event aspect. Events that were happening without a relative time but could take place over an extended period were often marked with the habitual. Events that were completive were marked by the non-future (aorist) form, or the perfect if a speaker wanted to be absolutely clear that the event was over. Similarly, they used the non-future progressive when they wanted to specify that an event was taking place at that very moment (in the context of the picture). In addition to a greater number of overall tense distinctions, fluent speakers were far likelier to use active verbal inflection with intransitive verbs. In these cases, semi-speakers and less-proficient attriting speakers showed

a clear preference for stative inflection.



məlawək 'to dance'
oʔrawetlʔat 'people.ABS'

Figure 3.1: Production task stimulus

For example, speakers supplied the following sentences for the picture in Figure 3.1:

(86) Semi-speakers (habitual only)

- a. *oʔrawetlʔat nə-məlaw-qenat*
people.ABS.SG HAB-dance-3pl
'The people dance'

(87) Fluent older speakers and attriting speakers (range of stative and active tenses and aspects)

- a. *oʔrawetlʔat ø-məlawə-rkə-t*
person.ABS.PL 3plS-dance-PROG-3plS
'The people are dancing'
- b. *oʔrawetlʔat nə-məlaw-qenat*
person.ABS.PL HAB-dance-3pl
'The people dance'
- c. *ø-məlawə-ŋŋo-gʔat*
3plS-dance-INCIP-3plS
'(They) started dancing'
- d. *oʔrawetlʔat ø-puture-rkə-t*
person.ABS.PL 3plS-folk.dance-PROG-3plS
'the people are capering/folk-dancing'

While the semi-speakers exclusively used the habitual, the older generations of speakers employed different strategies to express that the picture shows people who are presently engaged in

the act of dancing, including the habitual, the progressive, and modification of the stem with an incipient morpheme. The speaker who produced (87d) had strong intuitions that a different word was necessary to describe the type of dancing that was occurring in the picture (traditional Chukchi folk dancing).

As with the use of the high animate case, the choice of TAM inflection in basic indicative sentences is not subject to strict grammaticality rules—fluent speakers could supply a wide variety of possible tenses and aspects for a single context-less picture, and occasionally did so without any prompting from the researcher. Thus, unless there were changes to the actual forms of the agreement markers, the semi-speakers and attriting speakers were not producing speech that should be judged as ungrammatical or even infelicitous, given that the pictures were being presented without an obvious temporal context.

However, the dispreference for certain inflections by certain speakers does indicate that they are making use of a smaller set of resources within the language for a greater number of scenarios. Given that this reduction in the number of paradigms used is a tendency of the semi-speakers (especially in the production task), it is likely a matter of differential acquisition. Lacking experience with the particular lexical items in the task, less confident speakers default to paradigms that encode just two tense distinctions, and which encode differences in valency with fewer affixes (recall that there is only one agreement slot in these tenses, and that the agreement suffixes do not vary based on whether the argument is a subject or object). These speakers also frequently collapse any kind of transitivity distinction in the stative paradigms through the loss of *ine-* and an increased tendency toward subject rather than object agreement, resulting in a simpler syntax of agreement (agreement with the same argument regardless of valency and no need for Multiple Agreement). Nevertheless, although the reduction in the number of agreement markers being used and the processes involved in the syntax of agreement can be described as a kind of morphosyntactic loss or simplification, these changes are not arbitrary, unsystematic, or even typologically unusual.

Paradigmatic changes to active agreement morphology in Modern Chukchi

In general, it is difficult to elicit (via Russian) full verbal paradigms from less-proficient speakers. Without a situational context, it is clear that certain tenses are likelier to be mapped onto the Russian TAM system. For example, when asked to discuss things that took place in the past, speakers tend to use the perfect stative paradigm; when asked to describe events taking place in the present, speakers alternate between the habitual stative paradigm and the non-future progressive active paradigm. It is notoriously difficult to elicit the non-future neutral (or aorist) tense, although attriting speakers use it quite regularly in sentences and narratives. (Semi-speakers also have knowledge of at least some agreement marking patterns from the active paradigms, despite their tendency to use stative inflection more commonly.)

Despite these limitations, one attriting speaker was able to supply several complete active verbal paradigms (in addition to several more with some gaps for certain argument combinations): this is the speaker whose system we briefly considered in Chapter 2).

First, let us revisit the forms she supplied for the non-future neutral (aorist) active inflection. These are repeated in Table 3.6.

The bolded forms in the table are ones that deviate from the traditional system. It is immediately apparent that there has not been a straightforward simplification of the entire agreement system. The speaker has not eliminated any single type of agreement entirely (i.e., prefixal or suffixal agreement, or subject or object agreement specifically). Bilateral agreement in both intransitive and transitive clauses is maintained by the speaker, as are portmanteau agreement suffixes that encode subject and object agreement simultaneously (*-nin*, *-ninet*, and *-tkə*). While the distribution of the affixes has changed in a number of ways, the overall underlying syntax of this system must be largely unchanged to allow for the different agreement types in different positions.

We should first note which aspects of the speaker's system have not undergone any morphological change: these are the nominative prefixes, which are maintained in both the intransitive and transitive paradigms. The changes in the system are restricted to the suffix system and the inverse

	Intransitive	1sgO	1plO	2sgO	2plO	3sgO	3plO
1sgA/S	<i>t- -tək</i>	–	–	<i>t- -gʔen</i>	<i>t- -tək</i>	<i>t- -gʔen</i>	<i>t- -net</i>
1plA/S	<i>mət- -mək</i>	–	–	<i>mət- -gʔen</i>	<i>mət- -net</i>	<i>mət- -gʔen</i>	<i>mət- -net</i>
2sgA/S	<i>-gʔi</i>	<i>ine- -gʔi</i>	<i>ine- -gʔen</i>	–	–	<i>-gʔen</i>	<i>-net</i>
2plA/S	<i>-turi</i>	<i>ine- -tək</i>	<i>ine- -tək</i>	–	–		<i>-tkə</i>
3sgA/S	<i>-gʔi</i>	<i>ine- -gʔi</i>	<i>ine- -ninet</i>	<i>ne- -gʔet</i>	<i>ine- -ninet</i>	<i>-nin</i>	<i>-ninet</i>
3plA/S	<i>-gʔet</i>	<i>ne- -gʔen</i>	<i>ne- -mək</i>	<i>ge- -gət</i>	<i>ne- -tək</i>	<i>ne- -gʔen</i>	<i>ne- -net</i>

Table 3.6: Non-future neutral (aorist) active paradigm from an attriting speaker

	Intransitive	1sgO	1plO	2sgO	2plO	3sgO	3plO
1sgA/S	<i>t- -gʔek</i>	–	–	<i>t- -gət</i>	<i>t- -tək</i>	<i>t- -gʔen</i>	<i>t- -net</i>
1plA/S	<i>mət- -mək</i>	–	–	<i>mət- -gət</i>	<i>mət- -tək</i>	<i>mət- -gʔen</i>	<i>mət- -net</i>
2sgA/S	<i>-gʔi</i>	<i>ine- -gʔi</i>	<i>-tku- -gʔi</i>	–	–	<i>-gʔen</i>	<i>-net</i>
2plA/S	<i>-tək</i>	<i>ine- -tək</i>	<i>-tku- -tək</i>	–	–		<i>-tkə</i>
3sgA/S	<i>-gʔi</i>	<i>ine- -gʔi</i>	<i>ne- -mək</i>	<i>ne- -gət</i>	<i>ne- -tək</i>	<i>-nin</i>	<i>-ninet</i>
3plA/S	<i>-gʔet</i>	<i>ne- -gəm</i>	<i>ne- -mək</i>	<i>ne- -gət</i>	<i>ne- -tək</i>	<i>ne- -gʔen</i>	<i>ne- -net</i>

Table 3.7: Non-future neutral (aorist) active inflection in Traditional Chukchi

affixes.⁴ The simplest change is the loss of *-tku* entirely, and its replacement by *ine-*. This is a process that has already occurred in Koryak and the Chukchi varieties that neighbor Koryak, and likely highlights the vulnerability to loss of this particular form. (Indeed, none of the less-proficient speakers use *-tku* productively, in either their verbal inflection or in the formation of antipassives.)

Some of the suffix changes seem to represent one-off syncretisms: for example, the presence of the 2pl suffix *-tək* in the 1sg intransitive inflection could be a one-time error on the part of the speaker, or it could indicate that this affix has lost its plural and author features. The selection of this form could also be motivated by its slight phonological resemblance to the expected *-gʔek*, or perhaps the 1pl form *-mək*. Still another possibility is that *-tək* has been reanalyzed as a kind of 1sg nominative agreement marker on the basis of the identical (expected) inflection for 1sgA/2plO. The form is conspicuously replaced by the stative 2pl agreement suffix, *-turi*, for 2pl subject in the intransitive paradigm.

We have reason to suspect that these changes to the suffixes in the intransitive paradigm are

⁴There is also the issue of the presence of the *ge-* perfect prefix in the 3plA/2sgO form *ge- -gət*. The speaker never again produced this type of blended inflection, using a stative tense prefix and active agreement suffix, so this was likely an unintended error.

not “errors:” when this same speaker was interviewed and asked to produce intransitive aorist forms a year later, she produced exactly the same pattern, indicating that these changes are firmly entrenched in her current linguistic system.

Next, let us consider the changes to the object agreement suffixes in the direct cases in the transitive paradigm. As we saw in Chapter 2, the overall pattern is one in which the 3rd person object agreement suffixes are generalized to participant object agreement, while preserving a number distinction. The highly restricted, low-frequency 1sg object suffix *-gə̃m* has been eliminated completely, as have most instances of the 2sg object suffix *-gə̃t*. An especially interesting dimension of this system is that the 3>3 portmanteau affixes have been generalized as well, but only to other objects being acted on by 3rd person subjects—this is further evidence that, where there has been added syncretism in this system, it has neutralized object features only. The portmanteau forms similarly preserve object number marking: in this speaker’s system, *-ninet* only ever encodes 3sg subjects with a plural object. This fact supports the argument that this speaker still maintains a syntax involving Multiple Agree.

This overall tendency to reduce person marking in object features can be stated as a kind of Impoverishment that reduces the markedness of the object suffixes by deleting person features entirely. Interestingly, this tendency is contrary to what has been assumed to be the hierarchy of ϕ -features in language (Noyer 1997’s Universal Feature Hierarchy, as simplified by Polinsky 2018: 205):

(88) person > number > gender

Indeed, a robust tendency in heritage speech is the loss of gender agreement but the maintenance of person agreement (Polinsky 2018: 205). However, Chukchi already displays syncretism of agreement suffixes that neutralizes person: the subject agreement suffix *-(gʔ)i* is a non-author, singular agreement marker (it shows up with both 2sg and 3sg subjects). The future subject suffixes are also mostly obliterated, with the only preserved distinction between 2pl and 3pl. 1st person, arguably the most marked feature (the highest on a Universal Hierarchy of Features), is not morphologically distinguished at all in the future subject suffixes.

It should be noted that tendencies in heritage languages have mostly been derived from studies of languages that make far less use of head-marking of argument structure (agreement) than a polysynthetic language such as Chukchi. In fact, Maria Polinsky and Jonathan Bobaljik (Itelmen) (*pers. comm.*) have both observed at least impressionistically that a common pattern among less-proficient speakers of morphologically complex languages is the loss of object agreement; in this way, the patterns evidenced by this attriting speaker are not remotely unusual. Still, the tendency to lose object agreement over subject agreement is an interesting one that requires explanation. In Chukchi, it is clear that it is object agreement that is affected specifically, as opposed to suffixal agreement, since subject agreement in that slot remains quite robust. (For this speaker, this was also true of other tenses; for example, she had entirely conservative subject agreement marking in the future tense.)

One possible explanation that I mentioned in Chapter 2 is that this is an instance of direct interference from Russian (this speaker's dominant language). Russian only ever has nominative subject agreement; thus, the impoverishment of object features would be expected, if the Chukchi system were converging on Russian. However, object agreement has not been eliminated entirely, and a system that has two slots for subject agreement does not really resemble Russian; if the speaker were actually reproducing Russian morphosyntax, she would be more likely to simply delete one of the agreement slots entirely. Thus, while Russian could certainly be a motivation for the instability of object agreement, Russian influence is not sufficiently explanatory.

Instead, this may be a change that is motivated by universal tendencies in language structure. In languages with verbal agreement, the most common pattern is agreement with both arguments, but if a language only agrees with one argument, it is more likely to be the subject. Table 3.8 contains data on cross-linguistic agreement patterns.

This distribution is the result of universal tendencies in information structure, where the subject of a verb (the one performing the action) is seen as more central to the information supplied by the clause. This tendency manifests in the different treatment by the argument structure of animate vs. inanimate nouns, where inanimate nouns are less likely to serve as subjects when the object is

Agreement type	Number of attested languages
Person marking of both subject and object	193
No person marking of any argument	82
Person marking of only the subject	73
Person marking of only the object	24
Person marking of either the subject or object	6

Table 3.8: Verbal agreement with subject vs. object in languages of the world (Siewierska 2013)

animate, as the focus of the clause in these cases is generally the animate undergoer. This is the reason why passives occur more often with inanimate by-phrases, and why ergative case tends to be associated with lower animacy arguments in languages with nominal split ergativity (Coghill 2016).

Thus, the loss of person marking of object arguments in this speaker’s Chukchi is consistent with a typological shift toward another well-attested pattern, possibly reinforced by Russian transfer.

One final dimension of this system that must be considered is the distribution of the inverse markers, *ine-* and *ne-*. The distribution of these forms is largely unchanged—one of these inverse markers shows up in all of the expected contexts, with *ine-* encroaching on the environment where *ne-* is expected. However, the syntax of these “spurious antipassive” and “spurious passive” constructions is uncertain, in that the presence of one of these markers does not indicate that the expected subject or object agreement is blocked. For example, in the 2sgA/1plO inflection, the expected suffix is the non-object agreement marker $-g^?i$ because of the unavailability of object agreement. However, the form used by this speaker is $-g^?en$, which appears to serve as an underspecified singular object agreement marker in her grammar, except in this one scenario. It is possible here that this marker actually agrees with the singular subject anyway, and *ine-* occurs as expected. However, the use of *ine-* where *ne-* is expected suggests that it cannot be solely used as an elsewhere object agreement marker (in these cases, suffixal agreement continues to encode object number).

Ultimately, the spread of *ine-* likely stems from a loss of this marker in productive syntactic operations such as the antipassive, which are considered in Chapter 4. As this marker increas-

ingly becomes limited as a lexicalized derivational marker on verbs, it loses its association with object marking specifically, which in turn enables its spread to co-occur with other types of object agreement. Other changes to *ine-* as an inflectional marker are discussed in the following section.

Before we turn to stative inflection in modern Chukchi, it is worth mentioning some differences among the modern speakers in their use of active agreement in narratives and sentences elicited by the production task. Since the production task used pictures of other people, it exclusively elicited 3rd person argument combinations, and only using realis tenses. In the narratives, however, speakers also employed 1/2 person arguments and a range of tenses, including irrealis ones.

Virtually all of the unexpected forms produced by attriting speakers and semi-speakers involved a change to object agreement. The nominative agreement prefixes are generally well-maintained, as we can see from the following examples.

(89) Semi-speaker agreement differences

- a. η ewəcqet \emptyset -**rəkametwawə-ccə-n** nenene (expected: rəkametwaw-nen)
 woman.ABS.SG 3sgS-feed-PROG-3sgS child.ABS.SG feed-3sgA.3sgO
 ‘The woman feeds the child’

(90) Attriting speaker agreement differences

- a. etlə ə-nan **nə-l¹u-net** ənɲin wa-l¹-ət uttət (expected:
 NEG 3sg-ERG 3sgA.INT-see-3plO such COP-PART-ABS.PL tree.ABS.PL
 nə-l¹u-ninet)
 3sgA.INT-see-3sgA.3sgO

‘He had never seen such types of trees’

- b. jomrott-a **ratcəŋan-nen** milut-et (expected: ratcəŋan-nenat)
 willow.bush-ERG hide.TR-3sgA.3sgO rabbit-ABS.PL hide.TR-3sgA.3plO

‘The willow bush hid the rabbits’

- c. kita qun q-ajet-gi gəməəkagtə, waj **mə-nu-g¹en** gət
 INTJ 2S.INT-go-INT.2sgS 1sg-ALL here 1sgA.INT-eat-3sgO.INT 2sg.ABS
 (expected: mə-nu-gət)
 1sgA.INT-eat-2sgO

‘Why don’t you come to me, here, I eat you’

These patterns are consistent with those we have seen from our in-depth analysis of one

speaker's system: an emphasis on encoding subject agreement over object agreement and shift away from what has been termed positional ergativity of agreement suffixes in Chukchi. In (89a), the semi-speaker has lost the special portmanteau agreement for for 3sg/3sg argument combinations, and has used what would be interpreted as intransitive agreement by conservative speakers. The attriting speakers continue to make use of some kind of object marking, though not the expected form. (90c) is a sentence from the same attriting speaker we have discussed at length above; this example shows the same pattern of impoverishment of participant object agreement that she displayed in the realis non-future tense.

It is prudent not to read these differences as an entrenched change in the speakers' systems: the task of producing actual sentences while tracking different arguments across multiple utterances requires more "on-line" processing than being asked for simple verb forms, and some of these unexpected forms may be false starts or one-time utterances. It is also not clear from individual sentences how these changes might fit into their overall system. However, the nature of the changes and the features that are most prone to variation provides valuable information about which aspects of the grammatical system are being affected by the shift situation.

Changes to stative agreement morphology in Modern Chukchi

Now let us turn to the stative agreement paradigms (the perfect and habitual) and how they are used by modern Chukchi speakers. As with the active paradigms, the available data comes from direct elicitation of full intransitive and transitive paradigms and sentences from controlled production tasks as well as narratives. Due to the preference for use of stative inflection by semi-speakers, there is a larger set of data for comparison, including a habitual paradigm that a semi-speaker was able to provide.

Recall that there are two possibilities for agreement marking in the transitive stative paradigms: object agreement in the suffix slot or subject agreement (in which case the "inverse" marker *ine-*, here analyzed as an elsewhere object agreement marker, surfaces). In intransitive constructions, the agreement slot agrees with the only available argument, the subject.

The sentences given in (92) are taken from both semi-speakers and attriting speakers, and represent tendencies rather than universal patterns in their grammar. These patterns are more robust among semi-speakers but are also well-attested among attriting speakers, who had examples of these neutralized patterns as well as the expected conservative ones. Although this variation is indicative of a system in flux rather than an entrenched change, it does point to the same pattern of reduction in transitivity encoding in verbal inflection. The elimination of object agreement is actually expected to be more complete in the stative tenses, since cases where there is only object agreement do not convey what the subject is in any marked way.

In general, the use of the perfect was limited in the production task, so a full 4-way set of contrastive sentences (like the one provided for the habitual above) is not available. However, examples from semi-speakers confirm that the suffix slot in transitive verbs is being repurposed for subject agreement in cases where object agreement is expected. In traditional Chukchi, most transitive verbs agree with the object in the perfect; the exceptions are some instances of 1st person objects. In the 3rd person, agreement should consistently be with the object. Still, semi-speakers produced transitive sentences such as the following, where agreement is unambiguously with the plural subject:

(93) Non-standard perfect sentences

- a. η inqe \dot{e} -e $\text{\textcircled{a}}$ tri η eekkeqe \dot{e} -e ga-jil-linet ke \dot{e} ?att \dot{e} ?aqe \dot{e}
 boy-ERG 3pl.ABS girl-ERG PRF-give-3pl puppy.ABS.SG

‘Intended: The boy and girl put away the puppy. Actual: The boy and girl gave the puppy.’ (3plA/3sgO)

No attriting speakers exhibited unexpected subject agreement in the perfect. This is likely due to the fact that the perfect agreement system is more regular than the habitual, especially for 3rd person arguments: in transitive verbs, agreement is always with the object, and there is no “inverse” marking. This suggests that the occasional unexpected agreement patterns in the habitual among

boys participating in the action, and the citation form for ‘boys’ that was shown alongside the picture was given in a clearly plural form (the absolutive).

attriting speakers are instances of Russian interference or lapses in memory. For the semi-speakers, however, the consistency with which they deviate from the expected patterns is indicative of an actual restructuring to their system, where they have defaulted to the more universally common pattern of subject agreement, possibly on the basis of their dominance in Russian.

Two speakers—one attriting speaker and one semi-speaker—provided (more-or-less) complete stative paradigms to which we can compare the patterns from production. The generalizations from the production task do not hold for either speaker’s full paradigms, especially when it comes to the occurrence of “inverse” marking. Rather than eliminating *ine-* entirely, as they seem to do in sentences, these speakers instead overgeneralize the contexts where *ine-* occurs.

The habitual pattern provided by the semi-speaker is shown in Table 3.9. Note that instances marked by ** refer to cases that the speaker could not recall and which need to be targeted in future research.

	1sgO	1plO	2sgO	2plO	3sgO	3plO
1sgA	–	–	<i>n-ine- -igət</i>	<i>n-ine- -turi</i>	<i>n-ine- -qin</i>	<i>n-ine- -qinet</i>
1plA	–	–	<i>n-ine- -muri</i>	<i>n-ine- -turi</i>	<i>n-ine- -muri</i>	<i>n-ine- -qinet</i>
2sgA	<i>n-ine- -igət</i>	**	–	–	**	**
2plA	<i>n-ine- -turi</i>	<i>n-ine- -turi</i>	–	–	<i>n-ine- -turi</i>	<i>n-ine- -turi</i>
3sgA	**	<i>n-ine- -muri</i>	**	<i>n-ine- -turi</i>	<i>n-ine- -qin</i>	<i>n-ine- -qinet</i>
3plA	<i>n-ine- -qinet</i>	**	**	<i>n-ine- -qinet</i>	**	**

Table 3.9: Habitual inflection provided by a semi-speaker

We can see from Table 3.9 that *ine-* has been generalized to every (supplied) combination of subject and object, so that it functions as a general marker of transitivity. The rest of the paradigm does not show straightforward subject agreement, as we might expect from the production task data or if this speaker had simply generalized the existing pattern in the traditional variety of the language.

Instead, this speaker systematically agrees with the plural argument, regardless of whether it is the subject or object. In cases where both arguments have the same number feature, agreement is generally with the argument highest on the following hierarchy: $2 > 3 > 1$. In other words, the only instances of agreement with the 1st person are cases of 1st person plural, where there is

no other available plural argument to agree with. This pattern is summarized in Table 3.10. The exception to this pattern is bolded and italicized (3plA/2plO).

	1sgO	1plO	2sgO	2plO	3sgO	3plO
1sgA	–	–	2	PL	3	PL
1plA	–	–	PL	2	PL	3
2sgA	2	**	–	–	**	**
2plA	PL	2	–	–	PL	2
3sgA	**	PL	**	PL	3	PL
3plA	PL	**	**	<i>PL</i>	**	**

Table 3.10: Semi-speaker’s pattern of agreement in the habitual

From a syntactic perspective, this is a fairly complex system that requires a ranking of arguments (and therefore both arguments must be referenced before agreement is spelled out). The changes have occurred at the level of the rankings themselves, however they have remained sensitive to markedness effects: the more marked argument (the plural argument) is the one that is expressed in agreement. Meanwhile, the hierarchy that this speaker maintains (excepting the agreement for 3plA/2plO, which does not follow the pattern) captures the primary function of the spurious antipassive in the traditional language, to obviate agreement with 1st person arguments. Analyzed this way, this is a more regular pattern than the one in traditional Chukchi, where there is almost always subject agreement in the habitual except for some 3rd person subject cases. However, this pattern is not syntactically or morphologically simple.

The attriting speaker displayed the same pattern of generalizing *ine-* as an overall marker of transitivity, used to mark all transitive inflection. Otherwise, this speaker used the expected agreement in the suffix slot, with the exception of 3sgA/1plO, which has been leveled to the same form used for 3sgA/1sgO, *ne-ine- -qin*.

In general, morphological leveling or increased syncretism and instability in agreement marking is more common among attriting speakers than semi-speakers. Attriting speakers have acquired a more or less complete system and appear to bring in other parts of the system (or parts of other inflections) to compensate where their grammar has developed gaps. Semi-speakers, who likely have not fully acquired the traditional system at all, instead innovate ways to recreate an agreement

	1sgO	1plO	2sgO	2plO	3sgO	3plO
1sgA	–	–	<i>n-ine- -igəm</i>			
1plA	–	–	<i>n-ine- -muri</i>			
2sgA	**	<i>n-ine- -igət</i>	–	–	<i>n-ine- -igət</i>	
2plA		<i>n-ine- -turi</i>	–	–	<i>n-ine- -turi</i>	
3sgA	<i>n-ine- -qin</i>	<i>n-ine- -qin</i>	<i>n-ine- -igət</i>	<i>n-ine- -turi</i>	<i>n-ine- -qin</i>	<i>n-ine- -qinet</i>
3plA	<i>n-ine- -igəm</i>	**	**	**	**	**

Table 3.11: Habitual inflection provided by an attriting speaker

marking system.

Additional signs of morphological leveling are found in the attriting speaker’s perfect paradigm (Table 3.12).

	Intrans	1sgO	1plO	2sgO	2plO	3sgO	3plO
1sgA/S	<i>ge- -igəm</i>	–	–	<i>ge- -igət</i>	<i>?ge- -turi</i>	<i>ge- -lin</i>	<i>ge- -linet</i>
1plA/S	<i>ge- -muri</i>	–	–	<i>?ge- -igət</i>	**	<i>ge- -lin</i>	**
2sgA/S	<i>ge- -igət</i>	<i>ge- -igət</i>	<i>ge- -muri</i>	–	–	<i>ge- -lin</i>	<i>ge- -linet</i>
2plA/S	<i>ge- -turi</i>	**	**	–	–	**	**
3sgA/S	<i>ge- -lin</i>	<i>?ge- -igəm</i>	**	<i>ge- -igət</i>	**	<i>ge- -lin</i>	<i>ge- -linet</i>
3plA/S	<i>ge- -linet</i>	**	**	**	**	**	**

Table 3.12: Perfect inflection provided by an attriting speaker

The standard pattern of agreement marking in the perfect is predominantly object agreement, except in a subset of cases with 1st person objects, where we find the “spurious antipassive” (that is, subject agreement with the *ine-* marker). The attriting speaker has mostly maintained this pattern, with some leveling: the speaker has eliminated *ine-* entirely, and agreement is almost always with the object (except in 2sgA/1sgO, which the speaker likely remembered requires some type of special treatment, but could not recall exactly how it should be inflected). The result is almost completely regular absolutive agreement in the suffix slot: intransitives agree with the intransitive subject and transitives agree with the object. Overall, the speaker had strong intuitions that the active non-future is more appropriate for describing past events; question-marked (?) forms in the table are those that the speaker produced but did not approve. For the argument combinations where there are gaps (**), the speaker said there was no perfect form and that only the non-future tense was possible. This is a clear example of syncretism within and across paradigms.

3.3.3 Evaluating theories of Chukchi agreement marking in light of modern speech patterns

Although the semi-speakers and attriting speakers surveyed in the previous section behave differently with regard to their agreement marking tendencies, they have certain telling commonalities. All of the speakers maintain different systems of agreement marking in transitive and intransitive paradigms. All of the speakers have preserved the nominative agreement prefix system in the realis moods; the attriting speakers who supplied irrealis mood inflections, such as the intentional, show no signs of having lost the irrealis nominative prefixes either. Across both speaker groups, subject agreement is better preserved than object agreement, although most speakers have preserved the different syntactic types of object agreement (direct object agreement, pormanteau subject-object agreement, and underspecified “inverse” object agreement). None of the speakers have wholly eliminated any individual type of marking or agreement position. There are few instances of wholesale morphological leveling except for the case of *ine-* in the stative paradigms, where it has either been generalized to all transitive inflections or eliminated entirely (eliminating any contrast between transitive and intransitive agreement patterns).

Broadly speaking, all of these patterns are consistent with the theory of agreement that was proposed for traditional Chukchi, and show that speakers have attained a similar underlying syntax, where Infl probes for subject agreement features and *v* must have the ability to engage with both the subject and object arguments. In fact, the proposed analysis predicts that straightforward subject agreement via Infl is more likely to be preserved than a multi-layered, arguably more complex process like Multiple Agree, which has different possible morphological results. The differences in the attriting and semi-speaker systems come into play at the level of the morphology, which has seen further impoverishment among some speakers, and at the level of the rankings between different features, which determine whether they are realized in suffixal agreement. Here, we also find some similarities among speakers’ systems: they prioritize the encoding of plurality, which is a cross-linguistically marked feature. The attriting speaker achieves this by deleting object person

features but preserving number; the semi-speaker instead shows a preference for agreeing with plural over singular arguments in the stative agreement suffix position.

The analysis of *ine-* as an underspecified object agreement feature finds support in its distribution in these changing systems as well. Although it would have been natural to reanalyze *ine-* as a kind of 1sgO agreement, these two speakers have instead expanded the contexts where we find *ine-* rather than restricting them. What is clear is that, for both speakers, *ine-* is no longer the elsewhere result of blocked object agreement in the expected position: it is found with both subject and object agreement in the suffix slot. However, it is still saliently associated with transitivity: it only ever appears in transitive paradigms, and in both speakers' habitual paradigms, it is the only unambiguous indicator of transitivity, given that suffixal agreement could be with either the subject or object.

Since the agreement prefixes have been well-maintained along with the subject suffixes, the changing system does not provide us with any additional evidence in favor of or against a feature-copying analysis of the non-object suffixes. The attriting speaker shows some instability in the form of the subject suffixes in the aorist, for example—she used a 2pl agreement suffix (*-tək*) for 1sg subject agreement, and the stative 2pl suffix *-turi* where *-tək* would actually be expected in an active paradigm. As I noted previously, these are entrenched changes in the speaker's system—she used these affixes in this same way when asked a year apart, so they should not be seen as one-off errors. Perhaps this shows a failure to copy TAM features from the prefix, or that the underlying features of these markers have been reconfigured entirely. None of the changes rule out either feature-copying or direct agreement with the subject.

One theory that has been put forth to explain the Chukchi agreement patterns which we have not yet considered is Spencer 1996. Spencer's proposal is in the framework of Paradigm Function Morphology (PFM), in which the outputs of different inflectional possibilities for a particular stem (in the case of agreement, a verb stem) are determined by a function that operates on the stem:

(94) Paradigm Function definition (Stump 2001: 32)

A function which, when applied to the root of a lexeme L paired with a set of morphosyn-

tactic properties appropriate to L, determines the word form occupying the corresponding cell in L's paradigm

This approach differs from lexical morphological theories (such as Distributed Morphology) in that it assumes that what we have been calling agreement markers do not exist as separate morphemes (or separate lexical entries): the entire form of the verb for a particular cell is the result of the function's operation.

There are two important differences in this framework that are relevant for Chukchi (and the analysis proposed by Spencer 1996). The first is the ability within this framework to relate cells of a single paradigm to one another via the notion of a *morpheme*. The second is the possibility for one part of a paradigm to be defined as the realization of another part of the paradigm (or another paradigm altogether) through a *rule of referral*. A morpheme is one possible way of accounting for the fact that *ine-* and *-tku* are realized in the exact same parts of the transitive verb paradigm across different types of inflection. For example, comparing the transitive aorist inflection and the transitive perfect inflection, we can see that the occurrences of “inverse” marking form the same shape in both.

(95) Inverse marking across different paradigms

	Perfect		Non-future	
	1sgO	1plO	1sgO	1plO
2sgA	<i>g-ine- -igət</i>	<i>ge- -tku-igət</i>	<i>ine- -g[?]i</i>	<i>-tku-g[?]i</i>
2plA	<i>g-ine- -turi</i>	<i>ge- -tku-turi</i>	<i>ine- -tək</i>	<i>-tku-tək</i>
3sgA	<i>g-ine- -lin</i>	<i>ge- -muri</i>	<i>ine- -g[?]i</i>	<i>ne- -mək</i>
3plA	<i>ge- -igəm</i>	<i>ge- -muri</i>	<i>ne- -gəm</i>	<i>ne- -mək</i>

This distribution is somewhat arbitrary: if we say that the *ine-* and *-tku* markers are inverse markers that arise in the context of a 1st person object (regardless of what that means syntactically), there is no good reason why the 1sgO inverse occurs with 3sgA but not 3plA. In the analysis I have proposed, we would have to stipulate that this is a case where object agreement (instead of the expected subject agreement) is blocked. In Paradigm Function Morphology, we would treat the

entire shape of the shaded part of the paradigm (the morpheme) as a unit itself, to which we can refer in other paradigms. Perhaps there is some evidence for the treatment of the distribution of these markers as a unit in the fact that the attriting speaker's aorist paradigm has preserved this shape. That is, we find an antipassive-based inverse marker in all of the expected cases and then some, even as other aspects of the morphology of these cells is altered.

The second relevant aspect of PFM, the rule of referral, is how Spencer (1996) accounts for the aberrant morphology of the spurious antipassive. Rather than proposing an analysis that generates an appropriate structure to output this morphology from the syntax (as I do above), Spencer proposes that these cells are operated on by a rule of referral that directly calls up the antipassive verb form that corresponds to the appropriate subject. For the speakers consulted here, this type of rule of referral is not in effect: it is clear that *ine-* exists independently of the rest of the morphology in a particular cell, since *ine-* may be preserved where the expected antipassive agreement pattern is not, or may spread without the anticipated antipassive agreement. For these speakers, there must be a way to explain how *ine-* can propagate in this way throughout active-voice paradigms, since it cannot be the result of a rule of referral.

However, rules of referral may be useful in accounting for some of the new syncretisms in the speech of the attriting speaker whose full aorist paradigm we have examined, specifically, the material that seems to have been pulled in from other paradigms. For example, the form of 1sgS agreement, *t-* *tək* is unexpectedly syncretic with 1sgA/2plO transitive agreement. A rule of referral could be proposed that would resolve this syncretism without reanalyzing the features of *tək*, which does not occur in any non-2pl context for this speaker (insofar as we could elicit). Rules of referral may allow for a natural explanation of how attriting speakers in particular make up for gaps in their system by regularly pulling in material from other verbal paradigms in the language.

3.4 Predicate semantics and semantic role assignment

Like many languages, Chukchi is sensitive to the encoding of animacy distinctions and does so explicitly in its grammar. It distinguishes two classes of nominal declension (common nouns and high animate nouns, see section 3.2) and displays obviation of agreement with certain arguments in inverse combinations (section 3.3). Chukchi is not unique in this type of sensitivity and we have already evaluated why these patterns are attested cross-linguistically: certain arguments are more likely to serve as the agents of an action, which translates syntactically to their more often serving as subjects. Languages that have not hard-wired these tensions into their agreement morphology through inverse marking nevertheless find ways of encoding hierarchical animacy and definiteness relations, such as through the use of voice changes in certain contexts: for example, the use of passive voice so that inanimate agents are marked by a by-phrase or an oblique case, and an animate undergoer is the syntactic subject of the sentence. Other languages signal animacy-based or definiteness-based markedness morphologically, through patterns such as Differential Object Marking (e.g., Spanish, Turkic languages) or sole agreement with the higher argument on a person hierarchy (e.g., Tangut) (Croft 2003: 130-131).

One of the goals of the present survey of argument structure in modern Chukchi is to determine how issues of animacy are resolved with respect to predicate semantics, and how this affects the inflectional choices of different speakers, especially speakers with less than full proficiency. Chukchi verbs are generally strictly classified as transitive or intransitive (except for a small class of labile verbs). In other words, a verb cannot be transitivized (or detransitivized) through the selection of different agreement forms; this is only achieved through valency-changing derivational morphology. While some of this derivational morphology can be productively applied to any verb of the correct valency (causatives and applicatives to intransitives, antipassives to any transitive according to Skorik 1977), much of this morphology has been lexicalized to create intransitive-transitive pairs (*eat-feed*, *see-show*, *hide.oneself-hide.someone*, etc.). Chapter 4 discusses to what extent speakers are still able to productively apply valency-changing operators (different voices) in

the language. In this section, I examine how well speakers have mastered the baseline valency of different verbs, where the valency-changing operators have been lexicalized.

The basic production task that is part of the suite of approaches discussed in Chapter 1 was very successful in targeting how speakers understand the argument structure of different verbs, and how flexible they are with different types of arguments. Since words were selected ahead of time and provided to the participants, as a first pass speakers were expected to use the lexical items they were given, or provide an explanation if they needed to replace one, especially if the item they replaced was the verb. In most cases, the speakers objected to the selected words because they did not perfectly match the associated picture (descriptively), but in some cases, the valency of the verb was at issue.

Certain stimuli posed particular problems for all of the speakers, including the highly proficient group. However, the different groups of speakers dealt with the problematic stimuli differently. The following conditions that were built into the task are directly relevant for the present discussion:

- (96) Verbal valency
 - a. One-place intransitive
 - b. Two-place intransitive (subject plus oblique)
 - c. Two-place transitive
 - d. Three-place transitive (subject, object, non-obligatory oblique)
 - e. Ditransitive (subject, object, indirect object)
- (97) Argument animacy (in polyvalent verbs)
 - a. Animate A + inanimate O
 - b. Animate A + animate O
 - c. Inanimate A + inanimate O
 - d. Inanimate A + animate O

Generally, speakers could make a well-informed guess as to the valency of the provided verb based on the associated picture, except in cases where the picture was misleading or the expected

argument structure was surprising. This occurred most often with the two-place intransitive verb, and transitive verbs with the arguments in (97d): inanimate subjects acting on animate objects. However, for some speakers, all inanimate agents caused confusion.

First, let us consider the most problematic stimuli in the task, those belonging to condition (97d). There were two such stimuli and both were similarly received by speakers, which suggests the issues did not stem from individual lexical items or stimuli pictures. With both stimuli, all three groups of speakers (fluent, attriting, L2) resisted providing a sentence where the inanimate argument was in the agent role. The native speakers and attriting speakers who were familiar with the verb generally found a workaround to express the intended semantics of the picture, either with the intransitive counterpart of the verb (with the inanimate marked by an oblique case). With direct elicitation, these speakers were able to provide the expected argument structure. Many of the less-proficient attriting speakers and the L2 speakers responded to this tension by interpreting the transitive verb as an intransitive, producing a sentence that is infelicitous in the traditional language. Another workaround by L2 speakers was to swap the semantic roles of the arguments and preserve the transitive verb, producing a sentence that did not accurately describe the picture.

These stimuli are provided in Figure 3.2.



ratcəŋatak 'to hide (tr.)'
jomromkət 'bushes'
milutet 'rabbits'



rəgəntewək 'to frighten'
jʷilkeew 'thunder'
galgat 'geese'

Figure 3.2: Production task stimuli with an inanimate agent and animate undergoer

The sentences these stimuli targeted were ‘The thunder frightened the geese’ and ‘the bushes hid the rabbits’. For speakers who were familiar with the verbs and who have acquired the strict valency of most Chukchi verbs, the intended meanings were not ambiguous; they were simply bizarre. However, most of these speakers agreed that the intended sentence could be felicitous in a folk tale or poem, and is not strictly ungrammatical.

The following are examples of the types of responses speakers gave for the ‘bushes’ (A) + ‘rabbits’ (O) stimulus.

(98) Expected argument structure

- a. *jomromk-a na-natcəŋat-nat milutet*
 bush-ERG 3plA-hide.TR-3plO rabbit.ABS.PL
 ‘The bushes hid the rabbits’

(99) Fluent workaround with an intransitive verb: O → S, A → Obl

- a. *milutet jomromk-ək ø-atcə-gʰat*
 rabbit.ABS.PL bush-LOC 3plS-hide.INTR-3plS
 ‘The rabbits hid in the bush’

(100) L2 speaker: transitive verb treated as intransitive

- a. *milutet nə-ratcəŋ-qenat jomromkə-cəku*
 rabbit.ABS.PL HAB-hide.TR-3pl bush-INESS
 ‘Intended: The rabbits hide (themselves) in the bushes. Actual: The rabbits hide (something) in the bushes’

For this stimulus, virtually none of the speakers produced (98a) on the first pass.⁶ Fluent speakers preferred the workaround (99a), although they readily produced (98a) when I elicited this argument structure directly. The less-proficient speakers did not recognize that the verb that was provided was transitive (in fact, derived from the intransitive *atcək* ‘to hide (oneself)’ by applicativization). Instead, they simply treated it as an intransitive verb with ‘rabbits’ as the subject, and ‘bush(es)’ as the location of the hiding.

⁶The exception was one highly-educated fluent speaker, who did not balk at any semantically-unusual constructions as long as they were grammatical.

Similar results obtained in the second stimulus, ‘thunder’ (A) + ‘geese’ (O):

(101) Expected argument structure

- a. jənqerg-a rəgəntew-ninet galgat
lightning-ERG frighten-3sgA.3sgO goose.ABS.PL
‘The lightning frightened the geese’

(102) Fluent workaround with an intransitive verb: O → S, A → Obl

- a. galgat ø-gəntewə-rkə-t jənqerg-epə
goose.ABS.PL 3plS-run.away-PROG-3plS lightning-ABL
‘The geese ran from the lightning’

(103) Fluent workaround with an unrelated intransitive verb

- a. ø-ceŋəttət-g[?]et galgat
3plS-be.frightened-3plS goose.ABS.PL
‘The geese were frightened’

(104) L2 speaker sentence: ‘frighten’ reinterpreted as a transitive meaning ‘was frightened by’

- a. galgat-a ga-rəgəntew-lenat jənqergən
goose.ABS.PL-ERG PRF-frighten-3pl lightning.ABS.SG
‘Intended: The geese were frightened by the lightning’; Actual: ‘The geese frightened the lightning’

In this case, fluent speakers were far more willing to endorse the argument structure in (101a), possibly because lightning is a dynamic event where it is easier to imagine a result (frightening someone), compared with the passive act of bushes covering rabbits. Still, several fluent and attriting speakers preferred alternative argument structures that did not assign an agent role to ‘lightning’. One alternative was (102a), where a speaker used the intransitive root of the derived transitive and relegated ‘lightning’ to an oblique case. Another speaker supplied a different verb meaning ‘to be frightened’, with ‘geese’ as the intransitive subject (103a). The L2 speakers struggled especially with this stimulus; one speaker provided the sentence in (104a), where the transitive causative verb is seemingly reinterpreted as a transitive verb meaning ‘be frightened by’. There are a number of dysfluencies in this sentence; for example, the speaker affixed ergative case to the

inflected plural form, not the stem. The verbal agreement is also with the subject, which, although different from the traditional language where the expected agreement is with the object in 3 > 3 cases, is a common reanalysis of this agreement paradigm, as we saw earlier.

Another stimulus that tested speakers' knowledge of verbal valency was the one given in Figure 3.3.



Figure 3.3: Production task stimulus with an intransitive and oblique arguments

This stimulus was somewhat of a trick question. The provided verb for ‘sew’ is an intransitive that cannot take a direct object. The fluent and attriting speakers familiar with the verb avoided treating ‘hat’ as the direct object and instead expressed the result of the ‘sewing’ in a separate clause; the rest of the speakers simply treated *wanek* as transitive.

(105) Expected argument structure

- a. epeqej nə-waŋe-qen, nə-nni-qin kʔeli
 grandmother.ABS HAB-sew.INTR-3sg HAB-sew.TR-3sg hat.ABS.SG
 neekkeqej-ne
 girl-DAT.ANIM.SG
 ‘The grandmother sews, sews a hat for the girl’

(106) Verb interpreted as transitive

- a. epeqej-ne nə-waŋe-qen ŋaakkaqa-gtə kʔeli
 grandmother-ERG.ANIM.SG HAB-sew.INTR-3sg girl-DAT hat.ABS.SG
 ‘Intended: The grandmother sews a hat for the girl’

Finally, the semi-speakers and attriting speakers also had some difficulty with the expected valency of verbs where both of the provided arguments were inanimate. The motivation here seems to be the same as with the other stimuli where there was an expected inanimate transitive subject—speakers resist assigning the agent role (and ergative case) to it, and try to provide an

intransitive alternative where the undergoer is the subject. This was the case for the following responses to a stimulus where snow is covering a car:

(107) Expected argument structure

- a. ə[?]l[?]əl-e enar[?]e-nen lejwineŋ
snow-ERG cover-3sgA.3sgO vehicle.ABS.SG
'Snow covered the vehicle'

(108) Verb reanalyzed as an intransitive meaning 'to be covered'

- a. lejwineŋ ø-enar[?]e-g[?]e ə[?]l[?]əl-a
vehicle.ABS.SG 3sgS-cover-3sgS snow-INST
'Intended: The vehicle is covered by snow'

The sentence in (108a) is ungrammatical in standard Chukchi; *enar[?]ek* is strictly a transitive verb.

Ultimately, what this variation in the argument structure of different verbs indicates is that less-proficient speakers do not have strong intuitions about the valency of verbs, even when verbs include overt valency-changing morphology. This result is not entirely surprising, since the valency of a particular verb is not always obvious and must be acquired with the lexical item. Thus, these issues appear among attriting speakers and semi-speakers because of the possibility that they lack experience with that particular verb or have forgotten it.

The semi-speakers in particular were resistant to producing an ergative-marked inanimate argument, even when the image was unambiguous and the verb would likely have been familiar to them (such as the case of something frightening someone, a concept that children are likely to have heard). In some of these cases, the speakers may have had intuitions that the verb was transitive, but doubted them because they were being asked to produce something they had never heard and did not feel confident about—a common issue among heritage learners. Thus, while most of the other speakers (including the attriting speakers) eventually produced the expected argument structure, the semi-speakers assumed that such an unexpected sentence could not possibly be what the experiment was targeting and were afraid of making a mistake.

The question still remains as to why this particular aspect of Chukchi argument structure is difficult for some speakers. Part of the answer lies in the fact that the assignment of semantic roles (and, in turn, grammatical case) is an interface phenomenon, which is notoriously difficult for heritage learners (Sorace 2011, Polinsky 2018: 231). The “Interface Hypothesis” in bilinguals, which is based on data from both adult L2 speakers and attriting L1 speakers, argues that interface phenomena specifically are less likely to be fully acquired by speakers with divergent acquisition. Thus, the issue of valency in Chukchi verbs is doubly affected by the vagaries of acquisition in a shift setting: first at the level of lexical information encoded in verbs, and second at the level of how semantic roles inform case assignment and agreement.

The fact that changes are occurring in this domain is not trivial, since verbal valency in Chukchi is strongly linked to whether certain valency-changing operations are possible, including noun incorporation, which is discussed in the following chapter. As we will see, the incomplete acquisition of voice and verbal valency has consequences for the entire grammar of the language.

3.5 Conclusion: evaluating the mechanisms of change in Chukchi transitivity phenomena

This chapter has reviewed the Chukchi phenomena that have been described as morphologically ergative and discussed the fate of these phenomena today, as the language undergoes shift. This chapter has also reviewed the existing analyses of the morphosyntax of agreement in Chukchi and how well these analyses explain the changes to the grammars of attriting speakers and semi-speakers.

For linguists who are used to analyzing the speech of highly proficient, and more importantly, confident speakers, it may not be obvious why it is necessary to consider these speakers as part of the analysis, or why a particular analysis should be tested against their speech patterns. The answer is that these speakers provide valuable information about which aspects of a syntactic system are acquired and subsequently lost by speakers of an endangered language, and which are

never acquired at all. Furthermore, as I argued in Chapter 1, these individuals are part of the speaker pool for the language; indeed, with each passing day they represent a larger part of the speaker pool. Thus, they make important contributions both to synchronic variation and incipient change in the language. This is not merely a theoretical claim: substrate effects in majority languages develop among exactly these types of speakers, i.e., those who have not fully acquired the system shared by most other (fluent) speakers. Given that such speakers can clearly effect change even when they are not authoritative members of the speech community, it is beneficial to formally demonstrate how their grammars compare with the conservative grammar.

This chapter has shown that the lack of proficiency or confidence among shifting speakers does not, and should not, impede our ability to analyze their grammars. It is possible to tease apart a genuine mistake from a more entrenched feature of the speaker's language. It is also clear that less confident speakers make up for linguistic gaps (or paradigmatic features they failed to acquire) in systematic ways, even if their systems admit some irregularities. These irregularities are likely the reason why these speakers are generally dismissed as sub-ideal language consultants. As we saw in the data presented throughout this chapter, these speakers often cannot remember how to say certain things and it is difficult to elicit full paradigms from them. They also behave differently in different tasks: compare the 3 > 3 agreement patterns speakers provided in paradigmatic elicitation relative to the production task. In an ideal scenario, the researcher would elicit these paradigms across different sessions and see how they compare. It would also be best practice to elicit them in ways that would not prime the speaker, which is always a risk when running through an elicitation questionnaire and especially when eliciting several paradigms in a row—speakers are likely to start overgeneralizing patterns or mixing up different paradigms. Another useful exercise would be to elicit judgments about the expected traditional patterns as well as the speaker's own production data at a later point. All of these measures can be implemented in future work to test the fidelity of the data presented here.

Still, the fact that these speakers produced any of the patterns above, even once, is worthy of investigation and should not be dismissed, especially as the changes they instantiate are not

random, even if they will never be repeated. In fact, rather than speaking of an individual speaker's agreement system, it may be more prudent to speak of an individual's systems. The notion of intraspeaker morphosyntactic variation is not controversial and has been analyzed in monolingual (presumably "fully fluent") English speakers (see Nevins and Parrott 2010 for a DM account). Even as these speakers switch among different agreement patterns, there is seemingly a set of rules that govern their linguistic behavior, and they tend not to produce forms that violate what we expect from cross-linguistic typological generalizations.

3.5.1 Review of changes to ergative-absolutive morphological phenomena

There are two commonly-discussed reflexes of morphological ergativity in Chukchi: the ergative alignment of core case marking and the positional absolutivity of verbal agreement suffixes.

The alignment of case marking is straightforwardly ergative, with an unmarked absolutive case and an ergative case with no apparent splits. This case marking system has been maintained by most speakers consulted in this study: the apparent changes have largely been to the noun classes, where the high animate class is applied more generously by some attriting speakers. Several semi-speakers display a pattern that affects the alignment of case marking where they eliminate ergative case, using the unmarked absolutive for all core arguments (but not oblique arguments).

The alignment of the agreement suffixes is less transparently ergative: the suffix slot has often been described as a case of positional absolutivity due to the fact that it agrees either with the intransitive subject (in intransitive verbs) and the direct object (in transitive verbs). However, there are very few affixes in the agreement system that are truly absolutive (appearing for both S suffix agreement and O suffix agreement). There are just as many suffixes that are actually accusative, which only occur for object agreement, and there are suffixes that only occur for intransitive subject agreement in certain moods. Morphologically, then, we can just as faithfully describe this slot as containing nominative and accusative affixes, with elsewhere affixes that can appear for any argument.

I follow Bobaljik (1998) in analyzing this slot as only epiphenomenally absolutive—the ap-

pearance of absolutivity results from the fact that suffixal agreement in Chukchi is obligatory. It is inaccurate to say that this slot only ever agrees with the intransitive subject or transitive object. In cases of portmanteau agreement, the suffix slot agrees with both the subject and object. In cases of inverse marking or the spurious antipassive, the slot actually agrees with the transitive subject—despite the appearance of intransitive agreement marking, the clause is transitive, and the ergative argument is the one indexed by the suffix.

While this is not necessarily an ergative pattern, it is one that is typologically distinct from Russian, the dominant language of most Chukchi speakers, and as such is one that we expect to potentially undergo changes. While the prefix slot is nominative (subject) agreement (a pattern not unlike Russian), the agreement suffix slot must be able to encode either the features of the subject or object, and in all transitive cases is sensitive to the features of both arguments in order to determine which features are spelled out. Thus, the underlying syntax of agreement in Chukchi must differ significantly from Russian.

As expected, suffixal agreement shows the greatest degree of change among current speakers of Chukchi, with object agreement being particularly prone to change. Suffixal subject agreement is relatively robust, as are portmanteau agreement forms. The preservation of portmanteaux (even among semi-speakers) is somewhat perplexing given how specialized these morphemes are syntactically; however this may make them especially salient to new learners. The inverse pattern of agreement marking (earlier analyzed as an elsewhere object agreement form plus suffix agreement with the transitive subject) is also weakened among less-proficient speakers, with complete loss and/or reanalysis of the inverse markers by semi-speakers.

While the weakening of the object agreement and spurious antipassive agreement could be viewed as the result of Russian interference, since Russian lacks comparable patterns, it is also necessary to consider that the lack of such patterns in Russian and their loss in Chukchi are independently motivated by the same cross-linguistic tendencies (to emphasize animate subjects over objects). The nature of the new syncretisms in the system may also reflect linguistic tendencies: while the L2 speaker has moved toward a system that encodes marked categories (plural and par-

ticipant), the attriting speaker has generalized suffixes expressing the least marked person, 3rd, to other persons in the agreement paradigm. This latter pattern has also occurred as part of language-internal change in robustly-spoken languages such as Greek, where some verbal agreement endings spread from 3rd to 1/2 person (Joseph 2009).

Furthermore, even with changes, the Chukchi agreement patterns among semi-speakers and attriters are not identical. Thus, although Russian interference may promote a move toward simple subject agreement, it is not the sole motivation for the patterns we see among the modern speakers.

3.5.2 Loss of *ine-* and changes to syntactic ergativity

One of the open questions this study seeks to answer is the nature of contact-induced change, which includes any changes that occur as a direct result of a language shift situation. Specifically, what is the scope of contact-induced change—does it cause change to or loss of individual structures or words, or can it also operate at a deeper grammatical level? This chapter has shown that both types of changes are possible, and in fact, both types of changes can reinforce one another. For example, the overuse of the high animate declension class may hinge on analogy between phonologically similar nouns: *epeqej* ‘grandmother’, where the high animate class is used by proficient speakers, and *ɲinqej* ‘boy’ and *ɲeekkeqej* ‘girl’, where it is used by some attriting speakers but not proficient speakers. Although this is a change affecting individual lexical items, there is evidence that it has contributed to a reinterpretation of the semantics of the high animate class, such that it is used with all human nouns, including those that do not end with the diminutive morpheme *-qej*.

The relationship between local and system-wide changes can also be seen in the weakening of the agreement markers *ine-* and *-tku*, which also exist as derivational (antipassive) morphemes. As we will see in Chapter 4, these markers have not only changed in agreement paradigms, but have also lost their valency-changing functions. Since many of the syntactically ergative patterns in Chukchi depend on antipassivization, these patterns have also been lost among less-proficient speakers. There is evidence based on data collected from some fluent speakers that the loss of these antipassive markers (at least for productive use) predates the onset of shift; thus, this may be

a scenario where the loss of a transparent syntactic function for these markers has contributed to their loss as unmarked object agreement forms and to syntactic ergativity as a whole.

Chapter 4

Valency-changing operations in Modern Chukchi

4.1 Variation in valency-changing operations in existing Chukchi descriptions

Valency-changing operations in Chukchi represent an area of significant variation that is not yet fully understood by researchers. Valency-changing operations have been variably described at different points in time, and not all of the existing valency-changing strategies are described by all sources. The processes that have received the most attention from scholars, and the ones investigated in this study, are:

- Valency-increasing derivational morphology, formed through the circumfix *r/n-* *-et/ew*
- Valency-decreasing derivational morphology: the antipassive affixes *ine-* and *-tku*
- Valency-rearranging derivational morphology (akin to dative shift), using the prefix *ine-*
- Incorporation of nominal arguments (usually the patient, but can also be the instrument or location) into the verb stem, resulting in a decrease in valency

The available descriptions of these processes vary in significant ways, especially in the domains of frequency and productivity. Sections 4.1.1-4.1.3 detail this variation across different sources and attempt to reconstruct how much variation predates the modern endangerment situation and, in turn, how variable the inputs for modern speakers would have been. Sections 4.3 and 4.4 discuss how these processes vary among speakers of the modern language, and whether these changes are due to the modern shift situation.

A summary of the basic facts about valency-changers in traditional and modern varieties of Chukchi is given in Table 4.1.

Valency-changer	Function	Type	Pre-shift variation?	Modern variation
<i>r-</i> <i>-et/-ew</i> ₁	causative voice	valency-increasing (Obl → A, S → O)	No	Most likely affix to be used in productively by any speakers
<i>r-</i> <i>-et/-ew</i> ₂	applicative voice	valency-increasing (S → A, Obl → O)	No	Productive use maintained among highly proficient speakers
<i>ine</i> ₁ - & <i>-tku</i>	antipassive voice	valency-reducing (O → Obl)	Yes	Limited distribution among highly proficient speakers, not used by attriting speakers and semi-speakers
<i>ine</i> ₂	oblique-argument-raising morpheme	valency-rearranging	Underdescribed	Low productive use by any speakers; preserved in lexicalized roots
incorporated object	verbal incorporation	valency-decreasing <i>or</i> valency-rearranging	Yes	Used productively by both highly-proficient and attriting speakers; used in conventionalized contexts by semi-speakers

Table 4.1: Summary of valency-changing operations in Traditional Chukchi and findings from the present study of Modern Chukchi

4.1.1 Valency-increasing derivational morphology

Chukchi has two main strategies for increasing valency, i.e., deriving transitive verbs from intransitive ones: causatives and applicatives created using the circumfix *r-/n-* *-et/ew* (or *r-/n-* *-at/aw* with dominant vowel harmony). The choice of *r-* or *-n-* is morphophonologically determined; *r-* occurs word initially and *-n-* occurs at morpheme boundaries. The distribution of *-et* vs. *-ew* is arbitrary, and is not obviously conditioned by phonology or function (i.e., whether the resulting meaning is applicative or causative). For example, the following derived verbs are both causative but make use of different suffixes:

(109) Examples of causative derivations with *-ew/-et* (Weinstein 2005)

- a. *r-aromk-aw-ək* ‘to bore’ (‘to cause to be bored’)
- b. *r-ilgətw-et-ək* ‘to clean’ (‘to make clean’)

Whether the transitivity morpheme produces a causative or an applicative is predictable, as it depends on the semantics of the intransitive verb stem that is modified. Unaccusative intransitives (those where the sole argument is an undergoer) become causative when transitivized ($S_o \rightarrow O$, with added A; see (110)); unergative intransitives become applicative when transitivized ($S_a \rightarrow A$, and an O argument is added; see (111)).

(110) \emptyset -rə-tʰəl-ew-rkə-n
 2sgA-CAUS-be.sick-CAUS-PROG-3sgO
 ‘You cause him to be unwell, you are making him sick’ (*Causative derivation*, Bogoras 1922: 819)

(111) qənwer rəpaaw-nen rə-maraw-at-ək ekək
 finally cease-3sgA.3sgO APPL-make.war-APPL-INF son.ABS.SG
 ‘He finally stopped picking a fight with his son’ (*Applicative derivation*, Weinstein 2005: 268)

The descriptions of the transitivity morphology are relatively consistent across the available sources: Bogoras (1922), Skorik (1977), and Dunn (1999) all make note of it, although only Dunn specifies the distinction between its applicative and causative functions. Both Dunn and Skorik note that this morphology is highly productive. There are other minor differences between the accounts that are likely due to the available data at the time. For example, Bogoras (1922: 819) initially described the distribution of the two suffix forms as being phonologically conditioned, with *-et* occurring following stems ending in /w/, but this does not appear to be accurate, given the existence of forms such as *rə-giciw-ew-ək* ‘to entertain’ (Weinstein 2005). Skorik (1977: 211) notes that *r-* can appear on its own without a suffix; most of these examples are cases where the intransitive verb stem itself already contains *-et* or *-ew*.

-et/-ew on their own have other derivational functions in verbs. They are most commonly used to derive verbs from other word classes; very rarely, the addition of one or the other suffix results in a difference in meaning (Dunn 1999: 255-256). In other cases, such as these transitivity ones, the addition of one of these markers is used as a redundant derivational marker. There are a small number of cases reported by Skorik (1977: 214) where these suffixes are valency-reducing in

function, and derive intransitives from transitive verbs. For example, *ejup-ək* ‘prick-INF’ becomes *ejup-et-ək* ‘prick.oneself-INF’; *pela-k* ‘leave-INF’ becomes *pela-(e)t-ək* ‘remain-INF’.

Thus, the most transparently transitivity piece of the circumfix is *r-/n-*. However, many of the resulting transitive verbs have become conventionalized in meaning and form, and the choice of *-ew* or *-et* is not interchangeable. Nevertheless, there are instances of fluent speakers coining new derived transitives on the fly (including in this study). The degree to which this morphology is truly productive, and to which the relationship between intransitives and their derived transitives is transparent to different speakers, is reported on below.

4.1.2 Valency-decreasing and valency-rearranging derivational morphology

The valency-decreasing and valency-rearranging morphological processes in Chukchi display a greater degree of variation, at least in the existing grammatical descriptions. The most noteworthy detransitivizing processes in Chukchi (which are directly investigated here) are antipassivization and noun incorporation. There is no longer a productive passive transformation of finite verbs, although there is a passive participle that is used to relativize on objects, which often functions as a fully-inflected clause.¹ Antipassivization is done through the use of the morpheme *ine-* or *-tku*. (*-tku* also has an additional, independent function as a marker of iterativity; when *-tku* is used alone in intransitive verbs, its function is not always clear.)

As I discuss in Chapters 1 and 2, the nature of Chukchi antipassivization across time and space is variable, and some of the descriptions may be suspect. The same is true of incorporation. The three major descriptions of Chukchi all contain some mention of the antipassive, but make different claims as to its availability for use with different transitive verbs and the resulting argument structure of the entire clause. Bogoras (1922: 819) describes the prefix *ine-* as one that “transforms transitive verbs into intransitives, either without other change of meaning or with the significance ‘to do on behalf of one’s self’” (quotes added). The object can be preserved in the clause and is

¹There are no other productive detransitivizing morphological processes in Chukchi. There is no productive morphological reflexive or anticausative in Chukchi. Reflexivization is syntactic, and is done through the use of *cinit* ‘self’ as a separate argument (Dunn 1999: 134). There is also no productive reciprocal morphology (Dunn 1999: 218).

voice, where there is a characteristic object that is understood to undergo the action, but where a specific object (in the context) is not necessarily present. (This distinction is supported by the fact that a separate lexical object is less likely to be specified with *-tku*.) Antipassives formed by *-tku* are less felicitous in scenarios where they govern multiple oblique arguments, likely because the entire act loses genericity with added arguments. For example, Skorik gives the following minimal pair:

(114) Use of *ine-* vs. *-tku* (Skorik 1977: 120)

- a. gəm t-**ine**-retə-rkən-ø tekicg-e tomg-etə
 1sg.ABS 1sgS-ANTIP-deliver-PROG-1sgS meat-INST friend-ALL
 ‘I am delivering meat to a friend’
- b. (?/*) gəm tə-retə-**tku**-rkən-ø tekicg-e tomg-etə
 1sg.ABS 1sgS-deliver-ANTIP-PROG-1sgS meat-INST friend-ALL
 ‘I am delivering meat to a friend’

(114b) is used by some speakers but is not correct because of the multiple oblique arguments; either argument alone would be entirely acceptable. This is presumably due to the fact that by specifying that the meat is for a friend, the act ceases to be “potential” and becomes too specific for a licit use of *-tku*; however, this is conjecture based on the contrastive examples provided. Skorik does not supply a clear explanation for the difference in acceptability.

The question still remains as to why one might use either of these antipassive derivations over active voice, which is not clearly explained in Skorik’s grammar. Some of the motivation is syntactic ergativity (discussed in Chapter 2): antipassives are used to allow verbs to relativize on transitive subjects. However, what determines the choice between a basic active transitive verb and the equivalent antipassive verb, when syntactic considerations are not relevant? According to Polinskaja and Nedjalkov (1987: 248), the antipassive construction is used to minimize emphasis on the object of the action, as in cases where the object is not significantly affected by the action. This account is echoed by Dunn (1999: 222): there is a perception in Chukchi that absolutive arguments are the most important (topical) arguments of the verb. They are more syntactically complex than any other case-marked nominal; e.g., they can govern other arguments and modifiers while

ergative-marked arguments cannot. In cases where the transitive subject is of primary importance for the utterance, the antipassive may be used to demote the object, which would otherwise be perceived as the topic of the sentence, and allow the (now absolutive-marked) subject to occupy the more pragmatically prominent position.

Nevertheless, Dunn reports virtually no instances of spontaneous antipassive use in finite clauses among the speakers of Telqep Chukchi, although they maintain antipassivization for relativization on transitive subjects in participles. Otherwise, the use of either antipassive marker is not productive and is used by speakers only with certain transitive verbs.

Dunn also explicitly identifies the existence of a valency-rearranging applicative use of *ine-*, in transitive verbs that are mutually exclusive with those where *ine-* is used as an antipassive. The valency-rearranging applicative swaps the expected patient of the verb with a non-core argument, such that the patient is demoted to an oblique case while the oblique argument (often a beneficiary or an instrument) is promoted to the absolutive object case. Thus, the transitivity of the verb is not changed. This process is motivated by the same pragmatic considerations for antipassive use: for example, the beneficiary of an action, likely to be animate, is generally the more topical argument and therefore should receive the absolutive case.

Skorik makes no mention of *ine-*'s potential function as an applicative, but does give an example of *ine-* being used as an antipassive for a verb where Dunn's speakers only have an applicative reading:

(115) cawcəwa-t ø-**ena**-pela-g[?]at qaa-ta
 herder-ABS.PL 3plS-**ANTIP**-leave-3plS reindeer-INST
 'The herders left the reindeer' (Antipassive use of *ine-*, see Skorik 1960: 138)

(116) ətl[?]a-ta **ena**-pela-nen ŋewmirgən coqar-a
 mother-ERG **APPL**-leave-3sgA.3sgO grandmother.ABS.SG bread-INST
 'The mother left the grandmother (with) bread' (Applicative use of *ine-*, see Dunn 1999: 201)

While Skorik does not make mention of the applicative *ine-*, it is described by Polinskaja and Nedjalkov (1987) as a "transitive antipassive" that can occur in the same contexts as the typical

intransitive antipassive:

(117) Examples of derivational marker *ine-* with the verb *kelek* ‘to spread’ (Polinskaja and Nedjalkov 1987: 240)

- a. ətləg-e mətqəmət kawkaw-ək kili-nin
father-ERG butter.ABS.SG bread-LOC spread-3sgA.3sgO
‘The father spread butter on the bread’ (Active ditransitive)
- b. ətləg-ən mətq-e kawkaw-ək ø-ena-rkele-g[?]e
father-ABS.SG butter-INST bread-LOC 3sgS-ANTIP-spread-3sgS
‘The father spread with butter on the bread’ (Antipassive: A → S, O → Obl)
- c. ətləg-e mətq-e kawkaw ena-rkele-nen
father-ERG butter-INST bread.ABS.SG APPL-spread-3sgA.3sgO
‘The father spread the bread with butter’ (Applicative: O → Obl, Obl → O)

For the Telqep speakers, the verb *kelek* ‘to spread’ is restricted to the applicative use of *ine-*, but for these speakers, both functions are productive. Polinskaja and Nedjalkov worked with some of the same speakers as Skorik, so it is likely that Skorik simply failed to identify this function of the valency-changer, and not that it was an innovation that arose in the decade since his work. From the data in (117a), we can see that for these speakers, the functions of *ine-* are not mutually exclusive and can be used with the same transitive verb in the appropriate context. It is not clear if the valency-rearranging function of *ine-* is productive, but there is no reason to assume *a priori* that it is not, provided the verb’s argument structure is appropriate (ditransitive verbs or other transitive verbs with oblique arguments).

Thus, the major difference between earlier speakers surveyed by Skorik and Polinskaja and Nedjalkov compared to the Telqep speakers surveyed by Dunn is one of productivity: for the earlier speakers, the *ine-* and *-tku* valency-changers can be used wherever they are pragmatically appropriate, while for Telqep speakers in the 1990s, they have developed more specialized functions deriving new stems from certain verb forms, with conventionalized meanings. These differences can be explained as variation across time or variation across space (recall that Skorik worked extensively with coastal speakers, whose variety now forms the basis of the standard Chukchi language).

I discuss the distribution and judgments of these different valency-changers among modern speakers below.

4.1.3 Noun incorporation

The final valency-changing operation I consider in this chapter is noun incorporation. Noun incorporation is documented across all of the available materials on Chukchi; the differences across these sources lies, once again, in their degrees of productivity and frequency.

The type of noun incorporation in Chukchi that is most often discussed is syntactic valency-reducing incorporation, where the object of a transitive verb is incorporated into the verb stem, producing a change in the valency of the verb from transitive to intransitive (this is akin to antipassivization, except the object becomes part of the stem of the verb itself, and is not expressed as an oblique argument). This is Mithun (1984)'s Type II incorporation, which affects the argument encoding of the entire clause by changing case assignment and agreement. Chukchi also has instances of Type I incorporation (compounding) and Type III incorporation (i.e., Type II incorporation done for information structural purposes).

Bogoras (1922: 830) observes syntactic incorporation of the object in his texts, but claims it is fairly low frequency and tends to occur in cases where the incorporated object is the one most frequently associated with the action (one recurrent example being 'to reindeer-slaughter'). However, there are instances of incorporations that do not represent typical events and are not likely to be conventionalized:

(118) Early examples of syntactic noun incorporation in Chukchi (Bogoras 1922: 830-831)

- a. gəm-nin ekək qə-**kelit**^ʔul-pənrə-gə-n
 1sg-POSS son.ABS 2A.INT-**money**-give-TH-3sgO
 '(You) money-give my son!' (Incorporation of the patient promotes the recipient so that it receives absolutive case)
- b. ø-**rəlgə**-cwi-rkə-n
 3sgS-**finger**-cut-PROG-3sgS
 '(He) is finger-cutting'

- c. \emptyset -**uttə**-mle-rkə-n
 3sgS-**stick**-break-PROG-3sgS
 ‘(He) is stick-breaking’

Note that Bogoras’ examples of incorporation include both the prototypical object incorporation that produces an intransitive verb (118b-118c), as well as a valency-rearranging kind of incorporation where the object is incorporated and the indirect object receives absolutive case marking (118a). In this case, the overall valency of the verb remains transitive. Additionally, he provides examples where other types of oblique arguments, such as instruments and locations, can be incorporated, as well as examples of possessor raising.

While Skorik initially claimed that noun incorporation was falling out of use among younger Chukchi speakers (Skorik 1948), this is unlikely to have been the case at the time, even due to dialectal differences, and Skorik later retracted the claim. (Dunn (1999: 20) discusses the political and ideological motivations behind Skorik’s initial decision to downplay noun incorporation, which at the time was regarded by certain scholars as a “primitive” linguistic feature.) In his 1977 grammar, Skorik describes a system of verbal incorporation that is similar to the one documented by Bogoras, where objects, instruments, and locations can be incorporated at will (i.e., not only in prototypical scenarios). Skorik (1977: 233-234) explicitly characterizes incorporation as a morphosyntactic process whereby a new verb stem is coined in the context, and does not exist as a separate (that is, already lexicalized) entity in the language. The fact that noun incorporation must have been fairly productive is illustrated by the following examples, where the incorporated argument can hardly be said to be the sole prototypical argument of the verb:

(119) Non-conventionalized examples of noun incorporation (Skorik 1977: 236)

- a. mor-gənan mət-**qaa**-pela-gʔan ənpənacgən
 1pl-ERG 1plA-**reindeer**-leave-3sgO old.man.ABS
 ‘We reindeer-left the old man (we left the reindeer with the old man)’
- b. gəm-nan tə-**gətka**-rkəplə-n rəqopalgən
 1sg-ERG 1sgA-**leg**-hit-3sgO arctic.fox.ABS
 ‘I leg-hit the arctic fox (I hit the arctic fox’s leg)’

- c. ənpəŋew-e əməl^ʔo ejwel-ti na-**takecgə**-lpənɾə-nat
 old.woman-ERG all orphan-ABS.PL 3plA-**meat**-give-3plO
 ‘The old women meat-gave all the orphans (The old women gave meat to all the orphans)’

In these examples, there is no sense in which the incorporated argument is the only possible argument in that role: other things can be left besides reindeer, just as things other than meat can be given and things other than legs can be hit. Still, while this is a productive word-formation process, it may have been infrequent in Skorik’s data, which is one reason he may have been inclined to ignore it. Polinsky (*pers. comm.*) reports that in her own work with similar speakers, they dispreferred noun incorporation and preferred antipassivization as a way of de-emphasizing the object (although Polinskaja and Nedjalkov 1987 lists both as possibilities in discourse, where incorporation diminishes the salience of the object to a greater degree than antipassivization). However, it should be noted that antipassivization and noun incorporation are not entirely interchangeable: the antipassive entails the demotion of the original object, while noun incorporation can deemphasize virtually any argument in the clause.

Dunn’s (1999) description of the syntax of noun incorporation largely lines up with that of his predecessors. However, he claims that verbs are specialized as to whether they are detransitivized by incorporation. This dichotomy aligns with the one he draws for antipassivization vs. applicativization with *ine-*: transitive verbs that are antipassivized by *ine-* incorporate their patients and become intransitive, while transitive verbs that are applicativized by *ine-* incorporate the patient but remain transitive, promoting a less-affected oblique argument (such as a beneficiary) to the object position. The applicative-like process is exemplified by the examples in (119); for the Telqep speakers surveyed by Dunn, the promotion of an oblique argument would only be possible in applicativizing verb stems. Overall, the types of incorporation displayed by the Telqep speakers are more restricted than in previous studies; Dunn does not note any cases of incorporation of instruments or locations.

Still, Dunn is the first scholar to explicitly describe the information structure function of noun incorporation (Mithun’s Type III), where arguments that are not salient to the discourse and will

not be referred to again are incorporated. Similarly, cases where the undergoer of the action is less important than the action itself will also be more likely to feature incorporation. This kind of noun incorporation includes most of the cases where the incorporated object is one that typically undergoes the action of the verb, but also provides a pragmatic motivation for the less conventional instances of incorporation that we encounter across all sources. Although the types of arguments that can be incorporated are less flexible among Dunn's speakers, they appear to robustly use object incorporation for pragmatic reasons, as in the following example:

- (120) \emptyset -**tətlə**-nnəmat-g^ʔat
3plS-**door**-close-3plS
'(They) door-closed (closed the door)' (Dunn 1999: 225)

This is a clear instance of incorporation due to purely information structural considerations; the speaker is not attempting to emphasize the act of closing itself. 'Door' is therefore incorporated to deemphasize its importance in the discourse.

Ultimately, sources disagree as to the frequency of noun incorporation, but the syntax of noun incorporation has remained consistent across time and across different dialectal varieties, with all sources reporting that the result is a change in verbal valency that is reflected in the encoding of the verb's arguments. Additionally, all of the sources agree that incorporation is most common with prototypical objects for the verbs in question (e.g., 'reindeer-herding', 'berry-picking'), but that unconventional combinations are also well-attested, and that verbs can additionally incorporate instruments, locations, possessors, and recipients. The major differences lie with Dunn's description: unlike previous descriptions, noun incorporation is frequent in Dunn's corpus, but more restrictive in terms of which verbs can incorporate which types of arguments.

This study evaluates both the productivity of noun incorporation (by testing speakers' judgments of different incorporated nouns) as well as the status of actual use of noun incorporation by modern speakers. While it is difficult to compare frequency of use across different sources with the present data without quantitative statistics, it is nevertheless the case that noun incorporation in finite verbs is used infrequently today, even by proficient speakers. However, proficient and

less-proficient speakers differ in marked ways as to whether they make use of incorporation, and in which contexts, which suggests that changes have taken place in this domain due specifically to the current shift situation.

4.2 Verbal derivation and productivity in language shift

All in all, it is difficult to make strong claims about the productivity and robustness of these derivational processes in Chukchi at different points in time, as the available descriptions are not always explicit about these aspects. However, previous work in acquisition has demonstrated that valency-changers, and productive derivational morphology more generally, present challenges for multilingual speakers, and are exactly the types of processes we expect to be affected by language shift. As we saw in Chapter 2, valency-changing operations are often reanalyzed by L2 learners to mirror patterns in their L1 (e.g., Montrul 2001). There is evidence that derivational morphology is acquired in stages: for example, English-speaking children in grades 4-8 show differences in their knowledge of the syntactic and distributional properties of derivational suffixes (Tyler and Nagy 1989). Another study of English speakers (Tilstra and McMaster 2007) showed similar findings among younger students (kindergarten, 1st grade, and 3rd grade), with third-graders uttering significantly more productive words per minute than either first-graders or kindergarteners; the authors advance this as a moderately successful measure of language proficiency. Other studies among bilingual learners have argued that comprehension of derivational morphology, segmentation of derived words into morphemes, and finally the productive use of the morphology are separate processes that are mastered at different times by different speakers and for different morphological types (Park 1980). Frequency and productivity have also been also shown to influence acquisition in monolingual and multilingual settings, e.g., Bertram et al. 2001 on Finnish, Clahsen and Neubauer 2010 on Polish-German bilinguals, and Nicoladis 2005 on findings from a multi-year study of a French-English bilingual child.

Thus, it is safe to assume that interrupted acquisition and variable exposure to Chukchi, as

well as existing variation in the frequency of different processes, is likely to affect both the continued maintenance of derivational morphological processes as well as their productivity. Although limited, the available documentation of changing argument structural morphology in obsolescing languages points to a loss of productivity among less-proficient speakers, especially with respect to noun incorporation. The “decay” of noun incorporation is discussed at length by Mithun (1984), and proceeds in reverse of her 4 types of noun incorporation.

To review, Mithun’s noun incorporation types exist along a hierarchical scale of increasing grammatical complexity, such that languages with more complex incorporation also display the less complex types (i.e., Type IV languages imply the existence, at one point in time, of Types I-III). Type I, compounding, creates a new verb stem by combining a noun and a verb; this type produces a new lexical item and may produce a verb stem of different valency, but does not actively involve the syntax. Type II noun incorporation is a syntactic process, producing a change in the argument structure of an entire clause, which can be seen through changes in case marking and/or agreement marking. Type III noun incorporation is used in the manipulation of discourse structure for pragmatic purposes. These three types are all attested in Chukchi. (Type IV involves the grammaticalization of incorporated nouns as classifiers; this type is not found in Chukchi.)

The loss of noun incorporation targets the most complex types (the final stages along the implicational hierarchy) first. Languages losing incorporation at Stage I may only retain opaque remnants of noun-verb forms; the individual nouns may have since been lost as separate lexical items in the language. Stage II languages that lose incorporation tend to lose productive compounding, although they preserve common, lexicalized noun-verb pairs that may also no longer be transparently derived. This type of change is abundant among contemporary speakers of Muskogean languages (Mithun 1984: 878), where the preserved compounds belong to a distinct semantic class (the incorporatee is related to the neck or throat). Loss at Stage III, which is where Chukchi falls along this cline, is typically more variable, since the available N-V compounds are more variable (since any argument can be backgrounded as old information in the discourse). In Mohawk, for example, young children acquiring the language only mastered common N-V compounds they would

have frequently heard used together and did not ever gain the ability to incorporate productively, i.e., Types II and III (Mithun 1984: 880). Mithun (1989; 1984) reports the same patterns among obsolescing speakers of Cayuga in Oklahoma. Interestingly, even relatively proficient speakers of Stage III languages display a reduction in their use of Type III (discourse-motivated) incorporation if they are dominant in a non-polysynthetic language such as English, although they continue to use Types I and II robustly.

As it turns out, this noun incorporation hierarchy correctly anticipates the changes across different generations in Chukchi: the least proficient semi-speakers are able to access common compounds (that are no longer transparently derived for them), attriting speakers make some use of Type I and II incorporation, and only the most fluent speakers make use of discourse-motivated Type III incorporation (and at a lower rate compared with that suggested by Dunn 1999).

It is beneficial to apply a similar cline of productivity to the other derivational valency-changing processes in Chukchi, which resemble noun incorporation in terms of their variable degrees of lexicalization and are treated similarly by the different groups of modern Chukchi speakers. All of the morphological valency-changers (valency-increasing morpheme *r-*, antipassive morphemes *ine-* and *-tku*, and valency-rearranging morpheme *ine-*) are described as having productive (spontaneous) uses as well as restricted, lexically-governed uses. In addition, all of these valency-changers have also been used to coin new verbs that are listed as separate entities in Chukchi dictionaries, and may not be transparently related to the underlying verb root anymore.

The following examples contain a small subset of derived verbs with voice morphology, which are frequent enough collocations to have made it into dictionaries:

(121) Lexicalized derived intransitives (with antipassive morphology)

- a. *ine-wiriŋetək* ‘to protect (oneself)’ (from *wiriŋetək* ‘to protect (someone)’)
- b. *ine-wetək* ‘to miss (=fail to hit)’ (unclear origin)
- c. *ine-gicik* ‘to collect’ (from *gicik* ‘to collect (something)’)
- d. *ine-nin[?]ejwətukuk* ‘to explain’ (from *nin[?]ejwək* ‘to explain something, to school someone’)

- e. *ine-njəlqewək* ‘to be sleep-inducing’ (from *rəjəlqewək* ‘to put (someone) to sleep’)²
- f. *ine-njəlgetək* ‘to prolong, to promise’ (from *jəlgetək* ‘to lengthen by merging ends, as of rope’; possibly related to *jələk* ‘to give’)
- g. *ine-nkeŋewək* ‘to bend (oneself)’ (from *rəkeŋewək* ‘to bend (something)’)
- h. *ine-nqitetək* ‘to freeze/catch cold’ (from *rəqitetək* ‘to freeze (something)’)
- i. *ine-pirik* ‘to win a prize’ (from *pirik* ‘to take’)
- j. *ine-piritkutək* ‘to seize (for oneself)’ (from *piritkutək* ‘to grab (for anything)’)³
- k. *ine-pətkək* ‘to reach one’s aim’ (unclear origin)
- l. *ine-rgelək* ‘to sink (into snow or mud)’ (related to *rəgelək* ‘to stick in’)
- m. *ine-tiŋuk* ‘to inhale’ (from *tiŋuk* ‘to pull (toward oneself)’)

(122) Lexicalized derived transitives (with rearranged valency)

- a. *ine-gnilgiqewək* ‘to hang on’
 O = location of hanging
 Obl = what is hung
- b. *ine-gnintək₁* ‘to throw at’
 O = target or direction of throwing
 Obl = what is thrown
- c. *ine-gnintək₂* ‘to offer to’
 O = recipient of offering
 Obl = what is offered
- d. *ine-nkuwləpewək* ‘to stuff into’
 O = location of stuffing

²This verb further decomposes into an intransitive with causative morphology: *jəlqetək* ‘to sleep (intr.)’ → *rə-jəlq-ew-ək* ‘to put to sleep (tran.)’. The antipassive verbs in (f-h) are similarly derived from transitivized intransitives; this kind of iterative derivation is very common in Chukchi word formation.

³*piri-tku-tək* is also derived from *piri-k* ‘to take’, with the addition of iterative morphology (which is identical to the antipassive, *-tku*).

Obl = what is stuffed

e. *ine-ttʰək* ‘to pour into’

O = location of pouring

Obl = what is poured

f. *ine-erək* ‘to add to’

O = what is added to

Obl = what is added

(123) Lexicalized derived transitives (causatives)

a. *r-aajk-aw-ək* ‘to open’ (from *aajkatək* ‘to open (oneself)’)

b. *r-agtat-aw-ək* ‘to steal’ (unclear origin; related to other transitive verbs such as *agtak* ‘to separate’)

c. *r-ajgənn-aw-ək* ‘to cause a sharp pain’ (from *ajgənnək* ‘to fear’)

d. *r-ajkojgətw-aw-ək* ‘to cause a feeling of awkwardness’ (unclear origin)

e. *r-akwattenm-aw-ək* ‘to prepare someone to leave’ (from *akwatrak* ‘to leave’)

f. *r-arəcg-aw-ək* ‘to lay down’ (from *arəcgatək* ‘to lie down’)

g. *r-itqej-ew-ək* ‘to wet something’ (from *itqəjewək* ‘to get wet’)

h. *rə-gaglənł-aw-ək* ‘to speed someone or something up’ (related to *gagləntok* ‘to run out’)

i. *rə-git(e)-ew-ək* ‘to show’ (from *gitek* ‘to look at’)

j. *r-ejm-ew-ək* ‘to draw together, to lead to’ (from *ejmək* ‘to draw near’)

(124) Lexicalized derived transitives (applicatives)

a. *rə-wenn-ew-ək* ‘to be jealous of’ (from *wennək* ‘to be envious’)

b. *rə-maraw-at-ək* ‘to pick a quarrel with’ (from *marawək* ‘to fight’)

c. *rə-welu-(e)w-ək* ‘to cease to be interested in’ (related to *weluk* ‘to lie to oneself’)

d. *rə-wetgaw-at-ək* ‘to have a talk with someone’ (from *wetgawək* ‘to speak’)

- e. *rə-kemlil²-et-ək* ‘to carry from place to place’ (from *kemlilək* ‘to walk around in circles’)

While a simpler underlying verb stem can be reconstructed for most of these examples, some of the derived meanings are idiomatic (such as ‘to win a prize’ from ‘to take’ or ‘to cause a sharp pain’ from ‘to fear’). In other cases, the underlying verb root may no longer exist as a unique entity, or it may never have been transparently related to particular verb and may belong to a class of verbs formed on a particular root (as in the verb *r-agtat-aw-ək* ‘to steal’, which looks to have causative morphology but there is no clear corresponding intransitive verb stem).

We can think of these verbs as having been produced by valency-changing morphology but no longer being productive, akin to noun-verb compounds (Type I incorporation). Type II valency-changing derivation includes all of the productive but commonly-attested types of valency changes that produce a change in the argument structure of the entire clause (e.g., the specialized cases described by Dunn, where certain verbs can only participate in certain derivational processes) and syntactically-motivated valency alternation, such as coordination and relativization. Finally, Type III includes the truly productive uses of the morphology: those obviously motivated by discourse or pragmatic considerations (where a change in valency is used to emphasize different arguments). As with noun incorporation, these cases progress from least productive (most lexicalized or conventionalized) to most productive (least conventionalized), and as with changes to noun incorporation, loss of valency-changing morphology has progressed in the reverse order, with the most productive cases vanishing first.

The nature of the differences between Type II and Type III incorporation are somewhat vague in Mithun’s original paper. Structurally, Types II and III do not differ—Type III appears to be Type II done for discourse purposes, although it is not obvious what motivates verbal incorporation at all in Type II languages, if not facts about argument animacy and discourse pragmatics. This distinction may possibly be illustrated by West Greenlandic, where some verb roots obligatorily incorporate nouns in order to form a grammatical clause (Sadock 1980), which may be a case of Type II incorporation without discourse involvement. In order to be explicit about Types II

and III in this thesis, I distinguish them as differing on the basis of frequency and productivity, with Type III referring to truly spontaneous instances of the use of valency-changing morphology among speakers, typically in narratives, and Type II isolating those cases that are forced by the experimental tasks or are more frequent, but not totally lexicalized (i.e., recorded in dictionaries or having non-compositional meanings).

The different tasks in this study are designed to target these different types of valency-changing processes. The production task targets Type I word formation processes by including fully lexicalized derived verbs as part of the stimuli, to test whether speakers have some awareness of the functions of the derivational morphology through their interpretations of the verb's valency and argument structure. The production task also tests Type II word formation processes by manipulating argument animacy and including verb-noun combinations that frequently feature incorporation.

Speakers were also asked for acceptability judgments of uses of different voice morphology with different verbs and arguments, to test whether they maintain any productive (Type II) knowledge of these processes, even as they may not have produced them in any other task. The acceptability judgment task tested specific verbs that have been variably described as being able to undergo valency-changing operations by different sources. The task included intransitive verbs (to test the valency-increasing operations) and transitive verbs (to test valency-rearranging applicativization, antipassivization, and noun incorporation). The intransitive verbs were tested with the following conditions:

(125) Intransitive verb derivations tested

- a. Simple active intransitive, with intransitive verbal inflection and case marking
- b. Transitive with *r-* *-et/-ew*, with transitive verbal inflection and case marking
- c. Intransitive (non-derived) verb with transitive verbal and nominal inflection (expected to be incorrect for all fluent/conservative speakers)

The transitive verbs that were expected to undergo valency-rearranging applicativization (in the Telqep variety described by Dunn 1999) were tested as follows:

(126) Conditions for *ine-* applicativizing verbs

- a. Simple active transitive, with patient receiving absolutive case and peripheral argument receiving an oblique case
- b. Valency rearranged with the presence of *ine-*, with expected inflectional changes
- c. Valency rearranged without *ine-* (should be incorrect for proficient speakers)

Finally, transitive verbs that were expected to undergo valency-reduction (antipassivization or object incorporation) were tested with the following conditions:

(127) Conditions for *ine-* antipassivizing verbs

- a. Simple active transitive, with expected verbal and nominal inflection
- b. Antipassivized, with object demoted to an oblique case
- c. Antipassivized, with object unexpressed
- d. Object incorporation
- e. Transitive verb treated as intransitive (without antipassive morphology – should be incorrect for proficient speakers)

The goal of this task was to test whether speakers can identify these valency-changing alternations (as well as whether they maintain the expected understanding of the base verb's valency to begin with). Two proficient older speakers and two attriting speakers were able to participate in the task. (Other speakers were excluded because they were unavailable, or lacked the necessary literacy to participate.)

As noted in Chapter 1, this task was administered orally due to the significant variation in Chukchi lexicon, not to mention the derivational possibilities for the Chukchi verb. Speakers were shown a sentence (written out on a computer screen in standard Chukchi orthography) and were asked whether the sentences were correct and, if not, what was wrong and how they could be improved.⁴

⁴Responses included judgments about the argument structure of the verb, which were the target of the task, but

Lastly, Type III word formation processes were targeted by the narrative production tasks, which enable us to analyze streams of discourse where pragmatically-motivated valency changes are more readily apparent.

Sections 4.3 and 4.4, respectively, discuss the changes to valency-changing morphology and noun incorporation that have taken place prior to and because of language shift. Changes occurring prior to shift are reconstructable based on the behavior and judgments of highly fluent speakers who otherwise show minimal differences from patterns in previous documentation, while the attriting speakers and semi-speakers provide the clearest evidence of changes in those domain that are unique to the current environment.

4.3 Maintenance of voice morphology

Let us first consider the status of the voice morphology in modern Chukchi: (i) the applicative/causative circumfix *r-* *-et/ew*, (ii) the antipassives *ine-* and *-tku*, and (iii) the rearranging applicative *ine-*. Of these processes, the valency-increasing device is the only one that continues to be used productively by any speakers, however, all of the speakers display at least some understanding of lexicalized derived forms.

4.3.1 Maintenance of valency-increasing (causative and applicative) morphology

Valency-increasing morphology (particularly the causative) is the most commonly occurring type of voice morphology among modern speakers, due to its frequent occurrence in existing verbs (where it has been lexicalized), as well as in its continued productivity among fluent speakers.

also included issues with unfamiliar or dispreferred lexical items as well as corrections to the orthography, which also exhibits some variation.

Type I valency-increasing derivation

The production task that has already been discussed at length in Chapter 3 included within the stimuli numerous instances of commonly-used derived transitive verbs that make use of the valency-increasing circumfix. These are cases where there is no other (non-derived) verb that expresses this concept, and most of these concepts deal with daily life, and should be familiar even to rudimentary speakers. The specific stimuli with verbs of this type were:

(128) Causative verbs tested in the production task

- a. rə-qametwa-(e)w-ək ‘to feed’ (CAUS-eat-CAUS-INF)
- b. rə-gjiw-et-ək ‘to explain’ (CAUS-be.known-CAUS-INF)
- c. r-atcəŋ-at-ək ‘to hide (s.o. or s.t.)’ (CAUS-hide.oneself-CAUS-INF)
- d. rə-gənt-ew-ək ‘to frighten’ (CAUS-flee-CAUS-INF)
- e. rə-l²uŋ-et-ək ‘to show’ (CAUS-see-CAUS-INF)
- f. rə-keŋ-ew-ək ‘to bend’ (CAUS-bend.oneself-CAUS-INF)

For speakers who maintain any understanding of the function of this morphology, all of these verbs should be unambiguously transitive. The fluent speakers and the attriting speakers demonstrated clear knowledge of the valency of these forms and consistently inflected them as transitive, with the expected argument structure. Several of these transitive verbs are polyvalent (and have an expected, if not required, oblique argument). Thus, the expected object is not always apparent without understanding the underlying verb root, and is not necessarily the animate argument. In (128a), the object that should receive absolutive case is the one being fed, not what is fed (which should be marked with the instrumental case). However, in (128b), the object is what is explained, rather than to whom it is explained (which is instead marked by the dative). (128e) behaves similarly: the object is what is shown, while the one to whom it is shown is marked with the dative case as well.⁵

⁵(128e) is a causative that is derived from a transitive verb base; the original undergoer is the patient, what is seen,

First, all of the fluent and most of the attriting speakers inflected these verbs as though they had the expected transitive valency. As discussed in Chapter 3, the semi-speakers and a small number of attriting speakers had a tendency to treat these transitive verbs as intransitive in cases where the arguments had unexpected animacy combinations (inanimate A and animate O). This occurred most often where the target sentence was ‘the bushes hide the rabbits’, but speakers tended to interpret the causativized verb as an intransitive and produce sentences such as the following:

- (129) milute-t ga-r-atcəŋ-at-lenat jomromk-ək
 rabbit-ABS.PL PRF-CAUS-hide.INTR-CAUS-3pl bush-LOC
 ‘Intended: The rabbits hid themselves in the bushes’; Actual: ‘The rabbits hid (something else) in the bushes’

The polyvalent verbs caused some difficulty among many of the speakers, not only those with lower proficiency. (128b), which takes the thing explained as its object, was produced with the expected argument structure by the most fluent speakers, but reanalyzed by the other speakers, or else replaced by a different verb altogether by speakers uncertain of this verb’s meaning. This verb was presented in the following way:

- (130) ‘to explain’ stimulus
rəgjiwetək ‘to explain’
ŋewəcqet ‘woman (abs.)’
ŋeekkeqej ‘girl (abs.)’
uwik ‘to cook’

Several fluent speakers generated the expected argument structure, with ‘cooking’ serving as the object and ‘girl’ as the indirect object:

- (131) ŋewəcqet-e rəgjiwetə-rkə-nin ŋaakkaqaj-etə miŋkəri uwi-k
 woman-ERG explain-PROG-3sgA.3sgO girl-DAT how cook-INF
 ‘The woman is explaining to the girl how to cook’

and the added agent argument in the causative is the one who makes the patient be seen. The one to whom the patient is shown is an optional oblique argument.

However most speakers, including other speakers in the oldest (most proficient) generation, swapped the non-agent arguments when they used this verb, or used a different verb meaning ‘to teach (someone)’, where the swapped arguments are licit:

(132) ənpəŋewqej-e n-ine-ngjiwet-qin ŋewəcqet uwi-k
 grandmother-ERG HAB-INV-explain-3sg woman.ABS.SG cook-LOC
 ‘*The grandmother explains the woman to cook’

(133) ŋewəcqet-e ŋeekkeqej n-inenəg⁷ulet-qin uwi-k
 woman-ERG girl.ABS.SG HAB-train-3sg cook-LOC
 ‘The woman trains the girl to cook, in cooking’⁶

The use of (133) indicates that these speakers had some understanding of the derived argument structure of the verb, which they felt was not entirely felicitous for the picture, while the production of (132) suggests that the speakers did not independently know the word and were unable to reconstruct its meaning from the morphology.

Type II valency-increasing derivation

The distinction drawn here between Types I and II is subtle; Type I captures the continued use of derived verbs that exist as independent entities in the lexicon, while Type II isolates the syntactic manipulation of applicative or causative morphology to produce the expected clausal argument structure. Type II is used by the fluent speakers and, to a lesser extent, the attriting speakers. We see evidence of Type II in the valency alternations used by speakers in the production task, where they modify the provided verbs for one that better fits the argument roles they want to assign. Again, we have already seen examples of this in Chapter 3, in the substitution of different verbs in unexpected animacy combinations: the use of the root verb of *ratcəŋatək* ‘to hide someone’ (*atcək* ‘to hide’) and *gəntewək* ‘to flee’ instead of *rəgəntewək* ‘to frighten’. These examples (which were all easily produced by proficient speakers) are repeated below:

(134) a. jənqerg-a rə-gənt-ew-ninet galgat
 lightning-ERG CAUS-flee-CAUS-3sgA.3sgO goose.ABS.PL

⁶This verb is commonly used in scenarios where someone is being trained to do something.

‘The lightning frightened the geese’ (Expected argument structure with the verb provided)

- b. galgat gəntewə-rkə-t jəŋqerg-epə
 goose.ABS.PL flee-PROG-3plS lightning-ABL
 ‘The geese ran from the lightning’ (Argument structure manipulated by removing causative morphology)
- c. jomromk-a na-n-atcəŋ-at-nat milutet
 bush-ERG 3plA-CAUS-hide-CAUS-3plO rabbit.ABS.PL
 ‘The bushes hid the rabbits’ (Expected argument structure with the verb provided)
- d. milutet jomromk-ək atcə-gʔat
 rabbit.ABS.PL bush-LOC hide.INTR-3plS
 ‘The rabbits hid in the bush’ (Argument structure manipulated by removing causative morphology)

The proficient and attriting speakers also regularly maintain a clear valency alternation in their use of the pro-verb *req-* ‘to do so’ in narrative. Transitive uses of the pro-verb are applicativized (*rə-req-ew-* ‘to do so to something’). This contrast is reflected by the following examples from a narrative told by an attriting speaker in a single sitting:

- (135) a. əŋqʔom=ʔm n-iw-qin, “ənrʔam mə-reqə-gʔek?”
 then=EMPH HAB-say-3sg well 1sgS.INT-PROVERB-1sgS.INT
 ‘Then she said, “Well, what should I do?”’ (Intransitive use of pro-verb)
- b. qəloq=ʔm ə-nan əmelʔo nəteŋʔew rə-req-ew-nin
 because=EMPH 3sg-ERG everything good APPL-PROVERB-APPL-3sgA.3sgO
 ‘Because she did everything well (she made everything nice)’ (Transitivized use of pro-verb with applicative derivation)

Still, there are differences that manifest between fluent and attriting speakers in other tasks, which point to differences in the degree of productivity of transitivizing morphology. Attriting speakers make use of this morphology to a lesser extent, and it is difficult to prompt them to use it by manipulating utterance context. One of the attriting speakers participated in a production task that specifically targeted valency-changing operations. In this task, the speaker was shown

pictures alongside lexical items (much like the general production task), but the same stimuli appeared several times, which nominal arguments added or omitted in order to prompt the use of valency-changing morphology. To target transitivizing morphology, the speaker was provided with intransitive verbs in a clearly transitive context (that is, with a clear agent argument and a clear patient). There are two strategies that would be considered grammatical by traditional speakers: the use of an intransitive verb with an absolutive subject and the spare argument marked with an oblique case, or transitivization via *r-* *-et/ew*, with the corresponding ergative-absolutive alignment of core argument marking.

The speaker did not make use of applicativizing morphology for any of the relevant stimuli, supplying either a different verb (with a transitive stem) or intransitive argument structure, for example:

(136) Targeted argument structure vs. actual argument structure (‘sewing a hat’)

- a. $\eta\text{ew}\acute{\text{a}}\text{c}\text{q}\text{e}\text{t}\text{-e}$ $\text{r}\acute{\text{a}}\text{-m}\text{i}\text{g}\text{c}\text{i}\text{r}\text{-e}\text{w}\text{-n}\text{i}\text{n}$ $\text{k}^{\text{?}}\text{e}\text{l}\text{i}$
 woman-ERG APPL-work-APPL-3sgA.3sgO hat.ABS.SG
 ‘The woman worked (to make) a hat’ (Targeted: applicative)
- b. $\eta\text{ew}\acute{\text{a}}\text{c}\text{q}\text{e}\text{t}\text{-e}$ $\text{k}^{\text{?}}\text{e}\text{l}\text{i}$ $\text{n}\text{-i}\text{n}\text{e}\text{-t}\text{e}\text{j}\text{k}\acute{\text{a}}\text{-q}\text{i}\text{n}$
 woman-ERG hat.ABS.SG HAB-INV-make-3sg
 ‘The woman makes a hat’ (Actual: use of transitive stem *tejkək* ‘to make’)

(137) Targeted argument structure vs. actual argument structure (‘talking to someone’)

- a. $\eta\text{e}\text{w}\text{m}\text{i}\text{r}\text{g}\text{-e}$ $\text{r}\acute{\text{a}}\text{-w}\text{e}\text{t}\text{g}\text{a}\text{-a}\text{t}\text{-n}\text{e}\text{n}$ $\eta\text{a}\text{w}\acute{\text{a}}\text{t}\text{l}\acute{\text{a}}\text{w}\text{e}$
 grandmother-ERG APPL-speak-APPL-3sgA.3sgO granddaughter.ABS.SG
 ‘The grandmother spoke to her granddaughter’ (Targeted: applicative)
- b. $\eta\text{e}\text{w}\text{m}\text{i}\text{r}\text{g}\acute{\text{a}}\text{n}$ $\eta\text{a}\text{w}\acute{\text{a}}\text{t}\text{l}\acute{\text{a}}\text{w}\text{e}\text{-k}$ $\text{r}\text{e}\text{e}\text{n}$ $\text{g}\text{a}\text{-w}\text{e}\text{t}\text{g}\text{a}\text{w}\text{-l}\text{e}\text{n}$
 grandmother.ABS.SG granddaughter-LOC together PRF-speak-3sg
 ‘The grandmother spoke together with her granddaughter’ (Actual: intransitive inflection with added oblique)

However, when this same speaker was asked to judge similar sentences with applicative morphology, she stated that they were, in fact, grammatical—her lack of use of this morphology does

not indicate that she finds it invalid, or that she has not acquired it. Rather, she has passive knowledge of it.

Taken together, these findings indicate that attriting speakers have acquired and understand the function of valency-increasing derivational morphology and continue to maintain the strict valency of Chukchi verb stems. The attriting speakers (unlike the semi-speakers) do not tend to produce derivations that would be ungrammatical in the conservative version of the language; however, they make use of derivational morphology less frequently and less productively than native speakers.

Type III valency-increasing derivation

Type III derivation, for our purposes, refers to the use of novel (or low frequency) derived causatives and applicatives, which demonstrates productive knowledge of the function of this morphology by the speaker. This type was evidenced only among several highly-fluent speakers, in the production task as well as in narratives.

A clear example of this comes from another production task stimulus examined in Chapter 3: the use of the intransitive verb *wajek* ‘to sew’. Lower-fluency speakers treated this verb as transitive and added a direct object, while other proficient speakers replaced this verb with an unrelated transitive equivalent that was more suitable for the associated picture. One of the formally-educated fluent speakers expressed the expected semantics by productively applying applicative morphology:

- (138) n-ena-n-waje-(e)w-qen epeqej-ne ŋaakkaqaj-etə kʔeli
 HAB-INV-APPL-sew-APPL-3sg grandmother-ERG.ANIM girl-DAT hat.ABS.SG
 ‘The grandmother sewed a hat for the girl’

Another common strategy among fluent speakers in the production task, when shown ditransitive stimuli, was to incorporate an argument and then re-transitivize the verb, to avoid producing any oblique arguments:

- (139) ga-n-parapa-(e)w-len kawkaw
 PRF-APPL-butter-APPL-3sg bread.ABS.SG
 ‘(She) buttered the bread’ (Without applicativization: ‘(She) butter-put on the bread’)

- (140) *ŋewəcqet-e n-ena-n-paŋ-o-qen nenene*
 woman-ERG HAB-INV-CAUS-soup-consume-3sg child.ABS.SG
 ‘The woman soup-feeds the child’ (Without causativization: ‘The child soup-eats by the woman’)

Other such examples of less common or less conventionalized applications of the transitivizing morphology abound in the narratives produced by fluent speakers. The causative application of *r-* *-ew/-at* appears to be especially productive, and is used regularly by speakers to mean ‘made *S_o V*’. The following example contains a clear minimal pair between an unaccusative intransitive (*wak^ʔok* ‘to sit’) and its causativized counterpart:

- (141) *gəm-nan etlə a-n-wak^ʔo-(e)w-ka, cinit ga-wak^ʔo-lenat*
 1sg-ERG NEG NEG-CAUS-sit-CAUS-NEG self PRF-sit-3pl
 ‘I didn’t seat them, they sat themselves!’

In the following example, a fluent speaker used a causativized transitive built on a commonly-occurring intransitive verb, *korgawək* ‘to be glad’:

- (142) *kelitkul^ʔ-e na-n-korgaw-at-ən ə^ʔlgu lən-jo*
 student-ERG 3plA-CAUS-be.happy-CAUS-3sgO love.VBASE AUX-PASS.PART
kal^ʔelawəl
 teacher.ABS.SG
 ‘The students overjoyed (their) beloved teacher’

While this transitivized verb is cited in some dictionaries (such as Weinstein 2005), its meaning is transparently derived from the base verb, which occurs much more frequently in my data, especially among less-proficient speakers. These speakers generally prefer to specify the cause of the undergoer’s happiness with a separate oblique argument or clause:

- (143) *əmel^ʔo nə-tampera-qen keŋŋə-k jara-ciko... ənq^ʔam lələ-qeg-ti*
 everything HAB-beautiful-3sg bear-LOC house-INCESS for.this.reason eye-DIM-ABS.PL
neməqaj ga-korgaw-lenat
 also PRF-be.happy-3pl
 ‘Everything was beautiful in the bear’s house...thus (the girl’s) little eyes were also happy’

Thus, the overall reduction in the use of productive derivational morphology (such as the transitivizer) coincides with a greater number of analytic constructions, where related events or arguments are expressed via conjunction rather than morphologically. This pattern is consistent with a reduction in the degree of polysynthesis, which is discussed in the following chapter (Chapter 5).

4.3.2 Maintenance of valency-rearranging morphology (*ine-* applicative)

Valency-rearranging morphology (along with the valency-reducing morphology) are at present far less productive and less frequent than valency-increasing morphology. In the case of the valency-rearranging *ine-* morpheme, it is not clear that it was ever used very productively by speakers. Neither Bogoras nor Skorik made note of it at all, and while Polinskaja and Nedjalkov present examples where it is used in the same context where valency reduction with *ine-* is also possible, Dunn outlines a clear dichotomy between these two contexts among the speakers whom he worked with. No source discusses the use of this morphology as a fully-productive “voice” that can be used with any ditransitive verb; if this morphology was once highly productive, it likely has not been so since before Bogoras’ expeditions. Thus, we can only really assess two types of productivity of this morphology: Type I (whether speakers used the conventionalized derived verbs appropriately) and Type II (do speakers evidence an alternation between rearranged and non-rearranged verbs).

Type I valency-rearranging derivation

Overall, the valency-rearranging *ine-* morpheme occurs very rarely in the data collected from modern speakers. It appears as one of the stimuli in the production task, and tests one of the examples from Polinskaja and Nedjalkov 1987 (example (117) above).

The base verb here, *kelek* ‘to spread’, is shown in Polinskaja and Nedjalkov 1987 to take the substance that is spread as its object, and the location (or recipient) of the spreading as an oblique argument (marked with the locative case). After derivation with *ine-*, *enarkelek* takes on a meaning more akin to ‘to spread on’ or ‘to coat’, where the object is the location of the spreading, and the oblique argument is the substance that is spread (which is marked by the instrumental).



enarkelek ‘to spread on’
newəsqet ‘woman’
kawkaw ‘bread’
parapar ‘butter’

Figure 4.1: Production task stimulus with valency-rearranging applicative morphology

As in the case of the valency-increasing morphology, the fluent speakers all supplied the expected argument structure, producing sentences like the following (when they did not use noun incorporation or other derivational processes):

- (144) *newəcqet-e ena-rkele-nen kawkaw parapar-a*
 woman-ERG APPL-spread-3sgA.3sgO bread.ABS.SG butter-INST
 ‘The woman coats the bread with butter’

The semi-speakers and most of the attriting speakers, by and large, produced the expected argument structure with this verb; there was one exception, from a younger attriting speaker:

- (145) *newəcqet-ne n-ena-rkele-qen kawkawə-tkən-ək parapar*
 woman-ERG.ANIM HAB-APPL/INV-spread-3sg bread-on.top-LOC butter.ABS.SG
 ‘The woman spreads butter on top of the bread’

This is the argument structure we expect from the base transitive verb, with the substance that is spread serving as the object and the location of spreading as the oblique argument (marked by the locative case).

One of the interesting features of transitive verbs derived with the *ine-* applicative is that they do not combine with inflectional uses of *ine-*; that is, in the habitual, the *ine-* agreement marker never co-occurs with the *ine-* applicative, so that in 3sg > 3sg cases, there is no difference between verbal inflection in *kelek* ‘to spread’ and *enarkelek* ‘to coat’. Both would inflect as *n-ena-rkele-qen*, as there is no such thing as *n-ena-ena-rkele-qen* (the form we would expect for a transitive habitual verb with these arguments, if the *ine-* morphemes could stack up). Thus, in (145), it is possible that this speaker actually intended to use the underived verb and simply ignored what form was provided in the stimulus.

Type II valency-rearranging derivation

Except for the sole case where the verb was provided to speakers in an already-applicativized form, there are no instances of the *ine-* applicative in any of the data collected from speakers belonging to any group. It does not appear in any narratives and was not used as an argument structure altering strategy in the production task. However, findings from the acceptability task and the valency-alternation production task (which was only completed by one speaker, and therefore has not been discussed so far) demonstrate that any awareness of the function of this morphology is apparent only to very fluent speakers, who do not use it productively in their own speech.

The verbs tested for their valency-rearranging potential by the acceptability task were all described as being rearranged by *ine-* by Dunn (1999):

- (146) a. *jəmek* ‘to hang’
b. *pelak* ‘to leave’
c. *(tə)jok* ‘to put’

In the case of ‘to hang’ and ‘to put’, the fluent speakers endorsed the sentences as expected: they approved the simple ditransitive argument structure and the rearranged argument structure only if the verb was marked by *ine-*:

- (147) Fluent speaker judgments: *jəmek* vs. *enajmek*

- a. ✓ ətl[?]a-ta jəme-nen menig tətł-ək
mother-ERG hang-3sgA.3sgO clothing.ABS.SG door-LOC
‘The mother hangs clothing on the door’ (Simple ditransitive)
- b. ✓ ətl[?]a-ta ena-jme-nen tətəl menig-e
mother-ERG APPL-hang-3sgA.3sgO door.ABS.SG clothing-INST
‘The mother hangs the door with clothing’ (Rearranged argument structure with *ine-*)
- c. *ətl[?]a-ta jəme-nen tətəl menig-e
mother-ERG hang-3sgA.3sgO door.ABS.SG clothing-INST
‘The mother hangs the door with clothing’ (Rearranged without *ine-*)

These patterns indicate that fluent speakers have command over the valency changes that *ine-* produces in the argument structure of ditransitive verbs, even if they use it rarely themselves.

Meanwhile, their treatment of the verb *pelak* ‘to leave’ confirms that they are able to use this morphology productively, but only in specific contexts (verbs that are necessarily ditransitive). In the case of *pelak*, the fluent speakers endorsed a ditransitive sentence (with a recipient for the thing that is left), but could not rearrange the object and oblique argument without first increasing the verbal valency via applicativization with *rə-* *-ew*.

- (148) ✓ ətl²a-ta pela-nen coqar ɲawmerg-etə
 mother-ERG leave-3sgA.3sgO bread.ABS grandmother-DAT
 ‘The mother left bread for the grandmother’ (Simple ditransitive)
- (149) * ətl²a-ta pela-nen / ena-pela-nen ɲewmirgən coqar-a
 mother-ERG leave-3sgA.3sgO APPL-leave-3sgA.3sgP grandmother.ABS bread-INST
 ‘The mother left the grandmother with bread’ (Rearranged valency, with/without *ine-*)
- (150) ✓ ətl²a-ta ena-n-pela-(e)w-nen ɲewmirgən coqar-a
 mother-ERG APPL-APPL-leave-APPL-3sgA.3sgO grandmother.ABS bread-INST
 ‘The mother left the grandmother with bread’ (Rearranged valency with *ine-* following applicativization)

After increasing the valency of *pelak*, however, it becomes possible (for these speakers, at least) to rearrange the valency by way of *ine-*. Here we see the productive use of both kinds of applicativization among fluent speakers.

Meanwhile, the judgments obtained from the attriting speakers show a decline in the productivity of the *ine-* applicative. The two attriting speakers who participated (who are roughly the same age and broadly speak the same dialect) exhibited exactly the same judgments. They endorsed all sentences where the valency had not been rearranged, rated ungrammatical all of the sentences where the valency had been rearranged without *ine-*, but only approved one sentence with rearranged valency *and* the presence of the applicative marker:

- (151) Judgments of the application of *ine-* valency rearranger among attriting speakers

- a. * ətɫ^ʔa-ta ena-jme-nen tətəl menig-e
 mother-ERG APPL-hang-3sgA.3sgO door.ABS.SG clothing-INST
 ‘The mother hanged the door with clothing’
- b. * ətɫ^ʔa-ta ena-pela-nen ŋewmirgən coqar-a
 mother-ERG APPL-leave-3sgA.3sgO grandmother.ABS.SG bread-INST
 ‘The mother left the grandmother with bread’
- c. ✓ ə-nan ena-təjo-nen kojɲən uun^ʔ-e
 3sg-ERG APPL-put-3sgA.3sgO cup.ABS.SG berry-INST
 ‘He filled the cup with berries’

The attriting speakers represent a stage in the status of this derivational morphology where it has lost productivity but is preserved for some verbs (Type I). Whether this lower degree of productivity is due to change over time, dialectal differences, or differences in acquisition and proficiency is difficult to tease apart. However, if we take the available descriptions together with the findings of this study, it would seem to be the case that this morphology began as productive but may have always been low frequency (restricted to verbs that are obligatorily or commonly ditransitive). Thus, it has always been susceptible to lexicalization and loss of productivity, which is what we find among the attriting speakers, who may have only acquired the morphology within certain derived verb stems. It is impossible to say that dialectal differences are not at least partially responsible for the differences between the proficient and attriting speakers; however, an earlier stage of loss of productivity at the dialectal level would have been motivated by the same factors (the low frequency of this morphology in the first place).

4.3.3 Maintenance of valency-reducing morphology (antipassives)

Finally, let us consider the most contentious valency-changing morphology in the literature on Chukchi, antipassivization. In this section, I discuss specifically the semantic and context-dependent uses of the antipassive, rather than the grammatically-required uses (in relativization and coordination), which are assessed separately in section 4.5 of this chapter.

As with the other valency-changing derivational morphemes, we can think of there being

roughly three types of antipassivization, that differ on the basis of productivity. Type I antipassivization is transitive verbs that have been derived via antipassive morphology but are completely lexicalized, such as *inepirik* ‘to win a prize’, which is derived from *pirik* ‘to take.’

Type II includes cases of a syntactic change produced by the use of the antipassive, where a transitive verb and its arguments are put in an intransitive frame. This type includes productive but perhaps more conventionalized cases, where a particular object is often understood to be the undergoer of the verb and the agent is the focus of the event. (It also includes purely syntactically-motivated antipassivization, as part of Chukchi’s system of syntactic ergativity or absolutivity.) Finally, Type III captures completely productive instances of this morphology with novel (or uncommonly attested) verb and argument combinations, in response to pragmatic considerations by the speaker in the context of a larger discourse.

Overall, the use of any type of antipassivization among modern speakers, including fluent speakers, is rare to non-existent. Regardless of the ambiguity of the historical productivity of this feature, the modern loss of the antipassive is quite clear. It is not a regional feature, as the lack of the antipassive in finite verbs has been encountered by all of the researchers currently documenting Chukchi.⁷

Unlike the low incidence of the other derivational morphemes we have considered here, which mainly affects attriting speakers and semi-speakers and which is therefore due to language shift specifically, the loss of the antipassive is also profound among fluent speakers. Furthermore, while the functions of the other morphemes are preserved among both fluent and attriting speakers (even if their rates of use are low), it is clear from acceptability judgments that the antipassive has not only fallen out of use, but is not recognized at all, even by the fluent speakers consulted in this study. These facts point to the loss of the antipassive among speakers prior to the onset of shift, which sheds light on the inconsistent descriptions of this feature in the traditional language. It is likely that there was never a fully-productive “antipassive voice” used by all speakers of traditional

⁷Members of the Amguema Chukchi documentation project confirmed that they have not encountered productive uses of *ine-* with their fluent speakers, when I presented my findings to them at a conference in St. Petersburg in December 2018.

Chukchi; the shift situation and the overall move away from syntactic ergativity (discussed in section 4.5) has likely only further marginalized this feature among fluent speakers who may have acquired it, but no longer maintain any command of it.

Type I valency-reducing derivation

The production task did not include any lexicalized antipassives, so we cannot systematically assess how different speakers process them when they encounter them (and whether they accurately identify them as intransitive verbs). There were very few instances of antipassivized verbs used in finite clauses throughout the corpus. Antipassives can also be difficult to identify because they are so often homophonous with other forms. The antipassive *-tku* is homophonous with the iterative. In addition, *-tku* and *ine-* serve as agreement markers, occurring in 1st person object contexts in active paradigms and ubiquitously in the transitive habitual (stative) paradigm. In the habitual paradigm, suffixal agreement forms do not change depending on the role of the argument being agreed with, so it is impossible to distinguish between certain transitive forms (where *ine-* is an agreement marker) and corresponding antipassivized forms (where *ine-* is an antipassive). The following example, produced by a highly proficient speaker, contains what could be a rare instance of an antipassivized verb in the corpus:

- (152) n-ine-tiɟu-qin, n-ine-tiɟu-qin, n-ena-lwaw-qen
HAB-ANTIP-pull-3sg HAB-ANTIP-pull-3sg HAB-INV-be.unable.to-3sg
'He pulls and pulls, but is unable to do it'

The intransitive verb *inetiɟuk* 'to pull' appears in dictionaries along with transitive *tiɟuk* 'to pull toward oneself'. In this example, 'he pulls' could be either a transitive verb (in which case *ine-* is actually the "inverse" agreement marker) with both arguments dropped, or an antipassivized verb focusing on the act of pulling. (The other verb in this example, 'he is unable to', is unambiguously transitive, and takes as its object another verb, in this case, 'to pull'.)

Type II valency-reducing derivation

With antipassivization of Type II, we are interested in whether speakers can be prompted to detransitivize clauses under the right conditions (with certain verbs, or certain argument combinations) and whether they maintain both transitive and antipassivized alternations of verbs, in order to assess whether speakers have any understanding of the function of this morphology and how it gets realized syntactically.

None of the speakers produced an antipassive in a finite active verb in the production task, where its use as a productive valency-changer would be more obvious. However, the attriting speaker did produce one instance of an antipassive in the valency-alternation production task. In order to target antipassives in this task, the speaker was shown pictures alongside a transitive verb and only the agent argument, and received strict instructions not to add any new words. Due to the availability of argument drop, in most cases she simply produced a transitive verb with an ergative subject and a missing object, mentioning that such a sentence would only be possible if the object were understood from the context. She also tended to easily provide passive constructions for these stimuli. For example, for the stimulus in figure 4.2, she produced the constructions in (153), but did not produce an antipassive.



qlawəl ‘man’
təmək ‘to kill’

Figure 4.2: Stimulus targeting antipassives in valency-alternation production task

- (153) a. *qlawəl-a təm-nin*
man-ERG kill-3sgA.3sgO
‘The man killed (someone)’ (Acceptable if the object is understood from context)

- b. qlawəl-a təm-jo
 man-INST kill-PASS.PART
 ‘The one killed by the man’

The availability of a passive with all of the transitive verbs shown to this speaker demonstrates that the overall lack of antipassivization is not a problem with the task per se; the speaker understood the instructions and was able to produce other transitivity-reducing phenomena in order to sufficiently describe the picture using the given lexical items. However, while the passive is an entirely productive derivational possibility for this speaker (as well as other attriting speakers, and of course, for native speakers), the same cannot be said of the antipassive.

Nevertheless, this speaker produced exactly one instance of a finite antipassive verb in the valency-alternation task:

- (154) iʔg-ət ø-penrə-tko-gʔat
 wolf-ABS.PL 3plS-attack-ANTIP-3plS
 ‘The wolves attacked’

This sentence was produced for a picture of wolves attacking reindeer. The fact that this was the only context that triggered an antipassive is not a coincidence, as ‘reindeer’ are the typical undergoers of many Chukchi utterances and are often syntactically demoted so that they do not appear as the absolutive-marked argument (which is the focused argument). An antipassive formed on the verb ‘to attack’ is likely one that this speaker would have heard many times and has preserved as a fossilized form.

This same speaker showed no indication of productive knowledge of the antipassive morphology in the acceptability judgment task. When asked to judge other antipassive sentences, she reanalyzed the sentences as passive constructions or inchoative (S_o) intransitive verbs, interpreting the absolutive-marked argument—actually the demoted agent—as an undergoer subject. For example, the speaker was asked to judge the following sentences that use the verb *təmək* ‘to kill’ (which is attested with the antipassive in Dunn 1999):

- (155) a. qlawəl ø-təm-gʔe
 man.ABS.SG 3sgS-kill-3sgS

‘*The man kills’ (Transitive verb inflected as intransitive)

- b. qlawəl ø-ena-nmə-gʔe keɟɟən-e
man.ABS.SG 3sgS-ANTIP-kill-3sgS bear-INST
‘The man killed a bear’ (Antipassive)

Although (155a) is ungrammatical in traditional Chukchi, this speaker said it was acceptable and meant ‘the man died’, treating the verb as an intransitive undergone by the sole argument. She accepted (155b) but reanalyzed the sentence with swapped arguments and a passive reading of the verb: ‘The man is killed by the bear’.

Another attriting speaker simply rated all antipassivized constructions as ungrammatical, as did one of the proficient speakers. The other proficient speaker (who has an academic interest in Chukchi, in addition to being a native speaker) said that he recognized the antipassive constructions from the literary language, but personally would not use them.

The status of antipassivization

To sum up, the use of antipassivization in the modern Chukchi language is marginal at best. It is retained as an intransitive word-formation tool in certain verbs, but these are used infrequently. There is virtually no spontaneous productive use of the antipassive in finite verbs, even among fluent speakers. In terms of speaker group-based differences, both fluent speakers and attriting speakers maintain only certain collocational uses of the antipassive, such as in the example ‘the wolves attacked (reindeer)’. Speakers who received formal education in Chukchi and have knowledge of the standard literary language recognize and understand the antipassive in finite verbs, but do not use it productively in their own speech. (Notably, this is not true in participles, where antipassivization is grammatically required and where proficient older speakers use the morphology as expected.)

Reconciling the purported regional variation in antipassive productivity is more uncertain. Sources in the mid-twentieth century stand out as having a highly productive system of antipassivization, with regular and obligatory cases where it must be used. However, the use of the

antipassive in early sources (Bogoras 1922) and recent sources (Dunn 1999) is more marginal. Dunn's description of the specialization of the *ine-* morpheme (antipassive with some transitive verbs, applicative with others) is consistent with the findings of this study, where the antipassive is not used productively anymore and may exist only with certain verbs where it has been fossilized.

Ultimately, it may be the case that the antipassive was not used as a fully-productive voice in most Chukchi communities, and that its usage was overstated by Skorik and then overgeneralized in the development of the standard literary language.

4.3.4 Overall changes to the productivity of voice morphology

The preceding sections show that valency-changing morphology in Chukchi has been profoundly affected by the language shift situation. Productive verbal derivation is a hallmark of Chukchi (and, indeed, all polysynthetic languages), yet it is clearly on the decline among speakers with disrupted acquisition, as in the case of attriting speakers, or speakers with little to no in-home acquisition, as in the case of the L2 learners. These findings echo those of Mithun (1984) with respect to noun incorporation, and make sense in light of the importance of frequency and productivity in the acquisition of derivational morphology.

Not all of the valency-changing morphological devices considered here have changed at the same pace: valency-increasing morphology is used more often than either valency-rearranging morphology or antipassivization. However, all of these processes have changed in the same ways, across the different speaker groups: productive, spontaneous applications of the morphology, that are highly context-dependent (Type III processes) are the first to go; they exist only among highly proficient speakers of the oldest generation. Type II derivation, which involves a syntactic alternation between derived and underived verbs that is reflected in inflectional changes, are preserved among proficient speakers, and to a lesser extent among attriting speakers (in certain commonly-encountered cases). While there is evidence that proficient and attriting speakers can parse voice morphology even in cases where they do not use it productively, it is apparent that even the most well-preserved and transparent morphology (the causative) is not understood by semi-speakers,

who are observed to use derived transitives as intransitive in production tasks. Type I derivation, which represents highly conventionalized applications of voice morphology to certain stems so that they can be thought of as new, often idiomatic verb forms, is all that remains of certain derivational morphemes such as the antipassive, which is used to a limited extent by proficient and attriting speakers.

4.4 Patterns of syntactic noun incorporation in Modern Chukchi

Based on our earlier consideration of the available descriptions of noun incorporation in Chukchi, there is no question that it has historically functioned as a highly productive syntactic process. While there is some variation as to the frequency of noun incorporation across sources, as well as which types of arguments can be incorporated, syntactic object incorporation is found across all dialects and time periods.

All three types of noun incorporation from Mithun's (1984) taxonomy are attested in the speech of modern Chukchi users: we find cases of fully conventionalized noun-verb compounds (Type I), syntactic incorporation to reduce the number of overt case-marked nominals (Type II), and noun incorporation done for reasons of information structure, to de-emphasize certain arguments (Type III). However, as expected and, as we saw in the case of voice morphology, all three types of noun incorporation are not uniformly maintained across the different types of speakers who make up the modern linguistic ecology. Change also follows the hierarchical nature of the taxonomy, with the most productive kind of noun incorporation (Type III, which is only found among highly fluent speakers) being most susceptible to loss, and Type I being retained by all speakers, including semi-speakers.

A unique aspect of noun incorporation in modern Chukchi, which makes it unlike voice morphology, is that all of the proficient speakers were united in having strong intuitions about when and how to use it, and for many of them it is a defining characteristic of vernacular Chukchi speech that has not been influenced by Russian or the literary language. This lends support to the hypothesis

that noun incorporation has always been a more robust feature of the language than antipassivization; at the very least, noun incorporation certainly seems to have outcompeted the antipassive in the last few decades to perform the same syntactic and pragmatic functions.

4.4.1 Type I noun incorporation

The production task turned out to be a fruitful device for eliciting noun incorporation from the different speakers, and for getting a sense of their argument structural preferences with two or more nominal arguments. The proficient speakers expressed a clear preference not to express all of the arguments of a transitive verb, especially if there was a third (oblique) argument. They could easily generate such sentences but described them as Russian-like. Fluent speakers without formal training in Chukchi were especially resistant to forming sentences with three free-standing nominals; they could produce such constructions and deemed them grammatical, but would add that they were more appropriate for the literary language and that they would never have been used in their herding or coastal community. (Fluent educated speakers were happy to produce more “literary-sounding” sentences with all arguments present as separate words, as this was generally what they assumed we were targeting.)

One common strategy speakers used to avoid generating these unnatural, highly analytic sentences was to replace the verb that was provided with a compound verb that already included one of the nominal arguments. This was a preferred strategy among fluent speakers, especially those who had not received a formal education (and who generally found fault with the lexical items provided to them by the stimuli).

Compare the following responses to a picture of a boy building a house with blocks. An L2 learner provided the response in (156a), using only the words supplied in the stimulus. However, a proficient older speaker said she vastly preferred to express the same concept using the sentence in (156b), if she were speaking a vernacular variety and not trying to produce the literary language.

- (156) a. *ninqej-e n-ine-tejkə-qin jarəŋə*
boy-ERG HAB-INV-build-3sg house.ABS

‘The boy builds a house’ (L2 speaker response)

- b. η inqej nə-ta-**ra**- η -qen
boy.ABS.SG HAB-make-**house**-make-3sg

‘The boy house-makes (builds a house)’ (Proficient older speaker response)

In (156b), we see that the object, *ra-* ‘house’, forms part of the stem of an intransitive verb meaning ‘to build a house’; the agent of the sentence (‘the boy’) is marked with the absolutive case, as would be expected if this compounding process has its roots in conventionalized cases of incorporation.

As it turns out, ‘house’ is a common incorporatee in many verbal compounds, which are retained by speakers who do not make much use of the more productive Type II or Type III incorporation. The following example is the sole instance of verbal incorporation produced by one of the attriting speakers over the course of a 10-minute narrative (from ‘The Girl and the Bear’):

- (157) $\text{\textcircled{a}}$ n- $\text{\textcircled{a}}$ k reen=[?]m qol nə-ppəlu-qine-qej η eekkeqej nə-**jara**-twa-qen
3sg-LOC together=EMPH one ADJ-little-3sg-DIM girl.ABS.SG HAB-**house**-COP-3sg
‘A little girl house-lives together with him (lives in the house)’⁸

In this example we can also see that there is versatility of the incorporated argument in compounds as well as more productive types of incorporation: ‘house’ is the location argument of an otherwise intransitive verb.

Another stimulus in the production task that elicited lexicalized compounds from speakers was one that depicted a man catching fish with a rod. Some speakers produced an analytic sentence using all of the arguments, but some fluent speakers and attriting speakers used a verb compound that already includes the instrument:

- (158) a. qlawəl-a $\text{\textcircled{a}}$ nneen ge-jəto-len **a[?]nelg**-a
man-ERG fish.ABS.SG PRF-pull.out-3sg **fishing.rod**-INST
‘The man caught a fish using a rod’ (Attriting speaker response)
- b. qlawəl n-**a[?]nel**-o-qen
man.ABS.SG HAB-**fishing.rod**-use-3sg

⁸The root of ‘house’ is (*ja*)*ra-*. The choice of the longer or shorter form seems to be a matter of personal preference.

‘The man fishing-rod-uses (fishes with a rod)’ (Proficient older speaker response)

Two additional stimuli in the production task were likely to prompt proficient older speakers to use a lexicalized verb with the oblique argument (the instrument) already incorporated:

(159) Stimulus: Woman feeding soup to a child

- a. $\eta\text{ew}\acute{\text{a}}\text{c}\text{q}\text{e}\text{t}\text{-e}$ $\text{r}\acute{\text{a}}\text{q}\text{a}\text{m}\text{e}\text{t}\text{w}\text{a}\text{w}\acute{\text{a}}\text{-r}\text{k}\acute{\text{a}}\text{-n}\text{i}\text{n}$ **$\text{r}\acute{\text{a}}\text{l}\text{q}\text{e}\text{p}\text{a}\text{t}\text{-a}$** $\text{n}\text{e}\text{n}\text{e}\text{n}\text{e}$
woman-ERG feed-PROG-3sgA.3sgO **soup**-INST child.ABS.SG

‘The woman feeds the child with soup’ (Attriting speaker response without incorporation)

- b. $\eta\text{ew}\acute{\text{a}}\text{c}\text{q}\text{e}\text{t}\text{-e}$ $\text{n}\text{e}\text{n}\text{e}\text{n}\text{e}$ $\text{g}\text{a}\text{-n}\text{-p}\text{a}\text{-w}\text{a}\text{t}\text{-l}\text{e}\text{n}$
woman-ERG child.ABS.SG PRF-TR-**soup**-VBLZ-3sg

‘The woman soup-gives the child’ (Proficient older speaker response, using a lexicalized compound verb)

(160) Stimulus: Woman spreading butter on a piece of bread

- a. $\eta\text{ew}\acute{\text{a}}\text{c}\text{q}\text{e}\text{t}\text{-e}$ $\text{e}\text{n}\text{a}\text{r}\text{k}\text{e}\text{l}\text{e}\text{-n}\text{e}\text{n}$ $\text{k}\text{a}\text{w}\text{k}\text{a}\text{w}$ **$\text{p}\text{a}\text{r}\text{a}\text{p}\text{a}\text{-a}$**
woman-ERG coat-3sgA.3sgO bread.ABS.SG **butter**-INST

‘The woman coats the bread with butter’ (Response from a formally-educated older speaker, not using incorporation)

- b. $\eta\text{ew}\acute{\text{a}}\text{c}\text{q}\text{e}\text{t}\text{-n}\text{e}$ $\text{n}\text{-e}\text{n}\text{a}\text{-p}\text{a}\text{r}\text{a}\text{-}(\text{a})\text{t}\text{-q}\text{e}\text{n}$ $\text{k}\text{a}\text{w}\text{k}\text{a}\text{w}$
woman-ERG.ANIM HAB-INV-**butter**-VBLZ-3sg bread.ABS.SG

‘The woman butters the bread’ (Response from a proficient, somewhat attriting speaker, using a verbalized noun)

- c. $\text{g}\text{a}\text{-n}\text{-p}\text{a}\text{r}\text{a}\text{p}\text{a}\text{-}(\text{a})\text{w}\text{-l}\text{e}\text{n}$ $\text{k}\text{a}\text{w}\text{k}\text{a}\text{w}$ $\eta\text{ew}\acute{\text{a}}\text{c}\text{q}\text{e}\text{t}\text{-e}$
PRF-APPL-**butter**-APPL-3sg bread.ABS.SG woman-ERG

‘The woman butters the bread’ (Response from a proficient older speaker without formal education, using an applicativized noun verb)

Although verbs with some sort of incorporated noun were suggested most often by proficient speakers and, to a lesser extent, attriting speakers, a small number of compounds are available to semi-speakers in those semantic categories to which they were more likely to be exposed. However,

where the proficient speakers prefer these verbs because they are more natural than expressing these common nouns as separate words, less-proficient speakers make use of fossilized compounds because they simplify the clause’s argument encoding.

A semi-speaker who had difficulty producing any sentence with more than two arguments offered the following quite easily for a stimulus where a boy was throwing a ball to another boy:

- (161) o^ʔracek ətri ŋinqeɟ nə-**qepl**-uwicwet-qinet
 youth.ABS.SG 3pl.ABS boy.ABS.SG HAB-**ball**-play-3pl
 ‘The youth together with the boy ball-play (play with a ball)’

This speaker certainly had native intuitions that this was a more natural sentence than the one he was being asked to produce with the lexical items provided. However, he was unable to actually produce the less natural sentence (‘The youth throws a ball to the boy’). This example is illustrative of the fact that semi-speakers/heritage learners are native speakers—they receive native input and are exposed to native pragmatics. However, they are highly sensitive to frequency effects: although this speaker could confidently reject the implied argument structure of this stimulus, he was not able to do so consistently throughout the entire task.

4.4.2 Type II noun incorporation

Type II noun incorporation was also commonly observed throughout the production task, where speakers preferred to incorporate one of the arguments into the provided verb (rather than supplanting the verb with an existing lexicalized compound, which I am treating as Type I). All of the older speakers made use of this kind of noun incorporation at some point, as did most of the attriting speakers. The semi-speakers showed no evidence of productive noun incorporation at any point during my work with them.

The context-less cases that triggered productive incorporation were those where the object was the prototypical one associated with the verb, or where it made more sense to emphasize the act itself rather than the argument undergoing it. This was the case with ‘the boy picks berries’, where speakers overwhelmingly preferred to incorporate ‘berries’:

- (162) η in η ej-e n η -g η rk η -qin **uun[?]**- η t
 boy-ERG HAB-gather-3sg **berry**-ABS.PL
 ‘The boy gathers berries’ (Unincorporated semi-speaker utterance; note the entirely nominative agreement pattern, without inverse marking)
- (163) η in η ej \emptyset -**uun[?]e**-g η r η -rk η n
 boy.ABS.SG 3sg**S**-**berry**-gather-PROG.3sgS
 ‘The boy is berry-gathering’ (Typical response from attriting speakers and proficient speakers, with incorporation)

In another stimulus, a group of boys are shown to be planting trees in a yard. Again, since the emphasis can be interpreted as being on on their planting (the action itself) rather than any individual trees, some speakers expressed a preference for incorporating ‘tree’. (Here, the preferences do not correlate with either attriting or proficient speakers: both groups used incorporated and non-incorporated constructions.)

- (164) η in η ej-e n-ine-n η -qin **uttuut**
 boy-ERG HAB-INV-plant-3sg **tree**.ABS.SG
 ‘The boy plants a tree’ (Fluent older speaker response, no incorporation)
- (165) η in η ej-ne n-**utt η** -n η -qinet agtatwanw- η k
 boy-ERG.ANIM.SG HAB-**tree**-plant-3pl yard-LOC
 ‘The boy(s?) tree-plants in the yard’ (Attriting speaker response, incorporation of the object)

The argument structure of the incorporated example here warrants some explanation. The form of the verb is consistent with object incorporation producing a reduction in valency: agreement is with the plural subject (‘boys’), and there is no inverse marking, which is expected in the transitive habitual inflection but not the intransitive inflection. However, the speaker also marked the subject with ergative case—this may be an instance of reanalysis of the ergative as a subject case, or this participant simply misspoke before thinking through the full construction.

Speakers also incorporated in some of the same contexts where other speakers gave lexicalized compounds (Type I), such as the bread-buttering example:

- (166) η wəcqet-e əpalgə-rkele-rkə-nin kawkaw
 woman-ERG **butter**-spread-PROG-3sgA.3sgO bread.ABS.SG
 ‘The woman butter-spreads the bread (spreads butter on the bread)’

4.4.3 Type III noun incorporation

In this study, fluent speakers (and a few attriting speakers) continue to clearly make use of noun incorporation for discourse purposes. There are abundant examples from the collected narratives that demonstrate that speakers continue to productively and creatively incorporate when it suits the context not to introduce the incorporee as a separate argument.

- (167) n-iw-qinet... ewət ənqen jarəŋə ø-ca-twetcatwa-g[?]a, ən-kə apaapagləŋ-a
 HAB-say-3pl if that.PROX house.ABS.SG 3sgS-FUT-stand-TH there-LOC spider-ERG
 cenugərg-ək n-ine-tejkə-qin... nə-**giŋen**-təwet-qin
 chimney.roof-LOC HAB-INV-make-3sg HAB-**web**-place-3sg
 ‘They say if that house will continue to stand, a spider will web-place on the chimney roof
 (place its web on the chimney roof)’

In (167), the speaker is relaying a Chukchi belief that a spider web on the roof of your home was a sign that it was well-built. The focus of this sentence is actually the spider, who is choosing to spin its web on the chimney roof because it appears sturdy. In the course of the example we can actually see the speaker reconfiguring the argument structure: initially, she had the spider as an ergative-marked argument, the subject of the transitive verb ‘to make’, but decides instead to use a verb with the object of the making, ‘the web’, incorporated.

The following excerpt from a children’s story retold by a proficient speaker contains an example of possessor raising:

- (168) ø-təpajŋa-ŋŋo-g[?]e: “cəqe-cəqe-coooon (cəqecon), tə-**nn**-elo-n”
 3sgS-sing-INCIP-3sgS co-co-ooooold (cold) 1sgA-**teeth**-move-3sgO
 ‘(He) started to sing, Brrrrr! My teeth are chattering (I am teeth-moving on each other)’

In this example, rather than literally saying ‘My teeth are shaking’, the speaker opted for incorporating teeth and having the agent be the possessor of the teeth (in this case, the character

speaking in 1st person). This is entirely consistent with the patterns that are observed in descriptions of Chukchi and other languages of the world: many valency-changing strategies are used to promote a more animate argument to subject position.

One of the fluent speakers, who was able to speak fluidly in Chukchi without interruption for over an hour, provides clear evidence for the continued productivity of noun incorporation, even in the face of language shift. As this speaker was relaying his biography, describing growing up and working within the Soviet regime, he necessarily had to resort to Russian borrowings in order to describe concepts or entities that uniquely belong to Russian society in the 20th century. The speaker simply applied Chukchi morphology and morphosyntactic processes to these borrowings, including noun incorporation (Russian borrowings italicized):

- (169) *armija*-plətko-k ge-migciret-igem “celgə-ra-k” nəmnəmə-k Qeeliwtən
army-finish-SEQ.CVB PRF-work-1sg red-house-LOC village-LOC Qeeliwtyn
 Anadər-ken *rajon*-ək
 Anadyr-REL region-LOC
 ‘After army-finishing, I worked in the Red Jaranga program in the village Qeeliwtyn, in the Anadyrksij region’

- (170) n-iw-igəm, t-ra-*pensija*-pere-g^ʔa
 HAB-say-1sg 1sgS-FUT-**pension**-receive-TH
 ‘I said, I will retire (I will pension-receive)’

The incorporation behavior of attriting speakers was more limited in scope, even when it appeared to be productive. There are several verbs in Chukchi that obligatorily incorporate the object noun (i.e., they only exist as stems and cannot be used without a prefixed nominal): these include *-nəta* ‘to fetch’, *-tuwe* ‘to remove’, *-ip* ‘to don’, *-gili* ‘to search for’, and *-u* ‘to consume’ (Bogoras 1922: 830). The spontaneous examples of incorporation in narratives produced by attriting speakers tend to be verbs of this type, particularly *-u* ‘to consume’:

- (171) cama kejjən ləgen=^ʔm etlə nə-tlep-g^ʔen əmə qora-gtə,
 likewise bear.ABS just=EMPH NEG 3sgS.INT-look-3sgS.INT also reindeer-ALL
 n-**uun**^ʔ-u-qin ən-kə nə-cejwə-tku-qin
 HAB-**berry**-consume-3sg there-LOC HAB-walk-ITER-3sg

‘Likewise, the bear didn’t look toward the reindeer. He was just there eating berries, walking around.’

In general, there are likely few contexts where what is eaten is more important than the one doing the eating (and correspondingly, where the object would not be incorporated); however, the use of object incorporation in this particular example is motivated by the discourse and the syntax as well. ‘The bear’ is not only the focus of the story (about the speaker’s close encounter with a bear while she was watching the herd), but it is also the subject of each verb.

Incorporation into participles

One of the striking features of modern Chukchi (which is discussed at length in Chapter 5) is that the loss of derivational processes in finite verb forms has progressed to a lesser degree in nouns, such as verbal participles. There is evidence of this in Dunn’s (1999) data on antipassivization, which is used robustly in transitive participles (where antipassivization of the transitive verb is required to produce an active transitive participle), even as it is no longer used spontaneously by speakers in fully-inflected finite verbs.

This difference is replicated among the speakers in this study with respect to noun incorporation, which is also used to produce active transitive participles that focus the agent argument. Attriting speakers who otherwise did not use incorporation did so in participles; meanwhile, at least one proficient speaker treated incorporation into participles as a completely productive process, available for any verb and any argument of the verb.

To consider an example, there is one attriting speaker with whom I worked extensively at different points during a two-year period (this is the speaker whose system I considered holistically in Chapter 2). This speaker has participated in every study task and has been recorded producing a variety of narratives. However, she produced no instances of productive object incorporation in finite verbs, aside from using collocations such as *caj-o-k* ‘tea-consume-INF’ (‘to drink tea’). However, she did produce the following (relatively syntactically-complex) construction spontaneously, without direct elicitation, in the valency-alternation production task:

- (172) ə-nan təm-ninet qora-penrə-l[?]-ət i[?]g-ət
 3sg-ERG kill-3sgA.3sgO reindeer-attack-PART-ABS.PL wolf-ABS.PL
 ‘He killed the reindeer-attacking wolves (=the wolves who were attacking reindeer)’

This is likely to be another high-frequency incorporation that this speaker would have heard often (as is the case with all constructions where ‘reindeer’ is the incorporee). Still, it is telling that this is the type of construction that came to mind, rather than one with finite verb incorporation—it is possible that participles for this speaker are more readily accessible for derivational processes than finite verbs. Of course, we must be careful not to make too much of the absence of certain kinds of data, especially since it is not the case that this speaker deems object incorporation in finite verbs ungrammatical (section 4.4.4). In general, however, this speaker emphasizes arguments via the use of participles (which necessarily isolate one argument to modify), rather than argument demotion through antipassivization or noun incorporation, which she does not utilize at all for discourse purposes.

A similar, albeit much more productive pattern, was displayed by one of the proficient older speakers. This speaker has been formally educated in Chukchi and is involved in the creation of pedagogical materials, and as such thinks very metalinguistically about Chukchi. In response to the general production task, she fluidly produced many possible variants that emphasized the different arguments for each example; however, she did so exclusively using participles. Nevertheless this speaker displays the most productive use of noun incorporation that I have encountered among any sources or in my own work with speakers and can incorporate virtually any argument into a participle, including the agent.

Object incorporation into participles was most commonly utilized by this speaker when she wanted to focus either the agent argument or the oblique (a beneficiary or a location); she would use an active participle with the object incorporated to emphasize the subject, and a passive participle with an incorporated object to emphasize whatever the oblique was. For example, for the stimulus where a grandmother sews a hat for a girl, the speaker offered the following:

- (173) a. n-ena-nwaŋew-qen epeqej-ne ŋaakkaqaj-etə k[?]eli
 HAB-INV-sew-3sg grandmother-ERG.ANIM.SG girl-DAT hat.ABS.SG

‘The grandmother sews a hat for the girl’ (Finite transitive clause with an oblique argument)

- b. k^ʔale-waŋe-l^ʔ-ən epeqeŋ ŋaakkaqaj-etə
 hat-sew-PART-ABS.SG grandmother.ABS.SG girl-DAT
 ‘the grandmother who hat-sews for the girl’ (Active participle, focusing the transitive subject)

- c. k^ʔale-waŋe-jo ŋeekkeqeŋ epeqeŋ-ne
 hat-sew-PASS.PART girl.ABS.SG grandmother-INST.ANIM.SG
 ‘the girl who is hat-sewn by the grandmother’ (Passive participle, focusing the beneficiary)

Examples like (173b), where incorporation is used in the detransitivization of participles so they can modify transitive subjects, are well-attested in Dunn’s data. However, the use of participial incorporation to promote obliques is not well-attested in any source of which I am aware, though there is nothing about Chukchi grammar that suggests it would not be possible. (Incorporation into ditransitives is, after all, quite common in finite verb contexts, even in Bogoras’ data.)

We have no reason to believe that this productive incorporation is a fluke for this speaker. She produced similar participles for another stimulus with a beneficiary argument (174), as well as one with a location argument (175), which she treated the same way.

- (174) a. rəl^ʔuŋe-nin apajŋən-a ŋenqaj-etə gətgən
 show-3sgA.3sgO grandfather-ERG boy-DAT lake.ABS.SG
 ‘The grandfather showed a lake to the boy’ (Finite transitive clause with an oblique argument)

- b. gətgən-nl^ʔoŋatə-l^ʔ-ən apajŋən ŋenqaj-etə
 lake-show-PART-ABS.SG grandfather.ABS.SG boy-DAT
 ‘The grandfather who lake-shows to the boy’ (Active participle, focusing the transitive subject)

- c. ŋinqeŋ apajŋən-a gətgən-rəl^ʔoŋat-jo
 boy.ABS.SG grandfather-INST lake-show-PASS.PART
 ‘The boy who is lake-shown by the grandfather’ (Passive participle, focusing the beneficiary)

- (175) a. η in η ej-e n η np η -rk η -nen uttuut agtatwanw- η k
 boy-ERG plant-PROG-3sgA.3sgO tree.ABS.SG yard-LOC
 ‘The boy is planting a tree in the yard’ (Finite transitive clause with an oblique argument)
- b. η in η eg-ti utt η -np η -l²- η t agtatwanw- η k
 boy-ABS.PL tree-plant-PART-ABS.PL yard-LOC
 ‘The boys who tree-plant in the yard’ (Active participle, focusing the transitive subject)
- c. agtatwan utt η -np η -jo η in η ej-e
 yard.ABS.SG tree-plant-PASS.PART boy-INST
 ‘The yard that is tree-planted by the boy(s)’ (Passive participle, focusing the location argument)

This speaker also shows incorporation of subject arguments into participles. Subject incorporation is not unheard of in Chukchi; it typically occurs in intransitive verbs that refer to natural phenomena (Dunn 1999: 229-230), where the result is no overt subject and default 3sg agreement. It does not seem to be attested in participles; however, the case where this speaker did use subject incorporation in a participle is also about a natural phenomenon. (The speaker also antipassivized the verb, producing an intransitive, which suggests that she intended to produce an agent-less construction.)

- (176) η ²l η ²l-enar²e-tku-l²- η n lajwin η η a-gt η
 snow-cover-ANTIP-PART-ABS.SG transport-DAT
 ‘The one that snow-covered the vehicle’

This speaker represents the extreme end of productivity in noun incorporation; no other speaker, not even other educated fluent speakers, demonstrated such effortless, context-dependent incorporation. The other fluent speakers also tended to use incorporation in finite verbs. However, the fact that other fluent speakers were not as creative with their incorporation does not indicate that such strategies are unavailable to them. They may simply be more readily accessible to this speaker, who is a Chukchi pedagogue and actively thinks about the language and its morphology. Her use of so many variants for each stimulus in the production task may have been her unique interpreta-

tion of what I was targeting, since she approached the task as a language instructor, appraising it as something that would be useful to do with students.

4.4.4 Productivity of noun incorporation with different argument types

One of the dimensions of the productivity of valency-changing operations that has not been sufficiently evaluated is whether arguments vary as to their availability for incorporation. Preliminary findings from the acceptability study conducted with several speakers, as well as the attested examples of incorporation in the corpus, suggest that there are strong judgments about which types of arguments can be incorporated.

As part of the acceptability task, the consultants were shown sentences with incorporated objects (and no oblique arguments). Although the two native speakers displayed the same judgments about incorporation, they differed from the two attriting speakers, who also differed from one another (177).

The two proficient speakers who participated are a married couple who have variably lived in different regions where Chukchi is spoken, and have exposure both to eastern and southern dialects. One of the attriting speakers is from Kamchatka and the other is from the Nizhekolymskij region of the Sakha Republic; these two regions are both technically part of the same “western” dialect zone, however, the Kamchatka speaker has been formally educated in Chukchi, and her speech differs from the other attriting speaker in a number of ways, including their incorporation preferences.

In comparing the acceptability judgments of these speakers, it is readily apparent that the only cases where they unanimously judged the sentence to be acceptable were those where ‘reindeer’ was the incorporee. This should be now be completely unsurprising, as ‘reindeer’ is likely the most conventionalized incorporee in Chukchi. The speakers unanimously disliked sentences where ‘girl’ was the incorporee, and where ‘story’ was incorporated by the verb ‘to tell’. (This latter case is likely the result of the awkward combination of a noun with the verb it is derived from.)

(177) Object incorporation judgments (Proficient, Attriting Kamchatka, Attriting Nizhnekolymsk)

	Profic.	Attr.-K.	Attr.-N.		
a.	✓	✓	✓	cawcəwa-t herders-ABS.PL	ø-qaa-pela-g ^ʔ at reindeer-leave-3pls 'The herders reindeer-leave (leave the reindeer)'
b.	*	✓	*	nenene-t child-ABS.PL	ø-ət ^ʔ a-təw-g ^ʔ at 3plS-mother-tell-3plS 'The children mother-tell (tell their mother)'
c.	✓	✓	?	qlawəl man.ABS.SG	ø-kejŋə-nmə-g ^ʔ e 3sgS-bear-kill-3sgS 'The man bear-kills (kills the bear)'
d.	✓	✓	✓	i ^ʔ g-ət wolf-ABS.PL	ø-qaa-penrə-g ^ʔ at 3plS-reindeer-attack-3plS 'The wolves reindeer-attack (attack the reindeer)'
e.	*	*	*	ŋinqej boy.ABS.SG	ø-ŋaakka-j ^ʔ o-g ^ʔ e 3sgS-girl-approach-3sgS 'The boy girl-approaches (approaches the girl)'
f.	*	*	*	ŋewmirgən grandmother.ABS.SG	ø-təlwətəl-təw-g ^ʔ e 3sgS-story-tell-3sgS 'The grandmother story-tells (tells a story)'
g.	✓	?	*	aacek youth.ABS.SG	ø-qepəl-piri-g ^ʔ i 3sgS-ball-take-3sgS 'The youth ball-takes (takes a ball)'
h.	✓	✓	*	aacek youth.ABS.SG	ø-kupren-nret-g ^ʔ i 3sgS-net-hold-3sgS 'The youth net-holds (holds the net)'

Aside from the case of ‘story-tell’, the proficient speakers are receptive to incorporation in all cases except where the incorporee is a human noun. (All of the speakers vocally rejected ‘the boy girl-approaches’; the fact that the Kamchatka speaker approved ‘the child mother-tells’ may be an instance of a less-confident speaker being overly accepting of a pattern.) The attriting speaker from the Nizhnekolymskij region judged all instances of incorporation that did not involve ‘reindeer’ to be either ungrammatical or inauthentic-sounding.

In general, the attriting speakers have less confident judgments about whether an incorporation is possible. The Kamchatka speaker’s grammatical vs. ungrammatical incorporations seem fairly arbitrary. It is not clear, for example, why she approved ‘the youth net-holds’ but not ‘the youth ball-takes’; neither is likely to be a frequent collocation. The attriting speaker from Nizhnekolymsk disprefers the use of noun incorporation in general, except in high-frequency cases. The lower degree (or less predictable patterning) of noun incorporation for these speakers could be a reflex of their disrupted acquisition backgrounds—the speakers may not be comfortable producing incorporations they have not previously heard. However, this may also be a matter of regional variation. Derivational productivity (and the overall degree of polysynthesis) is an area that may differ significantly between educated speakers/speakers of eastern dialects and speakers living in the Sakha Republic. Speakers from Nizhnekolymsk report thinking that the standard and Chukotkan varieties of the language are more complicated, with longer words. If the speaker from Kamchatka belongs to the same overall dialect group, she may be more receptive to incorporation because of her formal education in the standard language.

4.4.5 Assessing variation and change in noun incorporation

Like antipassivization, noun incorporation has almost certainly varied across time and different dialects, but it is difficult to make definitive claims about past variation due to the lack of comparability of different sources. Nevertheless, it is clear that productive noun incorporation has existed to some extent in the language as far back as the earliest descriptions.

Data from the 1960s-1980s indicates that certain speakers made little use of non-conventionalized

noun incorporation and preferred to manage argument structure in discourse using antipassivization. Comrie (1981: 250) noted that although noun incorporation was common in folk tales, it was “much less frequent in current writing, and virtually absent in translations from Russian.” These facts are entirely unsurprising, given that Chukchi was not a written language prior to the 20th century and that the only speakers writing in Chukchi were those who were formally educated in the language, on the basis of educational materials presented in Russian, using a Russian grammatical model. (The fact that the device is virtually unattested in translations of Russian is even less striking; translations are not where one should look to get an accurate sense of the maintenance of a linguistic feature in the language at large, especially when that feature is lacking in the source language being translated.) Thus, we cannot conclude that noun incorporation was vanishing overall in any spoken varieties during this period.

More recent data from the late 1990s, which is echoed by the findings here, shows that noun incorporation is a robust process among proficient speakers, while antipassivization in finite verbs is used minimally. We can assume that, at least for speakers of eastern and southern varieties consulted for this study, noun incorporation was a robust process prior to the onset of shift, while antipassivization was a marginal feature of their language.

Both features have been similarly affected by the shift scenario, although the differences across speaker groups are more apparent in noun incorporation, which is considerably more frequent. All modern Chukchi speakers make some use of noun incorporation, differing as to the frequency and productivity with which they use it. Semi-speakers do not seem to have any productive incorporation whatsoever, using only fossilized noun-verb compounds. Attriting speakers continue to use incorporation in circumstances that indicate that they preserve the actual incorporation process (such as the production task, where they chose to incorporate certain arguments into the verbs provided), but on the whole tend to incorporate typical objects, such as ‘berries’ and ‘reindeer’. Their spontaneous use of incorporation (which we can gauge from narratives) is less frequent than that of fully proficient speakers, and again is limited to the more typical cases (‘tea-drink’, ‘berry-eat’, ‘reindeer-herd’). Proficient speakers continue to make use of spontaneous productive incorporation

and have strong intuitions that sentences incorporating an inanimate object or oblique argument are often preferable to the use of those arguments as separate case-marked nouns. While the process of noun incorporation is still productive for proficient speakers, there are certain types of incorporations that are dispreferred by them, such as the incorporation of a human noun, which is unattested in any production data in this study and is explicitly judged to be ungrammatical by proficient speakers.

Other findings from the acceptability study point to noun incorporation as an area of modern regional variation as well. One of the attriting speakers, who speaks a western dialect, rejected most cases of verbal incorporation (all except those where ‘reindeer’ was the incorporatee). This suggests that there may exist modern regional differences as to the productivity of noun incorporation; this is an area that requires future work with a greater number of speakers of western varieties.

4.5 Changes to syntactic ergativity

Let us now turn to the question of syntactic ergativity in modern Chukchi. I consider syntactic ergativity separately within the discussion of valency-changing processes, as it includes several phenomena (of variable regularity).

The primary motivation that governs the use of valency-changing operations in Chukchi is the need to promote or demote certain arguments, so that they are in the argument role that receives absolutive case marking. Absolutive case-marked nominals have a privileged status in the language: they are the only arguments that can govern other nouns and adjectives without incorporating them, and the absolutive argument is understood to be the focus of a sentence.

It is easy to see how the prominence of the absolutive argument creates syntactically ergative patterns, particularly when it is the ergative argument (i.e., the transitive subject) that must receive focus in a sentence, or when the same argument serves as the subject of several coordinated transitive and intransitive clauses. The area where syntactic ergativity is highly regular (and well-maintained, even in Dunn’s time) is the construction of participles; however, there are also other

(less well-described) instances of syntactic ergativity in cross-clausal co-reference. These patterns, which depend on antipassivization (or, less commonly, noun incorporation) to facilitate the equal treatment of transitive and intransitive subjects, are predictably declining among recent generations of speakers with the general loss of the antipassive.

4.5.1 Cross-clausal co-reference in coordination

Cross-clausal co-reference in coordinated clauses is inconsistently ergative in Chukchi; virtually any two finite clauses can be coordinated, even with dropped arguments, since much of the work of argument encoding is done on the verb itself. However, there do seem to be some strict judgments about the identity of co-referential arguments in cases where verbal agreement does not disambiguate the argument structure, i.e., cases where all of the arguments are 3sg. The clearest presentation of judgments of these kinds of coordination is offered by Nedjalkov (1979).⁹ Coordination of intransitive and transitive clauses often follows a nominative pattern, where the subjects of both verbs are coordinated (even though one is ergative and the other is absolutive):

(178) Clausal coordination along a nominative pivot (A=S) (Nedjalkov 1979: 242)

- a. $\text{\textcircled{a}tl\textcircled{a}g\textcircled{a}n_i}$ $\text{\textcircled{a}j\textcircled{e}t\textcircled{-}g^?i}$ $\text{\textcircled{a}nk^?am}$ *pro*_i $\text{talajw\textcircled{a}-nen}$ $\text{ek\textcircled{a}k}$
 father.ABS.SG 3sgS-come-3sgS and beat-3sgA.3sgO son.ABS.SG
 ‘The father came and (the father) beat the son’
- b. $\text{\textcircled{a}tl\textcircled{a}g\textcircled{-}e_i}$ piri-nin milger $\text{\textcircled{a}nk^?am}$ *pro*_i $\text{\textcircled{a}wak^?o-g^?e}$
 father-ERG take-3sgA.3sgO rifle.ABS.SG and 3sgS-sit-3sgS
 ‘The father took the rifle and (the father) sat down’

However, this is not a strict rule in the language. In (179a), the pivot is absolutive: S in the first clause co-refers with O in the second transitive clause (note that this is disambiguated by the case marking on ‘son’, which is ergative).

⁹All of these examples have been modified to adhere to my orthographic and glossing conventions; I have also amended the translations to more clearly illustrate the patterns, and have added the convention of *pro*.

(179) Clausal coordination along an absolutive pivot (S=O) (Nedjalkov 1979: 242)

- a. ətləgən ø-jet-gʔi ənkʔam *pro*_i talajwə-nen ekke-te
 father.ABS.SG_i 3sgS-come-3sgS and beat-3sgA.3sgO son-ERG
 ‘The father came and the son beat (the father)’

In cases where there is no overt argument to disambiguate which argument is in which role, as in cases where the intransitive subject is dropped following a transitive clause, the identity of S is ambiguous. It can co-refer with either A or O in the first clause:

(180) Clausal coordination with ambiguous pivot (A=S, O=S) (Nedjalkov 1979: 242)

- a. ətləg-e_i talajwə-nen ekək_j ənkʔam *pro*_{i,j} ø-ekwet-gʔi
 father-ERG beat-3sgA.3sgO son.ABS.SG and 3sgS-leave-3sgS
 ‘The father beat the son and (the father/the son) left’

Thus, based on the examples provided by Nedjalkov (1979), this system is not unequivocally ergative or accusative, although it may show a slight tendency toward accusative alignment (where dropped arguments are typically understood to be sentential subjects). For our purposes, we are interested in how speakers manage this freedom of argument co-reference. Specifically, we might expect speakers to converge on a particular pivot for these types of constructions, especially since less-proficient speakers do not tolerate ambiguous grammatical rules (and in general, struggle with complex syntactic features such as pro-drop and clausal subordination). We might expect attriting speakers who can still produce complicated multi-clause utterances to default to an entirely nominative pivot, which is the pattern in their dominant language, Russian. To illustrate this, consider the following Russian examples, which are like the Chukchi sentences examined above. In all of these cases, S=O is either not a possible interpretation of the dropped argument, or else is a strongly dispreferred interpretation without certain contextual clues.

(181) Russian coordination with argument drop

- a. mužčina_i priš-ěl i *pro*_i naš-ěl mal’čik-a
 man.NOM.M.SG come-PST.M.SG and find-PST.M.SG boy-ACC.M.SG
 ‘The man came and (the man) found the boy’ (S=A)

- b. mužčina_i naš-ěl mal'čik-a i *pro*_i uš-ěl
 man.NOM.M.SG find-PST.M.SG boy-ACC.M.SG and leave-PST.M.SG
 'The man found the boy and (the man) left' (A=S, *O=S)
- c. mal'čik propa-l i mužčina naš-ěl *pro*
 boy.NOM.M.SG disappear-PST.M.SG and man.NOM.M.SG find-PST.M.SG
 'The boy disappeared and the man found (something/someone else)' (*/?S=O)

In (181a-b), the subject arguments are understood to co-refer in the two clauses; the subject in the intransitive clause in (181b) can only be the same as the subject of the preceding transitive clause. In (181c), it is difficult to recover the dropped argument in the transitive clause as equivalent to the subject of the preceding intransitive clause, even though the context makes sense. The primary interpretation of this sentence is that the man found something or someone else, and that the two clauses are not logically related in any way. (The S=O reading is not available to me or other native Russian speakers I consulted.)

Of course, defaulting to a nominative pattern is not the only way speakers could approach reducing the flexibility of this system. Instead, they could generalize across syntactic rather than semantic grounds, only coordinating like-marked absolutive arguments (S=O) (in a way that is still analogous to Russian's coordination of nominative-marked arguments).

It is important to note here that the resolution of the freedom of coreference with dropped arguments of different roles could equally produce an ergative or an accusative pattern, both of which could be explained either by the kind of innovation that is typically seen among heritage speakers (rule generalization), or direct Russian influence.

In eliciting complex syntax from speakers of an endangered language using the contact language, any sentences that are produced as translations are suspect. The dominance of the majority language already predisposes speakers to produce calques when giving translations; with speakers who may be disproportionately affected by the shift situation, it is especially difficult to depend on such translations. Thus, I instead try to come at this phenomenon by examining the types of multi-clausal utterances that were spontaneously produced by speakers in their narratives.

Argument drop is a prominent feature of traditional Chukchi due to its system of agreement

marking on the verb, such that 1st and 2nd person free-standing arguments are generally dropped. For this reason, the relevant cases for the present discussion are only those cases where dropped arguments can co-index multiple possible referents because their roles are not made apparent by the form of the verb (e.g., all 3sg or all 3pl arguments). If we examine these cases among the proficient and attriting speakers who were able to produce narratives in this study, by far the most common strategy is total identity with the antecedent, i.e., A=A, S=S, O=O, as in the following example:

- (182) melotalgə-qaj_i qeeqin wetcatwa-g^ʔe ənk^ʔo pro_i neməqej tep^ʔajɲa-ɲɲo-g^ʔ
 rabbit-DIM.ABS.SG more stand-3sgS and also sing-INCIP-3sgS
 ‘The rabbit stood longer and (the rabbit) also began to sing’ (S=S, produced by a proficient speaker)

It is especially common for speakers to introduce 3rd person arguments and then never overtly reference them again if their grammatical role does not change and no other arguments have been introduced. A recurrent pattern is the use of a transitive verb with 3rd person arguments specified overtly, coordinated with just another transitive verb (or a string of other transitive verbs).

- (183) Coordinated constructions with identity of dropped arguments with antecedents (A=A, O=O)

- a. qlawəl-a l^ʔu-nin rərkə jiljil-tkən-ək ənk^ʔom qegnew-nin
 man-ERG see-3sgA.3sgO walrus.ABS.SG ice-on.top-LOC and shoot-3sgA.3sgO
 ‘The man saw the walrus on the ice and (he) shot (it)’ (produced by an attriting speaker)
- b. ə^ʔtt^ʔəqej-ne g-ine-winret-lin ɲinqej-etə ənk^ʔam ɲəto-nen
 puppy-ERG.ANIM.SG PRF-INV-help-3sg boy-DAT and pull.out-3sgA.3sgO
 aɲqa-corm-etə
 sea-edge-ALL
 ‘The puppy helped the boy and (it) pulled (him) out to the shore’ (produced by a different attriting speaker)

Older speakers are able to drop arguments across numerous clauses in these contexts, if no ambiguity arises. In the following longer excerpt, a speaker is describing a tradition when courting

someone for marriage. The subject is ‘groom’ and the object is ‘woman’ (or ‘bride’) across 5 coordinated clauses:¹⁰

- (184) [ɲawənragtal²-a... ɲewəcqet nə-nə-pkir-ew-qin nəmnəm-etə],
 groom-ERG woman.ABS.SG HAB-CAUS-arrive-CAUS-3sg village-ALL
 [resqən nə-n-went-et-qin], **ənk²am** [p²uric-e nə-n-kəlw-et-qin],
 roof.ABS.SG HAB-CAUS-open-CAUS-3sg and belt-INST HAB-CAUS-tie-CAUS-3sg
ənk²am [nə-n-iwtəl-ew-qin], **ənɲin** [nə-n-resqiw-et-qin jara-gtə]
 and HAB-CAUS-lower-CAUS-3sg in.this.way HAB-CAUS-enter-CAUS-3sg house-ALL
 ‘The groom would bring a woman to the village, (he) would open the roof, and (he) would tie (her) using a belt, and (he) would lower (her), and in this way (he) would lead (her) into the house’

In addition to these types of cases, both nominative and absolutive pivots are used by the speakers. Proficient speakers make liberal use of both patterns; however, attriting speakers show a slight tendency toward nominative pivots, like Russian. (Only one of the attriting speakers displayed co-reference between subjects and objects.)

- (185) Coordination with argument co-reference according to a nominative pivot (A=S)

- a. ø-gerget-g²et m²a-gənnik-qeg-ti ənk²am t²əlpɪ-ninet ɲilg-ət
 3plS-anger-3plS small-animal-DIM-ABS.PL and tear-3sgA.3plO rope-ABS.PL
 ‘The small animals got angry and (they) tore the ropes’ (S=A, produced by an attriting speaker)
- b. ɲinqeɟ-e penrə-nen a²nelgen, memlə-cəko-gtə peqetat-g²e
 boy-ERG go.after-3sgA.3sgO fishing.rod.ABS.SG water-INESS-ALL fall-3sgS
 ‘The boy went after the fishing rod (and) (he) fell into the water’ (A=S, produced by a proficient speaker)

¹⁰There are some unusual argument structural choices in this example that warrant unpacking. Rather than indicating transitivity in the form of the habitual verb using the so-called inverse agreement marker *ine-*, this speaker appears to use a series of causativized verbs to indicate transitivity. These verbs can only be understood as transitive verbs based on their derivational morphology, and in each instance, ‘woman’ is the undergoer and ‘man’ is still the agent. This series of clauses was produced by an otherwise highly fluent speaker, who does make use of the *ine-* transitivity marker in other contexts, including later on in this same narrative. It is possible that this speaker was mumbling and merging *ine-* with *r-/n-*; or it may be the case that some native speakers occasionally also omit *ine-* from their agreement patterns, as we saw in Chapter 3.

As in the case of the nominative pivots, the ordering of the clauses (intransitive vs. transitive) does not make a difference in the availability of the object for coreference with the intransitive subject:

(186) Coordination with argument co-reference according to an absolutive pivot (O=S)

- a. melotalgən n-iw-qin, “kitaqun mə-gala-g^ʔak!”, wopqa-ta
 rabbit.ABS.SG HAB-say-3sgA.3sgO come.on 1sgS.INT-pass-1sgS moose-ERG
 gite-nin
 look.at-3sgA.3sgO
 ‘The rabbit said, “Come on, let me pass!” The moose looked at (the rabbit)’ (S=O, produced by a proficient speaker)
- b. ŋinqeŋ pəlqet-g^ʔi, ə^ʔtt^ʔ-e jəto-nen
 boy.ABS.SG fall-3sgS dog-ERG pull.out-3sgA.3sgO
 ‘The boy fell (and) the dog pulled (the boy) out’ (S=O, produced by a proficient speaker)
- c. keŋŋ-e n-ine-l^ʔu-qin o^ʔrawetl^ʔen, ewər qeeqen re-jegtəl-g^ʔe qərəm
 bear-ERG HAB-INV-see-3sg person.ABS.SG if more FUT-live-3sgS NEG.FUT
 nə-j^ʔo-nen
 HAB-approach-3sg
 ‘A bear sees a person, if (the person) will continue to live, (the bear) will not approach (the person)’ (O=S, S=O, A=A, produced by an attriting speaker)

Co-reference between dropped arguments across multiple clauses is common in Chukchi, especially among more-proficient speakers (this attriting speaker clearly maintains a high degree of fluency in storytelling). It is also not restricted to absolutive-marked arguments, as in the following excerpt from a story told by an extremely fluent speaker, where co-reference is nominative:

- (187) “qeej” ŋeekkeqeŋ ik-w^ʔi, megsəratə-ŋŋo-g^ʔe, əmə iir^ʔən
 okay girl.ABS.SG say-3sgS work-INCIP-3sgS and clothing.ABS.SG
 tewlagə-nen ŋərgən
 shake.out-3sgA.3sgO outside
 ‘“Okay,” said the girl, (she) started to work, and (she) shook out the clothes outside’
 (produced by a proficient speaker, S=A=S)

Altogether, co-reference is maintained as a process that is not explicitly either ergative or accusative. Certain attriting speakers show a slight tendency towards avoiding non-identity co-reference, except for subject (nominative) co-reference, but we must be careful to conclude that the lack of co-reference according to an absolutive pivot, when these patterns were not explicitly targeted or elicited, means that they have been lost. They may simply not have occurred in this sample. However, if the dispreference for absolutive pivots among some attriting speakers is at least a tendency, along with the overall preference for grammatical role identity in co-reference, then these patterns are entirely in keeping with the kinds of efforts to reduce ambiguity that we expect from less-proficient or heritage speakers.

4.5.2 Verbal participles

The verbal participles represent the clearest case of syntactic ergativity in traditional Chukchi, and are also the domain where it is unambiguously changing among recent generations of speakers.

To review the discussion in Chapter 2, Chukchi has two affixes that derive participles from verbs: *-lʔ*, used to form active participles and negative passive participles, and *-jo*, which is only used with positive passive participles. The participles behave like other nouns and are inflected for case, person, and number, although they typically occur in the absolutive case. They can be used predicatively or attributively; in the latter type, they agree in case, person, and number with the argument they modify. Non-absolutive attributive participles are very rare; in these cases, the verb is usually incorporated by the noun like other modifiers.

To illustrate the distribution of these participles in the traditional language, let us take the transitive verb *lʔuk* ‘to see’ and the intransitive verb *jəlqetək* ‘to sleep’ (Table 4.2).

There are two kinds of syntactic ergativity in this system: (i) that participles can only be formed on absolutive arguments (S and O), such that transitive active participles are obligatorily antipassivized, and (ii) the negative participle, which relativizes on either S (in intransitives) or O (in transitives). It is also possible to incorporate a noun, rather than antipassivize, in order to detransitivize a verb so that it can relativize on the agent argument.

	Participle	Focus	Translation
INTR	<i>jəlqetə-lʲ-ən</i> ‘sleep-PART-ABS.SG’	S	‘(the one) who sleeps’
	<i>e-jəlqetə-kə-lʲ-ən</i> ‘NEG-sleep-NEG-PART-ABS.SG’	S	‘(the one) who does not sleep’
TR	<i>ine-lʲu-lʲ-ən</i> ‘ANTIP-see-PART-ABS.SG’	A > S	‘(the one) who sees’
	<i>lʲo-jo-ø</i> ‘see-PASS.PART-ABS.SG’	O	‘(the one) who is seen’
	<i>e-lʲu-kə-lʲ-ən</i> ‘NEG-see-NEG-PART-ABS.SG’	O	‘(the one) who is not seen’
	<i>(e-)ine-lʲu-kə-lʲ-ən</i> ‘(NEG-)ANTIP-see-NEG-PART-ABS.SG’	A > S	‘(the one) who does not see’

Table 4.2: Verbal participle system in Traditional Chukchi

The participle system is relatively well-maintained and productive in modern Chukchi. Among modern speakers, participles generally display more productive use of certain voice morphology (that is otherwise underutilized), such as antipassives and noun incorporation. Still, the entire system has undergone certain changes among the generations of speakers most likely to be affected by the shift situation, namely, attriting speakers and semi-speakers. The system has also not changed symmetrically: the passive participle *-jo* is easier for attriting speakers to produce than the (admittedly more varied) set of participles built on the affix *-lʲ*.

The full participle system is used by the highly proficient older speakers, who even make use of non-3rd person participles (which are inflected with the same 1/2 person suffixes as the stative tenses):

- (188) *nə-req-igət, mal-pənnetwa-lʲ-egət*
 HAB-PROVERB-2sg as.if-be.sad-PART-2sg
 ‘What are you doing? You are like one who is sad’

Only one of the proficient speakers produced any active transitive participles; however, she did so productively (using antipassivization or incorporation) for all transitive verbs when asked (contrasting their use with the passive participle):

- (189) a. *ena-nqametwaw-lʲ-ən ɲewəcqet*
 ANTIP-feed-PART-ABS.SG woman.ABS.SG
 ‘the woman who feeds’
- b. *rəqametwaw-jo-ø ɲewəcqet-e nenene*
 feed-PASS.PART-ABS.SG woman-INST child.ABS.SG
 ‘the child who is fed by the woman’

- (190) a. *jagna-tko-l[?]-ən* *qlawəl* *əlgətumgət(-e)*
 encounter-ANTIP-PART-ABS.SG man.ABS.SG close.friend(-INST?)
 ‘the man who encounters his close friend’
- b. *jagna-jo-ø* *qlawəl-a* *ə[?]lgətumgətum*
 encounter-PASS.PART-ABS.SG man-glinst close.friend.ABS.SG
 ‘the close friend who is encountered by the man’
- (191) a. *uun[?]ə-gərki-l[?]-ən*
 berry-gather-PART-ABS.SG
 ‘the boy who berry-gathers’ (incorporation instead of antipassivization)
- b. *uun[?]ə-t* *gərke-jo-te* *ŋinqej-e*
 berry-ABS.PL gather-PASS.PART-ABS.PL boy-INST
 ‘the berries that are gathered by the boy’

The other proficient speakers never produced any transitive active participles at all; however, they did not produce any non-standard transitive participles either. The same cannot be said of the attriting speakers, some of whom produced active transitive participles in the corpus without the expected detransitivizing morphology. The result is the equal treatment of A and S in the formation of active participles, undoing the syntactically absolute pattern of obligatorily antipassivizing transitive verbs so their participles relativize on A. These speakers produced the following sorts of participles, with no contrast based on the transitivity of the verb:

(192) Participles relativizing on S

- a. *məlawə-l[?]-ət* *orawetl[?]a-t*
 dance-PART-ABS.PL person-ABS.PL
 ‘the people who dance’
- b. *al[?]eqatə-l[?]-ən* *ŋinqej*
 swim-PART-ABS.SG boy.ABS.SG
 ‘the boy who swims’

(193) Participles relativizing on A

- a. *ratcəŋatə-l[?]-ət* *jomromk-ət*
 hide.TR-PART-ABS.PL bush-ABS.PL
 ‘the bushes that hide (someone or something else)’

- b. qlawəl rəgiciw-lʔ-ən
 man.ABS.SG round.up-PART-ABS.SG
 ‘the man who rounds up (e.g., reindeer)’
- c. əlgu nə-lgə-qin rəkulewə-lʔ-ən
 love.VBASE HAB-AUX-3sg teach-PART-ABS.SG
 ‘(He/she) loves the one who teaches (=the teacher)’¹¹

In some cases, attriting speakers could not provide an active transitive participle when asked. These same speakers easily provided an active intransitive participle, which suggests that they had some awareness that the two participles should be different. Still, it is likely that the confusion surrounding the multiple functions of the antipassive (and the overall loss of this morpheme) is profound enough to have created a gap for them entirely.

While we can analyze the collapse of the transitivity distinction in active participles as a kind of loss of syntactic ergativity, it is interesting to note that at least one of the speakers who displays this pattern maintains the expected absolutive pattern for negative participles. Negative participles formed from an intransitive verb relativize on S; negative participles formed from a transitive relativize on O. Since there is no antipassivization in the participles in this speaker’s system, there does not appear to be a way to form negative active transitive participles, or else the sole negative transitive participle may be ambiguous between a passive and active reading. When producing these participles, however, the speaker always translates them as passive.

(194) Absolutivity in negative participles (from an attriting speaker)

- a. a-wetgaw-kə-lʔ-ən
 NEG-speak-NEG-PART-ABS.SG
 ‘the one who does not speak’ (negative intransitive active participle)
- b. a-pela-kə-lʔ-ən
 NEG-leave-NEG-PART-ABS.SG
 ‘the one who is not left (≠ the one who does not abandon)’ (negative passive participle)

¹¹*rəkulewək* is this speaker’s regional, or possibly idiolectal, pronunciation of *rəgjulewək* ‘to teach’. The form for ‘teacher’ that other speakers provided using this verb always contained the antipassive *ine-*, as in *inenəgjulewəlʔən*.

- c. e-nmə-kə-l[?]-ən
NEG-kill-NEG-PART-ABS.SG
'the one who is not killed (\neq the one who does not kill)' (negative passive participle)
- d. a-ket[?]o-kə-l[?]-ən
NEG-forget-NEG-PART-ABS.SG
'the one who is not forgotten (\neq the one who does not forget)' (negative passive participle)

The maintenance of this pattern is yet another way that less-proficient speakers do not necessarily reproduce Russian syntax in their speech (Russian has a strictly accusative participle system, where active participles are formed the same way for transitive and intransitive subjects, with a separate type of passive participles for objects).

Although semi-speakers did not spontaneously produce any participles, they were forced to reckon with them in constructing a sentence for one of the stimuli in the production task, which included a passive participle. The responses from the semi-speakers indicate that they have not preserved the participle system, or at least do not understand how to apply participles to the expected arguments. One of the semi-speakers could not produce any construction for this stimulus; the other gave the following:

- (195) kelitkul[?]-e ə[?]lgu lən-jo-t keliŋew
student-INST/ERG love.VBASE AUX-PASS.PART-ABS.PL teacher.ABS.SG
'Intended: the teacher who is loved by the students'

The participle here, 'one who is loved', is meant to agree with the object, 'teacher', based on context, but instead it appears to agree with the plural agent 'students'. It is not totally clear what this speaker intended: he seems familiar enough with the *-jo* participle to know how it is pluralized, but may not have acquired the system fully enough to know that participles agree with the nouns they modify. (This particular speaker also has a tendency to use plural agreement spuriously, i.e., whenever there is any plural argument present in the clause, even if it is not the one being agreed with.) All in all, it is unsurprising that the semi-speakers would not make use of the participle system, as heritage speakers tend to struggle with subordinating morphology and syntax. These

speakers also do not make use of other types of non-finite clauses, such as converbs and infinitives.

4.6 Evaluating theories of noun incorporation and antipassivization

By now, we have established that the voice and valency-changing processes in Chukchi have undergone changes, both prior to and as a direct result of the shift process. The generalized findings for the changes to these processes are schematized in Figure 4.3.

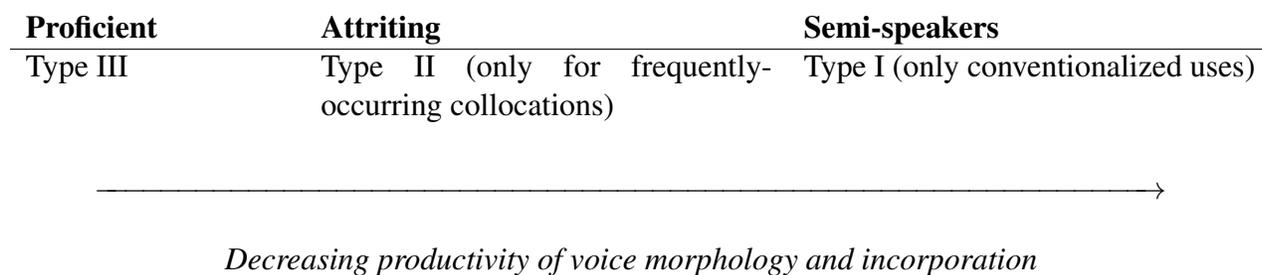


Figure 4.3: Cline of loss of derivational productivity in valency-changing processes in Modern Chukchi

In this section, we turn to the implications of this variation for theories of noun incorporation and antipassivization, specifically asking whether the findings here tell us anything about: (i) whether noun incorporation and antipassivization are syntactically the same process, and (ii) whether noun incorporation is a syntactic process at all, or if incorporation happens in the lexicon prior to any syntactic processes.

4.6.1 The relationship between noun incorporation and the antipassive in Chukchi

Let us first consider whether noun incorporation and antipassivization are meaningfully different processes in either traditional or modern Chukchi. One of the foundational works on incorporation, Baker 1988, argues that object incorporation and antipassivization are underlyingly the same

syntactic process: with object incorporation, the object is adjoined to the verb via head movement, while in antipassivization, the antipassive marker (*ine-* or *-tku*) is generated in the object position and is adjoined like any other object.

Without turning to any of the potential synchronic caveats of this proposal, we can see that equating these two processes makes diachronic predictions. Namely, if the process itself is susceptible to change, we should see those changes regardless of whether a construction is antipassive or incorporation. For example, if Type II derivation were to be affected—that is, the type that affects case assignment of the remaining arguments—we would expect to see the same changes in both antipassivization and incorporation.

Both processes are so marginal that comparative examples of this kind are difficult to observe, especially because the descriptive evidence seems to point to these two constructions' being mutually exclusive for some speakers, as they compete for the same semantic and syntactic functions. This exclusivity might explain the variation in frequency of one or the other process over time, i.e., the fact that incorporation is less frequent (and antipassives more frequent) in mid-20th century accounts compared to later accounts.

Although cases of recent generations of speakers' using both incorporation and antipassivization are limited, those speakers who do evidence use of both types of constructions use them in similar ways, and show similar types of reanalyses. For example, the fluent speaker who uses incorporation and antipassivization highly productively in participles can use antipassive marking and incorporated objects completely interchangeably. In cases where antipassivization and incorporation are diminishing among attriting speakers, they tend to be preserved in the same contexts, i.e., they are only licensed by certain verbs. A formally-educated attriting speaker who maintains minimal use of antipassivization and object incorporation uses both in the case of the verb *penrək* 'to attack':

- (196) ə-nin ətla luur ənn-etə ø-penrə-**tko**-g[?]e
 3sg-POSS mother.ABS.SG suddenly fish-ALL 3sgS-attack-ANTIP-3sgS
 'His mother suddenly rushed after the fish'

- (197) **qora-penrə-l^ʔ-ət** **i^ʔg-ət**
reindeer-attack-PART-ABS.PL **wolf-ABS.PL**
 ‘the wolves who reindeer-attacked’

Meanwhile, attriting speakers show the same kinds of reanalysis of antipassive and incorporated morphology, including in constructions they have produced themselves. A common pattern among these speakers is to interpret antipassives/incorporation as a passive-like phenomenon, where the remaining argument (the agent) is acted upon by the resulting verbal complex. This requires a different underlying syntax for these constructions, where the incorporated argument (and the *ine-* morpheme) is actually a subject.

- (198) **lejwineŋ** **ø-ə^ʔl^ʔ-əl^ʔet-g^ʔi**
transport.ABS.SG **3sgS-snow-snow.on-3sgS**
 ‘Intended: the vehicle was snowed on’

- (199) **g-e^ʔl-enar^ʔe-lin** **lejwineŋ**
PRF-snow-cover-3sg **transport.ABS.SG**
 ‘Intended: the vehicle was snow-covered’

In these two examples, produced by different attriting speakers, the intended sentence was ‘snow covered the vehicle’ or ‘the vehicle was covered by snow’. In both cases, the speakers incorporated ‘snow’, the agent of the clause. In the traditional language, the only core argument that can be incorporated is the object; thus, these sentences would actually have the meaning of ‘the vehicle snow-covered (something else)’. These examples represent a case of a change in the speech of shifting speakers that is not consistent with cross-linguistic tendencies: the literature on noun incorporation (at least in robustly-spoken languages) has not documented any cases of subject incorporation in transitive verbs.

When one of these speakers was asked to judge sentences with antipassivization, she similarly reanalyzed them as passives, swapping the agent and patient arguments. The following sentence is repeated from earlier (155b):

- (200) **qlawəl** **ø-ena-nmə-g^ʔe** **kejŋən-e**
man.ABS.SG **3sgS-ANTIP-kill-3sgS** **bear-INST**
 ‘The man killed a bear’

In traditional Chukchi, the semantic agent is ‘man’ and the patient is ‘bear’; however, the speaker interpreted this sentence as a passive: ‘the man was killed by the bear’. Based on the case marking, this interpretation is not possible without a reanalysis of the verb itself; it is clearly an intransitive verb, and ‘man’ must be the subject.

There are some ways in which the antipassive and noun incorporation have not changed in tandem; for example, for most modern speakers (including most of the fluent speakers in this study), loss of the antipassive has outpaced that of incorporation. However, the relative distribution of these two processes has varied throughout time and if they are indeed mutually exclusive for some speakers because they compete for similar functions, there is no reason to suspect that their different rates of change correspond to syntactic differences. Rather, the differences may be morphological: it is not surprising that *ine-* and *-tku* would be more susceptible to loss or reanalysis. If we follow the analysis in Chapter 3 of *ine-* and *-tku* as underspecified object morphemes, their semantic opacity, along with their multiple functions (as elsewhere agreement markers and derivational morphemes corresponding to such functions as voice and iterativity), make them prime targets for reanalysis by speakers with divergent acquisition experiences.

Even the highly proficient speaker who maintains productive use of the antipassive in participles occasionally used antipassivization and incorporation redundantly, as in the following examples:

- (201) a. rərkə-qagnaw-*tko-lʔ-ən* qlawəl pərgel-gəpə
 walrus-shoot-ANTIP-PART-ABS.SG man.ABS.SG ice-ABL
 ‘the man who walrus-shoots from the ice’
- b. qejʔətʔəg-jələ-*tku-lʔ-ən* ŋeekkeqej ŋenqaj-etə
 puppy-give-ANTIP-PART-ABS.SG girl.ABS.SG boy-DAT
 ‘the girl who puppy-gives to the boy’

In these cases, incorporation renders antipassivization unnecessary for the formation of an active transitive participle. It is possible that the speaker intended the iterative meaning for *-tku* in these constructions, although such a meaning is bizarre for (201b), since gifting someone a puppy is usually an act that is only done once. Instead, these examples may illustrate the low semantic

salience of antipassive morphology, even for highly fluent speakers.

4.6.2 Lexicalist vs. syntactic theories of noun incorporation: answers from Chukchi

Let us now turn to the broader issue of theories of incorporation, and how the variably-productive stages of incorporation (and other verbal derivation) in Chukchi might inform debates about these theories. An early and fundamental split between theories of noun incorporation was between those that treated it as a lexical process that changes a verb's argument structure prior to the involvement of the syntax (Rosen 1989, Mithun 1984) and those that treated it as a purely syntactic process, wherein the incorporated noun begins as a separate, independently referenceable argument (Baker 1988, Sadock 1980, Haugen 2008).

Both types of theories have had to grapple with the diversity of types of noun incorporation in the world's languages. The disadvantage of a syntactic theory such as Baker's (1988) is that it is extremely narrow: it only allows for the incorporation of a direct object, and does not allow for the presence of another unincorporated direct object in the same clause. That is, syntactic incorporation entails a detransitivization of the verb. This presents a problem for languages where incorporation does not produce a change in valency. In the lexicalist framework proposed by Rosen (1989), this issue is resolved by positing that languages can be categorized according to the type of incorporation they have: Classifier NI (the kind that does not produce a valency change) and Compound NI (where incorporation results in detransitivization).

The disadvantage of lexicalist frameworks is that they must posit separate processes for different types of noun incorporation, whereas the goal of syntactic approaches is to present a unified account of how noun incorporation occurs. The need for incorporation to occur in the syntax, rather than the lexicon, hinges on the fact that in some languages, the incorporated noun is not syntactically inert: it can govern stranded modifiers (such as possessors) and can be referenced again in the discourse (Baker 1988, Sadock 1980).

Chukchi (traditionally, and as used by modern speakers) presents challenges for both types of

theories. The sheer productivity of noun incorporation (or antipassivization) in Chukchi, as well as its obligatoriness in transitive active participles, is motivation for a syntactic analysis over a lexical one that would require the formation of infinitely many unique N-V compounds. Although nouns are often incorporated to background them in discourse, nouns that are incorporated to produce a generic reading can still be referenced in subsequent discourse where a specific token of that noun is concerned, as in the following example from Dunn (1999: 222):

- (202) *taŋ-amənan Cəkwaŋaqaŋ ga-qora-nmat-len, qora-ŋə*
 INTS-alone (personal.name).ABS.SG PRF-reindeer-kill-3sg reindeer-ABS.SG
təm-nen
 kill-3sgA.3sgO
 ‘Cəkwaŋawaj slaughtered reindeer all by himself. He killed a (specific) reindeer’

The incorporation of specific referents (that can then be accessed in the discourse) is also possible for the fluent speakers I consulted, as in examples such as *qej^ʔət^ʔəg-jələ-tku-l^ʔ-ən ŋeekkeqej* ‘the girl who gives a puppy’ and *qlawəl ø-kejŋə-nmə-g^ʔe* ‘the man killed a bear’.

Meanwhile, the problems for a uniform syntactic analysis of Chukchi lie in the fact that incorporation is not restricted to the direct object argument, as is evidenced by incorporation of instrument and locative arguments, as well as possessor/beneficiary raising constructions (valency-rearranging incorporation). It is also clear from the above examination of different degrees of productivity of incorporation and antipassive morphology that at least some cases of these processes have been lexicalized—that is, they look more like N-V compounds (or *ine-V* compounds) in that they are not obviously decomposable and that individual morphemes do not have separable meanings. It is also the case that the more lexicalized or conventionalized forms are the ones that tend to be maintained best by all speakers, but especially the speakers with severely interrupted acquisition. There is no evidence, for example, that the L2 learner who produced the following sentence could produce a sentence where the boys played with a specific ball (i.e., breaking up the N-V pair). (This sentence was not entirely felicitous for the picture the speaker was shown in the first place, as it shows a youth holding a ball out of reach of a younger boy.)

- (203) o[?]racek ətri ɲinqeɟ nə-**qepl**-uwicwet-qinet
 youth.ABS.SG 3pl.ABS boy.ABS.SG HAB-**ball**-play-3pl
 ‘The youth together with the boy ball-play (play with a ball)’

Perhaps one way to resolve these apparent discrepancies is to strike a compromise, situating some kinds of noun incorporation—the conventionalized cases, as well as cases where instruments and locations are incorporated—in the lexicon, and cases of structural object incorporation in the syntax. Many of the existing theories on both sides of the divide claim similar divisions of labor: Rosen (1989) concedes that some languages can have both Classifier and Compound NI, while Baker (1988) (and later, Baker et al. (2005)) sets aside compounding phenomena as a distinct process that does not explicitly involve the syntax. One of the exceptions to this separation of different types of noun-verb derivations is Haugen (2008), who treats all verbs derived from nouns, including light verbs and denominal verbs, as syntactic phenomena (this essentially falls out of his use of the DM framework, where there is no division of labor at all between syntax and morphology).

There is some evidence from modern speakers that a uniformly syntactic approach is the correct one for Chukchi. For some speakers, both noun incorporation and antipassivization have essentially disappeared from their grammar, including in supposedly lexicalized forms. For example, one of the attriting speakers strongly dispreferred both incorporation and antipassivization. This loss of detransitivizing processes extended to lexical items that are prime candidates for lexicalization, such as the term for ‘teacher’, which is underlyingly ‘one who teaches’, a transitive active participle: *ine-ngjuletə-l[?]-ən* ‘ANTIP-teach-PART-ABS.SG’. Instead, this speaker produced the following example (repeated from earlier), where the antipassive marker is absent from the participle:

- (204) əlgu nə-lgə-qin rəkulewə-l[?]-ən
 love.VBASE HAB-AUX-3sg teach-PART-ABS.SG
 ‘(He/she) loves the one who teaches (=the teacher)’

This example suggests that the loss of *ine-* as a detransitivizer is absolute in her grammar: it is absent even in the commonly occurring instances that are retained for other attriting speakers who also do not use *ine-* productively. It is important to note that we cannot attribute this to loss of

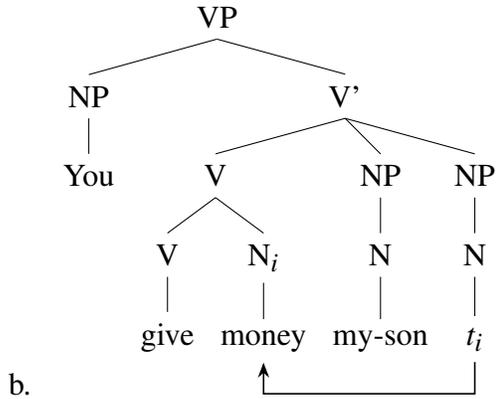
the morpheme rather than a loss of the syntactic process, since this speaker retains *ine-* as a verbal agreement marker (which, as we saw in Chapter 3, is syntactically distinct).

It is possible, too, that multiple analyses are viable in a shift situation, and that different types of speakers exhibit different grammatical representations of noun incorporation. Attriting speakers may acquire the syntactic process of noun incorporation that entails head movement and lose it in most cases, or in the case of the speaker discussed above, profoundly. L2 learners or semi-speakers may never acquire productive syntactic incorporation—for them, the instances of noun incorporation they use may indeed be like compounding in English. Or for these speakers, any existing cases of incorporation may be a syntactic fact that does not entail movement, which presupposes the existence of an equivalent construction where the incorporated noun is a separate DP. Instead, we can capture the lack of attestation of these non-incorporated constructions for semi-speakers by proposing that certain nouns may be base-generated as N^0 adjuncts to certain verbs, as proposed by Massam (2001) for pseudo-noun incorporation (PNI) in Niuean.

If we assume that the productive instances of incorporation in Chukchi, among all speakers, are due to head movement (à la Baker), we must explain the existence of incorporated locations and instruments (which speakers can generate at will in the production task), as well as cases of possessor and beneficiary raising, where non-patient arguments are raised to the position of the structural object and receive absolutive case marking when the patient is incorporated.

These cases of oblique argument raising (which parallel the valency-rearranging use of *ine*) can still be straightforwardly analyzed as cases of noun incorporation via head movement. If we analyze these constructions as having the same syntactic structure as applicatives, where both arguments are verbal complements, the oblique argument is the only one that remains in a position to receive absolutive case after the patient argument has been incorporated:

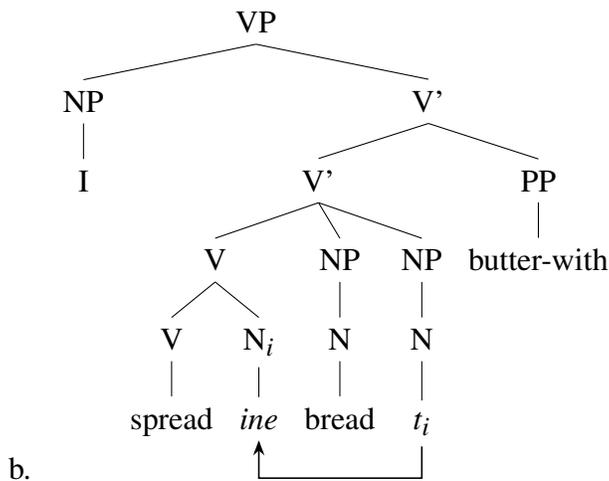
- (205) a. gəm-nin ekək qə-**kelit**[?]ul-pənrə-gə-n
 1sg-POSS son.ABS.SG 2A.INT-**money**-give-TH-3sgO
 ‘(You) money-give my son!’ (Repeated from (118a))



The valency-rearranging use of *ine-* can be analyzed in much the same way: *ine-* can simply function as an underspecified object morpheme that is incorporated, with the lexical object showing up as an adjunct PP. An advantage of this approach is that we do not need to specify two separate *ine-* morphemes (a valency-reducing one vs. a valency-rearranging one) and we capture the syntactic parallels between the two types of incorporation (detransitivizing and beneficiary raising) and the derivational functions of *ine-*.

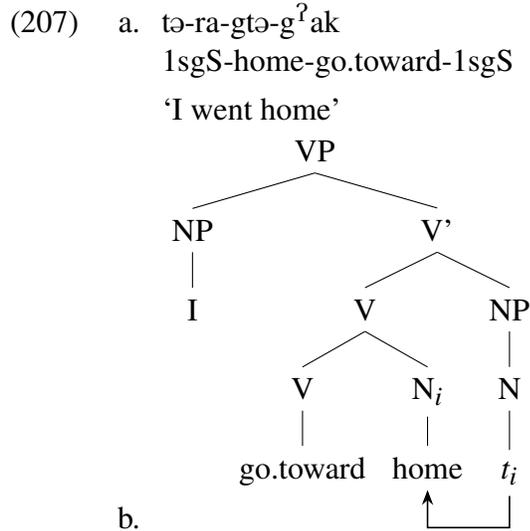
Following this proposal, we have the following structure for an applicativized construction like (144), repeated below:

- (206) a. η ewəcqet-e **ena**-rkele-nen kawkaw parapar-a
 woman-ERG APPL-spread-3sgA.3sgO bread.ABS.SG butter-INST
 ‘The woman coats the bread with butter’



Finally, we should also consider cases of incorporation of a locative argument, which are frequently used to contextualize intransitive verbs. This type of incorporation typically occurs when

a location or directional complement is required by the verb, as in verbs like ‘go (to/towards)’ and ‘be (in/at)’. Since these NPs are verbal complements, incorporation in these cases proceeds in the same manner as object incorporation, via head movement. Thus, we have the following structure for one of the common incorporees of motion verbs, *ja(rə)*- ‘house’:



4.7 Conclusion: conditioning factors in derivational variation and change

In this chapter, I have considered valency-changing derivational morphology in Chukchi and have attempted to reconcile past and present variation in this domain. Chukchi has a wealth of verbal derivational morphology that affects argument structure; here I have analyzed the applicative, the causative, dative shift/beneficiary and possessor raising, the antipassive, and noun incorporation. As predicted, these processes have not all changed at the same rate. Valency-increasing derivation, especially the causative, remains especially robust, likely because it is semantically transparent. Valency-decreasing morphology—specifically, of the type that eliminates the object argument, e.g., the antipassive and incorporation—shows signs of having been on the decline since before the onset of shift, although there has always been variation in the use of this morphology. The speakers who were consulted in this study generally make greater use of noun incorporation than

the antipassive, which is presently marginal at best (except in participles, where it is syntactically required). Although these two processes are underlyingly syntactically equivalent, once again the semantic transparency of incorporation may facilitate its maintenance among modern speakers.

While all of the valency-changing operations in Chukchi can be reconstructed to some time when they would have been used productively, not all of these operations are presently used productively by all speakers. Following Mithun (1984), I have classified all voice morphology in Chukchi as following a cline of different “types” (I-III), which differ from one another in terms of their productivity. Just as Mithun posited that the existence of Type III NI implies the existence of Types I and II, and just she predicted that loss would follow the cline in reverse (with Type III being lost first, then Type II, then Type I), the same holds for all valency-changing morphology in Chukchi. The least experienced generation of speakers tends only to make use of conventionalized derivations (Type I), while the oldest generation of speakers still uses verbal derivation productively for discourse purposes (Type III), with attriting speakers (who display the greatest range of proficiency) falling somewhere in the middle.

One question that arises in examining morphosyntactic variation at a given point in time is how it can be explained at a grammatical level, i.e., where is the locus of variation? In the case of derivational morphology, we must explain how it ceases to be productive in a language, which entails considering speakers for whom it has become less productive over time (some attriting speakers) and speakers for whom it may never have been productive (semi-speakers/L2 learners). The existence of this variation might point to the need for multiple co-existing explanations of verbal derivation in Chukchi: that which involves an active syntactic process that operates on syntactic units (e.g., objects), such as head movement, and that which stores information about particular (frequently-combined) lexical items (e.g., lexical compounding).

The other natural question when examining this variation is what generated it in the first place: ongoing contact with Russian, independent linguistic innovation consistent with cross-linguistic typological patterns, or dysfluency? The answer, as before, is all of the above, but we must be careful not to overstate the influence of any one factor by examining the available evidence within

a historico-typological perspective.

For example, the loss of antipassive morphology (along with the relatively robust maintenance of passive participles and the reanalysis of some antipassives as passives) can be taken as evidence of an overall shift away from syntactic ergativity in Chukchi. As we saw with the collapse of transitivity distinctions in habitual agreement marking (Chapter 3), modern, less-proficient speakers display a tendency not to differentiate between transitive and intransitive subjects, which is exactly the function of antipassivization in Chukchi. Although argument drop in coordination in Chukchi does not appear to have ever been completely ergative (with absolutive and nominative pivots both being acceptable in co-reference), some attriting speakers display a modest preference for nominative co-reference.

Still, even if these patterns represent a move away from syntactic ergativity, the motivation here is not the elimination of ergativity itself: rather, certain syntactically ergative phenomena are particularly susceptible to loss in Chukchi with the loss of the antipassive, which is represented by a highly polysemous morpheme (*ine-*) that has entirely vanished from some speakers' grammars. This in turn does not entail that all traces of syntactic ergativity have vanished: for example, the negative $l^?$ - participle remains absolutive for the speakers who produced it, only ever referring to the object or the intransitive subject.

If the decline of patterns like the antipassive and noun incorporation is not consistent with a system-wide pressure to eliminate ergativity, then perhaps we can look instead to the influence of Russian, which lacks these derivational processes, but does exhibit those that continue to be robust in Chukchi, such as the passive and the causative. While the availability of this morphology in Russian might certainly help to preserve it in Chukchi, it is difficult to demonstrate that the absence of the other processes has triggered a loss in Chukchi (rather than possibly reinforcing one that was already taking place). Furthermore, modern Chukchi speakers do not simply replace the lacking morphology with Russian equivalents: they do not merely replicate Russian syntactic patterns via calques, but produce argument structures that are different from both Russian and the traditional language. For example, the following sentence, while lacking the object incorporation

expected from more traditional speakers, also differs from how the same event is described in Russian:

- (208) a. η ewəcɕet-ne n-ena-rkele-qen kawkawə-tkən-ək parapar
 woman-ERG.ANIM.SG HAB-APPL/INV-spread-3sg bread-on.top-LOC butter.ABS.SG
 ‘The woman spreads butter on top of the bread’ (repeated from (145))
- b. ženščina maž-et maslo na xleb
 woman.NOM.SG spread-3SG.PRS butter.ACC.SG on bread.ACC.SG
 ‘The woman spreads butter on the bread’ (Closest Russian equivalent)
- c. ženščina maž-et maslo-m xleb
 woman.NOM.SG spread-3SG.PRS butter-INST.SG bread.ABS.SG
 ‘The woman spreads the bread with butter’ (Russian equivalent with raising of ‘bread’)

The syntax of (208c), one of the possible argument structures for this event in Russian, is entirely different from the one provided by this attriting speaker in Chukchi, although it does closely resemble the applicativized option for this verb. A syntactically closer Russian construction is the one in (208b), where ‘butter is spread *on* the bread’; however, this is semantically distinct from the Chukchi response, where the morphology on ‘bread’ clearly indicates a superessive meaning (‘atop’ or ‘on the surface of’, not ‘on’).

These comparisons illustrate that speakers are able to access a system that, although different from the standard Chukchi system, is not necessarily drawing on Russian material to fill in gaps.

This brings us to another possible conditioning factor: “dysfluency” in the traditional language due to circumstances that impeded an ideal setting for acquisition. It is unquestionably the case that derivational morphology is particularly vulnerable to acquisition differences: it is acquired over an extended period of time and is sensitive to frequency effects. It is also no accident that the processes that prove most unstable for speakers are those that involve opaque or ambiguous morphology. However, the loss of derivational productivity is a typical part of language change, and does not point to a disintegration of these speakers’ systems. (Recall that these speakers have also analyzed certain morphology, such as animate case marking, as *more* productive than in the traditional language.) Derivational morphology is constantly changing in robustly-spoken languages

as well. English contains many remnants of once-productive derivational morphology that is currently only maintained in certain instances: for example, the suffix *-hood*, used to derive nouns from other nouns (to refer to a group) or from adjectives (to refer to the condition characterized by that adjective) derives a closed set of forms (e.g., *brotherhood*, *priesthood*, *childhood*, *falsehood*) in modern English. Other comparable morphemes, such as *-ness*, are the preferred way to derive new nouns from adjectives: e.g., ‘a state of *cute-ness*’ but not ‘a state of *cute-hood*’.

While the decrease in use of these valency-changing processes should not be taken as evidence that recent generations of speakers are using an “incorrect” version of the language, it does fit into an overall shift away from holophrasis and verbal derivation among these speakers. These changes, unlike the changes affecting ergativity, do fit within a global typological shift in modern Chukchi away from a polysynthetic configuration. I explore this issue in greater detail in Chapter 5.

Chapter 5

Changes to polysynthesis in Modern Chukchi

5.1 Features of polysynthesis

While the exact nature of polysynthesis—what gives rise to it synchronically and diachronically, and whether its features are grammatically interrelated—remains a contentious topic, scholars generally agree on the features that define polysynthetic morphology and languages. An early definition from Sapir (1921: ch. VI, p. 6) captures the hallmarks of “polysynthesis:”

- (i) “the elaboration of the word is extreme”
- (ii) “concepts which we should never dream of treating in a subordinate fashion are symbolized by derivational affixes or ‘symbolic’ changes in the radical element”
- (iii) “the more abstract notions, including the syntactic relations, may also be conveyed by the word”

To paraphrase this colorful characterization: polysynthetic languages offload grammatical and semantic functions on changes to the structure of the word, rather than the clause. Where analytic languages add discrete words to convey additional meaning, and synthetic languages inflect individual words with a small number of morphemes, polysynthetic languages are extreme in their ratio of distinct semantic units to individual words.

Another important feature of polysynthesis for Sapir is the fact that syntactic relations are conveyed by a single word (typically, the verb). More so than the extreme use of derivational morphology for adverbial and adjectival modification, argument encoding through morphological modification of the verb has been an especial subject of fascination for linguists studying polysynthesis. Phenomena such as nominal incorporation and elaborate agreement created significant problems for theories of linguistic structure that attempted to treat morphology and syntax as separate modules of the grammar. Some theories, such as Baker (1996), have considered these two

features—noun incorporation and agreement—to be the most important elements of a polysynthetic configuration, to the exclusion of more derivational processes.

Problems with this emphasis on argument encoding in polysynthesis have arisen in light of the fact that languages are not polysynthetic in the same ways (see the discussion in Chapter 2). For example, not all languages with a significant number of morphemes per word display holophrasis or even incorporation; not all languages with subject and object agreement make use of them in the same way, encoding different configurations of argument features (and failing to agree with certain arguments at all). A fundamental question that has emerged from these observations is whether polysynthesis is truly a discrete phenomenon, with a unique underlying motivation, or whether the characterization of languages as polysynthetic simply captures a constellation of entirely unrelated features.

It is impossible to evaluate the changes to the morphosemantic encoding of argument structure in Chukchi without noticing that they have significant implications for polysynthetic morphology. Although Chukchi is not “especially synthetic” in a quantitative sense (derivational morphology is not used as productively as in the neighboring language Yupik, for example) it displays many of the canonical syntactic properties of polysynthesis. Notably, Chukchi displays:

- (i) noun incorporation and other productive verbal derivation
- (ii) modifier incorporation into nominals
- (iii) verbal agreement with the subject and object
- (iv) argument drop

As we have already seen, all of these features have undergone significant changes among recent generations of Chukchi speakers, often changing in compensatory ways that suggest that polysynthesis does, in fact, result from a broader fact about a language’s overall configuration. However, not all of these features have changed at the same rate, or uniformly throughout all word classes in Chukchi, suggesting that a single polysynthesis parameter or “switch” that is flipped on or off is not a viable account of Chukchi morphosyntax.

In this chapter, I discuss the specific ways that these polysynthetic features differ among modern Chukchi speakers, and how differences in the degrees of polysynthesis in nouns and verbs point to two distinct forms of polysynthesis in the language. Much like the other linguistic features we have already considered—inflectional morphology and valency-changing derivation—the overall degree of polysynthesis has not changed uniformly for all speakers, across all of the possible reflexes of a polysynthetic configuration (derivational productivity, agreement marking, argument drop, etc.). However, within the group of attriting speakers, who are proficient enough to produce narratives where we can observe properties of polysynthesis at work, it is clear that they have largely shifted toward a more analytic morphosyntax, if in different ways.

5.2 Changes to the prevalence of argument drop

Like many aspects of Chukchi morphosyntax, the descriptions of the frequency of argument drop have been inconsistent. Unlike noun incorporation and antipassivization, however, these inconsistencies are likely to be the result of differences in data collection and presentation. While Skorik's (1961, 1977) grammar contains numerous sentences with both subjects and objects expressed as free-standing nominals, Dunn's (1999) speakers as well as the ones I interviewed all insist that sentences of this kind are unusual, and markedly Russian-sounding. (Without prompting, one of my consultants—herself an attriting speaker—pulled out a Chukchi children's book written after the publication of Skorik's grammar and painstakingly highlighted how unnatural the syntax was, with an overt subject and object in every single sentence.) However, perceptions about the appropriate extent of argument drop, and the actual use of argument drop, are two different matters: while proficient older speakers used argument drop extensively in narratives collected in this study, some attriting speakers preferred to overtly specify arguments, including pronominal arguments, in most sentences.

Some overt specification of arguments is expected in traditional Chukchi: for example, all non-core arguments are present as free-standing nominals because they are not indexed on the verb.

Core arguments can be expressed overtly when they disambiguate (e.g., where there are multiple 3rd person arguments, or where there are pre-existing syncretisms in the agreement marking), or in cases where they are used for contrastive focus, as in the following example from Dunn (1999: 354):

- (209) gə-nan ø-təmə-tko-nat! qərəm kelə nə-jetə-n!
 2sg-ERG 2sgA-kill-ITER-3plO NEG.FUT spirit.ABS.SG 3sgS.INT-come-3sgS
 ‘It was you that killed them! No spirit came!’ (=‘You were the one that killed them, not a spirit’)

Some attriting speakers make use of overt nominals even when they are redundant (already marked on the verb) and serve no obvious discourse function (such as disambiguation or contrastive focus). In evaluating the relative tendencies of speakers to use argument drop, it is useful to compare similar narratives, where similar information can be taken for granted. This is possible in the case of the cartoon and picture book narratives collected in this study, where speakers are telling stories that are not already familiar to them. This type of task has the advantage of a low contextual load, where specific information about the characters and events is not already in the common ground. The task also prevents speakers from repeating narratives they may have had the opportunity to rehearse or memorize, such as folk tales. Overall, individual speakers’ preferences for using argument drop and overt argument specification vary: proficient older speakers also overtly specify arguments without a clear purpose in the discourse. Such patterns are not ungrammatical; they are simply rare. Still, they are noticeably more frequent in the speech of attriting speakers.

First, we can examine the differences in argument drop between two versions of “The Girl and the Bear,” a story in which a little girl stumbles upon a house in the woods that turns out to be inhabited by a bear. Let us consider excerpts from the beginning of both stories, as told by a proficient speaker and an attriting speaker. Both speakers approached the narratives with the same framing: a little girl is wandering in the woods, sees a house that she decides to explore, and is surprised by the owner of the house, a bear.

(210) “The Girl and the Bear,” as told by a proficient speaker

- a. η ekkeqej umkə-cəku nə-le-jwə-tku-qin, nə-ləgi-teŋəcet-qin
 girl.ABS.SG forest-INNESS HAB-walk-INTS-ITER-3sg HAB-AUTH-enjoy-3sg
 ‘A girl was wandering around in the forest, (she) was enjoying herself immensely’
- b. əmel^ʔo n-ine-gite-jwə-qin
 everything HAB-INV-look.at-INTS-3sg
 ‘(She) was feasting her eyes on everything’
- c. luur waj l^ʔu-nin ottə-ra-ŋə
 suddenly EMPH see-3sgA.3sgO wood-house-ABS.SG
 ‘Suddenly (she) saw a wooden house’
- d. ø-resqik-w^ʔi, ləge taŋə-cgərgen amən=^ʔm ŋen-ku
 3sgS-enter-3sgS INTS INTS-pleasant somehow=EMPH there.PROX-LOC
 ‘(She) went inside, it was incredibly pleasant there somehow’
- e. əmel^ʔo geta-jwə-ŋŋo-nen
 everything look.at-INTS-INCIP-3sgA.3sgO
 ‘(She) started looking over everything’
- f. luur=^ʔm waj l^ʔu-nin etən ənpənacgən kejnən
 suddenly=EMPH EMPH see-3sgA.3sgO owner.ABS.SG old.man.ABS.SG bear.ABS.SG
 ‘Suddenly (she) saw the owner, an old-man-bear’

In the preceding example, instances of argument drop are indicated by the argument enclosed in parentheses in the translation. So far in the story, the only animate agent is ‘the girl’, and it is therefore obvious that ‘the girl’ is the subject of each deliberate action. For this reason, following the initial introduction of ‘the girl’, this speaker does not overtly reference this argument again. The only other overt arguments are new elements being introduced to the story.

After the introduction of the bear, another animate 3rd person argument, the speaker must juggle specifying one or the other argument. She avoids 3rd person pronouns entirely, due to their low degree of informativeness in this case (the use of a 3rd person pronoun does not help to disambiguate between two 3rd person arguments, and only duplicates information already marked on the verb):

(211) “The Girl and the Bear,” as told by a proficient speaker, continued

- a. keɟɟ-e n-ena-mɨəlo-qen, “əncʰam waj ɡət ɨut-ku nə-req-igət?”
 bear-ERG HAB-INV-ask-3sg apparently EMPH 2sg.ABS here-LOC HAB-PROVERB-2sg
 ‘The bear asked (her), “What exactly are **you** doing here?” ’
- b. ge-ləgi-ceɨəttet-lin ɨeekkeqeɟ
 PRF-AUTH-be.scared-3sg girl.ABS.SG
 ‘The girl got very scared’
- c. n-iw-qin, “waj=ʰm n-ine-gite-jgəm gə-nin jaraɨə”
 HAB-say-3sg EMPH=EMPH HAB-INV-look.at-1sg 2sg-POSS house.ABS.SG
 ‘(She) said, “Well (I) was just looking around your house!” ’
- d. “...wəne am waj qə-teɨətwij-gə-n gəm-nin jaraɨə”
 INTJ INTJ EMPH 2A.INT-tidy-TH-3sgO 1sg-POSS house.ABS.SG
 ‘ “Well then, how about (you) tidy up my house?” ’

In (211a), the speaker specifies that ‘the bear’ is the one who asks the question, but does not redundantly state that he asks the girl. ‘The girl’ is reintroduced in (211b), to make clear who is scared, and then ‘the girl’ is understood to be the subject of the following sentence and is not explicitly mentioned again. The speaker also avoids the use of 1st and 2nd person pronouns while reporting the characters’ conversation, except in (211a), where the use of the redundant 2sg pronoun is likely for emphasis, to convey the bear’s surprise at finding the girl in his house.

The attriting speaker’s narrative for this same part of the story is similar. She also makes use of argument drop (to avoid repeatedly referencing the sole animate argument, ‘the girl’), but not as consistently as the first speaker:

(212) “The Girl and the Bear,” as told by an attriting speaker

- a. qol g-it-lin nə-ppelu-qin ɨeekkeqeɟ nota-gtə ø-ekwetə-gʰi
 one PRF-COP-3sg ADJ-small-3sg girl.ABS.SG tundra-ALL 3sgS-depart-3sgS
 ‘Once upon a time, a small girl set out toward the tundra’
- b. luur ə-nan 1ʰu-nin miɨkəri wa-1ʰ-ən jara-qaj
 suddenly 3sg-ERG see-3sgA.3sgO some COP-PART-ABS.SG house-DIM
 ‘Suddenly **she** saw some kind of little house’

- c. ...n-iw-qin “itəkewən jur[?]e meŋin ən-kə wak[?]o-twa-rkə-n?”
 HAB-say-3sg actually maybe someone there(unspec.)-LOC sit-COP-PROG-3sgS
 ‘(She) said, “Actually, maybe someone is living there” ’
- d. ...ənq[?]om=[?]m ətlon ø-ik-w[?]i “am opopə mə-j[?]o-g[?]an
 then=EMPH 3sg.ABS 3sgS-say-3sgS well let.it.be 1sgA.INT-approach-3sgO.INT
 ənqen jara-qaj”
 this house-DIM
 ‘Then **she** said, “Well fine, (I) will visit this little house” ’

Although every action taken in the narrative so far is unambiguously done by ‘the girl’, this speaker uses 3rd person pronouns on multiple occasions, where they do not serve to disambiguate between different possible actors and cannot be emphatic. She continues to use 3rd person pronouns after ‘the bear’ appears, even though they similarly do not contribute meaning (pragmatic or otherwise) to the discourse:

(213) “The Girl and the Bear,” as told by an attriting speaker, continued

- a. ...ənq[?]om=[?]m luur=[?]m ə-nan keŋŋən l[?]u-nin
 then=EMPH suddenly=EMPH 3sg-ERG bear.ABS.SG see-3sgA.3sgO
 ‘Then suddenly **she** saw a bear’
- b. ətlon=[?]m keŋŋ-e ge-piri-lin ŋeekkeqej
 3sg.ABS=EMPH bear-ERG PRF-take-3sg girl.ABS.SG
 ‘The bear grabbed **her**, the girl’
- c. n-iw-qin, “kita qun qa-jet-gi gəm-əkagtə, waj,
 HAB-say-3sg INTJ INTJ 2S.INT-come-2S.INT 1sg-DAT here
 mə-nu-g[?]en gət”
 1sgA.INT-eat-3sgO.INT 2sg.ABS
 ‘(He) said, “Now why don’t you come to me, here, I will eat **you!**” ’

This speaker uses both 3rd person pronouns and lexical nouns, but while distinguishing between ‘the bear’ and ‘the girl’ with case marking serves a function in identifying who has what role in the clause, the 3rd person pronoun typically does not aid in this disambiguation. This is especially true in (213b), where the absolutive pronoun doubles the use of ‘the girl’, which is already overtly-specified.

We can also compare how two different speakers approached telling a shorter story about a series of 4 pictures, in which a boy goes fishing with his dog and almost drowns. Once more the attriting speaker differs from the more confident older speaker by making no use of argument drop, even in cases where the arguments are understood from context.

(214) “The Dog Story,” as told by an attriting speaker

- a. η in η ej qəmek ø-pəlqet-g^ʔi
 boy.ABS.SG almost 3sgS-drown-3sgS
 ‘The boy almost drowned’
- b. η in η ej ga-gto-len ə^ʔtt^ʔ-e
 boy.ABS.SG PRF-pull.out-3sg dog-ERG
 ‘The dog pulled the boy out’
- c. η in η ej qəmek nə-pəlqet-qin, ə^ʔtt^ʔ-e ga-j^ʔo-len η in η ej
 boy.ABS.SG almost HAB-drown-3sg dog-ERG PRF-reach-3sg boy.ABS.SG
 ‘The boy almost drowned, the dog reached the boy’

This speaker uses an overt subject and object in every clause, even though there are only two characters throughout the short narrative, and it would be obvious that ‘the boy’ is the one being saved. A more-proficient speaker made greater use of argument drop (while also displaying more morphological and lexical diversity in constructing his story):

(215) “The Dog Story,” as told by a proficient speaker

- a. η in η ej ø-a^ʔnelosqek-w^ʔe g-^ʔətt^ʔə-ma
 boy.ABS.SG 3sgS-go.fishing-3sgS ASS-dog-ASS
 ‘A boy went fishing along with a dog’
- b. ə^ʔtwə-cəku ø-wak^ʔo-g^ʔe
 boat-INESS 3sgS-sit-3sgS
 ‘(He) sat in a boat’
- c. η an ə^ʔtwə-qej ø-atcat-g^ʔe, η in η ej ø-pəlqet-g^ʔi
 that boat-DIM 3sgS-flip-3sgS boy.ABS.SG 3sgS-fell.into.water-3sgS
 ‘That little boat flipped upside down, the boy fell in the water’
- d. ə^ʔtt^ʔ-e jəto-nen
 dog-ERG pull.out-3sgA.3sgO

‘The dog pulled (him) out’

- e. loŋ-rakwaca-ta ø-it-g^ʔi
NEG-perish-NEG 3sgS-AUX-3sgS
‘(He) did not perish’

Throughout this narrative, this speaker drops ‘the boy’ whenever there is little possibility that the dropped argument could be misinterpreted as one of the other 3rd person arguments, such as ‘dog’ or ‘boat’.

There are some reasons why speakers might overuse overt arguments that are not necessarily evidence of a major structural reconfiguration: for both attriting speakers and proficient speakers, the use of a redundant overt argument can serve as a moment for utterance planning. One attriting speaker, for example, began her rendition of “The Dog Story” with frequent uses of ‘the boy’ while she worked out what she was going to say, but the use of overt arguments tapers off once she seems to settle on the narrative. When this same speaker told another story immediately following telling “The Dog Story,” after she had been using Chukchi with me for close to an hour, she was far more likely to drop arguments as expected from the traditional descriptions of the language.

Nevertheless, the baseline difference between proficient and attriting speakers is telling, and indicates that argument drop is a dimension of the grammar that is harder to access for them. For some attriting speakers (like the one whose rendition of “The Girl and the Bear” we examined above), the overuse of overt pronouns is an entrenched tendency in her grammar, and does not change across time or with different subject matter. Consider this excerpt from a later portion of this speaker’s telling of “Little Polar Bear:”

(216) “Little Polar Bear,” as told by an attriting speaker

- a. qol ø-it-g^ʔet umkə-cəku wa-ma l^ʔu-ninet ipe miŋkəri
one 3plS-COP-3plS forest-INNESS COP-SEQ.CVB see-3sgA.3plO any which
wal^ʔ-ət qənur wət-wət-ti... naqam ətri qənur q^ʔəmə-t
kind-ABS.PL as.if flower-ABS.PL besides 3pl.ABS as.if worm-ABS.PL
nə-twa-qenat
HAB-COP-3pl

‘Once upon a time, while in the forest, (they) saw all kinds, (they) were like flowers,
and **they** were also like worms’

- b. ipe miŋkə nə-le-jwə-tku-qinet ətri naqam umqə-qej cinit-kin
any which HAB-walk-INTS-ITER-3pl 3pl.ABS besides polar.bear-DIM own-REL
ətɫ²a
mother.ABS.SG

‘**They** walked all over, the polar bear and his own mother’

- c. ...qeloq=²m ətlon nə-teŋ-qin ən-əkagtə
because=EMPH 3sg.ABS HAB-good-3sg 3sg-DAT

‘Because **she** was good to him’

This speaker overuses overt 3rd person pronouns at a rate comparable to what we saw in examples (212) and (213), in cases where they do not have an obvious emphatic function and do not help to differentiate between arguments.

5.2.1 The alternative: strong maintenance of core case marking

One of the factors that is likely driving the reliance on overt arguments in structuring discourse for these speakers is that they display some instability in agreement marking, across both the active paradigms and the relatively less morphologically complex stative paradigms (see Chapter 3). The attriting speaker who shows the strongest tendency to use overt 3rd person pronouns also displays a high degree of confusion between different 3rd person agreement suffixes, frequently swapping *-nin* (used in 3sg > 3sg combinations), *-net* (a 3plO agreement marker), and *-ninet* (used only for 3sg > 3pl combinations), or mixing agreement markers from different paradigms entirely:

- (217) nə-ppəlu-qin umqə-qej ətla-ga reen tite waj miŋkəri
ADJ-small-3sg polar.bear-DIM.ABS.SG mother-LOC together when EMPH somewhere
ø-re-lqən-ninet (expected: ø-re-lqətə-ŋə-t)
3plS-FUT-go-3sgA.3sgO 3plS-FUT-go-TH-3plS
‘A small polar bear together with his mother are going somewhere at some point’

- (218) tite waj etlə ə-nan **nə-l²u-net** ənŋin wal²-ət utt-ət
when EMPH NEG 3sg-ERG 3sgA.INT-see-3plO such kind-ABS.PL tree-ABS.PL
(expected: nə-l²u-ninet)
3sgA.INT-see-3sgA.3plO

‘He had never seen such trees’

In these cases, the use of a seemingly unnecessary overt argument coincides with issues in agreement marking. This is also the case with a redundant 2nd person pronoun in an example we considered earlier:

- (219) n-iw-qin, “kita qun qa-jet-gi gəm-əkagtə, waj, mə-nu-gʔen
HAB-say-3sg INTJ INTJ 2S.INT-come-2S.INT 1sg-DAT here 1sgA.INT-eat-3sgO.INT
gət” (expected: mə-nu-gət)
2sg.ABS 1sgA.INT-eat-2sgO
‘(He) said, “Now why don’t you come to me, here, I will eat you!” ’

This speaker used a 3rd person object agreement marker in place of a 2nd person one, which may have motivated the use of stand-alone *gət* ‘you’.

Thus, the rise in overt argument specification could be seen as a way to offload argument encoding on morphologically discrete nominals, instead of via agreement marking (a change that is categorically a move away from polysynthesis, in the sense defined by Jelinek 1984 and Baker 1996). The flux in argument marking could in turn explain why the ergative-absolutive core case marking pattern is so robust among almost all of the remaining speakers, where we might have expected it to be susceptible to reanalysis due to Russian interference. (Recall that ergative case is overall a marginal areal pattern in Siberia, only attested in one neighboring language family, Yupik, but absent from other languages and families in the area, such as Turkic, Tungusic, and Yukaghir).

5.3 Derivational productivity

Another canonical feature of polysynthesis that is changing in modern Chukchi is the overall degree of derivational productivity, i.e., the number of morphemes per word. We have already seen evidence of a loss of productivity in certain valency-changing phenomena (especially antipassivization and noun incorporation); however, a decrease in synthetic morphology is seen among attriting speakers throughout their language, in nouns and verbs. In this section, I discuss the differences

between attriting and proficient speakers in their use of derivational morphology, modifier incorporation, and non-finite verb forms relative to more analytic alternatives.

5.3.1 Analytic phenomena in traditional Chukchi

It is important to first note that, traditionally, Chukchi does not display the same degree of derivational productivity seen in languages such as the Yupik-Inuit languages, which are renowned for their exceptionally long words. Chukchi makes significant use of analytic forms, especially in expressing adverbial modification, which is frequently done through the use of particles. In fact, many of these particles were borrowed into Siberian Yupik, which previously reflected such modification through subordinating morphology. These borrowings contributed to making Siberian Yupik varieties in contact with Chukchi less polysynthetic compared with Yupik spoken in Alaska (Comrie 1996).

Among the phenomena that are expressed analytically in Chukchi is negation, which is done in one of two ways: (i) through the use of a particle and an inflected verb (in the intentional mood), or (ii) through the formation of uninflecting derivations with a negative circumfix, which produces a verb base that can be used with or without an inflected auxiliary verb with the appropriate TAM and agreement marking (Dunn 1999: 325). Both of these types of negation are attested among attriting and proficient speakers, though attriting speakers show a modest tendency toward using the latter, the negated verb base without an associated auxiliary. This difference is illustrated by (220a), a typical construction using an auxiliary, and (220b-c), where the negated verb stem occurs without an auxiliary.

(220) Derivational negation among different speakers

- a. loŋ-rakwaca-ta ø-it-g^ʔi
NEG-perish-NEG 3sgS-AUX-3sgS
'(He) did not perish' (Proficient speaker, using an inflected auxiliary verb)
- b. mikəne luŋ-əlqet-e jaaleŋ-qaca-gtə
someone NEG-go-NEG back-near-ALL
'No one went back' (Attriting speaker, using a verb base without an inflected auxiliary)

- c. “əŋŋe gəm e-nu-ke!” n-iw-qin
 NEG.HORT 1sg.ABS NEG-eat-NEG HAB-say-3sg
 ‘“Don’t eat me!” she said’ (Attriting speaker using a negative imperative)

All of the examples given in (220) are technically acceptable in the traditional language; however, in Dunn’s data, it is far more common to drop an inflected auxiliary with imperative uses of negation or where the verb base is understood to have a nominal meaning. Thus, (220c) is completely consistent with the traditional language, but (220b) may be infelicitous to more conservative speakers. This data points to the possibility that, although this is an analytic pattern to begin with, attriting speakers have found a way to reduce the overall degree of morphologically complexity by eliminating the synthetic, fully inflected auxiliary verb in places where it would be expected in the traditional language.

5.3.2 Differences in the use of productive derivational morphology

All of the remaining speakers who can use the language fluidly enough to hold conversations and construct narratives continue to make use of a range of productive derivational morphemes, in both nouns and verbs. The differences lie in both the degree of derivational synthesis (how many derivational affixes a speaker will use in a single word), and the range of affixes that make up a speaker’s repertoire. Attriting speakers exhibit a contraction across both metrics: they make use of fewer distinct derivational morphemes, and avoid using multiple derivational morphemes together at once.

Attriting speakers also seem to converge on which derivational markers they do continue to use. For example, in verbs, most attriting speakers use the iterative marker *-tku* and the incipient marker *-ŋŋo*. In nouns, they maintain use of the diminutive *-qej* and the augmentative *-jŋ*, as well as certain spatial relations, notably the inessive *-cəku* and the superessive *-tkən*. Morphemes that have an emphatic or intensificational function (*-ləgi* and *teŋ-*, which are used to mean ‘really’ and ‘very’, respectively) are especially well-preserved among attriting speakers—this pattern is expected, since semantically salient or intense features are often learned quickly and subsequently

maintained by less-proficient speakers. Nevertheless, when attriting speakers use these affixes, they tend to be the only derivational marker in the word, which may indicate that these are actually collocations, rather than productive applications of the derivational morphology. The following are several typical examples of derivational modification among attriting speakers, making use of a small repertoire of morphemes.

- (221) a. \emptyset -peqetatə-**ŋŋo**-g^ʔe aŋqa-gtə
 3sgS-fall-INCIP-3sgS sea-ALL
 ‘(He) started to fall toward the sea’
- b. əŋŋin waj ətlon məmlə-**cəku teŋ**-u^ʔre ga-twa-len
 in.this.way here 3sg.ABS water-INESS INTS-long PRF-COP-3sg
 ‘He was in the water like this for a very long time’
- c. əŋqen... meŋin=^ʔm qənur=^ʔm qora-**jŋ**-ən ən-əkagtə qənut
 this someone=EMPH as.if=EMPH reindeer-AUG-ABS.SG 3sg-DAT as.if
 ətl^ʔa \emptyset -n^ʔel-g^ʔi
 mother.ABS.SG 3sgS-become-3sgS
 ‘This someone who was like an enormous reindeer became like a mother to him’

It is important to note that although these speakers may tend toward using derivational morphology in a limited capacity, and even if these forms are ones they may have been more likely to learn as collocations, they are nevertheless using them in semantically appropriate contexts, and show signs of distinguishing between minimal pairs that have the relevant derivational marker and those that do not. For example, in (221c), the speaker was trying to find a way to describe a hippopotamus from the “Little Polar Bear” picture book, and settled on ‘enormous reindeer’. Clearly this speaker distinguishes between a gargantuan reindeer and a normally-sized reindeer (one of the most common subjects of discussion in Chukchi discourse), and is using this morphology productively as needed. (Evidence that attriting speakers maintain productive use of other derivational morphology has already been discussed at length, in Chapter 4.)

When attriting speakers do make use a multiple derivational markers in a single word, they often redundantly mark (or intensify) the same meaning, so that the overall number of distinct semantic units per word does not change:

(222) ...rintə-nin m[?]e-gənnik-qej e[?]rənw-epə
 throw.out-3sgA.3sgO small-animal-DIM.ABS.SG crossing-ABL
 ‘(He) threw the small animal from the bridge’

(223) ɲeekkeqej ləgi-nə-teŋ-qin
 girl.ABS.SG AUTH-ADJ-good-3sg
 ‘The girl was truly good’

In (222), *gənnik-* ‘animal’ is doubly-modified by derivational markers referring to its small size (the diminutive and the adjective, ‘small’). Similarly, in (223), the adjective *teŋ-* ‘good’, itself already conveying an emphatic meaning, is being reinforced by the authentic emphatic marker *ləgi-*.

More-proficient attriting speakers and conservative speakers, meanwhile, display a much greater degree of derivational complexity, effortlessly using multiple derivational morphemes per word. As in the case of attriting speakers, affixes are often added for the purpose of intensification:

(224) a. ø-ləgi-teŋə-twi-g[?]i ənpənasgən-en jarəŋə
 3sgS-AUTH-good-COP-3sgS old.man-POSS house.ABS.SG
 ‘The old man’s house became exceptionally nice’

b. ləgi-taŋ-raqə-lqəl èlektrotexnika! ləgi-teŋ-qərəm mə-jetə-k
 AUTH-INTS-what.for-NMLZ electrotechnics AUTH-INTS-never 1sgS.INT-come-1sgS
 ɲotqen-urok-etə
 this-class-ALL
 ‘Electrotechnics is completely unnecessary! I will absolutely never come to this class!’

Still, overall, these speakers display more variety in their derivational morphology, and use highly synthetic words with greater frequency:

(225) ənqorə taŋ-əm[?]-əloŋet mət-gici-g[?]en... ənqorə wolkə-twe-ŋŋo-k
 then INTS-all-day.ABS.SG 1plA-collect-3sgO then evening-COP-INCIP-INF
 mətə-numekewə-n
 1plA-gather.up-3sgO
 ‘Then we collected (the herd) for the entire day...we gathered (it) up before the evening’¹

¹This example comes from a very skilled attriting speaker; even these more synthetic forms may also be collocations, in particular ‘before evening’, which appears in its entirety in dictionaries.

- (226) Klokalgən ətri... Celg[?]oon[?]əlgə-**qaj** elgə-wək wəlgə-**qaj-ətkən-ək**,
 wolfberry.ABS.SG 3pl.ABS lingonberry-DIM.ABS.SG white-rock-DIM-on.top-LOC
 ø-tejkek-w[?]et
 3plS-struggle-3plS
 ‘Wolfberry together with Little Lingonberry struggled on top of a little white rock’
- (227) tə-jetə-k Anadər-etə... **emre-kelitku-sqew-ə** ɲaanqen
 1sgS-come-1sgS Anadyr-ALL in.order.to-study-in.order.to-TH there.DIST
 ‘I came to Anadyr in order to go study all the way over there (in St. Petersburg)’

5.3.3 Modifier incorporation vs. predicative modification

Another difference that points to a shift away from polysynthesis among attriting speakers is their preference for predicative modification with a free adjective over modification via incorporation. Both types of modification are grammatical and both are used by attriting and highly proficient speakers; the difference lies again in frequency and context of use.

In the traditional language, modification through incorporation vs. via an inflected free adjective is tightly constrained, with limited optionality of use. A table from Dunn (1999: 291), adapted here as 5.1, sums up the distribution among proficient speakers

	Attributive Function	Predicative Function
Incorporated Adjective	Yes	No
Free Adjective	Absolutive NPs only	

Table 5.1: Adjectival modification possibilities

Adjectives can be incorporated in both absolutive and non-absolutive-marked nominals; in fact, incorporation of modifiers is required in non-absolutives. Incorporated modifiers can only be used attributively. Free adjectives, which can only be used with absolutive arguments, are formed in the same way as habitual tense verbs (with prefix *n-* and one of the same set of agreement suffixes). They can be used either attributively or predicatively. Modifier incorporation in absolutives is preferred for entities with low discourse salience.

Both the proficient and attriting speakers in this study produced completely grammatical adjectival constructions: none of the attriting speakers, for example, used a free adjective to modify

non-absolute arguments. This suggests that these speakers have acquired the rules that strictly govern the distribution of these forms, and they have not innovated a different system. However, attriting speakers tend to avoid modifier incorporation in favor of the use of free adjectives, focusing arguments they wish to modify as absolute subjects of predicative adjectives in separate clauses. For example, in the following sentence an attriting speaker is describing a creature in the “Little Polar Bear” story by describing how large its different body parts are, but does so through the addition of separate clauses:

- (228) *rʰanuta-jŋ-ən* *waam-cəko-jpə* *ø-pinretku-gʰi*, *naqam ə-nin*
 something-AUG-ABS.SG water-INESS-ABL 3sgS-jump-3sgS besides 3sg-POSS
jəkərgən ***nə-ləgi-nə-mejŋə-qin***, *cama wannə-jŋ-ət* ***nə-mejŋə-qinet***
 jaw.ABS.SG ADJ-AUTH-ADJ-big-3sg also tooth-AUG-ABS.PL ADJ-big-3pl
 ‘Some giant thing jumped out of the water, and his jaw was enormous, and also his teeth were big’

This separate isolation of body parts for predicative modification by the same adjective is striking, given that body parts are often referred to with the use of an associative case (which in turn means that they are not often promoted to the important discourse role occupied by the absolute). We can also compare this type of sentence with several offered by a proficient speaker sharing a folktale, in which a rabbit and seal take turns insulting one another. The following is an excerpt from how the rabbit describes the seal:

- (229) ***taqamanʰelgə-lawtə-qaj***, *guʰa!* ***təkgə-ləla-ŋaw-qaj***, *guʰa!*
 leather.tub-head-DIM.ABS.SG bulging-eye-F.NMLZ-DIM.ABS.SG
titin-pətku-lelu-qej, *guʰa!* ***əʰpʰə-gətka-ŋaw-qaj***, *guʰa!*
 needle-poke-whisker-DIM.ABS.SG flipper-foot-F.NMLZ-DIM.ABS.SG
 ‘Head like a leather tub, guʰa! Bulging-eyed-one, guʰa! With sharp whiskers like needles, guʰa! With flipper feet, guʰa!’ (*Guʰa* is a mocking noise without a clear translation.)

Of course, this is an example from a folktale that this speaker may have told many times before, and had likely selected to showcase Chukchi’s compounding potential, but it nevertheless highlights a far more synthetic approach to the description of body parts than the strategy in (228).

Attriting speakers also tend to use free adjectives attributively more often than proficient speakers, especially to modify syntactic object arguments:

- (230) *kejɲ-e ipemiŋkəri wal¹-ət nə-teŋ-qinet nə-caca-qenat* n-ine-tejkə-qinet
 bear-ERG different kind-ABS.PL ADJ-good-3pl ADJ-tasty-3pl HAB-INV-make-3pl
 ‘The bear made different good and tasty things (=things, they were good and tasty)’

In a very similar sentence produced by a proficient speaker telling this same part of the story, she instead uses incorporation to qualify the object of ‘make’:

- (231) *ənpənacge-ta tajkə-ŋŋo-nen qəre-wətrət*
 old.man-ERG make-INCIP-3sgA.3sgO bread-something.like.ABS.SG
 ‘The old man started making a bread-like thing’

There is another minimal pair that captures the difference between these two speakers’ willingness to incorporate modifiers. Both speakers describe the little girl trying to make the bear’s house more beautiful; the attriting speaker describes what the little girl does and that the result is the house being beautiful (through a separate, predicative use of a free nominal) while the proficient speaker describes the little girl as setting out beautiful things:

- (232) a. *naqam əmel¹o nə-tampera-qen kejɲ-ək jara-cəko*
 for everything ADJ-beautiful-3sg bear-LOC house-INESS
 ‘For everything was beautiful in the bear’s house’ (Attriting speaker sentence)
- b. *ətə¹əm waj kejɲən er¹acgən, əmə tampera-təŋec¹-ət rətril-ninet*
 maybe here bear.ABS.SG unhappy and beautiful-flower-ABS.PL put.out-3sgA.3plO
 ‘Maybe the bear was unhappy, and so (the girl) set out beautiful flowers’ (Proficient speaker sentence)

The avoidance of modifier incorporation is a strong tendency for this particular attriting speaker, who consistently tacks on a separate clause to describe a preceding argument. We can see this tendency in another example involving the same adjective, *tampera* ‘beautiful’:

- (233) *naqam nota-cəko ge-le-linet, naqam nə-tampera-qen nutenut*
 meanwhile forest-INESS PRF-walk-3pl meanwhile ADJ-beautiful-3sg forest.ABS.SG
 ‘Meanwhile they walked within the forest, and meanwhile the forest was beautiful’

The effect of the repeated use of free inflected adjectives is to isolate individual arguments as important, since they become the new absolutive-marked focus of the clause. It is not clear that this pragmatic effect is intended by this speaker: she may just disprefer most synthetic modification. Still, the syntactic effect of using these workarounds to avoid incorporation is an overall greater number of analytic constructions, and a decrease in the degree of derivational complexity.

As it turns out, modification of locative arguments, such as the one in (233), is the primary domain where attriting speakers (including the one who produced (233)) do maintain clear modifier incorporation:

- (234) a. melotalgə-qaj-a rəcimg^ʔuw-nin piŋku-cit-e **qole**-e^ʔrənw-ək
 rabbit-DIM-ERG propose-3sgA.3sgO hop-ADVERS-INST other-bridge-LOC
 n^ʔelə-k
 end.up-INF
 ‘The little rabbit proposed they end up on the other (side of the) bridge by hopping past each other’
- b. ŋeekkeqeɟ ləgen nə-jəlqet-qin **om**-jara-cəko
 girl.ABS.SG just HAB-sleep-3sg warm-house-INESS
 ‘The girl just slept inside the warm house’

Whether these differences in adjectival incorporation between attriting speakers and proficient speakers represent a robust generalization is a subject for future, in-depth investigation. It is not clear, for example, why attriting speakers might prefer to incorporate modifiers in locatives: perhaps it is because this is a syntactic domain where they are used to derivational complexity (the locative marker is frequently combined with more specific spatial affixes). Perhaps the particular locative complexes they produced are collocations. It is also possible that they have forgotten some of the strict rules regarding modifier incorporation: they may know that incorporation is expected under certain circumstances, but they may not be certain in which, so they only incorporate in non-core arguments and use predicate modification elsewhere.

What is apparent, however, is that as in the case of noun incorporation, attriting speakers are presently less attuned to the pragmatically-motivated forms of synthesis in the traditional language.

5.3.4 Use of non-finite morphosyntax

Converbs

Chukchi has several non-finite constructions used in the expression of subordinating syntactic concepts. These include converbs (Haspelmath and König 1995), which are formed through the suffixation of a derivational marker to a verb stem to mark adverbial subordination. Several converb affixes are described by both Skorik (1977: 126-166) and Dunn (1999: 240-241):

(235) Converbs in traditional Chukchi

- a. *-k*: marks an anterior clause (simple temporal sequence; ‘after V’) [homophonous with the infinitive]
- b. *-(i)neŋu*: marks an anterior clause (implies a relationship between two events, ‘only after V’)
- c. *-ma*: marks a simultaneous clause (‘while V’)
- d. *-(t)e*: marks a causal clause (‘by means of V’) [homophonous with instrumental case]
- e. *-jpə/-epə*: marks the cause for the initiation of the main clause (‘because of V’) [homophonous with ablative case]
- f. *-nwə*: marks a purposive clause (supine, ‘in order to V’)

Many of these converbs are attested among the more-proficient speakers in this corpus, particularly the simultaneous converb, *-ma*, and the sequential converb, *-k*:

(236) ...qora-gənretə-l¹-ət t¹arəltan-**ma** neməqej ŋalwəl¹-epə nə-lejw-igəm
reindeer-herd-PART-ABS.PL lack-SIM.CVB also herd-ABL HAB-go-1sg
‘When the reindeer herders were lacking, I would also go out with the herd’²

(237) luut n-¹ejŋekw-(ig)əm v okrRONO... kətəkət-ək, kaletko-plətko-ŋŋo-**k**
suddenly HAB-summon-1sg to okrRONO spring-LOC study-finish-INCIP-SEQ.CVB

²It is unclear why the speaker used the ablative case here; she may have misspoken or this may be an error.

‘Suddenly I was summoned to OkrRONO, in the spring, after (students) were starting to finish studying’,³

Subordination strategies are known to be avoided by heritage speakers of majority languages (Polinsky 2018: 47), who may find them too cognitively taxing to integrate into their utterance planning. Subordination has also been shown to be affected by language contact in situations of shift, including in other languages in contact with Russian (Grenoble 2000). Some speakers of Evenki, a Tungusic language that makes use of converbs much like Chukchi, have shifted away from converbs and have begun using Russian subordinating conjunctions, with or without converb marking. In the following example, both the Russian adverb *posle* ‘after’ and the Evenki anterior converb are used by the speaker:

- (238) **posle** əmə-xə: **kak-to** **tizalo večer-om** o:ran
after come-ANT.CVB somehow hard evening-R.INST became
‘After coming [home], it was rather difficult in the evening.’ (Grenoble 2000: 118, Russian words given in boldface)

This is a clear example of an analytic construction being borrowed to replace, or at least support, a synthetic construction. The situation in present-day Chukchi is less clearly the result of Russian contact effects, however. As noted in section 5.3.1, Chukchi has a wealth of adverbial particles and conjunctions, which can be used in forming subordinate clauses. Here again we find that attriting speakers have not developed new ways of expressing synthetic constructions; rather, they show a preference for using the existing analytic resources in the language to avoid synthetic constructions. Common conjunctions used in the expression of sequential or causally-related clauses are *ənk^ʔam* ‘and’, *cama* ‘likewise’, *naqam* ‘for/however’, and *ənq^ʔom* ‘and then’, and *qeluq* ‘because’. In many cases, speakers avoid constructing subordinate clauses of any type, simply conjoining separate clauses (rather than relating them overtly), as in the following example:

³*OkrRONO* is an abbreviation for one of the educational bureaus in Chukotka, at the time this speaker was a teacher.

- (239) keɟɟə-jara-cəko əmel¹o ipemɪŋkə nə-twa-qen **cama** uun[?]-ət ləgen
 bear-house-INNESS everything everywhere HAB-COP-3sg **also** berry-ABS.PL just
 polə-tkən nə-twa-qenat
 floor-on.top HAB-COP-3pl
 ‘Inside the bear house everything was all over the place, also the berries were just lying on
 the floor’

Even more-proficient attriting speakers who do make use of converbs sometimes reinforce them with conjunction (not unlike the Evenki example above):

- (240) ənqorə anelolqew-kə mət-l¹u-g[?]en keɟɟən
then go.fishing-SEQ.CVB 1plA-see-3sgO bear.ABS.SG
 ‘Then, after going fishing, we saw a bear’

A shift away from using converbs may be a change that predates the onset of heavy attrition (or, like incorporation and antipassivization, may have always varied regionally). Although Skorik (1977) gives a very robust list of converbs and other non-inflecting verb bases, Dunn (1999) reports that his Telqep consultants only made use of (235a-c), and that his speakers preferred to express causal and purposive relations between clauses using separate adverbials with a finite clause (e.g., using *qeluuq* ‘because/due to’ and *ənqorə* ‘then’). This is true of most of the proficient speakers in my corpus as well, although I did not elicit judgments about converbs and can only report on tendencies in production, rather than stated preferences.

Participles

Another type of non-finite clause which is used much more regularly by proficient speakers is participles, which can either function attributively (like relative clauses) or predicatively, where they occur without a finite verb (i.e., without a copula). Both types of speakers can easily form 3rd person participles (and they can be easily elicited from them), but attriting speakers use them less often in spontaneous narratives. Two attriting speakers did not produce any participles without direct elicitation; one only produced a *-jo* participle, which is a highly salient part of the participle system, as it only ever has one function (to form a positive passive participle):

- (241) n-ine-nrə-qin ənqen w[?]eje-tejkə-jo-ø orawetl[?]a-qaj
 HAB-INV-hold-3sg this **grass-make-PASS.PART-ABS.SG** person-DIM.ABS.SG
 ‘(The girl) held this little person who was made using grass’ (referring to a doll)

Meanwhile, the speakers of the highly conservative group, as well as more-proficient attriting speakers, made use of a range of participles spanning the entire system, including positive active participles, as well as negative active and passive participles using *l[?]-*, which, recall from Chapter 4, always pick out the absolutive argument of the verb. Active transitive participles did not occur spontaneously in narratives, although one proficient speaker used them without direct elicitation in the production task. The following examples from higher-proficiency speakers illustrate the full range of the *l[?]-* participles:

- (242) a. **təttu-tku-l[?]-ən** wət-wət-etə kətəjgən
blow-ANTIP-PART-ABS.SG branch-ALL wind.ABS.SG
 ‘The wind that blows the branches’ (Positive active transitive participle, with obligatory antipassivization)
- b. **jəlqə-qola-l[?]-ən** ə[?]tt[?]ə-qej, etlə
sleep-howl-PART-ABS.SG dog-DIM.ABS.SG NEG
e-n[?]egtelew-kə-l[?]-in
NEG-leave.alive-NEG-PART-ABS.SG
 ‘A little dog who howls in its sleep is not left alive’ (Positive active intransitive participle & negative passive participle)
- c. murg-in ətlew[?]jo-qag-te qənut ləgen ə[?]tt[?]-ət,
 1pl-POSS grandchild-DIM-ABS.PL as.if just dog-ABS.PL
 nə-walom-qenat=[?]m ətr[?]ec, **a-wetgaw-kə-l[?]-enat**
 HAB-understand-3pl=EMPH only **NEG-speak-NEG-PART-ABS.PL**
 ‘Our little grandchildren are just like dogs, they only understand, without speaking’
 (Negative active intransitive participle)

Non-3rd person participles only occurred among highly proficient speakers in this study, which does not necessarily indicate anything about whether they have been acquired by attriting speakers, but is suggestive of their overall degree of ready accessibility. In this corpus, non-3rd nominal agreement occurs predominantly when the nominal is used predicatively:

- (243) a. η ewəcqet-**igəm** qel[?]uq=[?]m
 woman-1sg.ABS because=EMPH
 ‘I am a woman, after all’ (Noun with 1sg inflection)
- b. rəmŋələw-nen gəm mik-**igəm** nə[?]r... miŋke-kine-**igəm**
 ask-3sgA.3sgO 1sg.ABS who-1sg.ABS where where-REL-1sg.ABS
 ‘(He) asked, who am I, where am I from?’ (Pronouns with 1sg inflection)
- c. nə-req-igət, mal-pə[?]nne-twa-1[?]-**egət**
 HAB-PROVERB-2sg as.if-sad-COP-PART-2sg.ABS
 ‘What are you doing? You are like one who is sad’ (Participle with 2sg inflection)

Inflection of simple lexical nouns, especially in the 1st person like we find in (243a), is well preserved among all speakers. The following example comes from an L2 learner giving his name, which can optionally exhibit 1sg agreement when used as a predicate:

- (244) gəm Rult-igəm Vladimira-jgəm
 1sg.ABS Rultyn-1sg Vladimir-1sg
 ‘I am Vladimir Rultyn’

Ultimately, the low incidence of converbs and participles in the speech of some (mainly less-proficient speakers) may indeed just be the result of the inherent difficulty these speakers have with subordination, rather than the morphological particulars about these forms. That is, this is a fact about the syntax of subordination, rather than the morphology-syntax interface that determines whether adverbial concepts are expressed morphologically or analytically.

While these patterns may come about as a result of attriting speakers’ difficulty with using subordination, the avoidance of non-finite clauses by no means results in simpler morphology; instead of converbs and participles, which exhibit either no agreement marking or simpler agreement marking, these speakers opt for fully-inflected finite verbs. Thus, these patterns are another example of how attriting speakers do not necessarily display a “reduced” system.

5.3.5 Other emergent analytic phenomena

The differences in the ways that speakers use the synthetic derivational morphology discussed in this section so far can plausibly be explained as a matter of personal preference. Preferences

for particles and free modifiers vs. derivational affixation can be seen as speakers making use of the available, entirely grammatical patterns they have acquired in the traditional language, but at moderately different rates. Not all proficient speakers use all of the synthetic patterns discussed above: for example, one of the highly proficient speakers happened not to make use of any converbs in any of her production data. Similarly, one of the attriting speakers seemed to studiously avoid analytic constructions and produced highly synthetic patterns, including incorporated modifiers, participles, and other kinds of nominal derivation.

In this section, we turn to phenomena that are analytic in ways that would likely not be deemed acceptable in the traditional language. Broadly, these patterns are grouped by a tendency for less-proficient speakers to underscore specificity or definiteness through the addition of separate words, including reflexive pronouns, demonstratives, and quantifiers.

Several attriting speakers displayed a tendency to use the reflexive possessive pronoun when talking about family members, as in the following examples from the production task (taken from two different speakers):

- (245) a. əmmeme-ne n-ena-nqametwaw-qen **cinit-kin** ekək
 mom-ERG.ANIM.SG HAB-INV-feed-3sg self-REL son.ABS.SG
 ‘The mom fed her own son’
- b. qlawələ-na ləgi rətçə-tku-nin **cinit-kin** ɲeekkək
 man-ERG.ANIM.SG know.VBASE make-ITER-3sgA.3sgO self-REL daughter.ABS.SG
 ga-ɲenqaj-ma
 ASS-boy-ASS
 ‘The man introduced his own daughter to the boy’

The use of reflexive possession in the traditional language is restricted to cases where the relationship between the arguments is not obvious, is contrary to expectations, or there is a need to emphasize the reflexive relationship. None of these is the case in these examples: it is implied in the pictures that the object arguments are the relatives of the subject arguments, so there is no need to use the reflexive possessor. There are generally very few examples of reflexive possession in my corpus and Dunn’s naturalistic data. In this study, all of the other instances of this form occurred in narratives and conform to the expected contexts. In the following example (also from an attriting

speaker), the use of reflexive possession is contrastive—‘her own house’ instead of the one she is currently in:

- (246) η ekkeqej ləgen nə-jəlqet-qin om-jara-cəko, qənut **cinit-kin** jara-k
 girl.ABS.SG just HAB-sleep-3sg warm-house-INESS as.if self-REL house-LOC
 nə-twa-qen
 HAB-COP-3sg
 ‘The girl just slept in the warm house, as if she were at her own house’

In other similar constructions, some speakers display a tendency to individuate or highlight specific arguments, even though they are also obvious from context.

- (247) a. **ηot-qenat** o[?]rawetl[?]at nə-mələw-qenat
 this-ABS.PL person.ABS.PL HAB-dance-3pl
 ‘These people dance’
- b. ə[?]twə-cəku ø-wak[?]o-g[?]e, **ηan** ətwə-qej ø-atcat-g[?]e
 boat-INESS 3sgS-sit-3sgS that boat-DIM.ABS.SG 3sgS-flip-3sgS
 ‘He sat in a boat, that little boat flipped over’
- c. **qutə-ne** ga-jagna-len **qol** qlawəl əlgətumgətum
 one/other-ERG.ANIM.SG PRF-encounter-3sg one man.ABS.SG close.friend.ABS.SG
 ‘One of them encountered the other, the man, the close friend’

(247a) and (247c) were produced as part of the production task, where there was no ambiguity about who was performing the action on the basis of the relevant pictures. It is possible that the task itself predisposed speakers to emphasize arguments (to indicate that they are specifically discussing the people in the pictures); however, while recurrent, this was a marginal phenomenon among task participants. In (247b), the speaker is producing a narrative on the basis of pictures but without any supplied lexical items; he is referring back to his own previously-specified argument with a demonstrative. Issues with the experimental task also fail to explain the overuse of the reflexive possessive, which is not being used to refer to the specificity of entities in a picture, but rather to their mutual relationship.

These patterns can also not be explained as evidence of Russian influence. Russian is much like Chukchi across these dimensions: it does not explicitly mark definiteness, although it is possible

to clarify specific arguments through the use of demonstratives, and it makes use of a reflexive possessive pronoun, but it would be highly marked in the context of referring to one's own child without an explicit pragmatic motivation (e.g., there is another child to rule out). If anything, these patterns more closely resemble the types of errors produced by L2 learners and heritage speakers of Russian whose first language is English, where family members must be possessed and definiteness/specificity are explicitly encoded with articles. The following is a typical production error in less-proficient Russian speech, that I have observed growing up in a community of heritage Russian speakers:

(248) ja ljublj-u (#moj-u) mam-u
1SG.NOM love-1SG my-F.ACC.SG mom-F.ACC.SG
'I love my mom'

English interference cannot possibly be the source of these patterns in Chukchi. However, it is possible that they result from the nature of interrupted acquisition, lack of access to a speech community, and other factors that condition heritage speaker grammars. The available evidence from studies of definiteness in majority heritage languages is inconclusive, however (Polinsky 2018: section 7.2). Heritage speakers appear to overproduce patterns of marking both generic and specific arguments, generalizing the patterns that are simpler. In many of the studies that test this question directly, the study design is such that the pattern in the speakers' dominant language is the simpler pattern, so that when a similar pattern is adopted in their heritage language, it is difficult to differentiate between active linguistic interference in the heritage language and heritage speakers' tendency to avoid ambiguity (Polinsky 2018: 304). The Chukchi case enables us to finally observe a counterexample, where the resulting pattern cannot possibly be explained as the replication of patterns from Russian (or any other language): these patterns *must* be uniquely due to the endangerment situation and its effects on linguistic acquisition. The nature of the change also supports this explanation: if speakers of lower proficiency are known to dislike ambiguity, it is no surprise that the change is to exuberantly express specificity.

It is interesting to consider what this tendency signals for the overall typological profile of

Chukchi. There is a cross-linguistic tendency for languages to source their definite articles from demonstratives (Heine and Kuteva 2002: 109): it has happened in a range of genealogically diverse languages, including English, Bizkaian Basque, Hungarian, as well as, strikingly, creoles and grammatically underdeveloped trade jargons. If this is indeed the grammaticalization path that some Chukchi speakers are on, then like the other phenomena discussed in this section, it foretells a shift away from a polysynthetic configuration, which, as theorized by Baker (1996: 252-257), precludes the presence of true determiners (such as definite and indefinite articles).

5.4 Degrees of polysynthesis in verbs and nouns

Ultimately, we can conclude that the overall degree of polysynthesis is indeed on the decline in modern Chukchi, even among fluent speakers. Certain hallmark polysynthetic features are undeniably changing in their frequencies, particularly in the speech of attriting speakers and L2 learners/heritage speakers. To recap, the changes in modern Chukchi that directly impinge on polysynthesis are:

- i. An increase in overt argument use, including of pronouns, i.e., a decrease in argument drop in expected contexts (section 5.2)
- ii. A loss of unique verbal agreement markers for arguments of different persons/numbers (Chapter 3)
- iii. A loss of inverse (or underspecified object) agreement, which further reduces argument structural information coded in the verb itself (Chapter 3)
- iv. A loss of syntactic noun incorporation (and other valency-changing derivational morphology) (Chapter 4)
- v. A decrease in the productivity of derivational morphology, replaced by analytic modification (section 5.3)

From this list, we can see that polysynthetic features in Chukchi have changed across the board: there is a change in both the degree of synthesis (defined as quantificational morphological complexity, or how many morphemes can be combined in individual words) as well as to the morphosyntax of argument encoding. However, these features have not all changed at the same rate in all domains, and noticeable differences emerge in the rates of derivationally complex nouns compared with derivationally complex verbs. In particular, attriting speakers use derivational verbal morphology at a lower rate than derivational nominal morphology, and across both categories, they use a smaller range of derivational affixes/processes.

An initial survey of complex nouns and verbs spontaneously produced in narratives by attriting speakers vs. conservative speakers shows that conservative speakers have a statistically higher ratio of complex verbs to nouns than attriting speakers (as determined by a one-way ANOVA, $F(1,5)=15.41, p = 0.008$).⁴ Complex nouns and verbs are here defined as any use of a productive derivational affix or incorporated root in an already well-formed grammatical word. This categorization specifically excludes fossilized affixes, such as the use of the iterative *-tku* with *kelik* ‘to write’, which derives the non-compositionally-related *kelitkuk* ‘to study’, or the diminutive *-qej* in words such as *ɲinqej* ‘boy.ABS.SG’ and *epeqej* ‘grandmother.ABS.SG’, where the non-derived roots are no longer recoverable. Similarly, verbal participles and converbs were not counted as complex (despite being derived forms by definition) unless they also incorporated a noun or modifier, or made use of an additional derivational affix.

On average, the ratio of complex verbs to complex nouns among attriting speakers was 0.55, compared to a ratio of 1.53 among conservative speakers (almost 3 times higher). A comparison of the different complex words used by the two groups reveals that attriting speakers productively make use of a small repertoire of affixes; however that repertoire is more diverse in nouns (where speakers make use of the diminutive, augmentative, and several spatial affixes that combine with the locative, compared with using only the incipient marker and the iterative in verbs), and these

⁴This figure is based upon data that excludes one proficient speaker who shows a general tendency toward morphologically simple verbs, and exuberantly used diminutive morphology in her narrative, possibly for the benefit of the author (a novice Chukchi learner) or an imaginary child audience.

speakers tend to use this set of nominal affixes more exuberantly.

This observation is essentially an addendum to the findings of Chapter 4's survey of productive valency-changing operations: they are best maintained among conservative older speakers, and less maintained among attriting speakers and semi-speakers. Chapter 4 also noted that certain operations, such as antipassivization and noun incorporation, are either exclusively or better retained in nominal participles.

The higher degree of synthetic productivity in nouns is also reflected in trends in linguistic innovation among proficient speakers. In Chapter 4, we considered one highly-educated proficient speaker who can regularly and productively generate participles in which the patient argument is incorporated and another argument moves to a position where it becomes the absolutive-marked subject of the participle (the agent in active participles, an oblique in passive participles). Examples of these types of participles are repeated below:

- (249) a. η in q eg-ti uttə-npə-l²-ət agtatwanw-ək
boy-ABS.PL tree-plant-PART-ABS.PL yard-LOC
'The boys who tree-plant in the yard' (Active participle, focusing the transitive subject)
- b. agtatwan uttə-npə-jo η in q ej-e
yard.ABS.SG tree-plant-PASS.PART boy-INST
'The yard that is tree-planted by the boy(s)' (Passive participle, focusing the location argument)

Participles such as (249a) are well attested in other studies of robustly-spoken Chukchi; they are a completely typical alternative to forming a transitive active participle through antipassivization. Incorporation into passive participles, as in (249b), is considerably more unusual. It is unattested in Dunn 1999 and does not occur in any of the texts made publicly available by the researchers currently documenting the Amguema variety of Chukchi. It is also not explicitly described by Skorik (1961, 1977).

A separate but related incipient phenomenon in this proficient speaker's grammar is increasing syntactic complexity of incorporation into nominals. As we have seen throughout this chapter, nominals can productively incorporate modifiers, commonly adjectives, quantifiers, and pronouns

(where they are understood to be possessive). Nouns can also incorporate noun and verb modifiers. Typically, noun modifiers serve to further qualify the nature or origin of the head noun:

- (250) ənr^ʔaq ^ʔig-nelgə-n jən-nen
 then **wolf**-hide-ABS.SG don-3sgA.3sgO
 ‘Now (he) put on the wolf-hide’ (From Dunn 1999: 170, emphasis added)

Here, the incorporated noun ‘wolf’ describes the kind of hide. Similar examples were produced by the speakers in the present study, such as *kejŋə-jara-cəko* ‘bear-house-INCESS’, or ‘inside the bear’s house’, where the incorporated ‘bear’ describes whose house it is (much like ‘wolf’ describes whose hide it is in (250)).

Modification of nouns with incorporated verbs creates a kind of participial expression, where the action or state conveyed by the verb identifies the noun (Dunn 1999: 171):

- (251) ənkə jara-mkə-ŋŋə-n kel^ʔ-in ənqen w^ʔi-remk-in
 there house-COLL-AUG-ABS.SG spirit-POSS this **die**-folk-POSS
 ‘There was a big grove of spirit houses, belonging to the dead folk’

This kind of nominal incorporation was only used by highly proficient speakers in my corpus, who produced them spontaneously (without direct elicitation):

- (252) janor nə-mŋəlo-qen: “kətwəlqun miŋkəri ø-rəwak^ʔowə-nat... **qoməcwe**-ŋenqag-te
 first HAB-ask-3sg after.all how 2sgA-seat-3plO **misbehave**-boys-ABS.PL
 ə^ʔtt^ʔəjolanqac”
 in.front

‘First she asked, “How did you manage to seat the misbehaving boys in the front row?”’⁵

Where the highly-educated proficient speaker differs in the construction of incorporation into nominals is in being able to incorporate different parts of a full clause, i.e., a verb and its other arguments. For intransitive verbs, this speaker readily produced the expected pattern, like examples (251) and (252):

⁵The tense/perfectivity of these participles is not clear and may just be determined by context; in (251), Dunn translates the nominal as having already undergone the verb, but in all of my examples, speakers translated the action as ongoing. My data shows preliminary evidence that in at least some verbs there is an overt morphological contrast between complete and incomplete actions in these participles. For example, *pəlqə-ŋinqeŋ* ‘drown-boy.ABS.SG’ is used to refer to a boy who is currently drowning but has not died, whereas the slightly different *pəlqen-ŋinqeŋ* refers to a boy who has completely drowned.

- (253) **ɲəto-ɲenqaj**
leave-boy.ABS.SG
 ‘the leaving boy’

When incorporating transitive verbs, the speaker incorporated both the verb and its object (the head noun is understood to be the subject of the verb):

- (254) **qaplə-wələpə-ŋko-o^ʔracek** ɲinqaj-etə
ball-toss-ANTIP-youth.ABS.SG boy-DAT
 ‘The ball-tossing-youth to the boy’ or ‘the youth who ball-tosses to the boy’

Note that these participles are aligned absolutely, much like the true Chukchi participle system, and a transitive verb must first be antipassivized before it is incorporated. Similarly, if a noun incorporates a transitive verb without antipassivization, it is understood to be the object of the verb:

- (255) aqən-gəpə **ɲəto-ənneen** qlawəl-a
 rod-ABL **remove-fish.ABS.SG** man-INST
 ‘the removed-fish from the rod by the man’ or ‘the fish that was removed from the rod by the man’

It was also possible for this speaker to incorporate the oblique arguments of the verb into the subject noun, thus producing a completely holophrastic nominal:

- (256) **kawkaw-para-enarkele-ŋawəcqat**
bread-butter-spread-ANTIP-woman.ABS.SG
 ‘the butter-on-bread-spreading woman’ or ‘the woman (who) spreads the bread with butter’

This construction differs from the documented types of nominal modification in several noteworthy ways: (i) incorporation of an antipassivized verb, (ii) incorporation of oblique arguments (and generally, the incorporation of non-possessive arguments by a noun), and (iii) the sheer number of incorporated elements. (ii) is especially remarkable: most incorporation by a nominal involves some kind of adjectival modification of the noun, but this construction goes beyond encoding the type of noun, to also encoding the relationship between that noun and other arguments of the verb. Thus, this is a kind of syntactic incorporation that is unattested in older descriptions of

Chukchi, and is comparatively less restrictive than verbal incorporation (where usually only one argument is incorporated). Still, it is clearly rule-governed, and can only be formed on an absolutive pivot. There also appears to be a very strict order in which roots are incorporated:

(257) Oblique-Object-Verb-[Head Noun]

The bracketing of these constructions is also somewhat unclear: does the head noun independently incorporate (and govern) the verb and the other noun roots, or does the head noun incorporate a complex verb root (i.e., where the verb has previously incorporated its arguments)? That is, we have two basic possibilities:

- (258) a. [bread- [butter- [spread-ANTIP-woman.ABS.SG]]]
b. [[bread- [butter-spread-ANTIP-]] woman.ABS.SG]

The fact that the non-subject argument nouns are incorporated immediately to the left of the verb is suggestive of (258b), since this is the position nouns assume when they are incorporated into verbs. This order did not vary for the speaker at all: the verb was always closest to the head noun, without any intervening incorporated modifiers.

However, the required antipassivization that occurs alongside object incorporation in these examples is an argument in favor of (258a). In both finite verbal incorporation and the *-lʔ* participles, antipassive marking and object incorporation are in complementary distribution; that is, either the antipassive or an incorporated object serve to reduce the valency of transitive verb stems (in order for them to modify subjects). Here, we seem to have a system whereby the verb is first detransitivized to modify a transitive subject, and the arguments the subject is acting on (and with) are affixed later.

Either of these two possibilities represents a more elaborate kind of incorporation than either nouns or verbs typically allow in other descriptions of Chukchi: verbs generally only incorporate one argument at a time (an object, a location, or an instrument) and nouns do not tend to incorporate multiple other nominal modifiers. The cases where nouns do have elaborate incorporation are usually “tongue-twisters,” where the construction of an exceedingly long word is an explicit

goal of the speaker. Tongue-twisters look radically different from the kind of incorporation this speaker used, however. An example of one that was very amusing to Dunn's speakers (having been spontaneously coined by a speaker) was [[*kawra-jelgə*] [*melgə-tanŋə-n*]] 'twist-tongue-fire-stranger-ABS.SG', or 'twisted-tongue match-stranger', which was used to describe a foreigner who does not know Chukchi (Dunn 1999: 168). (Russians were originally called 'match-strangers' by the Chukchi, because it was noteworthy that they carried matches and could create fire at will.) Despite the multiple incorporees, this example breaks down into one that is typical of incorporation by nominals, where the modifiers describe something about the head noun itself (or a part of it), rather than its relationship with another argument.

Thus, this particular kind of holophrastic nominal incorporation is either an innovation by this particular speaker, or a feature that has never been widespread in Chukchi. When asked specifically about incorporation of verbs into nouns, other speakers accepted these types of forms (though not such complex ones), but affirmed that they are usually just used to provide a static identifier for a noun, which defines that noun. For events, these speakers prefer the *lʳ*- and *-jo* participles; the implication of a form like that in (256) is that spreading bread on butter is something that defines the woman, perhaps something she does regularly.

Whether it is an innovation or the generalization of a low-frequency feature, the change can be directly traced to language shift and the social conditions language shift engenders. One possibility is that this innovation is the result of the speaker's extensive education in the standard Chukchi language: this is a speaker who is deeply metalinguistically aware of the grammar of Chukchi, especially features that are explored in detail in Skorik's grammars and subsequent pedagogical materials. These subjects include topics like the antipassive and participles; it is possible that this speaker simply mapped a similar participle system onto nominal incorporation, while removing many of the restrictions on incorporation that exist with the *lʳ*- participles. It is also possible that this speaker is overusing incorporation to showcase the polysynthetic potential of Chukchi: the length of words is one of the salient features for speakers that distinguishes Chukchi from

Russian.⁶ Thus, this may be a way for this speaker to index her identity as a highly-proficient speaker (indeed, something of an authority on the language within the Chukchi community in Anadyr).

5.5 Implications for theories of polysynthesis

Thus far, this chapter has focused on demonstrating that all of the features prototypically associated with polysynthesis are indeed undergoing change among the recent generations of Chukchi speakers. Now, I turn to a larger question: does the fact that these changes have occurred in the ways described above mean anything for the nature of polysynthesis?

In Chapter 2, I outlined two preeminent, competing notions of polysynthesis: (i) that it is a higher order property of a language (what some have called a macro-parameter), and (ii) that it is a cluster of properties that tend to co-occur typologically, but cannot be linked to one underlying motivation. The evidence from change in Chukchi suggests that neither of these categorical accounts is true.

First, it is apparent from the coordinated changes taking place in Chukchi that a theory of polysynthesis that treats it as an epiphenomenal clustering of features cannot be correct. The fact that there has been a global restructuring of specifically polysynthetic features—among most attriting and heritage speakers—with compensatory changes that are consistent with the opposite kind of configuration (a more analytic one) points to the fact that polysynthesis is indeed a categorical property of a language (or its morphology). In Chukchi, speakers do not simply lose individual polysynthetic features; multiple polysynthetic features are lost by individual speakers, and are replaced by analytic features. A weakening of agreement marking in some speakers also coincides with a rise in the use of overt arguments for these speakers. These speakers also limit their use of valency-changing noun incorporation (object incorporation) and other argument-structure-modifying verbal morphology: all in all, there is a shift away from argument structural encoding on

⁶This explanation was suggested by Jonathan Bobaljik (*pers.comm.*), who has also encountered the spread of “exotic” (i.e., non-Russian) patterns in his work on Itelmen, where speakers overuse certain class markers.

the verb itself. At first glance, this appears to neatly be captured by Baker's (1996) polysynthesis macro-parameter. Recall that for Baker, polysynthesis is the result of the setting of a macro-parameter to on or off. Specifically, the enabling of the following condition generates all of the syntactic particulars of a polysynthetic language:

(259) *The Morphological Visibility Condition* (MVC) (Baker 1996: 17)

A phrase X is visible for θ -role assignment from a head Y only if it is coindexed with a morpheme in the word containing Y via:

- (i) an agreement relationship, or
- (ii) a movement relationship

This morphological requirement stipulates that in order for NPs to receive their argument structural roles from the verb, they must be explicitly encoded on the verb in some way (either through agreement or incorporation). This condition accounts for the holophrasis of verbs in polysynthetic languages. The free availability of argument drop is accounted for by another stipulation for these languages: agreement marking induces the dislocation of overt NPs to an adjunct position (Baker 1996: 83-89), such that only null anaphors ever occupy the canonical positions of subject and object. (NPs do not ever receive Case in these languages, because it is absorbed by the head, the verb.) The statement of the polysynthesis parameter in this way produces several generalizations; the important ones for our purposes are:

- (260) a. Agreement marking (and obligatory object agreement)
- b. Object incorporation
- c. Free argument drop
- d. Free word order
- e. No case marking on NPs

(260a-c) are the exact set of morphosyntactic features that have undergone change together in Chukchi, lending support to the MVC being the mechanism that generates a polysynthetic configuration. However, an attentive reader will have already observed that all of these features do not

emerge or disappear at the same rates or in the same ways for all speakers. There is no evidence, for example, that (260d) holds for any of the speakers for whom (260a-c) are true: almost all of the speakers made use of a range of word orders (with the exception of one heritage speaker, whom I discuss below). Thus, while these features are clearly interrelated, and are likely the result of some unique, underlying mechanism, the move from a polysynthetic to an analytic configuration is *not* equivalent to the switching off of a macro-parameter, where all polysynthetic features are simultaneously suppressed. Even if we take Baker's macro-parameter to be sufficiently explanatory for all polysynthetic features, different speakers clearly represent different stages of the weakening of the polysynthetic mechanism—indeed, we can analyze the historical variation in Chukchi (with different degrees of object incorporation) as additional evidence of the weakening of polysynthesis over time.

Many scholars have found fault with the categorical nature of Baker's macro-parameter; Baker himself hedges by saying that some languages may need to break down the macro-parameter into several smaller micro-parameters, such as one for agreement and one for incorporation (Baker 1996: 17-19). (This would account for languages where noun incorporation does not make arguments visible for θ -role assignment, i.e., where incorporation is not possible or where it does not interact with agreement or the valency of the verb.) However, there is also a sense in which Baker's polysynthesis parameter is not powerful *enough*: Baker's theory is careful to only treat as polysynthetic those languages where the MVC holds, that is, languages where noun incorporation productively impacts the syntax, but where both the verb and the noun can function independently of one another. This definition specifically excludes many languages that are often thought of as prototypically polysynthetic, such as the Yupik-Inuit languages, because these languages have a restricted kind of incorporation (some verbs obligatorily incorporate, others cannot ever incorporate). (Incidentally, Chukchi also has a class of verbs that obligatorily incorporate their objects and do not exist as simple transitive verbs that merely agree with the subject and object, which suggests that these types of patterns exist on a continuum in polysynthetic languages.) It is not clear what we gain by excluding these languages, especially since there is obligatory agreement with features

of the object in transitive verbs in Inuit and Yupik. Obligatory (lexically-determined) incorporation is deliberately set aside along with other derivational phenomena, such as modifier incorporation, which is also highly robust in Inuit and Yupik languages.

It is understandable that Baker would want to exclude phenomena that are purely morphological: that is, the morphological realization of material that would be expressed as an adjunct syntactically (as a separate adverbial, adjective, or prepositional phrase), and do not bear on the core argument structure of the clause. Still, the evidence from change in Chukchi suggests that the use of incorporated modification is changing much like syntactic noun incorporation, with a move away from incorporation toward more analytic or predicative types of modification. The fact that we see an overall move away from synthesis across both inflectional and derivational domains suggests that these phenomena are the result of a progressive change to a single mechanism, which may include Baker's polysynthesis parameter (or the MVC), but must capture a more general fact about morphology in polysynthetic languages.

The notion of a polysynthesis macro-parameter gives rise to other challenges in analyzing the languages that are covered under Baker's polysynthetic umbrella, including Chukchi. Bruening (2001) highlights some of the issues with treating polysynthetic syntax as a uniform phenomenon, focusing in particular on the Pronominal Argument Hypothesis, which, put simply, does not allow noun phrases to appear in argument positions (this is true for both Baker 1996 and Jelinek 1984). Much of the theorizing on polysynthetic languages has lumped polysynthesis together with non-configurationality: Bruening presents multiple pieces of evidence that the Algonquian language Passamaquoddy is polysynthetic but also configurational. Among the many results of the Pronominal Argument Hypothesis is the absence of structural asymmetries in syntax, including those resulting from Condition C, which precludes the ability for referring expressions (such as names or non-reflexive pronouns) to be in co-reference with a c-commanding NP, and weak crossover, which prevents an operator (such as an interrogative) from binding a pronoun, if another argument intervenes between the two. Although both of these phenomena should actually be possible in non-configurational languages (i.e., polysynthetic languages), Bruening shows that

both Condition C violations and weak crossover are disallowed, to some extent, in Passamaquoddy (Bruening 2001: 26-31). There is other evidence for the need for NPs to be in argument position, such as the fact that non-referential quantifiers are able to bind variables in Passamaquoddy, which they should not be able to do if they are in an adjunct position, like the Pronominal Argument Hypothesis stipulates (Bruening 2001: 31-32). (This is because quantifiers can only bind variables in their c-command domain; this cannot hold if both the quantifier and the variable are left-dislocated adjuncts.) Passamaquoddy also shows a clear asymmetry in the ability of subject quantifiers to bind objects (within their c-command domain) but not vice-versa, which Bruening argues is hard to state without resorting to NPs in argument positions, which would mean that the Pronominal Argument Hypothesis does not hold in Passamaquoddy and it is, in fact, a configurational language.

A thorough investigation of the viability of the Pronominal Argument Hypothesis in modern Chukchi is beyond the scope of this dissertation and is a topic I leave for future work. However, the conflation of non-configurationality with polysynthesis (and the implications of the Pronominal Argument Hypothesis/the MVC) are problematic, in both traditional and modern Chukchi. Issues arise in two domains in particular: word order and case marking.

One of the consequences of the PAH—and one of the main features of a non-configurational language—is variable word order: this results from the fact that the adjunct NPs can attach on either side of the verb. Another consequence of the PAH is that NPs cannot receive case from an adjunct position: as a result, non-configurational languages also lack case.

The issue of case marking was always a problem for the idea of non-configurationality in Chukchi: Chukchi has a robust case marking system, including for marking core arguments. Baker (1996) addresses the topic of Chukchi case directly, claiming that it is not actually a counterexample to this generalization. Like many other seemingly non-configurational languages that have case, Chukchi has a large system of semantic (mostly spatial) cases; all of the grammatical cases in Chukchi are syncretic with one of these cases. (The ergative is syncretic with the instrumental, the dative is syncretic with the allative, etc.) The absolutive case is “usually unmarked,” and therefore these nominals are not actually marked by any real case at all (Baker 1996: 129-132). NPs with

semantic case do not have to receive case from morphosyntactic case-sharing with null pronouns that are actually in argument positions (which is needed for structural case, such as the ergative); they are assigned inherent case by virtue of their θ -role.

Even accepting this explanation, absolutive case still presents a problem. Although the absolutive is often unmarked, it is not always unmarked; that is, the form that surfaces as a full NP is not the same as the underlying root. Consider the examples *qora-ŋə* ‘reindeer-ABS.SG’ (*qora-t* ‘reindeer-ABS.PL’) and *melot-algəŋ* ‘rabbit-ABS.SG’ (*milut-et* ‘rabbit-ABS.PL’), both of which have additional morphology added when they are used as absolutive arguments. One way to try to salvage this analysis is to say that these are simply phonologically different forms: the free morpheme which can stand on its own (*qoraŋə*) vs. the bound morpheme that is used as a root to combine with other morphemes (*qora-*).

Whether or not we consider these to be true grammatical cases or semantic cases, it is not surprising that they have been well-maintained by all speakers as the language moves to a more analytic or configurational alignment: indeed, case marking on overt nominals occurs freely in languages that are configurational, and so a natural consequence of losing the polysynthesis macro-parameter would be adopting these semantic cases as true grammatical ones.

Another natural consequence in Chukchi should be the adoption of a more rigid word order. However, virtually none of the speakers in this study tended toward any particular order: even the semi-speakers, who would be most likely to reproduce a Russian-like word order, produced a range of possibilities. Most fluent and attriting speakers often gave multiple orders in direct sentence elicitation and in the production task. It is not clear whether these speakers uphold the newsworthy-first pragmatic principles that condition word order in traditional Chukchi, or if the variable orders result from issues of on-line processing and working memory (i.e., speakers give constituents as they pop into their heads); this is another topic for future work. Regardless of the underlying motivation, these speakers, while clearly moving to a less polysynthetic configuration, have not adopted a crucial feature of configurationality. Thus, while the language is arguably no longer fully polysynthetic, it is also not entirely configurational.

The one exception to this pattern is a semi-speaker who had strict SV(O) word order in every sentence she produced, but also lacked core case marking (specifically, she used the unmarked or absolutive case to mark all core arguments, but maintained some semantic case marking, see Chapter 3).

- (261) a. η in η ej nə-gərkə-qin uun[?]-ət
 boy.ABS.SG HAB-gather-3sg berry-ABS.PL
 ‘The boy collected berries’ (SVO)
- b. η in η ej ge-peqetat-len
 boy.ABS.SG PRF-fall-3sg
 ‘the boy has fallen’ (SV)
- c. qlawəl-te nə-qegnew-qinet rərkə gilgil-tkən-ək
 man-ABS.PL HAB-shoot-3pl walrus.ABS.SG ice-on.top-LOC
 ‘The men shoot a walrus on the ice’ (SVO₁O₂)

Here, it is likely that this speaker maintains strict word order in order to differentiate between core arguments, since there is otherwise no consistent way to do so with 3rd person NPs (given that this speaker also uses a simplified system of verbal agreement marking, in an already less-informative set of paradigms). Thus we have a highly analytic pattern as well as a configurational one, but one that appears to be motivated not by the loss of polysynthesis, but by the loss of case marking (not a polysynthetic feature to begin with). This is yet more evidence that polysynthesis is not an entirely uniform phenomenon equivalent to non-configurationality, and that the mechanism that changes in reconfiguring a language away from polysynthesis does so in a variable fashion.

Scholars have also identified issues with the application of one macro-parameter uniformly across different parts of speech. Ershova (2020) identifies two distinct processes in West Circassian that result in polysynthesis in nouns vs. verbs: complex verb forms are created via head displacement, while complex nominalizations result from the mapping of syntactic structure to a single phonological word through prosodic mapping rules (without head displacement). This account explains why productive noun incorporation in West Circassian only occurs in verbal nominalizations (as well as why these nominalizations violate the expected morpheme order, and why they

do not have case marking).

While the patterns in modern Chukchi are not exactly in line with the generalizations about West Circassian, polysynthesis (specifically, noun incorporation and the use of derivational morphology) is better preserved in nouns than in verbs; we also see a possible complexification of nominal incorporation among at least one modern speaker. If we assume that incorporation is the result of a single underlying mechanism, it is difficult to explain why the mechanism would be lost more rapidly in the formation of verbs than in nouns. In both nouns and verbs, incorporation is a productive process in Chukchi, so we also cannot explain the difference through the loss of individual compounds, constructions, or morphemes (as we could with the loss of *ine-*/antipassive *-tku* and the system-wide changes resulting from that loss). Thus, we must conclude that these changes point to two different avenues for the creation of a complex syntactic head. Assuming there are two different processes at work would also reconcile the apparent differences between the incorporation into plain case-marked nominals (5.4) and incorporation into verbs (and verbal nominalizations formed with *l²-* or *-jo*). Nominal incorporation allows for the incorporation of both object and oblique arguments, whereas verbs only incorporate one or the other. Furthermore, although transitive verbs must be detransitivized when modifying subject arguments in both nominal incorporation and active transitive participles, object incorporation only detransitivizes verbs in participles, but not in nominal incorporation. This suggests that verbal incorporation within nominals (e.g., the incorporation of ‘butter’ and ‘bread’ by ‘spread’ in the ‘butter-bread-spread-ANTIP-woman.ABS.SG’ example) does not produce a change in argument structure, and is therefore unlike verbal incorporation elsewhere.

In summary, the evidence in modern Chukchi points to a broad shift away from polysynthesis: away from prolific derivational morphology, head-marking of arguments, argument drop, and incorporation. The far-reaching, coordinated nature of the changes argues for a theory of polysynthesis as a property of a language’s morphosyntax, rather than a recurring clustering of features. However, the polysynthetic “property” is not the same as a syntactic macro-parameter: many of the phenomena that we expect to change in tandem based on Jelinek’s and Baker’s proposals fail

to do so. This does not mean that polysynthesis is not the result of syntactic criteria or conditions; however, it does indicate that a more nuanced approach (involving micro-parameters) is preferable.

5.6 Explaining changes to polysynthesis

Having established that the nature of the morphosyntactic configuration of Chukchi is changing among modern speakers, our final task is to identify and evaluate possible reasons why these changes may be taking place. Some of the changes that are considered in this chapter and throughout this work may predate the onset of shift: these include various dimensions of noun incorporation and antipassivization, which have varied across all the available descriptions of Chukchi since the end of the 19th century. While every change described here is not directly due to language shift in every speaker population, all of these linguistic changes were initiated or accelerated by social changes throughout the 20th century.

Prior to serious language endangerment, educational and linguistic reforms to Chukchi already had the potential to impact the structure of the language. This includes the development of literacy and a standard Chukchi language, which was taught to young speakers whose acquisition of their own local vernaculars was interrupted by forced resettlement and compulsory education in boarding schools. Chapter 1 discusses the differences between the standard variety and vernacular varieties; however, we also expect a literary, written language to be inherently different from spoken language, even in the absence of dialectal variation. Many children's books and other educational materials from this period display the exact features that serve as the focus of this chapter: overuse of overt arguments, rigid word order, and minimal to no incorporation. Speakers often describe these materials as sounding like Russian, but some of the features might also be specific to differences between written communication (to a large, unknown audience) and spoken communication with a small, close-knit community, such as one's family or reindeer brigade. (There are aspects about the discourse context that can be taken for granted when one's interlocutor is known to them, and when one spends a substantial amount of time with them, compared to when

the recipient of a communication is a reader.)

Indeed, community structure is one social variable that has been proposed to explain polysynthesis as an overall linguistic configuration (Trudgill 2017). Trudgill (2017) argues that there is a reason why polysynthetic languages tend to be spoken by small, close-knit, isolated communities, where group membership seldom changes and there is very little migration into the community by outsiders. There is evidence that grammaticalization is facilitated by informational homogeneity of the kind that is found in small communities. (This is doubly true in a community such as a reindeer brigade, where everyone's day-to-day life is structured around a single common goal.) Trudgill contrasts this with heterogeneous communities that have a substantial degree of multilingual contact, where learners who never attain full proficiency in the language contribute to its simplification (here understood to mean a lower degree of morphological synthesis). The shift from close-knit living based on cross-generational clan connections, to village and town life (which was the experience of most Chukchi speakers in the 20th century) is exactly the kind of setting that interferes with informational homogeneity. Interestingly, this is the metalinguistic explanation provided by older proficient speakers in comparing their vernacular language use to the literary language: they claim that they did not use as many words when communicating in the tundra because there was seldom any need, especially when it came to specifying arguments: it was generally obvious who or what was being discussed based on context. There has been very little documentation of communication within reindeer brigades going about their daily lives, so these differences are difficult to investigate directly absent such data; however, the older speakers' recollections are remarkably and independently consistent on this matter.

Trudgill's sociolinguistic typological approach intersects with two other theoretical avenues for explaining change in endangered languages: language contact and disrupted acquisition, both of which result in a higher number of non-proficient speakers entering a speech community. Thomason's (2001) language contact model mainly considers this phenomenon in terms of its effects on a majority language. The result of incomplete access to the target language is frequently changes to the target language, which has often been analyzed as the replication of patterns from the language

being lost (or substrate effects). Independently of this, in many cases there is also a morphological simplification of the target language that is motivated by the sheer linguistic diversity of new speakers. This has been argued to be the case for the relative simplicity of Afrikaans, which is the result of a setting in which numerous non-native speakers of various origin (Khoi, San, Bantu, Malay, Malagasy, Indonesian, and other European languages) acquired Dutch in South Africa (Trudgill 2017).⁷

Over time, the same process of an influx of non-proficient speakers takes place in the traditional language of the community, as it is lost: successive generations of speakers have increased proficiency in the dominant language, with comparatively limited access to the traditional language. While these scenarios are less well-studied, we can also expect them to result in a loss of morphological complexity (e.g., synthetic morphology). Indeed, these are exactly the patterns we find among heritage speakers, with the caveat that most heritage speakers who have been studied happen to have a more analytic language as their dominant language. Overall, a move toward more analytic morphosyntax is common to most heritage varieties (Polinsky 2018: 184): this is the result of a number of factors we have already considered at length, such as the preference for direct correspondence between form and meaning, avoidance of structural and semantic ambiguity, and a preference for phonologically salient segments. Such tendencies explain why semi-speakers and attriting speakers of Chukchi disprefer modification by bound morphology (often less salient than individual phonological words in Chukchi, especially if the morpheme is null), and why they show an aversion to argument drop, even in cases where the agreement morphology on the verb is intact.

The implication of these findings in language contact settings and heritage speaker studies is that a polysynthetic linguistic configuration is explicitly disfavored in a shift scenario. All endangered polysynthetic languages exist in a social setting that is more heterogeneous than their traditional setting, which, taking into consideration recurrent patterns in the sociolinguistic typol-

⁷Indeed, this is exactly what occurred in Chukchi prior to Russian contact: when Chukchi served as a lingua franca in northeastern Siberia, the Chukchi were known to use a simplified trade jargon with speakers of other languages. This trade jargon likely did not produce any substrate effects in the Chukchi language as a whole because it was restricted to these multilingual trade settings; the Chukchi speakers who used them spoke their local fluent variety with one another and in other contexts.

ogy of these languages, predisposes them toward becoming less synthetic. Heritage languages that are less synthetic than Chukchi to begin with nevertheless display more analytic syntax: for example, this is also true of heritage speakers of Russian. Furthermore, contact with a more synthetic language than the ones that typically serve as the dominant languages in heritage speaker studies (e.g., English and Spanish) did not inoculate Chukchi against the loss of features that *do* exist in the contact language. Russian contains ample verbal derivational morphology and also makes use of argument drop (or a kind of ellipsis that resembles argument drop on the surface, see Gribanova 2013); these features are nevertheless affected by morphosyntactic change in Chukchi, and the resulting patterns do not converge on analogous phenomena in Russian morphosyntax.

Chapter 6

The syntax of language endangerment in context

The preceding chapters have demonstrated that the syntax of argument structure is changing among modern speakers of Chukchi, in ways that are directly related to social changes during the 20th century and the onset of language shift. In this chapter, I revisit these changes and discuss their broader implications for studying endangered languages and multilingual speech communities.

6.1 Revisiting the shift-driven changes to Chukchi argument encoding

In Chapters 1 and 2, I argue that the morphosyntactic encoding of argument structure is a useful domain for studying the possibility of system-wide syntactic restructuring in response to extralinguistic factors (such as language contact and other social conditions that facilitate language endangerment). As it turns out, we find evidence of variation in Chukchi across all of the argument structural domains considered in this study, including:

- (i) case marking
- (ii) agreement marking
- (iii) verbal valency
- (iv) valency-changing operations
- (v) noun incorporation
- (vi) syntactic transitivity/ergativity
- (vii) modifier incorporation
- (viii) argument drop

(ix) word order

Modern speakers clearly differ in their use of these features across generational lines, which roughly correspond to the type of speaker they are (proficient, attriting, L2/heritage). The proficient speakers who were consulted in this study tend to be conservative and their language use closely resembles existing descriptions of Chukchi from when it was robustly spoken, though this is not always the case. Attriting speakers and L2/heritage speakers frequently, but not always, resembled one another in the nature of their deviations from the expected traditional patterns.

Case marking. Case marking and agreement marking, the two major morphological means of indicating core argument role assignment in Chukchi, both show signs of some flux, though the variation is much more significant in agreement marking (see below). Ergative-absolutive marking of core arguments is preserved among all proficient and attriting speakers. (The latter show some signs of having forgotten some of the spatial cases, but their distinction between ergative arguments and absolutive arguments is absolute.) Several attriting speakers made use of the high animate noun class (which displays more extensive syncretism between case markers, grouping together the ergative, instrumental, dative, and locative) more liberally than proficient conservative speakers, perhaps due to the relatively simpler paradigm. Heritage speakers also preserved core case marking, except one speaker who collapsed the distinction between core arguments (marking A, S, and O with the expected absolutive case) but preserved some oblique cases.

Agreement marking. While proficient speakers showed virtually no deviation from the traditional system of subject and object agreement affixes, both attriting speakers and heritage speakers no longer maintain the full system of affixes for any tense/mood. However, none of these speakers share the same changed system. One attriting speaker shows increased syncretism in the system of object agreement suffixes in active agreement paradigms, but displayed more or less the expected suffixal agreement in the two stative paradigms (the perfect and the habitual). A heritage speaker that provided a full habitual paradigm displayed a completely different pattern, where he determined which argument (the subject or object) was agreed with by the suffix slot according to a person/number hierarchy (with a strong preference for agreeing with plural or 2nd person argu-

ments). In full paradigmatic elicitation, both the attriting speaker and the heritage speaker leveled the use of the “inverse” (here analyzed as an elsewhere object agreement marker) to all transitive stative verbs.

Morphological ergativity. One morphologically ergative pattern in Chukchi is suffixal agreement with either the intransitive subject or the transitive object (in both active and stative paradigms), which is the default pattern under normal (i.e., direct) circumstances. In the inverse cases, agreement with the object is blocked and suffixal agreement is with the transitive subject. Production patterns from attriting and heritage speakers show a move away from this restrictive treatment of the suffix slot, and a loss of the inverse/default object agreement interpretation of the *ine-/tku* markers. Leveling in the attriting speaker’s active aorist paradigm specifically preserves transitive subject agreement (in one or both agreement slots), which is a move away from the morphological ergativity of the traditional language. Similarly, in full sentences produced by attriting and heritage speakers, suffixal agreement in stative paradigms is generally with the subject in both transitive and intransitive verbs, without the presence of the inverse marker (a fully nominative pattern).

Verbal valency. In traditional Chukchi, valency is strictly set for all verbs, and alternations between related intransitive-transitive meanings of a verb (i.e., inchoative vs. causative) are only achieved through valency-changing operations. (The exception is a handful of labile verbs.) In this domain, attriting speakers pattern with proficient speakers and maintain the expected, lexically-specified valencies of different verb stems. Heritage speakers, however, show a general increase in lability of verb stems, in addition to a more restricted argument structure of transitive verbs (avoiding assigning an agent role to inanimate arguments, especially where they act on animate ones).

Valency-changing operations. Both valency-increasing (causative and applicative) and valency-decreasing (antipassive) morphology vary in modern Chukchi, with clear signs of a loss of derivational productivity over time, albeit not in equal measure for every operation. A constant for all of these processes, however, is a clear cline of loss, with few changes among proficient speakers (except where they were initiated before the onset of shift), a loss of the most productive (discourse-

governed) uses of the morphology among lower proficiency attriting speakers, and virtually no use of the morphology except in fossilized cases among heritage speakers. Causative morphology is especially well-maintained by speakers, perhaps due to the more transparent one-to-one mapping between the morphology and the change in meaning, but nevertheless is not used productively at all by heritage speakers, and appears not to even be recognized by them.

Noun incorporation. Noun incorporation, although often resulting in a reduction in verbal valency when the incorporee is the object, is an inherently more productive process than the other valency-changing operations. It also includes the incorporation of instruments and locations, as well as a kind of object incorporation that results in beneficiary or possessor raising (where a third remaining argument is promoted to the object position and assigned absolutive case). There is more variability among speaker behavior within this domain than a simple cline of loss across generations, with additional differences manifesting between proficient speakers of different backgrounds. If we consider syntactic object incorporation, we can observe a similar pattern to that of voice morphology: proficient speakers use noun incorporation across all degrees of productivity, including spontaneously due to discourse considerations; attriting speakers use it productively some of the time, but generally only in “typical” cases (where it is a common or expected object for that particular verb); and heritage speakers only incorporate (i.e., use N-V compounds) in fossilized cases. Within the group of proficient speakers, there were differences based on whether or not the speaker had had formal education in Chukchi: speakers with formal education were highly metalinguistically aware and could variously incorporate different arguments of the verb, but also expressed sentences with multiple free-standing arguments without issue; however, speakers who had not been educated in Chukchi strongly preferred expressions with object incorporation and often refused to provide or endorse sentences with 2 or more free-standing arguments.

There are other fine-grained differences in noun incorporation: in spontaneous utterances (in narratives), attriting speakers tended to incorporate oblique arguments but not the object (perhaps because oblique incorporation does not lead to syntactic restructuring). Object incorporation was moderately more robust in participles (where detransitivization is required for the formation of ac-

tive transitive participles) among both attriting speakers as well as an educated proficient speaker, who used incorporation into both active and passive participles (the latter of which is unattested) in order to focus different arguments in the same sentence. Attriting and proficient speakers also differed as to their judgments about which arguments could felicitously be incorporated: proficient speakers could incorporate all nouns (that were tested) that were not human, while attriting speakers were more selective, and generally less fond of incorporation except in cases where the incorporee was 'reindeer'.

Syntactic transitive/ergativity. The demise of both antipassivization and noun incorporation over time in Chukchi has also corresponded to the loss of the sole, unambiguous case of syntactic ergativity in the language: the obligatory detransitivization of transitive verbs in the formation of active participles. While proficient speakers still detransitivize transitive verbs using either antipassive morphology or object incorporation, attriting speakers form transitive and intransitive active participles in the same way (without detransitivization). (Heritage speakers tend not to produce any participles at all.)

Another semi-ergative pattern in Chukchi syntax is coordination of dropped arguments, which occasionally operate along an absolutive pivot in the traditional language. Proficient speakers behave largely as expected in this regard and coordinate dropped arguments along a range of pivots ($A=S$, $S=O$, but $A \neq O$). Attriting speakers were more restrictive, frequently preferring complete identity between a dropped argument and its antecedent ($A=A$, $S=S$, $O=O$). (Heritage speakers did not form enough coordinated clauses to investigate their preferences.)

Modifier incorporation. The modification of nouns via incorporation of other roots (pronouns, quantifiers, demonstratives, adjectives, verbs, and other nouns) is widespread in the traditional language, although it is rare to see more than one root (in addition to that of the head noun), except in tongue twisters or other language games. Both attriting and proficient speakers make use of modifier incorporation; however, attriting speakers do so at a lower rate, preferring to use predicate modification (formed using habitual verbal morphology). One of the proficient speakers shows signs of increasing syntactic complexity in her use of nominal incorporation, incorporating

multiple other roots, including a verb and all of its other arguments.

Argument drop. There are noticeable differences in the rates of argument drop among proficient speakers and attriting speakers. Proficient speakers invariably only use overt pronominal arguments where they are needed to perform discourse functions, such as emphasis and disambiguation. Certain attriting speakers, however, liberally use overt pronouns, including 3rd person pronouns, even in cases where they are redundant (duplicating the work of agreement marking or another overt lexical noun indexing the same argument).

Word order. Interestingly, word order exhibits few signs of having shifted away from the free configuration in traditional Chukchi: variable orders are exhibited by most of the speakers who were consulted (although I leave as a subject for future inquiry the question of whether speakers preserve the newsworthy-first pragmatic conditioning of word order in longer streams of discourse). One exception was a heritage speaker who exclusively used SVO; however, the other heritage speaker for whom there is sufficient sentential data used a range of orders.

6.1.1 The nature of morphosyntactic variation in an endangered language

As the preceding chapters have shown, there are many different types of variation and change that are present in an endangered language community. While it is possible to identify different groups that tend toward a set of shared linguistic patterns, these are generalizations about multiple grammars: it is not the case that any two speakers have exactly the same deviations from the standard language, or whatever dialect served as their input. This is not surprising: when we speak of endangered languages where shift has progressed relatively rapidly (across 2-3 generations, in the Chukchi case), and where speakers have highly varied acquisition experiences and few opportunities to use their language, a significant amount of interspeaker variation and relatively low convergence is to be expected. In this way, endangered indigenous languages differ from most other situations of variation and change in multilingual contexts: if there is a speech community, it may be small or fragmented, and there is no pre-existing body of literature (or film, or other media) with which remaining or aspiring speakers can meaningfully engage to practice using the

language. In the Chukchi case, the literary language that all texts are written in sounds so different and artificial to speakers that it is alienating; many older speakers do not wish to engage with these texts at all, and younger speakers are vaguely aware that this literature is not “the real language.”

Relatedly, many Chukchi speakers engage with the language solitarily. With the exception of older speakers, who have the opportunity to use the language with a spouse or another family member on a regular basis, most speakers only occasionally speak Chukchi in WhatsApp groups, when they encounter friends or relatives, or at meeting groups (which, as noted in Chapter 1, are sporadic). The attriting and heritage speakers whose parents have passed away or refuse to use the language with them engage with Chukchi creatively or academically, learning and writing poetry and songs, doing translation, or studying up on the culture. (One of the consultants in this study is writing a thesis about Chukchi naming conventions, for example.)

The tumultuous nature of language transmission during the 20th century, coupled with the modern isolation that many urban speakers experience, facilitate variation and a lack of diffusion of modern changes, as well as a lack of entrenchment of certain conservative features (such as lower frequency morphology). They may also contribute to some of the innovative creativity that different speakers display in working with a linguist who does not speak the language: there is no danger of being corrected or penalized for errors by anyone who is an authority about the language itself.

It is important to realize, then, that many of the recurrent patterns we see among different speakers are not necessarily the diffusion of certain changes (although they may be reinforced by contact with other speakers), but are likely to be cases of multiple emergence due to a single set of extralinguistic factors acting on all speakers. These factors are discussed in section 6.2.

The purely innovative changes in Chukchi, which cannot be linked to interference from another language, include such patterns as the development of a new person/number hierarchy for argument agreement in transitive habitual verbs (displayed by one heritage speaker) and the increasing syntactic complexity of nominal incorporation, displayed by a proficient speaker. Other types of changes include the loss of certain patterns, such as voice morphology, incorporation, agreement

markers, and certain affixes with numerous polysemous functions, like the antipassive/inverse affix *ine-*. These are the types of changes that have usually been the focus of studies of the linguistic effects of language endangerment (e.g., Campbell and Muntzel 1989, Sasse 2001): ways in which the obsolescent language has lost complex linguistic features or “contracted” relative to the “healthy” language. This preoccupation with what is lost in a shifting language predisposes us to view these languages as coming apart, as being deficient relative to their healthy counterparts, or as not being full linguistic systems at all.

The full gamut of changes in Chukchi shows how this is not the case: where speakers lose certain patterns, they either innovate patterns (such as the ones already mentioned) or make use of existing resources in the language that they did acquire (or do remember). It is not the case that speakers lose the ability to express themselves in the language: attriting speakers, despite no longer making use of some iconic polysynthetic features of Chukchi (such as incorporation) and losing the full contrastiveness of the agreement system, nevertheless found ways to convey argument structure and sustain relatively long (10-minute) narratives about topics they had not rehearsed. The heritage speakers (or semi-speakers) lack the proficiency to tell stories in Chukchi and, of course, have not acquired enough of the language to be able to fully express themselves. However, in these cases, we must distinguish between *linguistic* loss (actual changes to the structure of the language when it is used by speakers, i.e., loss of specific forms or features) and *language* loss (the fact that the language or some domains of it are not used because they were never acquired). In the case of semi-speakers, neither of these entails a loss of the language faculty, and thus, when these speakers use Chukchi, although their language use may be restricted to certain semantic domains, they are nevertheless making use of an actual language, though it may be radically different from the one spoken by older Chukchi.

Descriptions of obsolescent and heritage languages also often make reference to the “instability” of speakers’ grammatical systems. This is indeed the case for some speakers of Chukchi: the same speaker may not produce the same exact inflectional paradigm at separate points in time. (Although, it is important to note that some speakers who display deviations from the traditional

language do have entrenched changes, which they use consistently across multiple interactions, spanning weeks or even years.) Still, this is not evidence that the speaker’s “grammar” is unstable: even though individual production data may vary, it can still be analyzed as systematic at a given point in time. Thus, it is better to frame this variability as another kind of variation in an endangered language: *intraspeaker* variation, which exists in all robustly spoken languages as well. No speaker uses his or her language, including aspects of it that are typically thought of as being in the domain of “grammar,” the same way at all times: we have only to consider scalar differences in grammaticality judgments of complex syntax, or variation in vowel formants, or change across the lifespan to see that individual grammatical systems are also constantly in flux. In these cases, we do not wish to say that the grammars cease to be rule-ordered systems—the same generalization holds for endangered grammars, which display a clear logic in a speaker’s linguistic patterns at a given moment in time.

6.2 Disentangling different sources of change in language endangerment

Situations of language endangerment, by their very nature, are situations of language contact that are in a constant state of change, typically affecting speakers’ proficiency in the dominant language across time, usually across generations. This progressive loss of proficiency has been captured by various endangered language speaker taxonomies, notably that of Dorian (1981) in her work on East Sutherland Gaelic, who first popularized the term *semi-speaker*, and who first demonstrated the ways that the different speaker groups face different extralinguistic pressures that induce structural changes to their language. The trends in endangered language speaker typology were reviewed by Grinevald and Bert (2011), who situate speakers on a cline of proficiency from *fluent speakers*, to *semi-speakers*, to the least proficient group, *terminal speakers*.¹

¹They also note a few speakers who exist in the community but are typified by another aspect of their language use, such as *ghost speakers*, who have some knowledge of the language but deny it for social reasons, and of course, *last speakers*, who are the last remaining speakers of a language on the brink of disappearing. In a language like Chukchi,

While Grinevald and Bert use these terms comparatively and intend for them to apply to different speakers in one setting, many of these terms predate their work and are not used consistently by scholars.² They also do not perfectly map onto those used in this study: for example, the speakers who have here been called attriting speakers more closely resemble Dorian’s enormous category of semi-speakers, and the speakers I call semi-speakers or heritage speakers are the “terminal speakers” at the bottom of Grinevald and Bert’s taxonomy (a term that reflects the grimness that characterizes many of the naming conventions in endangered language research, and which I therefore avoid). While there is variation in how all of these terms are used in the literature, the key generalization is that there are a variety of speaker types in an endangered language community, which can have distinctive linguistic behaviors and social circles, and which must be carefully considered in attempting to understand variation and change.

If we consider the cross-section of an endangered language community like that of Chukchi, focusing on the synchronic variation (and the changes that generated it), we find that there are many contemporaneous factors at play. These were mentioned in the introduction to this thesis; I reiterate them here:

- (i) direct interference from Russian
- (ii) disrupted or inconsistent acquisition
- (iii) attrition
- (iv) existing dialectal variation
- (v) innovation

Factors (i-iii) can all be subsumed under the umbrella of “language contact effects” as defined by Thomason (2001): they are a direct result of a multilingual setting; in this case, an unstable

the last speakers will not be the highly proficient speakers consulted in this study, but likely the second group, the attriting speakers.

²For example, the use of “terminal speakers” is attested as early as in Tsitsipis (1992).

one. A major finding in this investigation of changes to Chukchi argument structure is that there are few changes that are attributable to (i), which is the most common type of language contact effect (indeed, often the only one) considered by linguists. There are almost no changes to Chukchi morphosyntax that are obviously the result of a direct mapping of Russian structural patterns on Chukchi: the ways in which Chukchi has changed to resemble Russian (a shift away from object agreement, loss of absolutive alignment of participles, loss of noun incorporation, use of overt pronouns) are not uniquely attributable to Russian influence, and are consistent with typological tendencies and typical features of heritage languages (and semi-speaker patterns in other endangered languages that have been studied in this way). This does not mean that direct interference from Russian has played no role in shaping modern Chukchi variation—this would be a truly unexpected finding, given the almost-universal bilingualism among Chukchi speakers. (For example, the prevalence of SVO word order among semi-speakers is almost certainly largely due to interference from Russian, where SVO is the default “unmarked” order.) Rather, all three of these separate forces likely operate in tandem: if the direction of the overall restructuring of the linguistic system is motivated by linguistic gaps from disrupted acquisition and attrition, it may well be reinforced by resemblant patterns in the speakers’ dominant language.

However, it is possible to adjudicate between these different influences in some cases, particularly where attriting speakers and semi-speakers differ from one another, and in cases where all three speaker groups differ. When it comes to derivational morphology, attriting speakers behave much more like fully proficient speakers, and can use voice morphology productively some of the time; semi-speakers do not use voice morphology productively at all, and do not appear to recognize the functions of these morphemes when they appear in experimental stimuli. Attriting speakers also pattern more like proficient speakers in their use of nominal inflection (case marking) and nominal modification, as well as their consistent use and endorsement of all available word orders (compared to semi-speakers, who exhibit a completely neutralized system of core case marking and/or default to SVO order). However, in their verbal inflection, both attriting speakers and semi-speakers do not consistently use the expected traditional agreement patterns. In some

cases, such as the neutralization of 3rd person marking in the habitual, they behave alike. However, in most cases, they not only make use of different inflectional markers, they have also clearly applied different processes to arrive at those systems, with attriting speakers leveling certain patterns (where there is a clear person/number feature or set of features that has been neutralized) and semi-speakers innovating new patterns entirely. Thus, throughout this study, there is evidence that the effects of language attrition—lifespan loss of linguistic proficiency—and limited acquisition in the first place have different linguistic effects, and speakers compensate in different ways.

Although Chukchi does exhibit some dialectal variation, particularly in the domains of phonology and the lexicon, most of the argument structural variation surveyed in this thesis is the result of language shift—that is, it is clearly variation that has emerged within the last 20 or so years, as the language became increasingly marginalized and moribund, and as the effects of the splintered speech community, attrition, Russian interference, and variable access to acquisition took hold. We are fortunate in that Chukchi has a relatively long history of documentation by linguists, beginning in the late 19th century, and that the available descriptions provide some sense of regional variation (although there are many reasons why this comparison is difficult, which are addressed in Chapters 1 and 4). From these descriptions, it is apparent that inflectional morphology shows very little historical or regional variation. Derivational morphology and processes, especially voice morphology and noun incorporation, are more variable across time and space: both antipassivization and noun incorporation are described inconsistently across the different grammars. Both of these features were marginal in some (usually mutually-exclusive) varieties throughout the 20th century; thus, it is not surprising that their productive use has virtually ceased among attriting speakers and semi-speakers, given the fact that whatever natural linguistic input they received was limited in the use of one or both of these features. Nevertheless, their loss fits within an overall pattern of decreasing productivity of derivation among speakers with lower proficiency, and cannot be attributed to pre-existing variation alone.

There are numerous unanswered questions in language contact, particularly concerning how it instantiates changes—through which mechanisms—and the types of changes that can conceiv-

ably be induced by contact. The mechanisms that contribute to change in a contact situation have been discussed at length here: interference, attrition, and disrupted acquisition. Shift scenarios differ from stable (or maintenance) scenarios in that attrition and disrupted acquisition play an outsize role in triggering morphosyntactic variation in the traditional language of the community, and direct transfer from the dominant language is difficult to demonstrate when it coincides with an overall change in a language's morphological configuration. Direct transfer is much more apparent in cases of borrowed lexical material, such as the borrowing of roots or affixes, or the near-replication of a morphological pattern without necessarily the associated morphological material (Sakel (2007)'s MAT vs. PAT borrowing). Modern Chukchi certainly displays many lexical borrowings from Russian (some of which predate language shift), and most speakers code mix between Russian and Chukchi, even among themselves. However, the morphosyntactic changes investigated here have taken the form of broad systemic restructuring: some of these changes do resemble Russian, but there are no morphological MAT *or* PAT borrowings. In verbal inflection, there is a move toward prioritizing subject over object agreement, but the resulting patterns differ starkly from Russian subject agreement: multiple agreement slots are maintained in Chukchi, and no speaker has triangulated on a single set of person/number agreement markers; instead they maintain differences between different paradigms and preserve portmanteau forms. Where there have been changes to nominal inflection, they have not moved toward a Russian-like orientation: speakers show either a neutralization between core argument marking, or the reassignment of noun stems to different classes (loosely based on human-ness).

Still, the contact situation itself has produced significant changes in Chukchi morphosyntax, affecting both surface patterns and deep structural patterns. The surface changes in Chukchi take the form of loss of certain morphemes or certain functions of polysemous morphemes (notably, the loss of the multi-functional morpheme *ine-*, except as a reanalyzed or inert part of agreement marking). Other surface or "local" changes include the reanalysis of inflectional morphology, changes to the valency of different verbs, inconsistent vowel harmony, etc. Some of these changes, taken together, signal deep structural change: in agreement marking, the nature of the different

types of reanalysis employed by different speakers sheds light on the way that the speakers have reconfigured the underlying logic on the system. In other cases, the surface changes may actually result in a change that we consider a deep structural change: for example, the loss of syntactic absolutivity in participles may simply be an incidental result of the loss of the *ine-* marker. Other changes, however, are difficult to attribute to one or more local changes, and can only be analyzed as a deep structural change because they involve morphological processes: examples of these are changes to rates of verbal and nominal incorporation, rates of argument drop, and derivational productivity. Thus, however these changes proceed, we can conclude that even if direct transfer from another language may not have the capacity to dramatically alter a language's grammar on its own, the combined effects of different dimensions of a contact setting do produce system-wide restructuring.

6.3 Implications for typology and language universals

One facet of grammatical change that I have not yet considered here is the role that universals of linguistic structure play in shaping the possible results of language contact and shift. Whether languages are actually beholden to an underlying universal structure, and the features that this structure comprises, are elusive: this basic idea is frequently referred to as *universal grammar (UG)* (a concept often associated with Noam Chomsky), but the notion of shared, innate features of language is a much older one, and has long been a subject of inquiry for linguistic typology.

The two major typologically-relevant findings from modern Chukchi argument structure are: (i) linguistic features do meaningfully cluster together, suggesting that global linguistic descriptions such as *analytic* and *polysynthetic* are more than simply bins for more specific features; and (ii) speech varieties that have been heavily impacted by language contact and disrupted acquisition display patterns that are consistent with “healthy” languages of the world existing in predominantly monolingual settings. These findings underscore key assumptions behind the existence of some property that links all of human language together (whether or not we wish to call it UG): that

the presence or lack of certain features in the world's languages (and whether certain features co-occur) is not random. Virtually all of the deviations from traditional Chukchi that we can observe among modern speakers are entirely consistent with typological generalizations about the world's languages; the sole exception is the use of subject-incorporation in the creation of passive-like constructions among some attriting speakers, which may have been unintended production errors. Many of the observable changes can be described as a move toward the most commonly-attested pattern—e.g., a loss of object agreement—or a move toward a different statistical type—e.g., from polysynthesis to analysis.

The question of linguistic types and macro-features of language has already been addressed in Chapter 5: it seems difficult to assert, given the changes in Chukchi and observed cycles of morphosyntactic change (Hodge 1970, van Gelderen 2013, Coghill 2016), that certain morphosyntactic features are not inherently linked. What we have observed in Chukchi is a case of compensatory change within a system bounded by the available options, not unlike a push- or pull-chain in a vowel shift: as morphological concatenation becomes increasingly less common among certain speakers, they pivot to other (traditionally less-common, but nonetheless grammatical) means of expressing themselves.

The second question is one that is often asked in studies of multilingualism where there is interrupted or variable acquisition, such as heritage languages and “mixed” varieties, such as pidgins and creoles: is there a default or baseline set of linguistic features that make up a language, before environmental linguistic input shapes the speaker's grammar? This is indeed what some scholars of pidgins and creoles have assumed, in trying to understand features common to virtually all pidgin/creole languages. Famously, this is the major claim of Bickerton's (1984) *language bioprogram hypothesis*, which claims that these shared features in languages that are “largely invented by children” are, in fact, evidence of a basic human language faculty. Some of these shared features that Bickerton claims derive from a biologically innate system include basic SVO order, preverbal TAM markers, the use of bare nouns to signal genericity, and the use of invariant particles for many grammatical functions, such as modality, complement type (realized vs. unrealized), tense,

and aspect. This idea is also captured by McWhorter (1998)'s *creole prototype*, which notes that a prototypical creole lacks, among other things, most inflectional morphology. This kind of universalist account of the formation of creoles is not without controversy, with detractors pointing out that the idea of an innate grammar with a particular set of rules is too powerful and difficult to justify given the range of diversity in languages easily acquired by children, not to mention that the social evidence for “abrupt creolization” (the invention of creoles by children in the absence of a pre-existing pidgin and other significant linguistic input) is lacking. Setting aside these larger debates in the literature on pidgins and creoles, and the fraught question of what “innateness” truly refers to in language, it is the case that there are many shared features of nascent contact varieties, even though the contact languages that contribute to their emergence in some way differ from one another.

Both heritage languages (Polinsky 2018) and varieties that have changed by virtue of their endangerment are complementary case studies in exploring these sorts of questions: when acquisition is incomplete or when attrition sets in, what do speakers draw on to fill in the gaps when they are not utilizing features from their other, dominant language? One main feature that is common to all three language types—mixed varieties, heritage varieties of majority languages, and varieties under shift—is that there is a decline in or absence of synthetic morphological complexity. While even L2 learners of Chukchi make use of a complex system of inflectional morphology—that is, no heritage variety of Chukchi is remotely as morphologically isolating as a pidgin or creole—their morphology is significantly impoverished relative to that of conservative speakers. Still, we must be careful in assuming that these facts tell us anything about a “default setting” in languages as a whole, or the innate capacity for human communication. Rather, these tendencies inform us about characteristics of early childhood communication, and may point to tendencies in language use by largely solitary individuals without the availability of a full-fledged speech community with shared linguistic norms. In other words, the commonalities between these contact varieties provide evidence for Trudgill (2017)'s sociolinguistic-typological approach to the development of polysynthesis, which he claims is only possible in close-knit societies with dense social networks (with a

shared language)—i.e., exactly those that are absent in the heterogeneous contact settings that give rise to heritage varieties, creoles, and language endangerment.

Given these facts, it is understandable that much of the existing literature on structural change in language shift has focused on a loss of complexity—indeed, in the sense of sheer volume of derivational and inflectional morphology, endangered languages do show a reduction of these features. However, as in the case of creoles, they are not defective linguistic varieties and are governed by a rule-based system.

6.4 Implications for syntactic theory

As it turns out, the rule-based systems that are at work in attriting and heritage varieties do not present counter-examples to the foundational tenets of morphosyntactic theories, just as they do not present major exceptions to cross-linguistic typological generalizations.

Each of the morphosyntactic domains in Chapters 3-5 are considered in the broader context of the available syntactic theory (formal or otherwise), especially where various theories have attempted to account for traditional Chukchi patterns. The most important finding for syntactic theory in this thesis is the fact that non-normative speakers (such as attriting speakers, heritage speakers, and L2 learners) do indeed make use of a linguistic system to which we can productively apply the same frameworks that we apply to prototypical “fluent” language use.

In Chapter 3, we saw that the nature of syncretism in an attriting speaker’s verbal inflection was highly consistent and largely focused on the deletion of certain linguistic features (e.g., object person), but showed no meaningful syntactic differences (still requiring such processes as Multiple Agree to generate the agreement patterns). Similarly, reanalysis by the L2 speaker prioritized agreement with typologically marked features (such as plural number), showing that speakers triangulate on similar priorities in which information they preserve even as their inflectional system changes.

There were other types of variation among modern speakers that suggest underlying syntactic

changes—these, again, were changes that could be anticipated from the structure of the traditional language. For example, a loss of productive valency-changing affixes (such as antipassive and applicative voice) coincide with a loss of productive object incorporation, which is expected if these are underlyingly the same process (as suggested by Baker 1988). The fact that the loss of some morphemes outpaces others, historically and today, is also expected if we analyze the antipassive as a kind of underspecified object marker, given the dispreference heritage speakers show for material with low salience. Similarly, the rise of various analytic syntactic features for certain speakers is also expected if we assume that polysynthesis is derived by a number of inter-related micro-parameters.

Finally, heritage and attriting systems also afford us the opportunity to test existing syntactic theories against languages that are never spoken outside of a multilingual context, where a unique monolingual grammar cannot really be isolated. By their nature, these varieties exhibit significant variation, and call for approaches that can accommodate variability in certain processes, especially ones that lie at the morphosyntactic interface. Frameworks such as Distributed Morphology can do away with some of the issues underlying productivity of derivational morphology (and whether phenomena such as incorporation are lexical, syntactic, or both) by doing away with the division of labor between a lexicon and a syntax and relegating everything to the domain of the latter. There is ample evidence that noun incorporation comes in different varieties in even robustly-spoken languages (with various lexicalist and minimalist accounts zeroing in on domains to exclude from the analysis, drawing on distinctions such as compounding vs. actual incorporation). In scenarios where different speakers show variable behaviors with respect to the productivity and syntactic involvement of incorporation (i.e., the corresponding changes to argument structure), both at a given point in time and across their lifespans, it is desirable to adopt an approach that can unify these apparently different phenomena. Significant morphosyntactic innovation is also not restricted to these “non-normative” speakers; as we saw in Chapter 5, a highly proficient speaker has evidently innovated a new kind of nominal incorporation with syntactic repercussions (i.e., internally complex syntactic structure beyond merely adjectival or adverbial modification). The existence of this

pattern, and the possibility for this speaker to use it, alongside other speakers who exclusively use nominal incorporation conservatively to express adjectival modification of the head noun, must at least be taken into consideration by our syntax.

Still, in certain domains, it seems that reconciling heritage speaker variability resorting to multiple frameworks, as most individual frameworks are highly restrictive in the types of rules they allow. For example, in the verbal inflectional paradigms of modern speakers, while some patterns can be explained through the deletion (or Impoverishment) of specific features, other patterns are more easily explained through the merging of different parts of separate paradigms (e.g., merging stative and active tense paradigms) and as the extension of the entire verbal inflectional complex from one argument combination to another. These phenomena are much easier to reconcile with relational rules such as Rules of Referral (which can also be applied to explain the synchronic instantiation of PAT-type borrowing, where patterns such as inflectional paradigms are borrowed from a contact language).

These sorts of analytic difficulties should not be taken as evidence that these frameworks do not work or are individually insufficient, and certainly not that they should not be expected to work for variation or heritage varieties because they show “dysfluency.” Rather, in highlighting these varieties, I have explicitly focused on linguistic systems that are highly variable and differ from a “standard” that is widely accepted in a community: as linguists, we should think about what this type of variation means for the self-sufficiency of our frameworks, especially since multilingual language use is a norm throughout the world, and even monolingual speakers exhibit variable linguistic patterns.

6.5 Future work

Like most work with underdescribed languages, many of the findings of this thesis, including answers to questions that were explicitly targeted by the methodology, were unexpected and require further investigation. This thesis has served as a proof of concept that experimental methodology

can be productively applied in work with tiny numbers of participants, provided the number of experimental conditions is not overwhelming, and that speaker limitations in language endangerment settings (e.g., age, fatigue, ideology, etc.) are taken into account. Many of the descriptive generalizations outlined here can be further systematically tested through small experimental production and acceptability judgment tasks. For example, a number of the conclusions drawn throughout this study are based on the relative absence of certain production data by certain types of speakers. It is well known in work with less-proficient speakers that their production and their comprehension or perception do not necessarily align completely; thus, while a lack of production is meaningful, it does not signal that a particular feature is entirely absent from a speaker's grammar, a distinction that has been carefully observed throughout this thesis. With noun incorporation, production data demonstrated clear differences in both frequency and productivity among the different speaker groups; additional follow-up with acceptability testing, which targeted incorporation of various types of nouns into various types of verbs, revealed that even highly proficient speakers impose some limits on the contexts where they deem incorporation to be possible.

Similarly, the existing tasks in this study can be expanded and revisited with additional speakers. As I note in Chapter 1, the nature of field work with these communities precludes an ideal experimental setting in many ways, one of them being even participation in all tasks. The elicitation of both verbal and nominal inflection should be undertaken with more speakers, as these are domains displaying inter- and intra-speaker variation; the speakers whose systems are described here should be re-interviewed to see whether the patterns they produced are consistent across time.

Another area that could productively inform my conclusions is dialectal variation: most of the speakers who provided the data for this study live the city of Anadyr, and I was able to learn a great deal about the sociolinguistic setting there. It is conceivable that other smaller towns have a different linguistic ecology that may be more or less conducive to the preservation of Chukchi. It is also likely that rural areas, especially those where reindeer herding is still practiced by Chukchi speakers, will have slower rates of language shift, and may display different or more moderate structural linguistic effects. (Many of the tasks from this study have already been repeated with

speakers from other regions of Chukotka and the Sakha Republic at the time of writing.)

A number of specific linguistic questions about Chukchi have emerged from this study, which have implications for our understanding of the morphosyntax of the language and its implications for linguistic theory. An area that remains undertheorized in Chukchi is cross-clausal syntax—based on data from speaker production, there are few restrictions on clausal coordination and argument drop. However, some linguists have claimed that Chukchi speakers do have judgments about impossible co-reference; these claims are likely based on judgments from one speaker (or at most, a few), and as such requires further testing with a larger number of speakers. Other cross-clausal syntax that is important when evaluating configurationality and theories of polysynthesis, for which data on Chukchi is lacking (both historically and among modern speakers) is raising and control, and, in general, restrictions on the use of the infinitive (which is predicted not to exist in polysynthetic languages by Baker (1996)'s polysynthesis parameter).

There is also the larger question of derivational productivity: while there are clear tendencies in the data, the full derivational potential of different phenomena—modifier incorporation, voice/valency-changing operations, syntactic incorporation—was not directly targeted here. It would be useful to further investigate what the constraints on productivity actually are: can all nouns be incorporated (by the right verb), and can all verbs incorporate some noun? Can the most semantically-transparent voice affix, the causative, be applied to any inchoative intransitive verb? It is also necessary to investigate the extent to which the one inventive fluent speaker in this study is using truly innovative patterns, or whether other fluent speakers can also use syntactically-complex nominal incorporation constructions, or can multiply incorporate into participles. My preliminary work on the subject also reveals that speakers have strong aspectual judgments about nominal incorporation (that are absent in the corresponding participle constructions); these must be further targeted, along with judgments about complex nominal incorporation and the order (and scope) of multiple modifier incorporation in nouns.

Finally, it is clear that discourse structure and pragmatics are crucial in shaping Chukchi syntax, especially in narratives. In this thesis, I have largely avoided the question of word order, which is

thought to be pragmatically-conditioned in Chukchi. Pragmatics (as well as interface phenomena) are both areas that are difficult for less-proficient speakers to acquire fully; thus, this may be an especially robust area to consider when looking for differences between speakers of different ecological and acquisition backgrounds. While many of the speakers who participated in this study, including attriting speakers and heritage speakers, were accepting of virtually any word order, some speakers expressed different judgments about certain orders in certain contexts. Whether there is indeed a “default” word order under certain conditions, and whether different orders convey a meaning difference to speakers in a vacuum, is a fruitful area for future research.

Appendix A

Experimental design

A.1 General production task stimuli and conditions

Item	Valency	Animacy	θ-roles	Chukchi words	Glosses
1	INTR	ANIM		<i>məlawək</i>	dance.INF
			agent	<i>o^ʔrawetl^ʔat</i>	people.ABS
2	INTR	ANIM		<i>al^ʔeqatək</i>	swim.INF
			agent	<i>ŋinqej</i>	boy.ABS
3	INTR	ANIM		<i>kətgəntatək</i>	run.INF
			agent	<i>ŋewəcqet</i>	woman.ABS
4	INTR	ANIM		<i>jəlqetək</i>	sleep.INF
			experiencer	<i>ŋinqej</i>	boy.ABS
5	INTR	ANIM		<i>ergeetək</i>	drown.INF
			experiencer	<i>ŋinqej</i>	boy.ABS
6	INTR	ANIM		<i>peqetətək</i>	fall.INF
			experiencer	<i>ŋinqej</i>	boy.ABS
7	INTR	ANIM		<i>ŋətək</i>	depart.INF
			agent	<i>ŋinqej</i>	boy.ABS
8	TR (3-place)	ANIM + ANIM/INAN		<i>rəqametwawək</i>	feed.INF
			agent	<i>ŋewəcqet</i>	woman.ABS
			patient	<i>nənənə</i>	child.ABS
			instrument	<i>əpaŋə</i>	soup.ABS
9	TR (3-place)	ANIM + INAN/INAN		<i>enarkelek</i>	smear.INF
			agent	<i>ŋewəcqet</i>	woman.ABS
			patient	<i>kawkaw</i>	bread.ABS

			instrument	<i>parapar</i>	butter.ABS
10	TR (3-place)	ANIM + INAN/ANIM		<i>rintək</i>	throw.INF
			agent	<i>o[?]racek</i>	youth.ABS
			patient	<i>qepəl</i>	ball.ABS
			goal	<i>ηinqej</i>	boy.ABS
11	DITR	ANIM + INAN/ANIM		<i>rəl[?]uɣetək</i>	show.INF
			agent	<i>apajɣən</i>	grandfather.ABS
			patient	<i>gətgən</i>	lake.ABS
			experiencer	<i>ηinqej</i>	boy.ABS
12	INTR+	ANIM (+ INAN/ANIM)		<i>waɣek</i>	sew.INF
			agent	<i>epeqej</i>	grandmother.ABS
			patient	<i>k[?]eli</i>	hat.ABS
			beneficiary	<i>ηekkeqej</i>	girl.ABS
Expected argument structure: ‘The grandmother sews in order to make a hat for the girl.’					
13	TR (3-place)	ANIM + ANIM/INAN		<i>qegnewək</i>	shoot.INF
			agent	<i>qlawəl</i>	man.ABS
			patient	<i>rərəkə</i>	walrus.ABS
			location	<i>gilgil</i>	ice.ABS
14	TR (3-place)	ANIM + ANIM/INAN		<i>jətək</i>	pull.out.INF
			agent	<i>qlawəl</i>	man.ABS
			patient	<i>ənneen</i>	fish.ABS
			instrument	<i>a[?]nelgən</i>	rod.ABS
15	TR (3-place)	ANIM + INAN/INAN		<i>rəpək</i>	plant.INF
			agent	<i>ηinqegti</i>	boys.ABS
			patient	<i>uttuut</i>	tree.ABS
			location	<i>agtatwan</i>	yard.ABS
16	TR (3-place)	ANIM + INAN/INAN		<i>kelik</i>	write.INF

			agent	<i>ɲinqej</i>	boy.ABS
			patient	<i>kelinɲiwet</i>	letter.ABS
			instrument	<i>kelitkuneɲ</i>	pencil.ABS
17	DITR	ANIM + ANIM/ANIM		<i>ləgi rətɕək</i>	introduce.INF
			agent	<i>qlawəl</i>	man.ABS
			patient	<i>ɲeekək</i>	daughter.ABS
			experiencer	<i>ɲinqej</i>	boy.ABS
18	DITR	ANIM + ANIM/ANIM		<i>jələk</i>	give.INF
			agent	<i>ɲeekkeqej</i>	girl.ABS
			patient	<i>kej[?]ət[?]əqej</i>	puppy.ABS
			recipient	<i>ɲinqej</i>	boy.ABS
19	TR+	ANIM + ANIM		<i>rəgjiwetək</i>	explain.INF
			agent	<i>ɲewəcqet</i>	woman.ABS
			patient	<i>ɲeekkeqej</i>	girl.ABS
				<i>uwik</i>	cook.INF
20	TR	ANIM + ANIM		<i>jagnak</i>	encounter.INF
			agent	<i>qlawəl</i>	man.ABS
			patient	<i>ə[?]lgətumgətum</i>	close.friend.ABS
21	TR	ANIM + ANIM		<i>ə[?]lgu ləɲjo</i>	love.PASS.PART
			agent	<i>kal[?]elawəl</i>	student.ABS
			patient	<i>kelitkul[?]ən</i>	teacher.ABS
22	TR	ANIM + INAN		<i>gərkik</i>	gather.INF
			agent	<i>ɲinqej</i>	boy.ABS
			patient	<i>uun[?]ət</i>	berries.ABS
23	TR	ANIM + INAN		<i>tejkək</i>	build.INF
			agent	<i>ɲinqej</i>	boy.ABS

			patient	<i>jarajə</i>	house.ABS
24	TR	INAN + ANIM		<i>ratcəŋatək</i>	hide.INF
			natural cause	<i>jomromkət</i>	bushes.ABS
			patient	<i>milutet</i>	rabbits.ABS
25	TR	INAN + ANIM		<i>rəgəntewək</i>	frighten.INF
			force	<i>jəŋqergən</i>	lightning.ABS
			patient	<i>galgat</i>	geese.ABS
26	TR	INAN + INAN		<i>rəkəŋewək</i>	bend.INF
			force	<i>kətəjgən</i>	wind.ABS
			patient	<i>rətlət</i>	branches.ABS
27	TR	INAN + INAN		<i>enar[?]ek</i>	cover.INF
			natural cause	<i>ə[?]l[?]əl</i>	snow.ABS
			patient	<i>lejwineŋ</i>	vehicle.ABS

A.1.1 Notes on abbreviations and other conventions

Items were randomized before being presented to task participants. Argument animacy was binary: either animate or inanimate, with animals being considered animate for the purpose of the task. (Note that the Chukchi noun class system does not straightforwardly map onto semantic animacy distinctions and that membership in the “animate” noun class is at least somewhat fluid in the traditional language.)

In the Animacy column of the above table, the ordering represents the expected assignment of grammatical roles in the traditional Chukchi language: Subject + Object/Oblique. Thus, the expected sentence for Item 8, for example, was ‘The woman feeds the child with soup’, where ‘child’ is the object argument (marked with absolutive case) and ‘soup’ is an oblique argument (marked with the instrumental case by proficient speakers).

Most of the Valency column abbreviations should be transparent: INTR refers to intransitive verbs with one obligatory argument, TR refers to transitive verbs (two obligatory arguments), and

DITR refers to ditransitive verbs (verbs with three obligatory arguments, i.e., where the oblique argument cannot be omitted). TR verbs that are labeled as “3-place” are those where the stimulus was presented with a simple transitive verb and three arguments that the speaker was expected to use in constructing the sentence, but where the oblique argument is not obligatory for the verb (usually an instrument or a location). The INTR+ and TR+ labels indicate items where some of the provided arguments were not arguments of the main provided verb, and where the participant was expected to add a separate clause in order to “use up” those arguments.

Finally, the θ -roles (or semantic/thematic roles) column is provided to illustrate the varied semantics of the tested verbs (and their argument structures). The labels have been selected on the basis of how well they characterize the argument’s semantic role; I make no claims about whether this the “correct” set of roles. For example, although I have used “patient” here, others may argue that “theme” is a better label for at least some of the object arguments given above. I leave the debate about a uniform set of semantic roles to other scholars.

References

- Aldai, Gontzal. 2000. Split ergativity in Basque: The pre-Basque antipassive-imperfective hypothesis. *Folia Linguistica Historica* 21:31–97.
- Arregi, Karlos, and Andrew Nevins. 2012. *Morphotactics: Basque auxiliaries and the structure of spellout*. New York/London: Springer.
- Baker, Mark C. 1988. *Incorporation*. Chicago: University of Chicago Press.
- Baker, Mark C. 1996. *The polysynthesis parameter*. Oxford: Oxford University Press.
- Baker, Mark C. 2008. *The syntax of agreement and concord*. Cambridge: Cambridge University Press.
- Baker, Mark C. 2015. *Case: Its principles and its parameters*. Cambridge: Cambridge University Press.
- Baker, Mark C., Roberto Aranovich, and Lucía A. Golluscio. 2005. Two types of syntactic noun incorporation: Noun incorporation in Mapudungun and its typological implications. *Language* 81:138–176.
- Baker, Mark C., and Jonathan David Bobaljik. 2017. On inherent and dependent theories of ergative case. In *The Oxford handbook of ergativity*, eds. Jessica Coon, Diane Massam, and Lisa Demena Travis, 114–134. Oxford: Oxford University Press.
- Bakker, Peter, and Robert A. Papen. 1996. Michif: A mixed language based on Cree and French. In *Contact languages*, ed. Sarah Thomason, 295–364. Amsterdam: John Benjamins.
- Bertram, Raymond, Matti Laine, and Minna Maria Virkkala. 2001. The role of derivational morphology in vocabulary acquisition: Get by with a little help from my morpheme friends. *Scandinavian Journal of Psychology* 41:287–296. URL <https://doi.org/10.1111/1467-9450.00201>.
- Bickel, Balthasar, and Johanna Nichols. 2007. Inflectional morphology. In *Language typology and syntactic description (revised 2nd edition)*, ed. Timothy Shopen, 169–240. Cambridge: Cambridge University Press.
- Bickerton, Derek. 1984. The language bioprogram hypothesis. *The Behavioral and Brain Sciences* 7:173–221.
- Bobaljik, Jonathan D., and Phil Branigan. 2007. Eccentric agreement and multiple case checking. In *Ergativity*, eds. Alana Johns, Diane Massam, and Juvenal Ndayiragije, 47–77. Dordrecht: Springer.
- Bobaljik, Jonathan David. 1998. Pseudo-ergativity in Chukotko-Kamchatkan agreement systems. *Recherches Linguistiques de Vincennes* 27:21–44.

- Bobaljik, Jonathan David. 2008. From syntax to exponence: Some Chukchi evidence. URL <https://research.uni-leipzig.de/exponet/Slides/January08/Bobaljik.pdf>, hand-out presented at the Exponence Network Meeting, Leipzig.
- Bobaljik, Jonathan David. 2020. A Chukotko-Kamchatkan inverse? *næ-. Presentation at the Morphology & Syntax Workshop, University of Chicago.
- Bogoras, Waldemar G. 1922. Chukchee. In *Handbook of American Indian languages, pt. 2*, ed. Franz Boas, volume 40 of *BAE-Bulletin*, 631–903. Washington DC: Government Printing Office.
- Bowerman, Melissa. 1982. Evaluating competing linguistic models with language acquisition data: Implications of developmental errors with causative verbs. *Quaderni di Semantica* 3:566.
- Bruening, Benjamin. 2001. Syntax at the edge: Cross-clausal phenomena and the syntax of Pas-samaquoddy. Doctoral Dissertation, Massachusetts Institute of Technology, Cambridge, MA.
- Butt, Miriam, and Tafseer Ahmed. 2011. The redevelopment of Indo-Aryan case systems from a lexical semantic perspective. *Morphology* 21:545–572.
- Campbell, Lyle, and Martha C. Muntzel. 1989. The structural consequences of language death. In *Investigating obsolescence: Studies in language contraction and death*, ed. Nancy C. Dorian, 181–196. Cambridge: Cambridge University Press.
- Chomsky, Noam, and Howard Lasnik. 1993. The theory of principles and parameters. In *Syntax: An international handbook of contemporary research*, eds. Joachim Jacobs, Arnim von Stechow, Wolfgang Sternefeld, and Theo Vennemann, 506–569. Berlin: Walter de Gruyter.
- Clahsen, Harald, and Kathleen Neubauer. 2010. Morphology, frequency, and the processing of derived words in native and non-native speakers. *Lingua* 120:2627–2637. URL <https://doi.org/10.1016/j.lingua.2010.06.007>.
- van Coetsem, Frans. 1988. *Loan phonology and the two transfer types in language contact*, volume 27 of *Publications in the language sciences*. Berlin: Mouton de Gruyter.
- van Coetsem, Frans. 2000. *A general and unified theory of the transmission process in language contact*, volume 19 of *Monographien zur Sprachwissenschaft*.
- Coghill, Eleanor. 2016. *The rise and fall of ergativity in Aramaic*. Oxford: Oxford University Press.
- Comrie, Bernard. 1979. Degrees of ergativity: Some Chukchee evidence. In *Ergativity: Towards a theory of grammatical relations*, ed. Frans Plank, 219–240. London/New York: Academic Press.
- Comrie, Bernard. 1980. Inverse verb forms in Siberia: Evidence from Chukchee, Koryak, and Kamchadal. *Folia Linguistica* 1:61–74.
- Comrie, Bernard. 1981. *The languages of the Soviet Union*. Cambridge: Cambridge University Press.

- Comrie, Bernard. 1996. Language contact in northeastern Siberia (Chukotka and Kamchatka). In *Language contact in the Arctic*, eds. Ernst Håkon Jahr and Ingvild Broch, 33–45. Berlin: Mouton de Gruyter.
- Croft, William. 2003. *Typology and universals*. Cambridge: Cambridge University Press.
- Dahl, Östen. 2017. Polysynthesis and complexity. In *The Oxford handbook of polysynthesis*, eds. Michael Fortescue, Marianne Mithun, and Nicholas Evans, 19–29. Oxford: Oxford University Press.
- Demuth, Bathsheba. 2019. When the Soviet Union freed the Arctic from capitalist slavery. *The New Yorker* URL <https://www.newyorker.com/news/dispatch/when-the-soviet-union-freed-the-arctic-from-capitalist-slavery>.
- Dikov, N. N. 1989. *Istoriya chukotki: s drevnejshix vremen do nashix dnei*. Moscow: Ripol Klassik.
- Dixon, R. M. W. 1979. Ergativity. *Language* 55:59–138.
- Dorian, Nancy C. 1981. *Language death: The life cycle of a Scottish Gaelic dialect*. Philadelphia: University of Pennsylvania Press.
- Dorian, Nancy C. 1989. *Investigating obsolescence: Studies in language contraction and death*. Cambridge: Cambridge University Press.
- Dunn, Michael. 1994. A sketch grammar of Chukchi. B.A. thesis, Australian National University, Canberra.
- Dunn, Michael. 1999. A grammar of Chukchi. Doctoral Dissertation, Australian National University, Canberra.
- Dunn, Michael. 2000. Chukchi women's language: A historical-comparative perspective. *Anthropological Linguistics* 42:305–328.
- Ershova, Ksenia. 2019. Syntactic ergativity in West Circassian. Doctoral Dissertation, University of Chicago, Chicago.
- Ershova, Ksenia. 2020. Two paths to polysynthesis: Evidence from West Circassian nominalizations. *Natural Language and Linguistic Theory* 38:425–475. URL <https://doi.org/10.1007/s11049-019-09455-w>.
- Evans, Nicholas. 2001. The last speaker is dead – long live the last speaker! In *Linguistic fieldwork*, eds. Paul Newman and Martha Ratliff, 250–281. Cambridge: Cambridge University Press.
- Forsyth, James. 1992. *A history of the peoples of Siberia*. Cambridge: Cambridge University Press.
- Fortescue, Michael. 1997. Eskimo influence on the formation of the Chukotkan ergative clause. *Studies in Language* 21:369–409.

- Fortescue, Michael. 2003. Diachronic typology and the genealogical unity of Chukotko-Kamchatkan. *Linguistic Typology* 7:51–88.
- García, Ofelia, and Li Wei. 2015. *Translanguaging: Language, bilingualism, and education*. New York: Palgrave Macmillan.
- van Gelderen, Elly. 2013. The linguistic cycle and the language faculty. *Language and Linguistics Compass* 7:233–250.
- Gillon, Carrie, and Nicole Rosen. 2018. *Nominal contact in Michif*. Oxford: Oxford University Press.
- Golovko, Eugeni V., and Nikolai B. Vakhtin. 1990. Aleut in contact: The C[opper] I[sland] A[leut] enigma. *Acta Linguistica Hafniensa* 22:97–125.
- González-Vilbazo, Kay, and Luis Lopéz. 2011. Some properties of light verbs in code-switching. *Lingua* 121:832–850. URL <https://doi.org/10.1016/j.lingua.2010.11.011>.
- Grenoble, Lenore A. 2000. Morphosyntactic change: The impact of Russian on Evenki. *Studies in Slavic and General Linguistics* 28:105–120.
- Grenoble, Lenore A., Jessica Kantarovich, Irena Khokhlova, and Liudmila Zamorshchikova. 2019. Diminishing (typological) diversity in a Russian-Turkic contact zone. *Suvremena Lingvistika* 45:41–57. URL <https://doi.org/10.22210/suvlin.2019.087.05>.
- Gribanova, Vera. 2013. Verb-stranding verb phrase ellipsis and the structure of the Russian verbal complex. *Natural Language and Linguistic Theory* 31:91–136. URL <https://doi.org/10.1007/s11049-012-9183-3>.
- Grinevald, Colette, and Michel Bert. 2011. Speakers and communities. In *The Cambridge handbook of endangered languages*, eds. Peter K. Austin and Julia Sallabank, 45–65. Cambridge: Cambridge University Press.
- Halle, Morris. 1997. Distributed Morphology: Impoverishment and fission. In *PF: Papers at the interface*, volume 30 of *MIT Working Papers in Linguistics*, 425–449. Cambridge, MA: MIT.
- Halle, Morris, and Ken Hale. 1997. Chukchi transitive and antipassive constructions. Ms.
- Haspelmath, Martin, and Ekkehard König. 1995. *Converbs in cross-linguistic perspective: Structure and meaning of adverbial verb forms*. Berlin: Mouton de Gruyter.
- Haugen, Jason D. 2008. *Morphology at the interfaces: Reduplication and noun incorporation in Uto-Aztecan*. Amsterdam: John Benjamins.
- Heine, Bernd, and Tania Kuteva. 2002. *The world lexicon of grammaticalization*. Cambridge: Cambridge University Press.
- Hill, Jane H. 1973. Subordinate clause density and language function. In *You take the high node and I'll take the low node: Papers from the Comparative Syntax Festival*, eds. Claudia Corum, T. Cedric Smith-Clark, and Ann Weiser, 33–52. Chicago: Chicago Linguistic Society.

- Himmelreich, Anke. 2017. Case matching effects in free relatives and parasitic gaps: A study on the properties of Agree. Doctoral Dissertation, Universität Leipzig, Leipzig, Germany.
- Hiraiwa, Ken. 2001. Multiple Agree and the defective intervention constraint in Japanese. In *Proceedings of HUMIT 2000*, ed. Ora Matushansky et al., 67–80. Cambridge, MA: MIT Working Papers in Linguistics 40.
- Hodge, Carleton. 1970. The linguistic cycle. *Linguistic Sciences* 13:1–7.
- Jelinek, Eloise. 1984. Empty categories, case, and configurationality. *Natural Language and Linguistic Theory* 2:39–76.
- Joseph, Brian D. 2009. Greek dialectal evidence for the role of the paradigm in inflectional change. *Morphology* 19:45–57.
- Joseph, Brian D. 2013. Multiple sources and multiple cases multiply explored. *Studies in Language* 27:675–691.
- Kantarovich, Jessica. 2012. The linguistic legacy of Russians in Alaska: Russian contact and linguistic variation in Alaska, with special attention to Ninilchik Russian. B.A. honors thesis, University of Chicago, Chicago.
- Kantarovich, Jessica. 2016. Pitch accent in Heritage Lithuanian. Master's thesis, University of Chicago, Chicago.
- Kantarovich, Jessica. 2019. Alignment change in Chukotkan: Further exploration of the pathways to ergativity. *Diachronica* 36:222–261. URL <https://doi.org/10.1075/dia.18016.kan>.
- van Koppen, Marjo. 2005. One probe – two goals: Aspects of agreement in Dutch dialects. Doctoral Dissertation, Leiden University, Leiden, The Netherlands.
- Krupnik, Igor, and Michael Chlenov. 2013. *Yupik transitions: Change and survival at Bering Strait, 1900-1960*. Fairbanks: University of Alaska Press.
- Levin, M. G. 1963. *Ethnic origins of the peoples of northeastern Asia*. Toronto: University of Toronto Press.
- Lipski, John M. 2001. “Fluent dysfluency” as congruent lexicalization: A special case of radical code-mixing. *Journal of Language Contact* 2:1–39. URL <https://doi.org/10.1163/000000009792497742>.
- MacSwan, Jeff. 2016. Codeswitching and the timing of lexical insertion. *Linguistic Approaches to Bilingualism* 6:786–791. URL <https://doi.org/10.1075/lab.6.6.08mac>.
- MacSwan, Jeff. 2017. A multilingual perspective on translanguaging. *American Educational Research Journal* 54:167–201. URL <https://doi.org/10.3102/0002831216683935>.
- Malkiel, Yakov. 1967. Multiple versus simple causation in linguistic change. In *To honor Roman Jakobson: Essays on the occasion of his seventieth birthday, 1228–1246*. The Hague & Paris: Mouton.

- Massam, Diane. 2001. Pseudo noun incorporation in Niuean. *Natural Language & Linguistic Theory* 19:153–197.
- Matras, Yaron, and Peter Bakker. 2003. *The mixed language debate: Theoretical and empirical advances*. Berlin: De Gruyter Mouton.
- McWhorter, John H. 1998. Identifying the creole prototype: Vindicating a typological class. *Language* 74:788–818. URL <https://doi.org/10.2307/417003>.
- Meakins, Felicity. 2014. Language contact varieties. In *The languages and linguistics of Australia: A comprehensive guide*, eds. Harold Hoch and Rachel Nordlinger, 361–411. Berlin: Mouton.
- Menovščikov, Georgij A. 1967. *Grammatika jazyka aziatskix èskimosov*. Leningrad: Nauka.
- Merchant, Jason. 2015. On ineffable predicates: Bilingual Greek-English code-switching under ellipsis. *Lingua* 166:199–213. URL <http://dx.doi.org/10.1016/j.lingua.2015.03.010>.
- Mithun, Marianne. 1984. The evolution of noun incorporation. *Language* 60:847–894.
- Mithun, Marianne. 1989. The incipient obsolescence of polysynthesis: Cayuga in Ontario and Oklahoma. In *Investigating obsolescence*, ed. Nancy C. Dorian, 243–257. Cambridge: Cambridge University Press.
- Mithun, Marianne. 2008. The emergence of agentive systems. In *The typology of semantic alignment systems*, eds. Mark Donohue and Søren Wichmann, 297–333. Oxford: Oxford University Press.
- Mithun, Marianne. 2017. Argument marking in the polysynthetic verb and its implications. In *The Oxford handbook of polysynthesis*, eds. Michael Fortescue, Marianne Mithun, and Nicholas Evans, 30–58. Oxford: Oxford University Press.
- Moll, T. A., and P. I. Inenlikej. 1957. *Chukotsko-russkij slovar'*. Leningrad: Gosudarstvennoe Uchebno-pedagogicheskoe Izdatel'stvo Ministerstvo Prosveshchenija RSFSR Leningradskoe Otdelenie.
- Montrul, Silvina. 2001. First-language-constrained variability in the second-language acquisition of argument-structure-changing morphology with causative verbs. *Second Language Research* 17:144–194.
- Moore, Robert E. 1988. Lexicalization versus lexical loss in Wasco-Wishram language obsolescence. *International Journal of American Linguistics* 54:453–468.
- Mufwene, Salikoko S. 2000. Creolization is a social, not a structural, process. In *Degrees of restructuring in creole languages*, eds. Ingrid Neumann-Holzschuh and Edgar W. Schneider, volume 22 of *Creole Language Library*, 65–83. Amsterdam: John Benjamins.
- Mufwene, Salikoko S. 2001. *The ecology of language evolution*. Cambridge: Cambridge University Press.

- Mufwene, Salikoko S. 2008. *Language evolution: Contact, competition, and change*. London/New York: Continuum International Publishing Group.
- Muysken, Pieter. 1996. Media Lengua. In *Contact languages*, ed. Sarah Thomason, 365–426. Amsterdam: John Benjamins.
- Muysken, Pieter. 2000. *Bilingual speech: A typology of code-mixing*. Cambridge: Cambridge University Press.
- Myers-Scotton, Carol. 1992. Codeswitching as a mechanism of deep borrowing, language shift, and language death. In *Language death: Factual and theoretical explorations with special reference to East Africa*, ed. Matthias Brenzinger, 31–58. Berlin: Mouton de Gruyter.
- Myers-Scotton, Carol. 1993. *Duelling languages: Grammatical structure in codeswitching*. Oxford: Oxford University Press.
- Namboodiripad, Savithry. 2017. An experimental approach to variation and variability in constituent order. Doctoral Dissertation, University of California, San Diego, San Diego, CA.
- Namboodiripad, Savithry, Dayoung Kim, and Gyeongnam Kim. 2018. English-dominant Korean-speakers show reduced flexibility in constituent order. In *Proceedings of the 53rd annual meeting of the Chicago Linguistic Society*, eds. Daniel Edmiston, Marina Ermolaeva, Emre Hakgüder, Jackie Lai, Kathryn Montemurro, Brandon Rhodes, Amara Sankhagowit, and Michael Tabatowski, 247–259.
- Nedjalkov, Vladimir P. 1979. Degrees of ergativity in Chukchee. In *Ergativity: Towards a theory of grammatical relations*, ed. Frans Plank, 241–262. London/New York: Academic Press.
- Nevins, Andrew, and Jeffrey K. Parrott. 2010. Variable rules meet Impoverishment theory: Patterns of agreement leveling in English varieties. *Lingua* 120:1135–1159. URL <https://doi.org/10.1016/j.lingua.2008.05.008>.
- Nicoladis, Elena. 2005. The acquisition of complex deverbal words by a French-English bilingual child. *Language Learning* 55:415–443. URL <https://doi.org/10.1111/j.0023-8333.2005.00311.x>.
- Noyer, Robert Rolf. 1997. *Features, positions, and affixes in autonomous morphological structure*. New York: Garland Press.
- O'Rourke, Bernadette, Joan Pojolar, and Fernando Ramallo. 2015. New speakers of minority languages: The challenging opportunity. *International Journal of the Sociology of Language* 231:1–20. URL <https://doi.org/10.1515/ijsl-2014-0029>.
- Oxford, Will. 2019. Inverse marking and Multiple Agree in Algonquin: Complementarity and variability. *Natural Language and Linguistic Theory* 37:955–996.
- Park, Cynthia Darche. 1980. Productivity of derivational morphemes among bilingual children. Paper presented at the Annual Meeting of the American Educational Research Association, Boston, MA.

- Polinskaja, Maria S., and Vladimir P. Nedjalkov. 1987. Contrasting the absolutive in Chukchee: Syntax, semantics, and pragmatics. *Lingua* 71:239–269.
- Polinsky, Maria. 1995. Cross-linguistic parallels in language loss. *Southwest Journal of Linguistics* 14:87–123.
- Polinsky, Maria. 2006. Incomplete acquisition: American Russian. *Journal of Slavic Linguistics* 12:192–262.
- Polinsky, Maria. 2007. Reaching the end point and stopping midway: Different scenarios in the acquisition of Russian. *Russian Linguistics* 31:159–199.
- Polinsky, Maria. 2017. Antipassive. In *The Oxford handbook of ergativity*, eds. Jessica Coon, Diane Massam, and Lisa Demena Travis, 308–331. Oxford: Oxford University Press.
- Polinsky, Maria. 2018. *Heritage languages and their speakers*. Cambridge MA: Cambridge University Press.
- Pupynina, Maria, and Yury Koryakov. 2019. Chukchi-speaking communities in three Russian regions: A 120-year story of language shift. *Sibirica* 18:78–124. URL <https://doi.org/10.3167/sib.2019.180205>.
- Pupynina, Maria J. 2009. Problema jazykovyx kontaktov na severo-vostoke rossii (Na primere imennogo otricanija v chukotsko-koryakskix i tunguso-man'churskix jazykax). *Vestnik Sankt-Peterburgskogo Universiteta* 1:130–134.
- Pupynina, Maria J. 2013. Chukotskij jazyk: geografija, govory i predstavlenija nositelej o chlenenii svoej jazykovoj obshchnosti. *Acta Linguistica Petropolitana* 9:245–260.
- Pupynina, Maria J. 2018. Osobennosti kolymnskogo varianta chukotskogo jazyka. *Voprosy Jazykoznanija* 3:112–127.
- Ranavrol'tyn, Grigori I. 2007. Dialects in the Chukchi language. *Études/Inuit/Studies* 31:305–306. URL <https://doi.org/10.7202/019730ar>.
- de Reuse, Willem J. 1994a. English loanwords in the native languages of the Chukotka Peninsula. *Anthropological Linguistics* 35:56–68.
- de Reuse, Willem J. 1994b. *Siberian Yupik Eskimo: The language and its contacts with Chukchi*. Salt Lake City: University of Utah Press.
- de Reuse, Willem J. 1996. Chukchi, English, and Eskimo: A survey of jargons in the Chukotka area. In *Language contact in the Arctic*, eds. Ernst Håkon Jahr and Ingvild Broch, 47–62. Berlin: Mouton de Gruyter.
- Rodríguez-Ordóñez, Itxaso. 2017. Reexamining differential object marking as a linguistic contact-phenomenon in Gernika Basque. *Journal of Language Contact* 10:318–352.
- Rosen, Sarah Thomas. 1989. Two types of noun incorporation: A lexical analysis. *Language* 65:294–317.

- Sadock, Jerrold. 1980. Noun incorporation in Greenlandic Eskimo: A case of syntactic word formation. *Language* 57:300–319.
- Sakel, Jeanette. 2007. Types of loan: Matter and pattern. In *Grammatical borrowing in cross-linguistic perspective*, eds. Yaron Matras and Jeanette Sakel, 15–29. Berlin: Mouton de Gruyter.
- Sankoff, David, and Shana Poplack. 1981. A formal grammar for code-switching. *International Journal of Human Communication* 14:3–46. URL <https://doi.org/10.1080/08351818109370523>.
- Sapir, Edward. 1921. *Language: An introduction to the study of speech*. New York: Harcourt/Brace.
- Sasse, Hans-Jürgen. 1992. Theory of language death. In *Language death: Factual and theoretical explorations with special reference to East Africa*, ed. Matthias Brenzinger, 7–30. Berlin: Mouton de Gruyter.
- Sasse, Hans-Jürgen. 2001. Typological changes in language obsolescence. In *Language typology and language universals: An international handbook*, eds. Martin Haspelmath, Ekkehard König, W. Oesterreicher, and W. Raible, 1668–1677. Berlin: Mouton de Gruyter.
- Schmid, Monika S. 2011. *Language attrition*. Cambridge: Cambridge University Press.
- Schmidt, Annette. 1985. *Young people's Dyirbal: An example of language death from Australia*. Cambridge: Cambridge University Press.
- Siewierska, Anna. 2013. Verbal person marking. In *The world atlas of language structures online*, eds. Matthew S. Dryer and Martin Haspelmath. Leipzig: Max Planck Institute for Evolutionary Anthropology. URL <http://wals.info/chapter/102>.
- Silverstein, Michael. 1976. Hierarchy of features and ergativity. In *Grammatical categories in Australian languages*, ed. R. M. W. Dixon, 112–171. Canberra: Australian National University.
- Silverstein, Michael. 1981. Case marking and the nature of language. *Australian Journal of Linguistics* 1:227–247.
- Skorik, Pjotr Ja. 1948. Očerki po sintaksisu chukotskogo jazyka. Doctoral Dissertation, Uchpedgiz, Leningrad.
- Skorik, Pjotr Ja. 1958. K voprosu o klassifikatsii chukotsko-kamchatskix jazykov. *Voprosy Jazykoznanija* 1:21–35.
- Skorik, Pjotr Ja. 1960. O kategorii zaloga v chukotskom jazyke. *Voprosy Grammatiki* 128–150.
- Skorik, Pjotr Ja. 1961. *Grammatika chukotskogo jazyka*, volume 1. Moscow/Leningrad: Akademija Nauk USSR.
- Skorik, Pjotr Ja. 1977. *Grammatika chukotskogo jazyka*, volume 2. Moscow/Leningrad: Akademija Nauk USSR.

- Smith-Christmas, Cassie, Noel P. Ó Murchadha, Michael Hornsby, and Máiréad Moriarty. 2017. *New speakers of minority languages: Linguistic ideologies & practices*. London: Palgrave Macmillan. URL <https://doi.org/10.1057/978-1-137-57558-6>.
- Sorace, Antonella. 2011. Pinning down the concept of “interface” in bilinguals. *Linguistic Approaches to Bilingualism* 1:1–33. URL <http://doi.org/10.1075/lab.1.1.01sor>.
- Spencer, Andrew. 1996. Agreement morphology in Chukotkan. *Essex Research Reports in Linguistics* 10:1–34.
- Stump, Gregory. 2001. *Inflectional morphology: A theory of paradigm structure*. Cambridge: Cambridge University Press.
- Thomason, Sarah G. 2001. *Language contact: An introduction*. Washington, D.C.: Georgetown University Press.
- Thomason, Sarah G., and Terrence Kaufman. 1988. *Language contact, creolization, and genetic linguistics*. Berkeley: University of California Press.
- Tilstra, Janet, and Kristen McMaster. 2007. Productivity, fluency, and grammaticality measures from narratives: Potential indicators of language proficiency? *Communication Disorders Quarterly* 29:43–53. URL <https://doi.org/10.1177/1525740108314866>.
- Trudgill, Peter. 2017. The anthropological setting of polysynthesis. In *The Oxford handbook of polysynthesis*, ed. Nicholas Evans Michael Fortescue, Marianne Mithun, 186–202. Oxford: Oxford University Press.
- Tsitsipis, Lukas D. 1992. On some uses of poetics in the ethnographic study of speech: Lessons from interaction in language shift contexts. *Journal of Modern Greek Studies* 10:87–109.
- Tuite, Kevin. 1999. The myth of the Caucasian Sprachbund: The case of ergativity. *Lingua* 108:1–26.
- Tyler, Andrea, and William Nagy. 1989. The acquisition of English derivational morphology. *Journal of Memory and Language* 28:649–667. URL [https://doi.org/10.1016/0749-596X\(89\)90002-8](https://doi.org/10.1016/0749-596X(89)90002-8).
- Vakhtin, Nikolai, and Ekaterina Gruzdeva. 2017. Language obsolescence in polysynthetic languages. In *The Oxford handbook of polysynthesis*, eds. Michael Fortescue, Marianne Mithun, and Nicholas Evans, 428–446. Oxford: Oxford University Press.
- Volodin, Aleksandr P. 1992. Chukotsko-kamchatskie jazyki. In *Jazyki mira: Paleoaziatskie jazyki*, eds. Aleksandr P. Volodin, Nikolai B. Vakhtin, and Andrej A. Kibrik, 12–22. Moscow: Rossijskaja Akademija Nauk Institut Jazykoznanija.
- Wade, Terence. 1992. *A comprehensive Russian grammar*. Oxford: Blackwell Publishers.
- Weinreich, Uriel. 1953/1968. *Languages in contact: Findings and problems*. The Hague/Paris/New York: Mouton Publishers.

Weinstein, Charles. 2005. *Chukchi-French-English-Russian dictionary*, volume 2. Anadyr: GAO DPO ChIRiPK.

Winford, Don. 2003. Contact-induced changes: Classification and processes. *OSU Working Papers in Linguistics* 57:129–150.