

THE UNIVERSITY OF CHICAGO

CINEMA'S MOTION FORMS:
FILM THEORY, THE DIGITAL TURN, AND THE POSSIBILITIES OF CINEMATIC
MOVEMENT

A DISSERTATION SUBMITTED TO
THE FACULTY OF THE DIVISION OF THE HUMANITIES
IN CANDIDACY FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY

DEPARTMENT OF CINEMA AND MEDIA STUDIES

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CHICAGO, ILLINOIS

DECEMBER 2017

The filmmaker considers form merely as the form of a movement.

—Jean Epstein

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Abstract

This dissertation reworks a set of central debates in film theory by analyzing the aesthetics of cinematic motion. Providing a corrective to classical film theory's preoccupation with the materiality of photography and more recent debates over the ontological separation of analog and digital media, I locate the uniqueness of cinematic experience in the aesthetic possibilities of cinema's inscription of motion. Through the phenomenological analysis of Gestalt structures and patterns of movement unique to the moving image—what I call cinema's *motion forms*—I demonstrate the various ways that cinematic motion is distinct from natural motion perception. By analyzing several of cinema's motion forms shared across analog and digital cinemas, and revealing their logics of experience, I provide a fresh look on a set of problems of film theory.

Each chapter pairs a phenomenological analysis of a particular motion form with an intervention in a film theoretical argument or assumption. The first chapter, "Contingent Motion," challenges realist film theory's historic emphasis on the photographic index by examining the perceptual affinities between the "wind in the trees" phenomenon of early cinema and the fascination with hyperrealist depictions of water, fire, and hair in recent computer animation. The second chapter, "Habitual Gestures," focuses on sequences in postwar realist cinema that depict characters engaged in household chores and ordinary tasks, and argues that their reality effects are based around encounters with forms of bodily movement. The third chapter, "Spatial Unfurling," explores the perceptual effects of flatness and visual rhythm shared by certain forms of camera movement in order to rethink the intuition that the moving camera virtually moves the spectator through the film's world. And the fourth chapter, "Bleeding Pixels," examines the visual qualities of digital video's compression glitches in order to elucidate logical aporias endemic to the analysis of digital cinema. Through these case studies, this dissertation argues for the motion form as not only a neglected aspect of cinematic experience but also as an analytical tool for rethinking film theory.

Acknowledgments

Each page of this dissertation is marked by an insurmountable debt, not least of which is owed to the members of my dissertation committee, Dan Morgan, David Rodowick, Tom Gunning, and Noa Steimatsky. First and foremost, I wish to thank Dan Morgan, my committee chair. Working with Dan has proven to be an irreplaceable part of my development as a scholar. It is only with the aid of his intellectual generosity, his curiosity, and his confidence in my intuitions that this dissertation could have even been conceived. At the same time, his insistence on clarity and argumentative rigor taught me the value of checking my intuitions, stepping outside of myself, and considering my reader. Put simply, any intellectual development I've had as a scholar I owe to Dan's devoted guidance.

David Rodowick, meanwhile, kept me afloat with his unwavering enthusiasm and good spirit; so much of this project's development was fostered by his steady and reliable encouragement, not to mention his unmatched attention to detail. Throughout my time working with him, David has remained a constant source of light. To Tom Gunning I owe a model for endless intellectual curiosity and a way of seeing the wonder in the everyday. Sitting in on one of Tom's lectures or having a conversation with him was for me an instant cure for writer's block, and what's more, a reminder of what drew me to film studies in the first place. Any trace of sincerity and passion in my writing I owe to Tom. From Noa Steimatsky I learned to always question my assumptions and trust my instincts that things are often more complex than they seem. Her inimitable way of speaking and writing about films, and her unquestioned commitment to maintaining the integrity of her aesthetic experiences, proved and continues to prove to be an inspiration to me. I could not have asked for a more thoughtful, generous, and inspiring group of people to have worked with. Moreover, I cannot think of a group of scholars whose work I admire more. This dissertation in many ways has emerged

directly from their ideas and ways of thinking about moving images; it merely continues a conversation that they have started.

Apart from my committee, I owe a special debt to faculty I've had the fortune of working with and learning from during my time at both the University of Chicago and the University of Pittsburgh. Richard Neer has proved time and again to be a tremendous wellspring of ideas and an enthusiastic interlocutor. His way of speaking and writing about aesthetic experience across a range of media has profoundly shaped my thoughts about moving images. Salomé Skvirsky has generously offered a keen and critical eye to drafts of my work and has made innumerable insights in workshops and in conversation. More broadly, my work has benefited from conversations and brief exchanges, both in and out of the classroom, with Robert Bird, Dominique Bluher, Allyson Nadia Field, Patrick Jagoda, James Lastra, Yuri Tsivian, Takuya Tsunoda, and Jennifer Wild. At the University of Pittsburgh, my early graduate school education was shaped by seminars with a range of faculty in the Film Studies program. Randal Halle, Marcia Landy, Adam Lowenstein, Neepa Majumdar, and David Pettersen deserve special mention. Much of the enthusiasm that marked my first two years of graduate school and which propelled me throughout the remaining years I owe to them.

Outside of faculty mentors, the work of two scholars in particular, Ryan Pierson and Scott Richmond, has had a considerable impact on my work. At the critical juncture between coursework and the dissertation, when finding a sense of intellectual identity and crafting a project could be delayed no longer, it was largely through reading and rereading the work of these two scholars that I began to develop a sense of my own academic interests. It is in fact icing on the cake that both Ryan and Scott have been extremely generous interlocutors, and have taught me as much in conversation as they have on the page. I am lucky to call the two of them friends.

Of course, I am immensely grateful to my fellow graduate students. Most significantly, I owe a special debt to a peer writing group founded and organized by Mikki Kressbach, in which a small group of graduate students in Cinema and Media Studies would share and critique work on a weekly basis. Over a period of three years (and still going strong), the writing group quickly became much more than a forum to share and critique work in progress; it became a space of intellectual community, a haven of mutual encouragement, and at times a much needed venue for blowing off steam. This dissertation has been shaped profoundly by all of my colleagues who have participated in this group throughout the years: Will Carroll, Hannah Frank, Matt Hubbell, Ian Jones, Mikki Kressbach, Nicole Morse, Tyler Schroeder, and Ling Zhang. I am also indebted to the University of Chicago's workshop system, particularly the Mass Culture Workshop. Attending the workshops had a significant effect on my education; it is a unique learning experience to see ideas in formation, especially for a young graduate student. Presenting my own writing at the workshops had an equally significant effect on my work, and I wish to thank the many graduate student participants for their generous and insightful feedback. I am especially indebted to Dave Burnham, Chris Carloy, Matt Hauske, Zain Jamshaid, Katerina Korola, Tien-Tien Zhang, Noa Merkin, Sabrina Negri, A.P. Pettinelli, James Rosenow, Nova Smith, Aurore Spiers, Amy Skjerseth, Pao-Chen Tang, Artemis Willis, and Panpan Yang. Perhaps most of all, what deserves mention are the friendships that have grown with many of the colleagues I've listed above. Thank you for sharing movies, meals, games, laughs, and your endless support over the years. This cannot be stressed enough.

I am equally grateful to the graduate students in Film Studies at the University of Pittsburgh, where I began my graduate study. These first two years were formative for me, and the sense of comradery, good cheer, and intellectual exchange fostered by the graduate students at Pitt left an indelible impression. In many ways, I was brought up as a scholar in the halls of the Cathedral of Learning and huddled on the second floor of "The Cage." I am here thinking of Kerry Banazek,

Katie Bird, Olga Blackledge, Kelsey Cameron, Veronica Fitzpatrick, Kevin Flanagan, Jedd Hakimi, Jeff Heinzl, Javier O'Neil-Ortiz, Ryan Pierson, Natalie Ryabchikova, John Rhym, Felipe Pruneda Senties, Gordon Sullivan, and Kuhu Tanvir. I continually look forward to small reunions with this wonderful group of people.

To my family I owe a special gratitude. My parents, Caryl and Terry Schonig, have demonstrated unflagging devotion to my career as an academic. Their love and support has fueled everything I've accomplished as an academic. My brother, Jared Schonig, has always been enthusiastic and supportive. He's also served as a companion movie lover from before I can remember. I credit him (as he insistently credits himself) with first turning me on to movies. This dissertation informally began, and will indeed persist, simply through the ritual of going to the movies with my family. Finally, I want to thank Shannon Tarbell, not only for her constant encouragement and love, but also for being a tacit reminder that there is life outside of a dissertation, and that such a life is what sustains everything else. Shannon has been by my side since the very beginning of this project, and every page is marked by her influence. I look up to her and learn something new from her every day. This dissertation would not be what it is without her, and, more importantly, neither would I.

This dissertation is dedicated to the memory of Hannah Frank, who looked at cartoons, and the world beyond them, like nobody I'd ever known. I hope the pages that follow evidence at least a fraction of how much I've learned from her. Thank you, Hannah, for being one of the most genuine, compassionate, funny, and brilliant people I've ever had the privilege of calling a friend.

Introduction

Moving toward Form

The Problem of “Movement”

We speak of change, but we do not think about it. We say that change exists, that everything changes, that change is the very law of things: yes, we say it and we repeat it; but those are only words, and we reason and philosophise as though change did not exist.

Henri Bergson¹

That movies *move* is one of the most basic facts about the medium. Moving images involve movement; motion pictures involve motion; cinema involves kinesis. Yet, time and time again, attempts to account for the aesthetic power of movement on screen—in film studies textbooks, scholarly articles and books, and movie reviews—tend to lapse into vagueness and tautology. One doesn’t have to go far to find examples. David Bordwell and Kristin Thompson invoke *Attack of the Clones*’s “futuristic landscapes teeming with dynamic movement;”² Timothy Corrigan and Patricia White note the “breathtaking visual movements” of *Avatar* and describe the carnival ride scene in *400 Blows* as a “celebration of movement.”³ Maya Deren claims that her *A Study in Choreography for Camera* was “an effort to isolate and celebrate the principle of the power of movement.”⁴ And writing on Bela Tarr’s *Damnation*, Daniel Frampton notes that a link between character and setting is made “through the movement of film and the movement of our memory.”⁵ The list could go on.

¹ Henri Bergson, *The Creative Mind: An Introduction to Metaphysics*, trans. Mabelle L. Andison (Mineola, NY: Dover Publications, 2007), 108.

² David Bordwell and Kristin Thompson, *Film Art: An Introduction, 8th Edition* (New York: McGraw Hill, 2008), 31. To cite another popular textbook in film studies,

³ Timothy Corrigan and Patricia White, *Film Experience: An Introduction* (New York: Macmillan, 2012), 15.

⁴ Maya Deren, *Notes, Essays, Letters*, in *Film Culture*, 39 (Winter 1965), 31.

⁵ Daniel Frampton, *Filmosophy* (New York: Columbia University Press, 2012), 140.

Utterances of this type, which simply invoke “movement” in order to characterize all matter of cinematic phenomena, tell us very little about the phenomena they seek to describe. They are placeholders for analysis. Like aesthetic judgments, they indicate the presence of a feeling or the quality of an experience but find it difficult to put into words. In their ubiquity, such utterances seem to insist that the “movement” of people, things, and cameras should not be subsumed under a vocabulary of representation or narrative content, that the very movements that constitute the world on screen must be isolated for analysis, as with light or color or sound. And yet, they run up against movement’s ineffability, merely pointing to movement itself despite knowing very well that everything on the screen moves. If, as Tom Gunning has suggested, cinematic motion is “the Freudian repressed subject of film theory,” these utterances might be considered slips of the tongue, film studies’s parapraxes.⁶ We accept them and pay them no notice, but they testify to an invisible problem. When it comes to discussing or describing or analyzing the movement on screen in a moving image, it is difficult to do more than point to the screen and exclaim the power of movement *as such*.

The recent spate of interest in cinematic stillness is a case in point. An opposition between stillness and motion in cinema is often presumed, and is indeed an attractive heuristic for encouraging deserved attention to a pervasive cinematic aesthetic, but it’s a false dichotomy.⁷ When speaking of a moving image, stillness is not *opposed* to movement; it is a *form* of movement. It is because of this distinction that you can point to stillness in a scene, in the composition of a frame, in an actor’s posture. But you can’t point to “movement” on screen in the same way. Pointing to

⁶ Tom Gunning, "Animation and Alienation: Bergson's Critique of the Cinématographe and the Paradox of Mechanical Motion." *The Moving Image* 14, no. 1 (2014): 1-9, 2.

⁷ See, for example, Jarmo Valkola, *Pictorialism in Cinema: Creating New Narrative Challenges* (Tyne, UK: Cambridge Scholars Publishing, 2016); Justin Remes, *Motion(less) Pictures: The Cinema of Stasis* (New York: Columbia University Press, 2015); Karen Beckman and Jean Ma, eds. *Still Moving: Between Cinema and Photography* (Durham, NC: Duke University Press Books, 2008); Laura Mulvey, *Death 24x a Second: Stillness and the Moving Image* (Islington, UK: Reaktion Books, 2006).

movement *as such* is only a meaningful gesture in very particular circumstances, such as at the *Salon Indien du Grand Cafe* in 1895, where animated movement itself was miraculously breathed into a projected image for the first time, or during a film like Chris Marker's *La Jetee* (1962), composed of a series of static images that astonishes us with the sudden appearance of movement. In most of the objects we call moving images, however, what would be the purpose of pointing to movement itself, other than to reiterate a self-evident condition of the *moving* image?

Nevertheless, we persistently declare movement, celebrate movement, and reflect on the nature of movement. And we even tend to do so in explicit investigations of movement in film theory. From the French and German theorist-practitioners of the 1920s who celebrate movement as the essence of the cinematic medium,⁸ to Christian Metz's claim that motion itself is responsible for cinema's "impression of reality,"⁹ to Vivian Sobchack's analogy between cinematic motion and the "essential motility" of our embodied subjectivity,¹⁰ film theorists have often sought to identify the *essential* significance of the movement of the moving image. More recently, the prevalence of accounts of "becoming," "emergence," and "mobility"—filtered through the increasing influence of process-oriented philosophers like Henri Bergson, Gilles Deleuze, and A.N. Whitehead—has paved

⁸ See, for example, the 1920s writings of Jean Epstein, Germaine Dulac, Louis Dulluc, much of which has been collected in Richard Abel, ed., *French Film Theory and Criticism: 1907-1929*. Vol. 1 (Princeton: Princeton University Press, 1993), and the writings of Hans Richter, Walter Ruttmann, and Bernhard Diebold, which has been collected in Walter Schobert and Angelika Leitner, ed., *The German Avant-garde Film of the 1920's* (Goethe Institut, 1989). Much of the interest in movement in this era boils down to a program for distilling the essence of cinema as distinct from the other arts, hence the name for the French avant-garde film movement, *Cinema pur*, and its German counterpart, Absolute Film.

⁹ Christian Metz, "On the Impression of Reality in the Cinema," in *Film Language: A Semiotics of the Cinema* (Chicago: University of Chicago Press, 1974): 3-15. See also Tom Gunning, "Moving Away from the Index: Cinema and the Impression of Reality," *Differences* 18, no. 1 (2007): 29-52.

¹⁰ Vivian Sobchack, "Toward Inhabited Space: The Semiotic Structure of Camera Movement in the Cinema," *Semiotica* 41.1-4 (1982): 317-335, 317. See also Vivian Sobchack, *The Address of the Eye: A Phenomenology of Film Experience* (Princeton: Princeton University Press, 1992), 203-247.

new avenues for valuing cinematic motion without *analyzing* cinematic motion.¹¹ Cinematic motion is celebrated as an emblem of openness, change, and fluidity without a commensurate attention to the specificity of movement on screen.

There's a longstanding problem here. Though invocations of movement in film criticism, phenomenologies of movement in film theory, and Deleuzian film-philosophy testify to the significance of movement in our experience of the moving image, they all confront the dead end of generality. Cinema's property of movement—like the screen's two-dimensionality or the photochemical aspects of celluloid—does not determine a singular form of aesthetic experience. The possibilities of movement on screen are incommensurate with the abstraction of movement as such. To be sure, any serious critical engagement with the aesthetic effects and significations of a film emerges from the particularities of cinematic movement; film analysis by definition describes the products of movement on screen. But the continued insistence on abstracting motion for theoretical study—an insistence that shouldn't go ignored—precludes a meeting point between general theories of motion and the specificities of film analysis.¹² What we need, then, is a vocabulary for theorizing the movement of the moving image without resorting to the mere invocation or general theorization of *movement as such* and, conversely, without subsuming movement under the purely representational language of “actions” and “events.”¹³ In short, what we need is a means of talking about the myriad *ways* movements move.

¹¹ For example, Adrian J. Ivakhiv's book of Whiteheadian film theory, *Ecologies of the Moving Image*, argues that examples of great cinema “move things in the direction of a more fluid, more animate, more process-relational understanding of the world.” Adrian J. Ivakhiv, *Ecologies of the Moving Image: Cinema, Affect, Nature* (Wilfrid Laurier Univ. Press, 2013), 26.

¹² This insistence on *theorizing* cinematic motion is most emphatically exemplified by Tom Gunning's “Moving Away from the Index,” in which he calls for theories of cinematic motion in the face of much of film theory's focus on the ontology of photography.

¹³ On the distinction between action and movement in narrative film, Haig Khatchadourian writes “[A] story or a plot necessarily consists of actions—or even of one action—not movements.” Haig Khatchadourian, “Movement and Action in Film.” *British Journal of Aesthetics* 20 (1980): 349-55, 352.

Cinema's Motion Forms proposes a method for analyzing movement according to the forms movement takes on screen. By “form,” I simply mean the spatiotemporal arrangement of phenomena, that is, the general *organizedness* of things as they appear to our senses.¹⁴ What I call “motion forms,” by extension, are generic structures, patterns, or styles of motion, perceptual wholes or shapes of motion mentally stitched together through time.¹⁵ In everyday life, we ordinarily (and unconsciously) use motion forms to simply identify things in the world, such as when we notice a friend from behind by the familiarity of their gait.¹⁶ Likewise, in the cinema, motion forms can be gestural idiosyncrasies unique to a single actor, like Charlie Chaplin’s signature walk or the way Humphrey Bogart smokes a cigarette. Motion forms also include the characteristic onrush of space that produces the impression of moving into the depth on screen (produced with or without a moving camera). Motion forms are at work when we discern and distinguish post-production techniques like dissolves, fades, and wipes, or in-camera effects like dolly zooms or rack focus. They

¹⁴ This definition of form can be traced to the philosophy of Immanuel Kant, where “form” refers to the sense of unity—component parts arranged into relations—that our minds intuitively put together from our sensuous apprehension of the world. Whether or not the configuration we intuit is of a painting, a building, a tree, or an amorphous puddle of mud—that is, regardless of the degree to which a thing has been deliberately formed by another intuiting subject—our faculty of intuition cannot help but organize what we sense. This notion of form becomes increasingly significant in Kant’s *Critique of Judgment*. Beholding a flower, for instance, my judgment of its beauty derives from an apprehension of its “formal” configuration, that is, the way its parts are arranged (i.e. the shape and contours of its petals and the colors therein, the precise angles formed by their configuration, etc.).

¹⁵ My call for form is neither simply a call for the particular over the general nor a desire for taxonomy. By *forms* of motion, I do not simply mean *types* of motions. When film theorists attempt to taxonomize the types of movement available to cinema, they often name four categories: the movement of people, the movement of the camera, the movement of the camera’s lens (i.e. zooms), and the movement created by editing. See Vivian Sobchack, “The Active Eye: A Phenomenology of Cinematic Vision.” *Quarterly Review of Film and Video* 12, no. 3 (1990): 21-36 and Lewis Jacobs, “Movement: Real and Cinema,” in *The Movies as Medium*, Lewis Jacobs, ed., (New York: Farrar, Straus & Giroux, 1970). What makes these categories types rather than forms of movement is that each is determined or defined according to an empirically presumed entity that causes the movement on screen. In other words, these categories are distinguished logically rather than *phenomenologically*.

¹⁶ Perceptual psychologists often refer to this phenomenon as a “motion signature.” In fact, much of the work on motion perception in psychology, such as those experiments involving point-light displays pioneered by psychophysicist Gunnar Johansson, involves studying the perceptual recognition of forms within a field of movement. See, for example, Loula, Fani, Sapna Prasad, Kent Harber, and Maggie Shiffrar, “Recognizing people from their movement.” *Journal of Experimental Psychology: Human Perception and Performance* 31, no. 1 (2005): 210; W. H., Dittrich, T. Troscianko, S. E. G. Lea & D. Morgan, “Perception of emotion from dynamic point-light displays represented in dance.” *Perception* (1996), 25, 727–738.

can be analogically recorded, like the recognizable quaking of tree leaves in the wind, or digitally generated, like the “morph” effect or “bullet time.”¹⁷ And they can even be sustained across an entire moving-image technology, as with what’s been called the “soap-opera effect” shared by high-frame-rate projection and motion-smoothing digital televisions.¹⁸ In all such cases, a motion form is *any unity perceived across a succession of visual sensations*. Motion forms constitute a perceptible *way* of moving—a pattern, a structure, a shape, a whole—synthesized into temporal objects within a visual field of moving phenomena.¹⁹

Importantly, motion forms denote both the sense of unity synthesized across a single continuous instance of movement and, more crucially, the sense of unity perceived across distinct instances of movement that bear a formal similarity. This very activity of *grouping* seemingly disparate onscreen moving phenomena into patterns, shapes, and structures, i.e. forms, is both the method and subject of my investigation of the phenomenology of cinematic motion. Thus, instead of constituting a definitive theory of cinematic motion, motion forms function as a heuristic for theorizing phenomenologies of cinematic motion without lapsing into the essentialism of motion-as-such arguments. In fact, insofar as there is something called “the phenomenology of cinematic

¹⁷ See Bob Rehak, “The Migration of Forms: Bullet Time as Microgenre.” *Film criticism* 32, no. 1 (2007): 26-48. I invoke Rehak’s article here also to acknowledge a similarity between what he calls “microgenres” and what I’m calling “motion forms.”

¹⁸ The nickname “soap-opera effect” derives from the fact that HFR motion recalls the look of soap operas shot in video, whose frame rates generally hover around 30fps or 60fps as opposed to 24fps. See Julie Turnock, “Removing the Pane of Glass: *The Hobbit*, 3D High Frame Rate Filmmaking, and the Rhetoric of Digital Convergence.” *Film Criticism* 37, no. 3/1 (2013): 30-59.

¹⁹ I mean to invoke Edmund Husserl’s notion of the “temporal object.” For Husserl, temporal objects, such as melodies, are experienced as a *discrete unity* synthesized across a succession. They are not experienced merely as the “sum” of the melody’s individual notes. See Edmund Husserl, *On the Phenomenology of the Consciousness of Internal Time (1893–1917)*. Vol. 4, trans. John Barnett Brough (Berlin: Springer Science & Business Media, 2012), 21-28.

motion,” I claim that such a phenomenology can only be understood according to the inexhaustibly various *forms* through which cinematic motion manifests itself.²⁰

Just as Stanley Cavell in *The World Viewed* argues that the “ontology” of any artistic medium, such as film, cannot be understood prior to engaging with particular instances of that medium, the “phenomenology” of cinematic motion cannot be understood prior to an engagement with the particular forms that it takes.²¹ The aesthetic possibilities of cinema’s forms of motion just *are* the phenomenological properties of cinematic motion. And by extension, such possibilities just are the properties of what many film theorists in the age of digital cinema are now more than ever referring to as “the *moving* image.” This phenomenological way of thinking pushes against the flurry of ontological arguments about cinema made in the wake of the digital turn, which perpetuate a basic problem fundamental to much classical and contemporary film theory: taking the aesthetic properties of the movies as a direct function of the physical properties of their media.²² In fact, a good deal of film theory’s interest in cinematic motion attends not to the movement on screen but to the physical apparatus creating the “illusion” of motion from the rapid succession of still images.²³

²⁰ What this entails is that phenomenological theories of cinematic *motion as such*, like Christian Metz’s, are not in fact negated by an account of motion forms, but simply subsumed as one motion form among many. The boundaries that distinguish motion forms are by definition flexible: motion forms can overlap; motion forms can be seen within motion forms; and a motion form can last half a second or can preside over an entire medium. Taking this view, then, what Metz identifies as cinematic motion’s “impression of reality” is in fact a motion form that happens to have very expansive formal boundaries. In particular, the boundaries of what we might call “the reality effect of cinematic motion” are defined against the stillness of a photograph rather than the various forms of movement on screen, just as the “soap opera effect” of HFR motion is defined against moving images projected at 24 FPS. My argument is not against Metz’s account per se but against the assumption that a “theory” of cinematic motion must by definition rest on a distinction between the still photograph and the moving image.

²¹ For Cavell, criticism always *precedes* theory: it is only by evaluating the significance of individual films, and subsequently making aesthetic cases for those films (and our personal experiences with them), that we can come to discover the possibilities of a given medium. See Stanley Cavell, *The World Viewed: Reflections on the Ontology of Film, Enlarged Edition* (Cambridge, MA: Harvard University Press, 1979), xiii-xiv.

²² See Manovich, *The Language of New Media* (Cambridge: MIT Press, 2001) and D.N. Rodowick, *The Virtual Life of Film* (Cambridge: Harvard University Press, 2007), among others.

²³ See, for example, Jean-Louis Baudry, “Ideological Effects of the Basic Cinematographic Apparatus,” in Philip Rosen, ed., *Narrative, Apparatus, Ideology: A Film Theory Reader* (New York: Columbia University Press, 1986), 290-1; Gilles Deleuze, *Cinema 1: The Movement-Image*, trans. Hugh Tomlinson and Barbara Habberjam (London: The Athlone Press,

But as the study of “film” is becoming supplanted by the study of “moving images,” and the technological apparatuses responsible for cinematic motion are becoming more diverse and mechanically illegible, the task of accounting for the array of *experiences* afforded by cinematic motion takes on a new theoretical urgency. Instead of another definitive ontology of the material medium or an ontology of movement-as-such, I argue that the moving image demands phenomenological accounts of what has always been on the screen but nevertheless eludes us: the many forms of movement we apprehend with our senses.

The central aim of this dissertation, then, is to demonstrate how a phenomenological orientation toward cinema’s motion forms occasions a significant rethinking of some of film theory’s most persistent assumptions about the nature of cinematic experience. Theories of cinema oriented around the ontology of photography (Andre Bazin, Siegfried Kracauer), the metaphysics of temporality (Gilles Deleuze), the phenomenology of embodied subjectivity (Vivian Sobchack, Jennifer Barker), and the ontology of digital technology (Lev Manovich, David Rodowick) have provided entrenched explanations for many aspects of cinematic experience, from early spectators’ attraction to the wind in the trees to the experience of duration in postwar realist art cinema.²⁴ But

1986), 1-7; Henri Bergson, *Creative Evolution*, trans. Arthur Mitchell (New York: Random House, 1944), 332; and Nico Baumbach, “False Movements: Or, What Counts as Cinema for Deleuze?” *Discourse*, 36.2, Spring 2014, pp. 261- 270. Perceptual psychologists and cognitivist film theorists have also taken up this issue extensively, especially as it relates to questions of “illusion” and whether the movement on screen can be deemed “real.” See, for example, Gregory Currie, *Image and Mind: Film, Philosophy and Cognitive Science* (Cambridge: Cambridge University Press, 1995), 34-36 and A. Kania, “The illusion of realism in film.” *British Journal of Aesthetics* 42, no. 3 (2002): 243-258, 244; Kristen Thomson-Jones, “Sensing Motion in Movies,” in *Psychocinematics: Exploring Cognition at the Movies*, ed. A. P. Shimamura (Oxford: Oxford University Press, 2013); J.M. Zacks, *Flicker: Your Brain on Movies* (Oxford: Oxford University Press, 2015). For a useful analysis of some of the grounding assumptions and logical pitfalls of this debate, especially on the question of whether cinematic motion is “real” or “apparent,” see Rafael De Clercq, “Does the debate about cinematic motion rest on a mistake?.” *Analysis* (2017): anx087.

²⁴ What I mean by “cinematic experience” requires some qualification. An emphasis on “experience” has been mobilized from a wide range of film theoretical camps, often with conflicting viewpoints (e.g. what David Bordwell means by “experience” is quite different from what Vivian Sobchack means by “experience”). But what I mean by “cinematic experience” should be understood in productive opposition to “cinematic signification,” and has much to do with a loosely phenomenological approach to film theory. Understood this way, “cinematic experience” can include what Dudley Andrew has called the “experience of signification in cinema,” “the peculiarities of perception in cinema...our emotional involvement in the image...the momentum of a narrative...the constitution of a cinematic world...the

such explanations have relied on severely restricted accounts of cinematic motion. In these accounts, motion remains either an unchanging variable (a mere vestigial appendage) or conversely a grand hypostatized entity (a central but inflexible essence). Without robust concepts for the particular forms of motion experienced across various milieu, some of our most basic certainties about cinematic experience fall prey to a number of theoretical blind spots, dead ends, and aporias. In order to not only unearth those aporias but also to produce new theoretical models in their place, each chapter conceptualizes a single motion form: contingent motion (the chaotic movements of formless objects like water, dust, and smoke captured on screen); habitual gestures (everyday bodily movements like walking or reaching that display the pre-reflective autonomy of the body); spatial unfurling (an effect produced by certain camera movements, such as lateral tracking shots, that suppress the illusion of bodily movement); and bleeding pixels (an effect produced by digital compression artifacts, used expressively in a glitch art technique known as datamoshing). Each motion form under consideration takes on phenomenological significance at particular moments in cinema's history, telling an untold story of cinematic experience. Making a case for the formal generality and phenomenological uniqueness of each motion form can both circumvent the theoretical dead end of motion-as-such arguments and lead us to question the assumptions of some of film theory's most persistent intuitions.

Only by giving form to movements—attributing a particular shape, a character, a quality—can we begin to *see* movements in their formal specificity. And only by seeing particular movements in this way can the “phenomenology of cinematic motion” become available to theoretical and critical discourse. Only when we *see* that fluttering leaves, rippling waves, and swirling dust share a sense of chaotic formlessness can we begin to rethink the assumptions about photography and

description of types of worlds (or genres) and...the life of our interpretation of them.” Dudley Andrew, "The Neglected Tradition of Phenomenology in Film Theory." *Wide Angle* 2, no. 2 (1978): 44-49, 49.

contingency that have explained why early spectators were attracted to such phenomena. And only when we *see* the similarity shared by the rushing landscape in a passenger window, the lateral camera movements in Leos Carax's *Mauvais Sang*, and the gyroscopic spins of Michael Snow's *La région centrale*, can we begin to question the intuition that a moving camera virtually moves the spectator through a film's world. Bridging motion forms across such disparate examples—from different kinds of represented phenomena, to different genres and modes of cinema, to even different media (analog and digital)—allows us to see ways of moving where we only saw representations, to see glimpses of repetition where we only saw difference.

This kind of seeing, which apprehends not just movement but inexhaustible kinds of *movements*, encourages a different mode of theorizing cinematic experience than most film theoretical models offer. Bringing form and movement together, we discover that “movement” is not nor has ever been a mere property of the moving image.²⁵ Rather, movement is whatever form that it takes. Taking this as a guiding principle, film theory becomes considerably less secure in its object of study, foregoing long held intuitions about what the photographic moving image *is*. But what it offers in return is an occasion to incorporate the undeniable wonder, astonishment, and pleasure of beholding movement of all kinds—a pleasure that precedes the cinema and persists outside of it—into the very activity of doing film theory.

²⁵ Following Bergson, I argue that the habit of seeing movement as a property of moving images is an extension of the broader habit of seeing movement as the property of objects in the world. On this, Bergson writes “It is difficult to picture things in this way, because the sense ‘par excellence’ is the sense of sight, and because the eye has developed the habit of separating, in the visual field, the relatively invariable figures which are then supposed to change place without changing form, movement is taken as super-added to the mobile as an accident.” Henri Bergson, *Creative Mind*, 122.

Perceiving Form

Movement is the result of a feeling in one thing of strong difference from other things. Movement is always one thing moving away from other things—not toward. And the result of movement is to be distinct from other things: the result of movement is form.

—Len Lye²⁶

So far, I have cast the project of bringing “movement” and “form” together as a means of addressing a range of problems surrounding the theorization of cinematic motion. But how did movement and form come to be separated in the first place? Though the terms “form” and “formalism” are by no means strangers to film studies, there remains a deep intuition that form is a spatial rather than a temporal or mobile concept. In an insightful footnote from her landmark essay “Against Interpretation,” Susan Sontag laments such an intuition: “One of the difficulties is that our idea of form is spatial (the Greek metaphors for form are all derived from notions of space). This is why we have a more ready vocabulary of forms for the spatial than for the temporal arts.”²⁷ We can trace the logic of Sontag’s observation back to Henri Bergson’s conceptual opposition between movement and form: “In reality, the body is changing form at every moment; or rather, there is no form, since form is immobile and the reality is movement. What is real is the *change* of form: *form is only a snapshot view of a transition.*”²⁸

Film studies has inherited the philosophical intuition that form is primarily spatial—e.g. the arrangement of objects in the frame—or that it necessitates the spatialization of temporal experience—e.g. the ordering of shots in a montage sequence, the structure of narrative events. The leading formalists in film studies, David Bordwell and Kristin Thompson, for example, often

²⁶ Len Lye and Laura Riding, “Film-making” (1935), in *Figures of Motion: Len Lye Selected Writings*, eds. Wystan Curnow and Roger Horrocks (Auckland: Auckland University, 1984), 39.

²⁷ Susan Sontag, “Against Interpretation,” in *Against Interpretation: And Other Essays* (New York: Farrar, Straus, and Giroux, 2013), 12. One notable exception here is music criticism and theory, where there is a strong tradition of “formalism” dating back to Eduard Hanslick’s *On the Beautiful in Music*.

²⁸ Bergson, *Creative Evolution*, 302, emphasis in original.

examine audiovisual forms as strategies for guiding spectators through the *narrative* logics of actions and events, causes and effects. As with the analysis of narrative form, studying form in film generally requires that we halt its temporal flow: “formal” analysis conjures notions of *mapping* plot events, *segmenting* sequences by shots, or *freezing* stills to analyze the composition of the frame.²⁹ In short, an attention to form suppresses the immediate temporal engagement with the flow of moving images to create spatialized units of analysis.³⁰ What’s more, an attention to form almost always entails *analysis* in the etymological sense of the word—breaking things apart, distinguishing the constituent elements, extracting pieces from immediate experience. Rarely does an attention to form entail an accretive activity—building, bridging, synthesizing forms across a field of perception.³¹

A phenomenological approach to form, however, offers a different conception of the relation between form and movement.³² For Maurice Merleau-Ponty, for example, perception relies

²⁹ Theories of film that privilege editing are exemplary of this way of thinking. Devoted to studying cinema’s powers of signification, montage-oriented theories are predicated on the juxtaposition of shots as static units of meaning. Such units assume a theoretical motionlessness—of the shot’s contents as well as of the camera—to preserve their concrete signification. In these theories, “form” names the arrangement of those units, which gives way to the emergence of signification. Tom Gunning and Daniel Morgan have each suggested that this preoccupation with montage has suppressed attention to camera movement. See Tom Gunning, “Rounding out the Moving Image: Camera Movement and Volumetric Space. Unpublished manuscript circulated at the Lysebu workshop, “Precarious Mediation.” Oslo, Norway: Aug. 8–11 and Daniel Morgan, “Where are we?: camera movements and the problem of point of view.” *New Review of Film and Television Studies*, 14:2, 222-248.

³⁰ Similar claims have been made about a range of analytical methods in film studies. Deleuze’s critiques of Metz’s semiological method makes similar claims. Deleuze, *Cinema 2*, 27. Expanding on this observation, Nico Baumbach writes “any attempt to read cinema as being premised on certain absences or effaced mechanisms—as in Jean-Louis Baudry’s essays on ‘the apparatus’ or Jean-Louis Comolli and Jean Narboni’s influential statement of purpose on the goals of ideological criticism—can be seen as further attempts to *immobilize* the image by seeing cinema’s movement and time as effects produced by means of the apparatus. Baumbach, “False Movements,” 262.

³¹ In P.F. Strawson’s words, “analysis” consists of two kinds of approaches, “reduction” (breaking an object of inquiry into its fundamental constituents) and “connection” (understanding that object in terms of its relations to other objects). P. F. Strawson, *Analysis and Metaphysics: An Introduction to Philosophy* (Oxford: Oxford University Press, 1992), 17–28. For a useful gloss of these terms and their relation to film analysis, see Edward Branigan, *Projecting a Camera: Language-Games in Film Theory* (New York: Routledge, 2013), 12-17.

³² Perhaps the most explicit account bringing together form and movement in aesthetics is Henri Focillon’s *The Life of Forms in Art*. Focillon’s argument similarly polemicalizes the assumption that form is spatial rather than temporal. However, Focillon’s investigation of form in art is mostly restricted to the plastic arts—painting and sculpture. Henri Focillon, *The Life of Forms in Art*, trans. George Kubler (New York: Zone Books, 1992). More recently, in *On Form*, Angela Leighton identifies notions of aesthetic form that incorporate change and temporal becoming in the work of

on a *gestalt* structure, configuring the manifold of sensible stimuli into coherent forms. Drawing on Gestalt psychology, Merleau-Ponty's phenomenology of perception opposes classical psychological models as well as empiricist philosophical models of perception that view the perceptual field as an undifferentiated mosaic of atomistic sensations.³³ For Merleau-Ponty, the phenomena of the world are themselves "pregnant" with "form."³⁴ On this view, we don't analytically decipher a round object from the buzzing confusion of "red" sensations; we simply *see* a red ball. The form stands out against its background immediately and spontaneously. Beyond such simple tangible objects, however, forms can also manifest as any number of complex groupings of phenomena in space and, more importantly, in time.

Temporal gestalts are unified forms constituted by their separate parts that unfold in time; the experience of a melody, for example, does not reside in the sum of its discrete tones but in the experience of the sequence itself as a temporal whole.³⁵ When temporal gestalts are of a visual rather than an auditory nature, they name those forms or wholes that are synthesized from a visual array of

Friedrich Schiller and Samuel Taylor Coleridge. Angel Leighton, *On Form: Poetry, Aestheticism, and the Legacy of a Word* (Oxford: Oxford University Press, 2007), 6-11.

³³ Such a doctrine, of which David Hume is a notable exponent, is known as sensationalism. One can extrapolate from a sensationalist theory of perception a sensationalist theory of movement that resembles the scientific conception of movement as a succession of "snapshots" famously opposed by Bergson. For Merleau-Ponty's critique of sensationalism, see Maurice Merleau-Ponty, *Phenomenology of Perception*, trans. Colin Smith (New York: Routledge, 2005), 3-15.

³⁴ Merleau-Ponty borrows the phrase "the symbolical 'pregnancy' of form in content" from Ernst Cassirer. Merleau-Ponty, *Phenomenology of Perception*, 340.

³⁵ Merleau-Ponty discussed temporal Gestalts in his sole essay dedicated to film, "Film and the New Psychology," in which he discussed the resonances between cinematic experience and the basic Gestalt psychological principles of temporal forms. Maurice Merleau-Ponty, "The Film and the New Psychology," in *Sense and Non-Sense*, trans. Hubert Dreyfus and Patricia Allen Dreyfus (Evanston, IL: Northwestern University Press, 1992). However, Merleau-Ponty restricts his core example to an examination of the Kuleshov effect, and privileges montage as the primary aesthetic manifestation of temporal Gestalts in cinema. While Daniel Yacavone attributes great significance to Merleau-Ponty's privileging of montage, using it as a primary source of evidence in his argument against Vivian Sobchack's *Address of the Eye*, I would argue that temporal Gestalt is a far more useful (and original) concept when opened up beyond montage. See Daniel Yacavone, "Film and the Phenomenology of Art: Reappraising Merleau-Ponty on Cinema as Form, Medium, and Expression." *New Literary History* 47, no. 1 (2016): 159-185.

moving phenomena. It would be a great mistake, Merleau-Ponty writes, to conceive of “the movement of visible objects” as “the mere transference from place to place of coloured patches which, in the visual field, correspond to those objects.”³⁶ “In the jerk of the twig from which a bird has just flown,” he continues, “we read its flexibility or elasticity, and it is thus that a branch of an apple-tree or a birch are immediately distinguishable.”³⁷ In this fleeting moment, a unified shape or character of movement simply comes together and is seized upon in an unreflective perceptual judgment; that what I see is an apple tree rather than a birch is here wholly determined by the ephemeral form of a movement rather than a texture, shape, or color.³⁸

Merleau-Ponty illustrates this general principle further, and more radically, in his account of the work of experimental phenomenologist Albert Michotte:

Albert Michotte from Louvain demonstrated that, if lines of light move in certain ways on a screen, they evoke in us, without fail, an impression of living movement. If, for example, two parallel vertical lines are moving further apart and one continues on its course while the other changes direction and returns to its starting position, we cannot help but feel we are witnessing a crawling movement, even though the figure before our eyes looks nothing like a caterpillar and could not have recalled the memory of one. In this instance it is the very structure of the movement that may be interpreted as a ‘living’ movement. At every moment, the observed movement of the lines appears to be part of the sequence of actions by which one particular being, whose ghost we see on the screen, effects travel through space in furtherance of its own ends.³⁹

In this example, *form* might name the emergence of a perceptual unity—a “living movement,” a “crawling movement,” a “ghost”—from mere lines of light on a screen. In Merleau-Ponty’s words,

³⁶ Merleau-Ponty, *Phenomenology of Perception*, 267.

³⁷ Merleau-Ponty, *Phenomenology of Perception*, 267. In the passage from which this is drawn, Merleau-Ponty analogizes the problem of seeing movement as a mere change in position to the problem of seeing (spatial) form as mere geometrical shape. Two sentences earlier, he writes “The *form* of objects is not their geometrical shape: it stands in a certain relation to their specific nature, and appeals to all our other senses as well as sight.” Merleau-Ponty, *Phenomenology of Perception*, 267, emphasis mine.

³⁸ For an account of the primacy of form in identifying objects, see Richard Neer, “Connoisseurship and the Stakes of Style.” *Critical Inquiry* 32, no. 1 (2005): 1-26. Though Neer’s primary concern is in fact the primacy of “style” in the connoisseur’s attribution of artifacts to particular times, places, and individuals, the breadth of his philosophical reasoning can be seen to incorporate all matter of categorial attributions to natural objects made through an attention to form.

³⁹ Maurice Merleau-Ponty, *The World of Perception*, trans. Oliver Davis (New York: Routledge, 2004), 74.

“it is the very structure of the movement”—what I am calling the form of the movement—“that may be interpreted as a ‘living’ movement.” Form and movement here are not opposed; rather, motion forms emerge from and within the perception of movement. What’s more, these motion forms are demonstrably distinct from and unrelated to the spatial forms—here, lines of light—that move.

What, then, would it look like to perform a traditionally conceived formal analysis of the moving picture Michotte set up for his subjects? An attempt, for instance, to *map* or *segment* screenshots within a spatial juxtaposition, or to analyze the composition of the lines as they relate to each other in a spatial configuration, would destroy the *experience* of form. Form is not only a product of analysis or reflection, something that must be deliberately excavated from beneath the immediacy of “content.” Form is also an intrinsic part of the flow of temporal experience.⁴⁰ “The perception of forms,” Merleau-Ponty writes, “understood very broadly as structure, grouping, or configuration should be considered our spontaneous way of seeing.”⁴¹ Constantly emerging and dissipating, coming together and breaking apart, forms organize our experience of movement both in the world and in a moving image. Just as for Kant “intuitions without concepts are blind,”⁴² for Merleau-Ponty the perception of movement without the unreflective immediacy of forms is not perception at all.

What I call motion forms, then, in the most ordinary sense of the term, are not new to the study of film—or, for that matter, to everyday life. As in Merleau-Ponty’s example, a motion form is

⁴⁰ Eugenie Brinkema’s use of the concept of form in *The Forms of the Affects* is fundamentally opposed to phenomenology’s use of the concept. For Brinkema, form is that which must be *read for* through acts of interpretation. Form, for Brinkema, is not experienced prior to hermeneutic activity. Eugenie Brinkema, *The Forms of the Affects* (Durham, NC: Duke University Press, 2014), xvi.

⁴¹ Merleau-Ponty, “The Film and the New Psychology,” 49.

⁴² Immanuel Kant, *The Critique of Pure Reason*, trans. Werner S. Pluhar (Cambridge: Hackett, 1996), 107 (A51/B75).

what allows us to unconsciously distinguish a birch tree from an apple tree simply by the movement of its branch. Likewise, in a film studies classroom, we might use the same basic perceptual faculty to teach students how to distinguish between a zoom and a tracking shot. Or, when watching a film, motion forms inconspicuously guide our comprehension of what we're seeing, as when a seemingly abstract shape on screen becomes recognizable only when it begins to move, or when the movements of a photorealistic figure reveals that it's computer generated. Motion forms are as much already an integral part of the field of perception—both cinematic and ordinary—as they are extracted from “formal analysis.”

It may seem like the perceptual definition of form I'm adopting is simply a different concept than what is often meant by “form” in film studies. But this is not precisely the case. In both usages, form names the spatiotemporal *arrangement* of phenomena.⁴³ The use of “form” in film studies, however, has become saddled by assumptions inherited from a range of philosophical traditions. Much of the limitations on what counts as “form” in film studies can be attributed not only to the false intuition that it is a spatial rather than a temporal concept, but also that the contemplation of form is restricted to the domain of art.⁴⁴ In most of the fine arts, such as painting, sculpture, music,

⁴³ What I mean by the familiar usage of “form” in film studies is the way film form is discussed in introductory textbooks. In *Film Art*, Bordwell and Thompson define “film form” as “the overall system of relations that we can perceive among the elements in the whole film.” Bordwell and Thompson, *Film Art*, 55. Noel Carroll comes to a similar conclusion about film form in his essay on the topic: “when we speak of the form of an individual film...we may take that to refer to *all the webs of relations* that obtain between the elements of the work.” Noel Carroll, “Film Form: An Argument for a Functional Theory of Style in the Individual Film,” in *Engaging the Moving Image* (New Haven, CT: Yale University Press, 2008), 138. These definitions retain the Kantian sense of form as the spatiotemporal arrangement of elements into a whole. The key difference with my perceptual definition of form lies in what is allowed to count as an “element” and a “whole.” In my account, the “whole” need not be conceived as the entire film, but can simply be the character of a movement within a film, say, the sweep of an arm in pouring coffee. That the “elements” that constitute such a form cannot be identified (it would be a mistake to equate individual film frames with the notes that constitute a melody) does not negate the fact that this movement has a particular spatial and temporal arrangement. After all, it is one of the foremost principles of Gestalt psychology that we can know and perceive a whole without being able to specify its parts (as with the physiognomy of a face).

⁴⁴ Another way of putting this might be to say that “form” is often conflated with “style,” and indeed these terms are often used interchangeably in film studies. I take “style” to be a special kind of “form” that pertains exclusively to the realm of human being and human creation. We can say that the use of shading in a painting exhibits the “style” of a Rembrandt, or even that one's way of walking constitutes their “style,” but it would be infelicitous to say that the way a tree branch moves exhibits the “style” of a birch tree. (Consider also that it is “form,” not “style,” that has such a central

and literature, the work of “form”—the spatiotemporal arrangement of the *artwork*—is generally attributed to the hand of the artist (or group of authorial agencies) that does the arranging.⁴⁵

In the photographic moving image, however, as with photography more generally, the location of form as authored or deliberately shaped is always at issue. As a result, theorists and critics of cinema tend to restrict their identification of form to the kinds of cinematic movements that seem deliberately shaped by an authorial force. The movements between shots (i.e. editing) or the movements of the camera are unambiguously formal characteristics of the image because they are discernibly shaped, just as in sculpture the form of a human body is chiseled out of the matter of clay.⁴⁶ But what of the involuntary micro-gestures of actors or the wind in the trees? This is where difficult distinctions arise. Considered “unplanned” by the filmmaker, such movements are condemned to the critical purgatory of photographic “contingency” and cinephilic “excess” where aesthetic form is nowhere to be found.⁴⁷ The movements of the environment and the micro-gestures

role in Kant’s aesthetics of natural beauty.) It’s partly for this reason that discussions of style tend to incorporate notions of artistic choice. As David Bordwell puts it, “style is, minimally, the texture of the film’s images and sounds, the result of *choices* made by the filmmaker in particular historical circumstances.” David Bordwell, *On the History of Film Style* (Cambridge, MA: Harvard University Press, 1997), 4.

⁴⁵ The subversion of authorial intention in various strains of modernism and postmodernism—e.g. Dadaism, minimalism, etc.—is also understood as a subversion of form. It would be considered a critical mistake, for example, to examine the formal characteristics of Duchamp’s *Fountain*, John Cage’s *4’33*, or Tony Smith’s *Die*. For more on the opposition to form in postmodern art, see Annette Michelson, “Robert Morris: An Aesthetics of Transgression,” in *Minimalism*, ed. James Meyer (London: Phaidon, 2000), 248-50, and Yve-Alain Bois and Rosalind E. Krauss, *Formless: a user’s guide* (New York: Zone Books, 1997).

⁴⁶ This logic of a form/matter distinction is directly linked to the privileging of montage in much of film theory. Vsevolod Pudovkin, for example, quoting Lev Kuleshov, writes “All he said was this: ‘In every art there must be first a material, and secondly, a method of composing this material specially adapted to this art’ [...] Film-art begins from the moment when the director begins to combine and join the various pieces of film.” Extrapolating from this, Pudovkin writes “Every object, taken from a given viewpoint and shown on the screen to spectators, is a *dead object*, even though it has moved before the camera.” Qtd. in Victor Perkins, *Film as Film: Understanding and Judging Movies* (London: Penguin Books, 1972), 22. For more on the philosophical problems of form/matter distinctions in film theory and how it relates to the privileging of montage, see Perkins, *Film as Film*, 22-23. Siegfried Kracauer adheres to a similar understanding of form and matter when he writes of his *Theory of Film* that it is a “material aesthetics, not a formal one...It rests upon the assumption that film is essentially an extension of photography and therefore shares with this medium a marked affinity for the visible world around us.” Siegfried Kracauer, *Theory of Film: The Redemption of Physical Reality* (Princeton, N.J.: Princeton University Press, 1997), xxxii.

⁴⁷ Christian Keathley makes it clear that what he calls “cinephiliac moments,” such as early spectators’ attraction to the “wind in the trees,” are not *aesthetic* experiences: “In Bazin’s terms, encounters with these unprogrammed elements -

of actors may in fact present difficulties for intuitions about formal *meaning* inherited from philosophies of art, but they are precisely the kinds of phenomena that can be reconsidered as *perceptual* forms of motion (as I do in chapters one and two) that offer their own logics of visual pleasure.⁴⁸ Considered as such, the excesses endemic to cinematographic motion become more than mere tokens of the medium; they become available to the principle of perceptual organization, i.e. form, that is always at work between spectator and screen. Therefore, in chapter one, I argue that early spectators' fascination with the wind in the trees can be understood as an aesthetic encounter with a particular form of motion whose pleasures can neither be explained solely as a function of cinema's technological novelty nor as a function of authorial choices. Rather, much of its pleasures are consistent with a history of aesthetic experience that long precedes the moving image, that is, a history of aesthetically engaging with forms of motion in the natural world. Though authorial agents are of course largely responsible for cinematic form, cinema's indiscriminate registration of the world in motion can manifest forms that exceed the choices of filmmakers and provoke their own kinds of visual pleasure.⁴⁹ Indeed, *everything* that is captured on screen, regardless of how it is

what we are calling cinephiliac moments - are psychological, not aesthetic experiences." Keathley continues in a footnote: "that is, these experiences are not aesthetic in the fine arts-appreciation sense of the term; but as we saw in chapter 2, they are aesthetic in the bodily sense of the term." Christian Keathley, *Cinephilia and History, or, The Wind in the Trees* (Bloomington: Indiana University Press, 2006), 60, 187. I explicitly explore the affinities between my own methodology and cinephilic criticism more deeply in the conclusion of this dissertation.

⁴⁸ Encapsulating this assumption about the relation between form, meaning, and intention, Annette Michelson writes "It is...now suggested that [quoting Jacques Derrida] 'whenever we use the notion of form...we are forced to resort to the assumption of a source of meaning.'" Annette Michelson, "Robert Morris," 249. Some philosophies of art and aesthetic experience, however, especially those with a phenomenological orientation, offer a more flexible account of the relation between intention, form, and meaning. For an account that explores the role of non-conscious and pre-reflective action in painting, for example, see Maurice Merleau-Ponty, "Indirect Language and the Voices of Silence," in Galen A. Johnson, ed., *The Merleau-Ponty Aesthetics Reader: Philosophy and Painting* (1993): 14-34.

⁴⁹ I do not mean to downplay the significance of artistic intention and artistic choice (which are not identical) throughout this dissertation. My emphasis on an aesthetic engagement that exceeds artistic choice is simply meant to activate a way of thinking that sees the spatiotemporal arrangement of phenomena (i.e. form) as a perceptual activity of the beholder as much as it is a creative activity of an authorial agent. Such a way of thinking recuperates the "formal" elements of what is largely identified as photographic excess. I explore this tension between form and excess more fully in the conclusion of this dissertation.

captured or generated, has the potential to be grouped, patterned, and structured into forms in our perception.

Part of my strategy for isolating such forms of motion within reservoirs of cinematic excess is to juxtapose narrative films with experimental films and videos, especially works in which perceptual forms are explicitly under visual investigation. The phenomenological significance of the flatness and rhythm of a lateral tracking shot in Carax's *Mauvais Sang*, for example, becomes newly legible in light of the overt two-dimensional abstractions in Snow's *La région centrale* and Ken Jacobs' *Georgetown Loop*, films in which the perceptual conditions of camera movement are under explicit investigation. The film theoretical significance of gestural micromovements in Robert Bresson's *Mouchette* becomes clear in light of Martin Arnold's *pièce touchée*, which quite literally breaks down a single continuous gesture into tiny intervals of stuttering movement. And the forms of motion embedded in the visual chaos of everyday compression glitches become graspable in light of works of datamoshing glitch art, which occasion the aesthetic contemplation of these generally overlooked malfunctions. Operating outside the structuring logics of narrative cinema, such experimental films and videos model modes of spectatorship that attend to patterns and structures of movement and the medium-specific questions generated by them, thereby priming the eye to shift its aspectual attention to the forms of motion that suffuse all moving images, narrative and otherwise.

Following the tradition of thinkers like Merleau-Ponty, Ludwig Wittgenstein, the Gestalt psychologists, and Immanuel Kant, I take form to be as much a perceptual concept as it is an artistic one, as much a temporal concept as it is a spatial one. Form, like beauty or wonder or astonishment, ultimately does not inhere in the object or phenomenon beheld, but in the beholder.⁵⁰ Untethered by

⁵⁰ This is an explicitly Kantian definition of form. As Robert Pippin puts it, for Kant, "'form' is not a property of the object, but *is* the intuiting activity of the subject." Robert Pippin, *Kant's Theory of Form: An Essay on the Critique of Pure Reason* (New Haven: Yale University Press, 1982), 12. Given that the place of form hinges on the place of judgment, art history and art criticism rarely agree on *where* form lies—in the object or in the beholder—and the epistemological claims form can make. According to Whitney Davis, unlike art critics who are concerned with the value and experience of art, art historians are encouraged to reify form in order to attribute their intuitional stylistic claims to *real objects* and thereby

rules or criteria, forms can strike us anywhere and across many phenomena. They can be found within static objects, and they can emerge from fields of movement.

Indeed, by bringing form and movement together, we have to forego some of the charms of celebrating movement as the essence of cinema—its ontological commitment to openness and becoming, flux and fluidity. Motion forms, by definition, limit, constrain, and bind. They hierarchize and create boundaries. But they also allow us to do things. Motion forms, like forms more generally, are tools for thinking. This dissertation aims to use this ordinary faculty of human perception as a tool for giving movement its proper place in film theory. Yoked to form, movement becomes less ephemeral but newly legible.

Imaged Motion

[The] film's movement transforms everything.

—Albert Laffay⁵¹

While motion forms are integral to both cinematic and natural perception, movements on the screen and movements in the world, this dissertation is committed to exploring motion forms that bear out the phenomenological uniqueness and strangeness of the photographic moving image, hence my title: *cinema's* motion forms. Such a strangeness was indeed most apparent in the years of early cinema, when spectators were astonished by the very technological novelty of an animated photograph—its uncanny blurring of presence and absence, life and death, reality and illusion—but

produce *historical* knowledge about those real objects. The problem Davis identifies is not the reification of form as such, but the “methodological reification” getting “treated as primary foundation.” Art history, Davis asserts, proceeds from “(1) form ‘in’ the object to (2) ‘form’ as intuited (‘seen’) by the beholder-historian to (3) ‘form’ attributed to the intuiting activity of the historical maker,” but in terms of Kant’s transcendental psychology, the proper order would be [3] to [1] to [2]. Whitney Davis, “What is Post-Formalism?,” nonsite.org 7 (October 11, 2012) <http://nonsite.org/article/what-is-post-formalism-or-das-sehen-an-sich-hat-seine-kunstgeschichte>

⁵¹ Albert Laffay, *Logique du cinema: Creation et spectacle* (Paris: Masson, 1964), 65, translation mine.

this dissertation is committed to the principle that such strangeness transcends its mere technological novelty. Such a strangeness, to borrow Gunning's term, can be "re-newed," as he reminds us, "the cycle from wonder to habit need not run only one way."⁵²

What this entails is a major aim of this dissertation: to challenge the intuition that the photographic moving image automatically reproduces the natural perception of motion.⁵³ This intuition undergirds many basic ideas throughout film theory, from claims about the inherent realism of the cinematic image, to analogies between the moving camera and human locomotion, to the impetus to locate cinema's artistic potential in montage. Such an intuition even lurks in places we might least expect, such as in the work of Deleuze, who otherwise devotes his entire two-volume study of cinema to the medium's capacity to produce new forms of perception and thought. In the beginning of *Cinema 1*, for instance, Deleuze intentionally excludes the cinematic movement "of people and things" from his concept of the "movement-image."⁵⁴ Identifying the birth of cinema proper with the emergence of editing and camera movement (and by extension, narrative), Deleuze

⁵² Tom Gunning, "Re-Newing Old Technologies: Astonishment, Second Nature, and the Uncanny in Technology from the Previous Turn-of-the-Century," in *Rethinking Media Change: The Aesthetics of Transition*, eds. David Thorburn and Henry Jenkins (Cambridge, MA: MIT Press, 2003), 47.

⁵³ This claim is distinct from what's often referred to as the "formative" (in Dudley Andrew's terms) or "modernist" (in Malcolm Turvey's terms) position in classical film theory, most famously espoused by Rudolph Arnheim, that the aesthetic *merit* of cinema as an art form is located in its divergence from natural perception (e.g. the absence of sound and color, the fragmentation of spatiotemporal continuity through editing, the lack of three-dimensionality, etc.). What followed from Arnheim's interest in this divergence was a wish that cinema "[free] itself from photographic reproduction and become a pure work of man, namely, as animated cartoon or painting." Rudolph Arnheim, *Film as Art* (Berkeley: University of California Press, 1968), 213. This claim is also importantly distinct from work in perceptual psychology that seeks to delineate the distinctions between cinematic perception and natural perception, which tends to emphasize the role of editing. See, for example, James E. Cutting, "Perceiving Scenes in Film and the World," in *Moving Image Theory: Ecological Considerations*, ed., Joseph Anderson and Barbara Anderson (Carbondale, Ill.: Southern Illinois University Press, 2005), 9-27. Finally, my claim perhaps most immediately resonates with Scott Richmond's claim that "The aesthetic value of the cinema lies precisely in its distance or divergence from ordinary perception of the world." Scott Richmond, "Resonant Perception: Cinema, Phenomenology, and the Illusion of Bodily Movement" (PhD Thesis, The University of Chicago, 2010), 7. I will distinguish my own approach from Richmond's at the end of this section.

⁵⁴ Deleuze, *Cinema 1*, 24. This observation is indebted to a passage from Gunning, "Animation and Alienation," 3.

asks “Is not cinema at the outset forced to imitate natural perception?”⁵⁵ Deleuze’s exclusion is not a mere historical oversight, but is rather symptomatic of an intuition about the location of aesthetic form in cinema, about what makes “cinema” as an art distinct from cinematographic recording as a technology.⁵⁶ By this familiar logic, cinematographic recording merely transposes movement from the world in front of the camera to the screen, while “cinema” proper begins when that recording is discernibly manipulated.

What Deleuze overlooks—or what he brackets for the sake of argument—is the phenomenological strangeness of the moving image embedded within its very effortless perceptual realism. In other words, cinematographic recording does not merely *transpose* the movements of the world in front of the camera; it transforms them. The motion forms I examine, and the phenomenological reflection they demand, are intended to exhume this sense of transformation, to instill a sense of wonder at cinematic motion where habits of seeing have dulled the senses.

By this I do not mean that the motion forms I examine present phenomena that can move in strange and unearthly ways, defying the laws of physics and the bounds of the imagination. The cinema is now more than ever capable of picturing impossible forms of movement and time: from “bullet time,” to virtual cameras that move through walls, to gravity-defying CGI creatures. In fact, cinema has always been capable of extraordinary modulations of movement, from George Méliès’s tricks films to J.C. Mol’s mesmerizing time-lapse films, and early theories of film certainly took notice. Beginning in the silent era, though decades after cinema’s inception, what’s been dubbed the “revelationist” tradition of classical film theory rightly celebrated cinema’s capacity to defamiliarize and transform objects on screen by attending to its extraordinary *manipulations* of movement, time,

⁵⁵ Deleuze, *Cinema 1*, 3.

⁵⁶ The fullest account of Deleuze’s dismissal of early cinema and some of the theoretical questions it raises can be found in Baumbach, “False Movements.”

and space, from Jean Epstein and Siegfried Kracauer's interest in slow motion, to Dziga Vertov's interest in reverse motion, to Bela Balazs's enthusiasm for the close-up.⁵⁷ Indeed, the extraordinary motion forms therein are worthy of study. But we must avoid conflating cinema's capacity for wondrous representations with the *wonder of cinematic representation*. There's a risk in foregrounding these extraordinary techniques as the emblems of cinematic motion just as there's a risk in reducing the revelationist rhetorics of Epstein, Balazs, Bazin, and Kracauer to a simplified logic of "augmenting" perception, as if cinema's powers were merely analogous to the telescope or the microscope.⁵⁸ In both cases, such a move perpetuates the fallacy that "ordinary" cinematographic recording simply reproduces the natural perception of motion. To flat out identify the uniqueness of cinematic motion with such techniques risks diluting the *fundamental* strangeness of the photographic moving image, which is indeed, paradoxically, a function of cinematic motion's perceptual (rather than indexical) realism—its sense of perceptual plenitude and lifelike detail uncannily captured in an image.⁵⁹

That is to say, the kinds of objects that photographic moving images are—at once a lifelike world of movement and a detached image—are strange, category-blurring things in and of themselves, even before the development of special effects, temporal manipulations, and narrative

⁵⁷ See Malcolm Turvey, *Doubting Vision: Film and the Revelationist Tradition* (Oxford: Oxford University Press, 2008).

⁵⁸ I'm here referring to Turvey's definition of the revelationist tradition shared by Jean Epstein, Dziga Vertov, Bela Balazs, and Siegfried Kracauer: "The basic argument made by these four theorists and filmmakers is that certain cinematic techniques—the close up, slow motion, time-lapse photography, editing—can reveal features of reality that are invisible in the sense that it is impossible for the human eye to see them without assistance." Turvey, *Doubting Vision*, 5. I do not mean to argue that the logic of perceptual augmentation—even the direct comparison of cinema to the telescope and microscope (of which there are many)—is not a significant aspect of revelationist rhetoric. But I claim that the notion of cinematic revelation evoked by these theorists cannot be exhausted through this explanation, and that comparisons of cinema with instruments of perceptual augmentation should be read as expressions of a *conviction* about cinema's transformative properties rather than, as Turvey reads them, category mistakes.

⁵⁹ I take up, and challenge, the dominance of indexical theories of realism more explicitly in chapter one, chapter four, and in my conclusion. For more on a distinction between perceptual realism and indexical realism, see Stephen Prince, "True Lies Perceptual Realism, Digital Images, and Film Theory." *Film Quarterly (ARCHIVE)* 49, no. 3 (1996): 27 and Tom Gunning, "What's the Point of an Index? or, Faking Photographs." *Nordicom Review* 25, no. 1-2 (2004): 39-50.

techniques. It is in this spirit that I draw on those elements of the revelationist tradition that strive to articulate cinematic motion's *fundamental* transformation of what it records, which we can find in aspects of Epstein's notion of *photogenicie*, Balazs's interest in moving bodies on screen, Kracauer's fascination with fluttering leaves and swirling dust, and Bazin's writing on the uncanniness of cinema's temporal repeatability.⁶⁰ It is in these writings of the classical film theorists, among others, that the *fact* of a moving image remains a source of wonder and always an unsettled question. For example, when Epstein writes that "crowd scenes in the cinema produce a rhythmic, poetic, photogenic effect" because "the cinema can pick this cadence up better than the human eye," he seems to suggest that it is not cinema's capacity to augment or manipulate the crowd's motion, but to recontextualize it and extract it from the world, that grants us access to that movement's formal qualities.⁶¹ Or, when Balazs writes that cinema is capable of "registering [the body's] slightest motion," and Kracauer writes that cinema is "uniquely equipped to render...street crowds, involuntary gestures, and other fleeting impressions," both suggest that the very fact of cinematographic recording is capable of a kind of *detailed* perception of moving phenomena even without the augmentation of the close-up.⁶² And when Bazin condemns the documentation of death on film as an obscenity because "cinema has the exorbitant privilege of repeating [time]"—and "we do not die twice"—he captures something of the uncanniness of cinematic motion's fundamental

⁶⁰ While Turvey identifies Bazin as a "realist" as opposed to a "revelationist" theorist, much of Bazin's writing participates in the revelationist rhetoric, perhaps most famously in this sentence from "The Ontology of the Photographic Image:" "Only the impassive lens, stripping its object of all those ways of seeing it, those piled-up preconceptions, that spiritual dust and grime with which my eyes have covered it, is able to present it in all its virginal purity to my attention and consequently to my love." Andre Bazin, "The Ontology of the Photographic Image," in *What is Cinema? Vol 1*, trans. Hugh Gray (Berkeley: University of California Press, 2005), 15.

⁶¹ Jean Epstein, "The Senses I (b)," in Richard Abel, ed., *French Film Theory and Criticism: 1907-1929*. Vol. 1 (Princeton: Princeton University Press, 1993), 245

⁶² Béla Balázs and Erica Carter, ed., *Béla Balázs: Early Film Theory: Visible Man and the Spirit of film*. Vol. 10. (New York: Berghahn Books, 2010), 12; Siegfried Kracauer, *Theory of Film: The Redemption of Physical Reality*, (Princeton, N.J.: Princeton University Press, 1997), xxxii.

yoking of ephemerality and permanence, that is, its transformation of fleeting, singular moments into repeatable temporal objects.⁶³ It is in passages like these that the revelatory possibilities of the photographic moving image are drawn less from cinema's powers of manipulation than from the kind of thing a moving image is. Indeed, as Cavell urges us, "We need always to be returning to the fact of how mysterious these objects called movies are, unlike anything else on earth. They have the evanescence of performances and the permanence of recordings, but they are not recordings (because there is nothing independent of them to which they owe fidelity); and they are not performances (because they are perfectly repeatable)."⁶⁴

The motion forms I investigate strive to make this mysteriousness phenomenologically accessible and legible, but only under the guise of seemingly ordinary phenomena on screen: the formless movements of water, fire, wind, and dust; habitual bodily movements involved in everyday activities like washing dishes or making coffee; lateral camera movements that scan space instead of penetrate into it; blocky artifacts from digitally compressed video. These forms do not necessarily involve special effects or temporal manipulations; they do not necessarily picture the impossible.⁶⁵ They are, in a sense, limit cases for considering the fundamental mysteriousness of cinematic motion.⁶⁶ As a result, their otherness is profoundly self-effacing. But upon phenomenological description, that otherness takes on a certain logic, making the wonders of cinematic motion a bit less mysterious. Each motion form demonstrates what can happen to motion when it is separated

⁶³ Andre Bazin, "Death Every Afternoon," in Ivone Margulies, ed. *Rites of Realism: Essays on Corporeal Cinema*. (Durham: NC: Duke University Press, 2003), 30.

⁶⁴ Stanley Cavell, "The Thought of Movies," in *Cavell on Film*, ed. William Rothman (New York: SUNY Press, 2005), 94.

⁶⁵ The visual properties of compression glitches, which I examine as a motion form in chapter four, would suggest a notable exception. However, much of my analysis of compression glitches emphasizes their ordinariness, that is, the way in which they've been rendered phenomenologically invisible through habitual exposure.

⁶⁶ It's for this reason that the motion forms I examine do not necessarily privilege genres or modes associated with cinematic motion, such as dance films, action films, and animated films (which I'll address in more detail later).

from the context of lived temporal experience, when motion is spatially bounded, temporally inscribed, and aesthetically contained—that is, when the ephemerality of movement confronts the permanence of an image.⁶⁷ Attending to such motion forms, then, allows us to go beyond a familiar ontological question of classical film theory, “What is a photographic moving image?” and ask a more open-ended phenomenological question: “What can happen to our perception of motion when it is *imaged*?”⁶⁸ Each motion form supplies its own answer, giving partial access to a different aspect of the mysterious, inexhaustible phenomenon that is cinematic motion.

Each motion form’s encounter with what I call “imaged motion”—that is, the imagedness or framedness of cinematic motion—helps distinguish this dissertation from the way motion is discussed in other phenomenologically inflected theories of film. Phenomenological film theorists such as Vivian Sobchack, Jennifer Barker, and Scott Richmond tend to examine the ways that certain kinds of cinematic motion tap into our ordinary embodied experience of moving about in the world as mobile beings.⁶⁹ Drawing heavily from Merleau-Ponty, such theorists explore an analogy between the human body and the camera, emphasizing an immersive sympathy, union, or interpenetration between film and spectator. In this way, such theorists chiefly explore how the

⁶⁷ Such transformations of perception are indeed givens of the moving image, but they are importantly distinct from those transformations often associated with a photographed object’s “indexical” relation to its referent. The temporal boundedness of cinematic motion, for example, is not equivalent to the “pastness” or *that-was-there-ness* of the photographic moving image. Such a distinction will become crucial in chapter one, where I compare early cinema—a photographic medium—to hyperrealistic images of computer animation that tap into the perceptual plenitude and mimetic realism of photographic moving images without an indexical relation between representation and referent.

⁶⁸ While the definition of the “moving image” posited by this question is indeed broad, it’s important to note certain exceptions, such as videogames and, to some extent, VR, both of which do away with some of the key aspects of “imaged motion” at issue, such as repeatability, two-dimensionality, and spatial framing.

⁶⁹ A notable exception here is the work of Laura Marks, whose notion of “haptic visuality” emphasizes not a sense of spatial immersion within the world on screen but its opposite, an encounter with the surface of the screen as a tactile object. In Marks’s words, “Haptic looking tends to move over the surface of its object rather than to plunge into illusionistic depth, not to distinguish form so much as to discern texture.” Laura U. Marks, *The Skin of the Film: Intercultural cinema, Embodiment, and the Senses* (Durham: Duke University Press, 2000), 162.

photographic moving image automatically reproduces the natural perception of motion,⁷⁰ mobilizing phenomenological concepts such as “embodiment,” “world,” and “kinesthesia” to theorize familiar notions about the realism or immersion of cinematic experience. In such accounts, investigations of “cinematic motion” becomes analogized to the “essential motility” of embodied perception,⁷¹ so cinematic motion is examined insofar as it resonates with our familiar sense of being in the world, moving in the world, and perceiving the flux of movement therein. While indebted to these valuable studies, I aim to examine how cinematic motion is *distinct* from our natural perception of movement in the world.⁷²

Indeed, similar characterizations of a phenomenological orientation to film theory have been made by Deleuze in *Cinema 1*, and he too has reinforced the important distinctions between the perception of cinematic motion and the natural perception of motion in the world.⁷³ But despite his

⁷⁰ As with phenomenological film theorists, film scholars such as Anne Friedberg and Jonathan Crary consider cinema’s relation to embodied movement, but do so by locating a continuity between cinematic experience and the newly *mobile* vision characteristic of 19th century urban modernity. Drawing on the work of Walter Benjamin, Georg Simmel, and Wolfgang Schivelbusch, they examine how perception in modern life became a newly *mobile* activity, focusing on visual entertainments such as museums, panoramas, arcades, and philosophical toys; modern modes of transportation like train travel; and artistic movements such as impressionism; all of which incorporate the movement of the body into an activity of seeing. Though these thinkers sometimes draw similarities between particular kinds of cinematic movements and pre-cinematic entertainments—e.g. the *panorama* and the *panning* of the camera; train travel and phantom ride films—the argumentative thrust of this work tends to identify cinema as a distinctly modern technology and, conversely, urban modernity as a distinctly cinematic mode of experience. See Anne Friedberg, *Window Shopping: Cinema and the Postmodern*. (Berkeley, University of California Press, 1993); Jonathan Crary, *Techniques of the Observer: On Vision and Modernity in the Nineteenth Century*. (Cambridge: MIT Press, 1990); and Leo Charney and Vanessa R. Schwartz, eds., *Cinema and the Invention of Modern Life*. (Berkeley, University of California Press, 1995). For a useful summary of this trend, see Chapter 1 of Dimitris Eleftheriotis, *Cinematic Journeys: Film and Movement* (Edinburgh: Edinburgh University Press, 2010).

⁷¹ A similar line of critique of Sobchack’s *Address of the Eye* is given in Yacavone, “Film and the Phenomenology of Art.”

⁷² Richmond’s account of the illusion of bodily movement is a significant exception. Richmond emphasizes the ways in which the cinematic illusion of embodied movement is different from ordinary embodied movement even though it activates a sensation of moving through an environment. For Richmond, such a distinction is essential to the very structure of pleasure involved in the cinematic illusion of bodily movement, for he claims that the illusory feeling of flying through onscreen space is also “palpably illusory.” Scott Richmond, *Cinema’s Bodily Illusions: Flying, Floating, and Hallucinating* (Minneapolis: University of Minnesota Press, 2016), 58.

⁷³ For example, in chapter 4 of *Cinema 1*, Deleuze compares the experience of moving closer to an object and watching cinema’s mobile perspective (i.e. a camera) approach the same object to culminate in a close-up. Deleuze’s chief insight is that while the cinema can bring us closer to objects or move around them, it still suppresses the “horizon of the world.” That is, in a close up of a detail of an object, the hard edges of the frame literally exclude those parts of the object that are not attended to, while in embodied perception, my fixation on a detail of an object allows the remainder

philosophical preoccupation with motion, Deleuze's project in the *Cinema* books is less concerned with *perceptual* forms of motion—*gestalt* forms I perceive on screen—than it is with a *semiotic* taxonomy of concepts proper to cinema.⁷⁴ Such concepts, such as the perception-image, action-image, and affect-image, or the opsign, mnemosign, and the onirosign, emerge from cinematic techniques, insights, or logics that resonate with philosophical concepts (drawn from Bergson and C.S. Peirce) about how we perceive, inhabit, and relate to the world. They have little to do with patterns or structures of movement we see on screen. In this, I heed Gunning's reminder that "It would be a great mistake to equate Deleuze's movement-image with the moving image."⁷⁵ While Deleuze may devote many pages to the conundrum of the "duality of image and movement," which may seem to resonate with my own interest in "imaged movement," such terms for Deleuze must be understood in their Bergsonian inflections, which have more to do with the opposition between idealism and materialism in the history of philosophy than they do with the *phenomenological* question of what it is to perceive movement when it is imaged.⁷⁶

Thus, while this dissertation distinguishes itself from certain habits of phenomenological film theory, it is much more closely related to the questions and methods of phenomenological

of that object to hover in my perceptual background as a "horizon." Deleuze, *Cinema 1*, 57. For more on Deleuze's commentary on phenomenology in the *Cinema* books, and an account of the relation between Deleuze's philosophy of cinema and phenomenology, see Boaz Hagin, "Inverted Identification: Bergson and Phenomenology in Deleuze's Cinema Books." *New Review of Film and Television Studies* 11, no. 3 (2013): 262-287.

⁷⁴ Deleuze writes that his *Cinema* books are not a history of cinema but "a taxonomy, an essay in the classification of images and signs." Deleuze, *Cinema 1*, xiv.

⁷⁵ Gunning, "Animation and Alienation," 2. Above all, the classical cinema of the movement-image conforms to the idea that actions have consequences: the experience of time is subservient to an agent's intentional movement in the world. The emphasis on "movement" in the movement-image, then, does not suggest a stronger attention to the "motion" on screen, but more accurately points to *action* as the mobile force that structures temporality and thus attenuates our experience of duration. The movement-image corresponds more closely to the analytic paradigm of modern thought because the temporal poles of "before" and "after" are organized into an empirical sequence of instants; that is, they are spatially positioned within a linear chain of events. Films exemplary of the time-image, then, by contrast, affirm Bergsonian duration not because of the motion forms they employ (the kinds of movements we see on screen), but because of the ways that their narratives disrupt the linearity of actions and consequences, fuse impossible events, and juxtapose past, present, and future in non-linear arrangements.

⁷⁶ Deleuze, *Cinema 1*, 56.

inquiry than a Deleuzian philosophy of cinema. It's for this reason that Merleau-Ponty's phenomenology of perception figures strongly throughout, both as a methodological guide and as a means of drawing instructive contrasts between cinematic perception and natural perception. Though certain motion forms have the capacity to kinesthetically immerse their spectators and activate the familiar perceptual cues of embodied being-in-the-world—Richmond's *Cinema's Bodily Illusions* is exemplary in this regard—the motion forms I examine shed light on the phenomenological strangeness or uncanniness of cinematic motion as *imaged*. Thus, with the phenomenology of “contingent motion,” I give great consideration to how cinematic motion's conditions of temporal repeatability, detail, and monocular point of view are integral to early spectators' attraction to fluttering leaves and ripping waves, and with “spatial unfurling,” I consider the ways in which the spatial boundaries and flatness of the screen contribute to lateral camera movement's radical separation of the spectator from the world on screen. Each motion form taps into the possibilities of what I call cinema's “framed perception” of motion in the world, the phenomenological correlate of cinema's conceptual yoking of movement and image. To emphasize cinema's framed perception is to consider how movement changes, however subtly or imperceptibly, when it is imaged. So, for example, when Gunning writes that “In terms of a visual experience of motion...no difference exists between watching a film of a ball rolling down a hill, say, and seeing an actual ball rolling down a hill,” I insist that the framedness or imagedness of the ball on screen marks a special phenomenological distinction without negating Gunning's crucial point that the filmed ball is “truly moving.”⁷⁷ Imaged motion is indeed motion—not its representation or its portrayal—but motion of a different sort, and with a different set of aesthetic possibilities.

⁷⁷ Gunning, “Moving Away from the Index,” 43.

In this way, what *Cinema's Motion Forms* proposes is not a phenomenological theory of film in the traditional sense—that is, a theory that explains the phenomenological realism of film experience by analogizing it with natural perception, where movement is a key feature of the analogy between being in the world and watching a film. Instead, I offer the beginnings of a phenomenology of *cinematic motion*, a necessarily incomplete and inexhaustible exploration of the kinds of perceptual experience afforded by the movement of the moving image.

Describing Motion

We must do away with all *explanation*, and description alone must take its place.

—Ludwig Wittgenstein⁷⁸

I've established how an attention to motion forms can provide a set of boundaries necessary to a phenomenology of cinematic motion that is at once theoretically rigorous and unrestrictive in its discoveries. But what does the work of such a phenomenology look like? In other words, how do we attend to forms of *motion* when moving images, especially those that make up narrative cinema, are so overwhelmed by other kinds of forms that compete for our attention: people and things, characters and actions, locations and events?⁷⁹ Insofar as we can describe movement in a narrative film rather than, say, the actions and events of characters, we must learn to describe in a very particular way. Such a mode of description doesn't simply entail narrating the changing positions of objects on the Cartesian plane of the screen. Nor should the description of movement fall prey to an affective formalism, as with Louis Gianetti's claim in his film studies textbook that "upward motion

⁷⁸ Ludwig Wittgenstein, *Philosophical Investigations*, trans. G.E.M. Anscombe and P.M.S. Hacker (Hoboken: NJ, John Wiley & Sons, 2010), 52.

⁷⁹ French impressionist theorist and filmmaker Germaine Dulac observed a similar challenge: "The idea of 'action' was increasingly merged with the idea of 'situation,' and the idea of 'movement' was volatilized into the arbitrary linking of briefly described events." Germaine Dulac, "Aesthetics, Obstacles, Integral *Cinegraphie*," in Richard Abel, ed., *French Film Theory and Criticism: 1907-1929*. Vol. 1 (Princeton: Princeton University Press, 1993), 392.

seems soaring and free” while “downward movements suggest...grief, death, insignificance, depression, weakness.”⁸⁰ Instead, we must describe the *how* rather than the *what* of movements—their character, their shape, their feeling—that lies beneath and between but is ultimately inseparable from “actions” or “events.”⁸¹

Description and cinematic motion go hand in hand. In fact, I argue, the very ontology of cinematic motion demands description as its commensurate mode of critical engagement. This demand derives partly from the fact that moving images involve temporality without notationality.⁸² Perhaps best explained by Raymond Bellour in his essay “The Unattainable Text,” Bellour reminds us that films are simultaneously permanent recordings and ephemeral performances. Unlike in other temporal arts in which the work and its performance are separate, such as music and theater, a moving image is itself both its work *and* its performance, its material form and its immaterial unfolding.⁸³ Music and theater have systems of notation—a score, a script—that provide a means for grasping and making sense of the work in a written, unchangeable form. But with moving

⁸⁰ Louis Gianetti, *Understanding Movies, 11th Edition* (Upper Saddle River, NJ: Prentice Hall, 2007), 111, 112. I’m borrowing the term “affective formalism” from Todd Cronan, who develops the term to identify what he considers a trend in art criticism that attributes to formal qualities like line and color the potential to bypass representation and artistic intention to directly affect the beholder. Todd Cronan, *Against Affective Formalism: Matisse, Bergson, Modernism* (Minneapolis: University of Minnesota Press, 2013).

⁸¹ In this formulation, I’m quite explicitly using the familiar language of “form” and “content,” which I find to be a helpful guide in the analysis of motion forms despite the many convincing critiques of the form/content dichotomy (see, for example, Carroll, “Film Form”). Much of the skepticism concerning the form/content dichotomy can be allayed when we posit form and content as simultaneously present *aspects* of an image, as Richard Wollheim has done with his concept of twofoldness. See my discussion of Wollheim in chapter three. For more on the logic of the content/form dichotomy in art, see Arnold Isenberg, “Perception, Meaning, and the Subject-matter of Art.” *The Journal of Philosophy* 41, no. 21 (1944): 561-575.

⁸² In making such a claim about moving images in general, I’m arguing against David Rodowick’s claim in *Virtual Life of Film* that film’s lack of notationality is radically changed with digital cinematography because “digital creations are produced by a rigorous notation: the algorithms, programs, or instruction sets according to which they are computed.” D.N. Rodowick, *Virtual Life of Film* (Cambridge, MA; London: Harvard University Press, 2007), 16. I take it that unlike sheet music or a playscript, the written algorithms that underlie the digital moving image do *not* constitute a text to be read by the critic. A coded substrate is not a kind of “notation” in the way that musical notation is.

⁸³ Raymond Bellour, “The Unattainable Text,” in *The Analysis of Film*, ed., Constance Penley. (Bloomington: Indiana University Press, 2000), 21-25.

images, we must problematically stop their temporal flow, their perpetual movement and presentness, to grasp a sense of their object-like permanence.⁸⁴ Simply put, we cannot *quote* a moving image.⁸⁵

So, what *can* we do? Cavell claims that it is this very ephemerality of the filmic text (i.e. its movement) that produces an “immediate and tremendous burden on one’s capacity for critical description of cinematic events,” that is, of linguistically sharing one’s temporal experience with others.⁸⁶ Because moving images *move*, because their contents cannot be translated or pointed to on a page or in a picture, they must be described rather than dissected. Etched in time, cinematic movements become *textual* objects that demand the possibilities afforded by language to evoke temporal experience. For Cavell, “description must allow the medium of film as such and the events of a given film at each moment to be understood in terms of one another.”⁸⁷ Cavell’s proposal for description provides us not with an *answer* to the problem of film’s ephemerality, but with a philosophical defense of withholding an analytical “method” in order to acknowledge that ephemerality.

Indeed, as a linguistic enterprise, description may at first seem counter-intuitive as a means of acknowledging the inexhaustibility of cinematic motion. Bergson, after all, famously argued that

⁸⁴ Drawing on Metz, Gunning writes that with cinematic motion “we are swept along with the motion itself.” Gunning, “Moving Away from the Index,” 42. Such a formulation describes an important phenomenological aspect of the ontological crisis of film’s unattainable textuality: perceptually and physiologically “swept along” with the continuity of cinematic motion, the critic must extricate himself from aesthetic experience to engage in analysis.

⁸⁵ Understood as a Zenonian paradox of *inscribed motion*, film’s unattainable textuality gives rise to a number of competing methodological compromises that polarize the boundary between film’s material textuality and its temporal unfolding: from structuralist film theory’s spatialization of the film text to psychoanalytic film theory’s definition of film as the elusive “Imaginary signifier,” from media theory’s emphasis on archival storage to phenomenological film theory’s emphasis on temporal experience, from Laura Mulvey’s fetishization of the photogram in *Death 24x a Second* to Cavell’s commitment to the ephemerality of memory in *The World Viewed*.

⁸⁶ Cavell, *The World Viewed*, x.

⁸⁷ Cavell, *World Viewed*, xiv.

the discontinuous signs of language cannot capture the continuous flow of movement.⁸⁸ But Bergson, himself one of the great writers on the perception of movement and time, is here speaking of the metaphysics of movement rather than the perception of movement. Description makes no attempt to exhaust the sensuous plenitude of its object; it does not strive to convey an empirical access to the thing described. In its very striving to convey an experience of a temporal phenomenon, description *acknowledges* its own finitude in the face of its object's plenitude. In this way, an aesthetic mode of description slips underneath the discourse of scientific rationalism that Bergson warns against.

Description thus entails a philosophical commitment as much as it entails a critical methodology. Much of this philosophical commitment is exemplified by the parallel disciplines of phenomenology and ordinary language philosophy, which share what P.F. Strawson has called a program of "descriptive metaphysics."⁸⁹ When Merleau-Ponty writes that phenomenology is "a matter of describing, not explaining or analyzing," and when Wittgenstein writes "we must do away with all *explanation*, and description alone must take its place," both philosophers aim to steer away from much of philosophy's preoccupation with metaphysical propositions, analytical reflections, and scientific explanations for phenomena in the world.⁹⁰ In Marjorie Weinzweig's words, both methods avoid "reducing the multiplicity of phenomena of our daily experience to one or a few simple ingredients"⁹¹ (it is no coincidence that this is also an apt account of how much of film theory has proceeded⁹²).

⁸⁸ Bergson, *Creative Evolution*, 173-5.

⁸⁹ See P.F. Strawson, *Individuals* (New York: Routledge, 2002).

⁹⁰ Merleau-Ponty, *Phenomenology of Perception*, ix; Wittgenstein, *Philosophical Investigations*, 52.

⁹¹ Marjorie Weinzweig, "Phenomenology and Ordinary Language Philosophy." *Metaphilosophy* 8, no. 2-3 (1977): 116-146.

⁹² Many of the polemics against contemporary film theory since the 1980s have drawn, implicitly and explicitly, from Wittgensteinian forms of argumentation. See, for example, Richard Allen and Malcolm Turvey, eds. *Wittgenstein, Theory*

Adopting the ethos of description from these philosophical positions, I use description as a means of getting closer to the particular phenomena of cinematic motion without simply explaining such experiences as effects of psychological principles or technological conditions.⁹³ It's for this very reason that "description" has recently been adopted as a kind of mantra for those film scholars who've grown weary of film theory's *a priori* analyses of the medium. For example, in Gunning's analysis of cinematic motion as a neglected topic of film theory, he calls for "thick descriptions of how media work, that is, phenomenological approaches that avoid defining media logically before examining the experience of their power."⁹⁴

Description, then, doesn't simply impose the abstraction of language on experience but offers tools for sharing and accounting for the kinds of temporal sensations generated by forms of motion. Because description always entails a selection, a subtraction from and delimitation of the field of perception, the description of motion gives *form* to the phenomena it describes; that is, it accounts for the *ways* in which phenomena appear to a beholder. Consider once again the psychological experiments of Michotte, which were dedicated to the hypothesis that certain kinds of perceived movements give rise to particular impressions (such as the impression of "causality"). Michotte's phenomenological experiments involved recording the impressions test subjects reported when watching a series of minutely differentiated movements of paper squares interacting with each other. Michotte found that altering the speed, distance, acceleration, and trajectory of the squares

and the Arts (New York: Routledge, 2011) and David Bordwell and Noël Carroll, eds. *Post-Theory: Reconstructing Film Studies* (Madison: University of Wisconsin Press, 2012). For an intellectual history and analysis of these debates, see D.N. Rodowick, *Philosophy's Artful Conversation* (Cambridge, MA: Harvard University Press, 2015).

⁹³ By "psychological principles," I'm referring largely to Christian Metz's account of motion in "On the Impression of Reality in Cinema," which comes from "a general law of *psychology* that movement is always perceived as real—unlike many other visual structures, such as volume, which is often very readily perceived as unreal." Metz, *Film Language*, 8. By "technological conditions," I'm referring to Baudry's apparatus theory, in which cinema's technological conditions of motion production—i.e. the synthesis of continuous motion from discontinuous images—helps determine the ideological content of cinematic experience.

⁹⁴ Gunning, "Moving Away from the Index," 37

would cause his test subjects to give different accounts of *how* they seemed to interact: “It is as if A’s approach frightened B, and B ran away;” “It is as if A in touching B induced an electric current which set B going.”⁹⁵ Using these imaginative descriptions as the primary source of data for yielding perceptual taxonomies, Michotte’s experimentation serves as a kind of lesson in the commensurability of description and movement. Only through a descriptive engagement that attends to *how* movements move does Michotte show how we can experience certain kinds of motion as having agential, emotional, animistic, or anthropomorphic traits even in the absence of visual figuration or narrative context.⁹⁶

Similarly, to develop a name for a particular genre of motion is to engage in the practice of description as the very means of identifying forms of motion. For example, Frank Thomas and Ollie Johnston describe the history of the advancement in Disney’s animation techniques as necessarily parallel to a history of the development of the language used to communicate certain motion forms:

A new jargon was heard around the studio. Words like ‘aiming’ and ‘overlapping’ and ‘pose to pose’ suggested that certain animation procedures gradually had been isolated and named. Verbs turned into nouns overnight, as, for example, when the suggestion, ‘Why don’t you stretch him out more?’ became ‘Get more stretch on him.’ ‘Wow! Look at the squash on that drawing!’ did not mean that a vegetable had splattered the artwork; it indicated that some animator had successfully shown a character in flattened posture [...] As each of these processes *acquired a name*, it was analyzed and perfected and talked about.⁹⁷

Description here names the process of giving conceptual existence to a shape, character, or style of moving that is the core identifying marker of an historically defined animation practice. What is

⁹⁵ Albert Michotte, *The Perception of Causality* (New York: Routledge, 2017), 121.

⁹⁶ This is not to say that photographic moving images abstract movement from visual figuration or narrative context in the manner of Michotte’s experiments. I only mean to suggest that Michotte’s experiments demonstrate the possibilities of abstracting a sense of movement from moving objects in the project of description. For work that examines Michotte’s findings with questions of film analysis and theory, see Noel Carroll, “Causation, the Ampilation of Movement and Avant-Garde Film,” in *Theorizing the Moving Image* (Cambridge: Cambridge University Press, 1996) and Ryan Pierson, “The Toy Like Nature: On the History and Theory of Animated Motion.” Doctoral Dissertation, University of Pittsburgh, 2013, 76-132.

⁹⁷ Frank Thomas and Ollie Johnston, *The Illusion of Life: Disney Animation* (New York: Hyperion, 1981) 15, emphasis mine.

collectively known as the “rubber hose” and “squash and stretch” styles in animation discourse essentially grew out of this symbiotic exchange between describing and perceiving. The simple act of “turning verbs into nouns” fosters a linguistic community whose shared vocabulary provides a means of opening up new aspects of temporal form to experience.⁹⁸

Such is the purpose of describing each of the motion forms I examine, but at a much narrower scale. Much of the work of description in each chapter accounts for an aesthetic sensibility that is palpably present, even at times collectively agreed upon, but which is difficult to put into words. In my account of “habitual gestures,” description does the work of accounting for what a number of critics identify as a subtle sense of “delight” in a short sequence from Robert Bresson’s *Mouchette* in which the title character simply makes coffee. A careful description of this ordinary task—which lasts less than sixty seconds—reveals how Mouchette’s delight is wholly conveyed through a sense of virtuosic expertise evinced in the subtle *ways* she moves around the kitchen. Or, in my account of “bleeding pixels,” description does the work of accounting for the prevalence and significance of the fluidic metaphors used to identify the glitch art technique known as datamoshing. The work of description therein reveals the way in which the precise visual logic of “fluidity” gives visual form to the logic of compression algorithms. Only by attempting to describe what might be characterized as indescribable (e.g. bodily virtuosity) or giving form to what might be identified as

⁹⁸ It’s telling that the description of movement is intuitive to animation discourse in a way that it is not with discussions of live-action cinema. With animated films, movement is constructed rather than recorded. Every moment is a choice, and every frame indexes the trace of an artist’s hand, be it the hand of the animator, the in-betweener, or the colorist. Every gesture and action, in other words, is designed or *formed* by a human agent. As a result, movement in animation does not present the kind of aesthetic problems that movement in photographic moving images does because the former more comfortably adheres to our basic assumptions about art and form. It’s largely for this reason that this dissertation is unconcerned with cinematic motion in animation despite the profound influence of animation criticism and theory on my notion of the motion form. Given that my primary interest is the relation between the perception of cinematic motion and the natural perception of motion in the world, the object of my inquiry is the *photographic* moving image, or more precisely, moving images that approximate the perceptual plenitude and mimetic qualities of photographic moving images (e.g. computer-generated animation).

formless (e.g. compression glitches; water, fire, smoke), can we begin to insert visual logics of movement into film theoretical discourse.

In other words, describing the particularity of movement is the means by which we get to the generality of form. It is the very closeness of phenomenological descriptions—which can slip past the limiting vocabulary of narrative representation without edging into impressionism—that affords the discovery of unforeseen patterns, structures, and forms at the level of movement. Motion forms give us the means to both theorize the uniqueness of cinematic motion *and* account for its myriad aesthetic possibilities. They are, after all, one in the same.

Chapter Outline

Each chapter of *Cinema's Motion Forms* examines a single motion form as a platform to revise and rethink a set of intuitions in film theory. Though each chapter constitutes its own self-contained case study for the theoretical possibilities of thinking motion and form together, a shared emphasis on the phenomenon of cinema's imaged motion unfolds across them. Aiming to contest the intuition that ordinary cinematic motion, or in Deleuze's words the movements of "people and things," simply reproduces our perception of motion in the world, I start with simple phenomena in front of the camera—the movement of things ("contingent motion"), people ("habitual gestures"), the camera itself ("spatial unfurling")—and then examine visual artifacts of the technological production of cinematic motion ("bleeding pixels").

Chapter One, "Contingent Motion," examines the inscribed movements of fluttering leaves, swirling dust, and rippling waves as one of cinema's earliest and most significant motion forms. Film historians have long known that the first film spectators often paid more attention to such natural phenomena than to dramatic action taking place on screen. While most theorists maintain that such phenomena attracted spectators because their unplanned or "contingent" appearance flaunted the

realism of analog cinema's indiscriminate recording, I argue that the attraction is part of a broader transmedial attraction to chaotic, contingent movement that persists in the age of digital animation, as spectators are once again astonished by the hyper-realistic movements of water, fire, fur, and hair. In order to provide a phenomenological grounding for such an attraction, I trace an attention to ungraspable motion forms in Kant's *Critique of Judgment*, in which fire and water pose problems for judgements of beauty because of their protean formlessness. In both early cinema and recent CGI, then, the wildly complex and contingent trajectories of a single errant water droplet or a ribbon of smoke are astonishingly inscribed and contained—in a word, *imaged*—as never before. Whether photographically captured or digitally generated, I argue, *imaged motion* renews a sense of wonder at such ephemeral phenomena by creating “framed perceptions” of them. The visual reproduction of these “contingent motion forms,” as a capacity of the moving image writ large, involves its own logics of visual pleasure distinct from the marvels of the photographic process. What D.W. Griffith famously called “the beauty of wind in the trees” is a function of a phenomenology of motion rather than that of an ontology of the indexical cinematographic image.

The second chapter, “Habitual Gestures,” explores how the phenomenology of framed perception affects the perception of bodily movement on screen, especially as it finds expression in what I call *habitual gestures*, automatic or unreflective bodily movements such as walking, sitting, smoking cigarettes, lighting matches, and washing dishes. Such gestures, I argue, when captured in a moving image, have the capacity to encourage our attention to ordinarily overlooked forms of bodily motion. As Walter Benjamin observed in his “Work of Art” essay, while we “hardly know what really goes on”⁹⁹ in the familiar action of reaching for a spoon, cinematographic inscription never

⁹⁹ Walter Benjamin, *The Work of Art in the Age of Its Technological Reproducibility, and Other Writings on Media*, eds., Michael W. Jennings, Brigid Doherty, and Thomas Y. Levin, trans. Edmund Jephcott, Rodney Livingstone, Howard Eiland, et al. (Cambridge, MA: Belknap Press, 2008), 37.

fails to pick up the exact muscular twitches that make up such a gesture. I argue that this epistemological capacity of cinematic motion is made radically visible in certain hallmarks of postwar realist cinema. Examining scenes of everyday household activities in Vittorio De Sica's *Umberto D*, William Wyler's *Best Years of Our Lives*, and Robert Bresson's *Mouchette*, I show how an aesthetics of habitual gestures compels our attention to the invisible bodily movements *between* and *within* willed actions, and in doing so foregrounds the body's non-conscious and automatic ways of moving. Reading such gestures alongside the notion of "bodily habit" in the philosophy of Maurice Merleau-Ponty, I trouble Gilles Deleuze's notion of the time-image as the dominant lens through which the postwar aesthetics of laboring bodies is understood. Doing so allows us to figure the aesthetics of realist performance not only as a function of non-narrative *temps morts*, but as a function of cinema's detailed registration of bodily micromovement.

In chapter three, "Spatial Unfurling," I continue my investigation of framed perception by focusing on what can happen to the illusion of perspectival movement—as figured by the movement of the camera—when imaged on film. Accounts of the perceptual experience of camera movement in phenomenological film theory tend to extend a long-held truism in film theory that the camera eye is analogous to the human eye. Such theories argue that when we see the movement of the camera, we are somehow attuned to a familiar feeling of our own embodied movement through space. This chapter first argues that this anthropomorphic identification with the moving camera is not a condition of camera movement as such, but a hallmark of movements-into-depth, an insight that requires close analysis of phenomenological film theories and their basis in the work of Merleau-Ponty. I then explore lateral movement as an ordinary form of camera mobility that shifts the terms underlying action-oriented theories of perception and existential phenomenology. In foregoing the feeling of directed intention, anticipation, and kinesthesia characteristic of movement-into-depth, lateral camera movement—in which the camera moves sideways with respect to the

direction it faces, often parallel to a scene—more readily recalls the experiences of passengers in locomotives or automobiles than those specific to the agential moving body. Reading Wolfgang Schivelbusch’s account of the “panoramic perception” of train travel alongside sequences from films across experimental and narrative cinematic traditions—including Leos Carax’s *Mauvais Sang*, Bruce Baillie’s *All My Life*, and Gus Van Sant’s *Gerry* among others—I draw out the phenomenological structure that unites these examples, a motion form I call *spatial unfurling*. By exploiting the flatness of the screen and boundaries of the frame to create visual rhythms, spatial unfurling shows us how camera movement’s illusion of bodily movement is merely one perceptual *aspect* of the moving camera that varies in proportion to perceiving the screen as surface. Lastly, in order to draw out the theoretical consequences of this, I turn to Richard Wollheim’s “twofoldness” theory of picture perception as a lens through which to describe Ken Jacobs’s *Georgetown Loop* and Michael Snow’s *La region centrale*, experimental films that draw on the phenomenology of spatial unfurling to reflect on the perception of camera movement as a general phenomenon. Ultimately, I argue that the radically different forms of movement availed by the moving camera warrant a phenomenology that foregrounds the role of aspect-perception of the screen rather than analogies with bodily movement.

In chapter four, “Bleeding Pixels,” I return to questions of technology and digital cinema explored in chapter one, but in a much different register. While chapter one focused on a motion form that was shared across analog and digital technologies, hence demonstrating how motion forms bridge media, chapter four turns to a motion form unique to digital technology: what’s come to be known as the “bleeding pixels” effect unique to compression glitches.¹⁰⁰ Marked by a peculiar combination of fluidic transformations and pixelated patterns, compression glitches are generally regarded as minor but unavoidable instances of seemingly random image degradation. But a

¹⁰⁰ The nickname “bleeding pixels” specifically emerged as a description of “datamoshing,” a glitch art technique that uses compression glitches to expressive effect.

closer description of such glitches reveals a visual expression of compression algorithms' production of cinematic motion. Given that compression glitches present the historically unique condition in which the technical production of cinematic motion is given a visual form, the aim of this chapter is to demonstrate how a phenomenology of compression glitches—in two distinct but interrelated modes of experience—can model a form of inquiry that bridges the gap between technologically oriented and phenomenologically oriented accounts of “digital cinema.” First, I explore how compression glitches' seamless incorporation into the fabric of home viewing has yielded what I call *movement-sensitive spectatorship*, a sensitivity to the magnitude of movement on screen. Second, by describing the visual qualities of compression glitches as manifested in the glitch art practice known as “datamoshing,” I show how the aesthetics of compression glitches thematize the perceptual primacy of structures, patterns, and wholes, i.e. *forms*, in our perception of cinematic motion. Taken together, these two aspects of the compression glitch both illuminate new orientations toward cinematic motion in the digital era as well as elucidate logical aporias endemic to the analysis of digital cinema.

In no way do these investigations constitute an exhaustive taxonomy of cinema's motion forms; indeed, no such taxonomy could exist. Motion forms can be found anywhere and everywhere, they can travel from film to film, and they can overlap and intersect. More importantly, there are no limits on the claims to their significance, film theoretical or otherwise. These four case studies serve here as a starting point for a way of thinking cinematic motion and form together, and for testing out its consequences for film theory. Studying cinematic motion in this way holds other possibilities with a range of historical, political, and cultural dimensions. Above all, this dissertation aims to propose a method. Thinking with motion forms gives us the tools for articulating what's most certainly on the screen but infrequently, if ever, articulated: the forms of motion for which we rarely have names but nonetheless recognize, distinguish, and delight in.

Chapter 1

Contingent Motion

Rethinking the “Wind in the Trees” from Flickering Leaves to Digital Snow

[Undulating waves, moving clouds, and changing facial expressions] conveyed the longing for an instrument which could capture the slightest incidents of the world about us—scenes that often would involve crowds, whose incalculable movements resemble, somehow, those of waves or leaves.

—Siegfried Kracauer¹

What we actually see is a composite; it is like the movement of a fountain in which every jet is resolved into numberless drops. We feel the play of those drops in their sparkling haste as one continuous stream of water, and yet are conscious of the myriads of drops, each one separate from the others. This fountainlike spray of pictures has completely overcome the causal world.

—Hugo Munsterberg²

It’s one of the most persistent anecdotes of film history: audiences of the first exhibited films were awe-struck by what Dai Vaughan has called the “incidentals” of scenes, such as “smoke from a forge, steam from a locomotive, or brick dust from a demolished wall.”³ Most famously, during exhibitions of the Lumière actuality *Le repas du bébé*, audiences were reportedly more interested in the distant tree leaves blowing in the wind than the baby eating breakfast in the foreground. This myth was repeated in famous remarks from Georges Méliès and D.W. Griffith, by Siegfried Kracauer’s preoccupation with rustling leaves, undulating waves, moving clouds, and flowing crowds, and more recently by Christian Keathley’s intellectual history of cinephilia.⁴ Such an

¹ Siegfried Kracauer, *Theory of Film: The Redemption of Physical Reality*, (Princeton, N.J.: Princeton University Press, 1997), 27-8.

² Hugo Munsterberg, *Hugo Munsterberg on Film: The Photoplay: A Psychological Study and Other Writings* (New York, Routledge, 2013), 135

³ Dai Vaughan, *For Documentary: Twelve Essays* (Berkeley: University of California Press, 1999), 4.

⁴ For an account of Méliès’s remarks, see Mary Ann Doane, *The Emergence of Cinematic Time* (Cambridge, MA: Harvard University Press, 2002), 177. Griffith famously claimed “[what] the modern movie lacks is beauty – the beauty of the moving wind in the trees,” quoted in Ezra Goodman, *The Fifty-Year Decline and Fall of Hollywood* (New York: Simon and Schuster, 1961), 19. For an example of Kracauer’s interest in these phenomena, see the epigraph above. Keathley pays tribute to such phenomena in the subtitle of his book. Christian Keathley, *Cinephilia and History, Or, The Wind in the Trees* (Bloomington: Indiana University Press, 2006).

interest even persists in the era of computer-generated images, as the uncannily convincing renderings of spraying water, flickering flames, and waving hair are garnering a similar fascination. Throughout film history, from the “wind in the trees” to digital dust, our astonishment at “incidentals” has served as a useful reminder of an attraction to the moving image that precedes narrative pleasures.

At a deeper level, incidentals have been at the center of foundational narratives in realist film theory, where they have led theorists to invoke the term “contingency” to explain the phenomenon as an attraction to the camera’s indiscriminate capture of physical reality.⁵ For Kracauer—and much later, for Mary Ann Doane—seeing the unplanned movement of the windswept leaves captured on screen coincides with a uniquely modern paradigm, in which chance, ephemerality, and spontaneity became newly privileged modes of experiencing the world.⁶ For Vaughan, the attraction to contingency is less a sociohistorical symptom than it is a groundbreaking novelty in the history of visual representation. He argues that because the first film audiences would have been familiar only with the painted backdrops of the theater, they were astonished not by the moving figures in the foreground, but by the seemingly uncaused, unplanned movement of the previously inanimate background, “spontaneities of which the theatre was not capable.”⁷

On this model, the wind in the trees is taken to reveal the cinema’s ability to show the autonomy of the world unfold independently of authorial control. Such an interpretation undergirds its phenomenological claims with an attention to the material properties of the photographic

⁵ See Doane, *The Emergence of Cinematic Time*; Mary Ann Doane, “The Object of Theory,” in *Rites of Realism: Essays on Corporeal Cinema*, ed., Ivone Marguiles (Durham, NC: Duke University Press, 2003), 80-92; Janet Harbord, “Contingency’s Work: Kracauer’s Theory of Film and the Trope of the Accidental,” *New Formations*, no. 61 (2007): 90-104.

⁶ Doane, *The Emergence of Cinematic Time*.

⁷ Vaughan, *For Documentary*, 5.

process. For this reason, theories of cinematic contingency are often indistinguishable from theories of photographic contingency, so that the emphasis on marginal details and fleeting moments is intimately related to the “indexical” properties of photographic emulsion.⁸ The attraction to such details in turn derives from a basic knowledge of the photographic process and the corollary “this-was-thereness” that attends such knowledge.⁹ This leads into the discourses of cinematic contingency. As with the dog that walks across the screen in the Lumière’s *Le Faux cul-de-jatte* (1903) or the fly that lands on Joan’s face in *Passion of Joan of Arc* (1928), the wind in the trees is singled out because of its contingent existence as an unplanned incident, and thus, its testament to the indexical properties of photographic materiality.¹⁰

But this line of thinking misses something crucial. The wind in the trees, the ripples of waves, and the brick dust from a demolished wall are not necessarily unplanned events. Nor are they, as in Vaughan’s formulation, “incidental” with respect to a staged action. In *Démolition d’un mur* (1896), for example, the *existence* of the dust cannot be said to be unplanned, as it is ultimately linked to human action through a chain of causality (man pushes wall, wall hits dirt, dirt rises). I want to suggest that the attraction to the rising dust and the wind in the trees is not a matter of capturing their contingent existence, but a matter of reproducing the contingent manner in which they *move*. Considered as phenomenally similar motion forms, the leaves or dust’s infinitely various trajectories

⁸ See Roland Barthes, *Camera Lucida: Reflections on Photography*, 1st American ed. (New York: Hill and Wang, 1981), 4. Doane concisely spells out the logical relation between cinematic contingency and the indexical properties of photography in Doane, “The Object of Theory,” 83-88.

⁹ Roland Barthes, for example, singles out the nuns captured in the background of a photograph of soldiers because they “happened to be there.” Barthes, *Camera Lucida*, 42.

¹⁰ For a fascinating argument against such an account of cinematic contingency that instead emphasizes the role of formal composition in determining an aesthetic of the “unstaged,” see James Lastra, “From the Captured Moment to the Cinematic Image: A Transformation in Pictorial Order,” *The Image in Dispute: Art and Cinema in the Age of Photography* (Austin: University of Text Press, 1997). Still, it’s significant that while Lastra argues that we could never bypass a film’s spatiotemporal composition to unequivocally judge an early film as staged or unstaged, he exempts “humanless views of natural phenomena like waves crashing on a beach.” Lastra, “From the Captured Moment,” 267.

of fluidic motion are not so much *unplanned*, as with a stray dog that might spontaneously walk onscreen, but are *unplannable*, seemingly impossible to design, predict, or reproduce. Incidentals are not “accidents” in our ordinary sense of the word—unforeseen events that could have been planned—but rather constitute a distinctly ungraspable form of motion astonishingly grasped in a moving image.

This is a subtle shift, but an important one. Only by reconsidering cinematic incidentals as experiences of unplannable movement rather than as experiences that signify unplanned moments can we open up the “wind in the trees” phenomenon beyond its historical dependence on photographic media.¹¹ Instead of understanding contingency solely as an ontological property of photographic image-making, as a corollary of the “index,” we also need to understand it as an *aesthetic experience* activated by cinema’s mimetic capacity for reproducing the infinitely minute details of moving phenomena with stunning accuracy.¹² In other words, the experience of contingency in the wind in the trees is as much related to what André Bazin calls the “myth of total cinema,” the timeless desire for an increasingly accurate mimicry of the world, as to what he calls the “ontology of the photographic image,”¹³ its preservation and reproduction of an antecedent reality. It is precisely for this reason, I hypothesize, that a fascination with contingent motion onscreen has resurfaced with the mimetic capacities of digital animation. As a capacity of the *moving image* writ large, the visual reproduction of contingent motion involves its own forms of attraction distinct from the marvels of

¹¹ In distinguishing “unplannable movements” from “unplanned moments” (or events), I’m implicitly drawing on the insights of Henri Bergson, who argued that in scientific discourse, “The measuring of time never deals with duration as duration; what is counted is only a certain number of extremities of intervals, or *moments*, in short, virtual halts in time.” Henri Bergson, *The Creative Mind: An Introduction to Metaphysics*, trans. Mabelle L. Andison (Totowa, NJ: Littlefield, Adams & Co., 1975), 12.

¹² The yoking of “contingency” and “index” is crucial to Doane’s *The Emergence of Cinematic Time*. See Doane, *The Emergence of Cinematic Time*, 10-25.

¹³ André Bazin, *What is Cinema?* vol. 1, trans. Hugh Gray (Berkeley: University of California Press, 2004).

the photographic process. The aim of this chapter is to explore the phenomenological structures of that attraction.

In what follows, I will open up the fascination with contingent motion as an aesthetic experience that traverses pre-cinematic, cinematic, and post-cinematic experiences.¹⁴ First, I'll locate this fascination in a history of aesthetic experience that long precedes the moving image, a history of looking at the natural world in motion.¹⁵ To do this, I trace an attention to contingent motion in Immanuel Kant's aesthetics of natural beauty, in which the formless movements of fire and water pose problems that were fortuitously addressed by the invention of the moving image. Second, by reading Kant's phenomenological insights about contingent motion alongside the reactions of early spectators and early cinema culture, I argue that the marvel of the wind in the trees lies partly in the way that cinematic reproduction converts the chaotic motion of natural phenomena into a spatiotemporally *framed* object. And third, I consider how the recent attention given to the hyperrealism of simulated contingent motion in computer-generated animation renews the experience of early spectators. Looking closely at particular motion effects from popular computer-animated films and the stochastic algorithms used to produce such effects, I identify a

¹⁴ My term "contingent motion" resonates with "Brownian motion," a term in physics that describes the irregular, seemingly uncaused movements of microscopic particles suspended in a liquid or gas. Though the principles of Brownian dynamics may in fact explain, for instance, the seemingly random movement of visible dust particles illuminated by a beam of sunlight, the term Brownian motion is often used in conjunction with Albert Einstein's discovery that random particle motion is a result of various invisible collisions with atoms. My term "contingent motion," by contrast, a loosely phenomenological rather than scientific category, makes no claims on the explanations for the seemingly random movements of fire, water, and dust, which may be caused by invisible air currents as much as invisible atomic collisions. For a history of the use of chronophotography in developing the theory of Brownian motion, see Scott Curtis, "Brownian Motion and 'The Space Between,'" in *The Shape of Spectatorship: Art, Science, and Early Cinema in Germany* (New York: Columbia University Press, 2015). For an investigation of the relation between Brownian motion, early film theory, and microcinematography, see Hannah Landecker, "Cellular Features: Microcinematography and Film Theory." *Critical Inquiry* 31, no. 4 (2005): 903-937.

¹⁵ Though I adhere to the phrases "natural world" and "natural beauty," I do not mean to restrict the aesthetic experience of contingent motion to natural objects. A man-made explosion or the formless shape of an urban crowd exhibit contingent motion as much as leaves, water, and dust. The crucial point, here, is that despite the origin of the object, its *movements* are natural (or in the case of animation, made to look natural)—that is, determined by physical laws and tendencies.

phenomenological sympathy between the experience of cinematographically captured and digitally manufactured contingent motion. Affirming the move away from indexical theories, our attraction to the digital manufacture of the wind in the trees both reincarnates the aesthetic experience of early spectators and adapts such an experience to the phenomenological possibilities of new media.

Surely, an argument that links digital cinema with early cinema is not a new gesture, and many scholars have returned to the myths of early cinema to explain the pleasures, experiences, and cultures emerging from new moving-image technologies.¹⁶ My aim, by contrast, is to rethink the nature of these myths precisely in order to provide a new account of the affinities between early cinema and the contemporary moment. In locating an attraction to contingent motion that stretches across pre-cinematic experience, early cinema, and CGI, I aim to delineate a transhistorical aesthetic continuity that cinema takes part in and shapes but does not itself create. Even more, by placing the pleasures of the moving image within a history of appreciating the natural world, I argue that the similar experiences produced by early cinema and CGI are technologically distinct iterations of a more longstanding aesthetic concern. Above all, then, what I aim to establish by tracing an aesthetics of contingent motion across natural perception, photographic cinema, and computer-generated imagery is a kind of thinking uniquely availed by an attention to motion forms: the forms of motion we perceive on screen are always distinct from, and yet always inextricable from, the motion forms we perceive in the world.

Pre-cinema: Aesthetic Beholding and Kant's Beautiful Views

¹⁶ See, for example, Miriam Hansen, "Early Cinema, Late Cinema: Permutations of the Public Sphere," *Screen* 34, no. 3 (1993); Wanda Strauven, *The Cinema of Attractions Reloaded* (Amsterdam: Amsterdam University Press, 2006); Katherine Groo and Paul Flaig, *New Silent Cinema* (New York: Routledge, 2015).

In this first section, I argue that it is the peculiar visual properties of fluttering leaves, rippling waves, and swirling dust—specifically, the manner in which they move—that partly made such phenomena astonishing as filmed objects for early spectators. To work out the logic of this claim, I first want to classify such disparate phenomena in terms of their *contingent movement*. A basic intuition seems right: the way a rock travels through the air when I throw it exhibits less “contingent” movement than the flow of water through a garden hose, the smoke rising from a steam engine, the dust emanating from a demolished wall, or even the fluidic movements of crowds if seen from the right vantage.¹⁷ Even if we can locate the causal agent of those movements—the worker who swung the sledge hammer, for instance—what appears unpredictable or unplannable is the manner in which such objects move. In contradistinction to the proverbial billiard ball, whose changing directions and collisions follow a predictable causal chain, each tiny variation of the swirling dust or the flickering flame, it seems, could go one way or the other.

To better understand the experience of these *contingent* trajectories, we first need to understand the ordinary cases of causal movement that they seem to undermine. In other words, what grounds the conviction that the billiard ball’s movement along the pool table follows a predictable *causal* chain? Though it seems intuitive that certain events in the world give us an impression of causality—and others a lack thereof—this very idea is a relatively recent one in the history of perceptual psychology. It wasn’t until the twentieth century that perceptual psychologists began to question David Hume’s empirical claim about the falseness of perceived causality and began to construct phenomenological logics for the experience of apparent causality, or what Albert

¹⁷ See Kracauer, *Theory of Film*, 27.

Michotte called the “impression” of causality.¹⁸ In his study *The Perception of Causality*, Michotte found that the impression of causality we intuit from the interactions of objects—say, in the collisions between billiard balls and their subsequent ricochets along the bumpers of the table—is dependent on certain motion configurations of the observed event rather than on metaphysical propositions about the nature of causality.¹⁹ Investigating the spatiotemporal features of causal impressions was not a matter of making claims about the actual state of affairs in the external world, but of accounting for one’s lived experience of movement.

As I noted in the introduction of this dissertation, Michotte’s phenomenological experiments involved recording the impressions test subjects reported when watching a series of minutely differentiated movements of paper squares interacting with each other.²⁰ Michotte synthesized and organized the vast number of test subjects’ descriptions into a system of concepts describing various perceptual logics of causality. The “launching effect,” for example, describes the impression of one object “bumping into” another in order to set it in motion (e.g. the collision of two billiard balls), while the “triggering effect” refers to the impression of one object “touching off” or “triggering” the autonomous movement of another rather than physically colliding with it. Though the test subjects *knew* that the paper squares themselves were not equipped with force, weight, inertia, or agency, their particular movement configurations bestowed them with these characteristics.

Michotte’s breakthrough in conducting these experiments was not simply in the taxonomy he yielded from them, but in their philosophical implications about the role of apparent causality in

¹⁸ For Hume, the intuition that a moving cue ball *causes* the movement of the 8-ball it strikes is not a rationally grounded belief, but a perceptual habit and convention. See David Hume and Tom L. Beauchamp, *An Enquiry Concerning Human Understanding: A Critical Edition*. Vol. 3. (Oxford: Oxford University Press, 2000), 7.2.29/76-77.

¹⁹ Albert Michotte, *The Perception of Causality* (New York: Routledge, 2017).

²⁰ Though I won’t describe the mechanisms Michotte used here, it’s important to note that Michotte did not use stroboscopic or cinematographic animation to perform his experiments only because he thought the process too labor intensive.

our experience of movement. Though movement is often understood simply as the change in position of an object over time, Michotte showed that such a definition has little purchase on our lived experience of movements in the world. In pouring a glass of wine, the wine is not simply *displaced* from position A to B; rather, “we...see the wine *come out* of the bottle and *run into* the glass.”²¹ In the same way, Michotte’s myriad experiments involving the choreographed movements of two-dimensional shapes evoke impressions of force, agency, and life; in other words, all movements in the world have an immediate *character* that is inextricable from the movement itself.

Michotte’s experimental phenomenology of causal impressions—what we might call *causal motion forms*—helps us begin to describe the phenomenological specificity of contingent motion forms in two ways. First, Michotte’s methodology paves the way for thinking about the immediate impressions or characteristics evinced by the movement of objects rather than by their shape, size, and color.²² Second, and more particularly, Michotte’s investigation of the impression of causality provides the grounding on which to think about the phenomenological anomaly of contingent motion forms. If Michotte revealed the ways in which various phenomenal categories of causality are constitutive of our immediate experience of moving objects, what’s remarkable about fire, water, and smoke is how their movements seem to defy or trouble those categories. Faced with the unpredictable twists and turns of a single dust particle dancing in the air, we are at a loss to describe such movements in the causal terms invoked by Michotte’s test subjects. Their trajectories are neither *launched*, *pushed*, *carried*, nor *triggered* by any discernible entity, nor are they quite *willed* or *agential* movements akin to the bodily movements of animate life. Such movements are, at best, contingent: whimsical, spasmodic, and unpredictable.

²¹ Michotte, *Perception of Causality*, 4, emphasis in original.

²² In Michotte’s words, “What [objects] are for us is much more than their shape, their size, their color; it is above all what they are capable of doing, or what can be done by means of them.” Michotte, *Perception of Causality*, 4.

It's for these reasons that such phenomena have long been objects of intense fascination and scrutiny, dating back at least to Lucretius's insightful commentary on the movements of dust particles in his "On the Nature of Things:"

Observe what happens when sunbeams are admitted into a building and shed light on its shadowy places. You will see a multitude of tiny particles mingling in a multitude of ways...their dancing is an actual indication of underlying movements of matter that are hidden from our sight [...] It originates with the atoms which move of themselves [i.e., spontaneously]. Then those small compound bodies that are least removed from the impetus of the atoms are set in motion by the impact of their invisible blows and in turn cannon against slightly larger bodies. So the movement mounts up from the atoms and gradually emerges to the level of our senses, so that those bodies are in motion that we see in sunbeams, moved by blows that remain invisible.²³

In observing the dust particles' seemingly unpredictable manner of movement, Lucretius immediately hypothesizes as to the source of their invisible causation.²⁴ Regardless of the empirical cause of such movement—invisible air currents or, in the case of Brownian motion, invisible molecules—the immediate experience of this kind of movement challenges classification and inspires curiosity. In his *Notebooks*, for example, Leonardo da Vinci describes how the "fitful impetuosity of the wind is shown by the dust that it raises in the air in its *various twists and turns*," and how water "forms whirling eddies, one part following the impetus of the chief current, and the other following the *incidental motion* and return flow."²⁵ For Gilles Deleuze, the constant and unpredictable metamorphosis of water illustrates the metaphysical primacy of movement over substance: "water is the most perfect environment in which movement can be extracted from the thing moved, or mobility from movement itself."²⁶ And for Gaston Bachelard, the unpredictable trajectories of

²³ Lucretius, "On the Nature of Things," *The Internet Classics Archive*, http://classics.mit.edu/Carus/nature_things.html. Last accessed July 16, 2017.

²⁴ It is important to note, however, that Lucretius's insight is *analogous* to the logic of Brownian motion, for true Brownian motion is only observable under a microscope.

²⁵ Leonardo da Vinci, *Notebooks*, ed., Thereza Wells (Oxford: Oxford University Press, 2008), 39, 25, my emphasis.

²⁶ Gilles Deleuze, *Cinema 1: The Movement-Image*, trans. Hugh Tomlinson and Barbara Habberjam (Minneapolis: University of Minnesota Press, 1986), 77.

flickering flames gives fire a strange semblance of agency. Though the flames do not quite appear to move themselves—as if autonomous, animate beings—their movements are “analogous to vitality.”²⁷ Somewhere between inanimate and animate, material and immaterial, contingent motion forms defy our perceptual expectations for the behavior of physical objects, serving as ordinary reminders of the fundamental unpredictability of the natural world.²⁸

While such observations help illuminate the philosophical and scientific appeal of contingent motion forms, they do not sufficiently explain the *aesthetic* pleasures they afford. In order to unravel the mystery of contingent motion’s particular allure on film, then, we first need to investigate their allure in natural perception. Despite the astonishing novelty of the moving image, early spectators attracted by the wind in the trees and other contingent phenomena were engaged in a kind of visual pleasure not entirely unfamiliar to them. That is, the pleasure of beholding contingent motion was not invented by the cinema, but transformed by it. It is in this spirit that Kant’s *Critique of Judgment*, a systematic investigation of the nature of aesthetic pleasure, matters for the discussion.²⁹ Approaching contingent motion as a problem for judgments of beauty, Kant unwittingly provides the vocabulary for a phenomenological reinterpretation of the wind in the trees.

²⁷ Gaston Bachelard, *The Psychoanalysis of Fire* (Boston: Beacon Press, 1964), vi. Early spectators, too, sometimes understood these movements as bestowing a semblance of ‘life,’ as in Remy de Gourmont’s account of the effects of wind and water on vegetation: “[The] wind bent the fir trees on the mountains; the water sprang up at the bottom of the falls. I saw *life* stirring.” Rémy de Gourmont, “Epilogues: Cinematograph (1907),” in *French Film Theory and Criticism. A History/Anthology. 1907-1939*, ed. Richard Abel, vol. I (Princeton, NJ: Princeton University Press, 1988), 27.

²⁸ For Gestalt psychologist Fritz Heider, contingent motion forms would surely be categorized by what he called a “medium,” a shapeless volume of particles like a liquid or gas. Heider opposed “mediums” to what he called “things,” more rigidly structured entities that *moved through* mediums. Fritz Heider, “Thing and Medium,” In *On Perception, Event-Structure and Psychological Environment: Selected Papers* (New York, International Universities Press, 1959), 1-34. I return briefly to Heider’s categories in chapter four to describe the visual characteristics of datamoshing.

²⁹ Nico Baumbach has discussed Kant’s aesthetics in relation to the wind in the trees, focusing in particular on how the phenomenon collapses Kant’s distinction between natural beauty and art beauty. Ultimately, though, Baumbach rehearses the discourse of contingency, stating that the wind in the trees “provides an image of cinema’s ability to make visible an absent cause.” Nico Baumbach, “Nature Caught in the Act: On the Transformation of an Idea of Art in Early Cinema,” *Comparative Critical Studies* 6, no. 3 (2009): 114.

At the end of the *Analytic of the Beautiful*, Kant distinguishes between properly “beautiful” objects and what he calls the “beautiful views” characteristic of “the changing shapes of the fire in a fireplace or of a rippling brook,” sights which “continually aroused [the mind] by the diversity that strikes the eye.”³⁰ Such sights, according to Kant, are not beauties but mere “charms.”³¹ It should seem strange, though, that Kant disqualifies fire and water from judgments of beauty. In Kant’s aesthetic system, judgments of beauty are, above all, marked by their lack of defining criteria; *all* objects have the capacity to be beautiful.

Yet that is the issue. The flickering fire and the rippling brook are excluded not because they violate a set of criteria for determining the beauty of objects, but because they defy our natural faculty for grasping objects as bounded entities. For Kant, not only must an object have discernible boundaries to be judged beautiful, but a properly beautiful object must please the beholder solely through its *form*—that is, the spatiotemporal arrangement of its parts that together constitute a discernible whole.³² “Design” and “composition” are essential to formal beauty while secondary qualities like color are only “agreeable” to the senses.³³

It is in this sense that contingent motion presents a challenge to the faculty of form. Looking at a constantly flickering fire, a rippling brook, or the shifting ribbons of smoke emanating from a cigarette, I’m not sure where the *object* begins and ends, either spatially or temporally speaking. My

³⁰ Immanuel Kant, *Critique of Judgment*, trans. Werner S. Pluhar (Indianapolis: Hackett Publishing, 1987), 94-5.

³¹ “Charm” denotes a particular kind of liking for an object (which Kant deems the “agreeable” rather than the beautiful) that involves the object’s direct stimulation of sensory delight without the object’s form stimulating the free play of the imagination and understanding. In short, finding canary wine agreeable—that is, satiating—does not mean I cannot find this particular canary wine beautiful, but the pleasure of the latter must be “disinterested” with respect to such satiation.

³² In both Kant’s epistemology and his aesthetics, “form” refers to the sense of unity—component parts arranged into relations—that our minds intuitively put together from what we perceive in the world. At its most basic level, form is the apparent *organizedness* of things. The place of form in Kant’s epistemology is exemplary of his project to discover the *conditions for the possibility* of knowledge rather than define the properties of the objects of knowledge.

³³ It should be noted, however, that the *arrangement* of color can lend itself to formal beauty. Kant, *Critique of Judgment*, 71-2.

attention darts from one place to the next, vainly attempting to synthesize a stable whole from the constantly moving and mutating parts.³⁴ Simply put, contingent motion forms are a problem for Kant because they are *formless*; their perpetual metamorphosis defies formal unity—that sense of component parts arranged into relations, the apparent organizedness of things. Unlike the characteristic formlessness of the mathematical sublime, which Kant associates with phenomena so large that they appear boundless with respect to our finite perceptual field, beautiful views lack formal order because of their protean *movement*.³⁵ The problem, then, is not that they exceed the spatial limits of our visual field, but that their configurational motion—a ceaseless and chaotic “diversity that strikes the eye”—confounds our ability to delimit a stable boundary.

More than a mere obstacle for making judgments of beauty, this formlessness conflicts with the core of Kant’s aesthetic system. For Kant, the very condition of the feeling of beauty is its subjective universality, a conviction that others ought to find the same object beautiful were they to encounter it as I do. In this, aesthetic experience presupposes the existence of an object that could be perceptually shared with others. The formless shapeshifting of fire and water, however, makes this difficult. Caught in the spell of their constant metamorphosis, I cannot imagine that another person could ever behold the same view: “in beautiful views of objects, taste seems to fasten not so much on what the imagination *apprehends* in that area, as on the occasion they provide for it to engage in *fiction* [*dichten*], i.e., on the actual fantasies with which the mind entertains itself as it is

³⁴ For Bachelard, the ceaseless, nonprogressive attention to flickering flames “works in a star pattern” that “returns to its center to shoot out new beams.” Bachelard, *The Psychoanalysis of Fire*, 14.

³⁵ In fact, as the passage that marks the very end of the “Analytic of the Beautiful” and the beginning of the “Analytic of the Sublime,” we can understand “beautiful views” as a bridge between the beautiful and the sublime. The feeling of the sublime involves the superiority of reason over the imagination—I can mentally fathom the mountain’s totality but cannot perceive it—but Kant’s description of “beautiful views” seems to imply the opposite case: the imagination is undoubtedly stirred (“they still charm the imagination because they sustain its free play”) but the understanding cannot conceptualize the perception since it’s perpetual motion defies any semblance of objecthood.

continually being aroused by the diversity that strikes the eye.”³⁶ As explained by Claudia Brodsky, Kant’s use of “dichten” suggests a mode of sensory experience that is somewhere between subjective hallucination and empirical representation, an intermingling of inside and outside:

Dichten . . . is a verb of vision so divested of the modal qualities of formal comprehension that it seems to happen *to* the eye, and to that sensory organ alone, rather than serving to relate and subordinate sight to representation. . . . [Rather] than discursively conceptualizing empirical experience, it “arbitrarily” composes its own objects of experience, the imagination’s “Phantasien.” . . . [The] “eye,” the sensory link of the mind to formal representation, finds itself mentally immobilized by a continuous movement of forms, an unbroken and nonprogressive motion which, even while it is being perceived, affords the mind no single point or moment of empirical reference.³⁷

In other words, the changing shapes of fire and water arouse a private imaginative reverie that obscures the objects themselves. While the fire may pleasurably “charm the imagination,” such pleasure cannot amount to a judgment of beauty because this pleasure is for *me* and me alone.³⁸ The stability of an object’s form is therefore far more than an arbitrary requirement of aesthetic judgment; it is constitutive of the natural intuition that others behold the world as I do, that others can (and ought to) see what I see. The formless movements of fire and water, then, are not only too elusive and unstable for aesthetic judgment; they are too elusive for the conditions of empirical perception more broadly.

It’s for this reason that Kant’s beautiful views exemplify what Rei Terada has termed “phenomenophilia,” a retreat from the world as given into a sensuous obsession with mere appearance.³⁹ According to Terada, Kant’s anti-skeptical philosophy of perception espoused in his *Critique of Pure Reason* spawned an opposing philosophical interest in “phenomenality,” or the

³⁶ Kant, *Critique of Judgment*, 94.

³⁷ Claudia J. Brodsky, *The Imposition of Form: Studies in Narrative Representation and Knowledge* (Princeton: Princeton University Press, 2014), 64.

³⁸ Kant, *Critique of Judgment*, 95.

³⁹ Rei Terada, *Looking Away: Phenomenality and Dissatisfaction, Kant to Adorno*. (Cambridge, MA: Harvard University Press, 2009).

consideration of divergent appearances *as* appearances.⁴⁰ Phenomenophilic experiences, those that deliberately indulge in phenomenality, are experiences that do not conform to the rule-bound expectations of physical existence, such as self-induced optical illusions or hallucinations. Terada's most resonant examples of phenomenophilia come from Samuel Taylor Coleridge's interest in what he called "spectra," which include not only illusions but also certain natural phenomena like fire and clouds.⁴¹ In his *Notebooks*, for example, Coleridge asks "Why do I seek for mountains, when in the flattest countries the Clouds present so many so much more romantic and spacious forms, & the coal-fire so many so much more varied and lovely forms?"⁴² Similarly, in his poem "Frost at Midnight," Coleridge's speaker moves from contemplating the flames in the fireplace to the "fluttering" bit of film on the grate, "its motion in this hush of nature gives it dim sympathies with me who live, / Making it a companionable form."⁴³ Coleridge doesn't simply allow the sight of fire or the fluttering film to overwhelm his sensibilities; he deliberately engages with the flickering forms as a means of pleurably adjusting his contact with the world. Requiring knowledge, experience, and skilled control, phenomenophilia is for Terada a "technics of phenomenal enjoyment."⁴⁴

As a kind of perceptual framing of experience for the purpose of enjoyment, phenomenophilia strongly resembles the appreciation of natural beauty, but is marked by an

⁴⁰ Terada locates this philosophical interest directly in the wake of Kant's *Critique of Pure Reason*. According to Terada, Kant "normalizes appearance;" appearances denote a reality simply because they are *perceived*. Terada writes, "What Kant succeeds in conveying...is mostly that the world 'as is' is necessarily appearance." Terada, *Looking Away*, 6. This is so because Kant makes an important distinction between "appearance" (*Erscheinung*) and "mere appearance" (*Schein*). Positing the perceived world as "appearance," as distinct from the cognitive aberrations that make up illusion or "mere appearance," the perceived world becomes "replete, lawful, and connotes no attenuation of the insanity or reality of what appears." Terada, *Looking Away*, 19.

⁴¹ Terada, *Looking Away*, 40

⁴² Qtd. in Terada, *Looking Away*, 45.

⁴³ Samuel Taylor Coleridge, "Frost at Midnight," *Poetry Foundation*, <https://www.poetryfoundation.org/poems/43986/frost-at-midnight>. Last accessed July 16, 2017.

⁴⁴ Terada, *Looking Away*, 65.

important difference. Although phenomenophilia involves an “ability to choose to frame mentally a natural appearance,” such perceptual framing is meant to “consume [the appearance] as though it were [mere appearance].”⁴⁵ Unlike the beholder of natural beauty, who organizes his perceptual field into an empirical object of aesthetic appreciation, the phenomenophile isolates *appearance as such*.⁴⁶ It is for this reason that phenomenophilia is a thoroughly *private* mental activity. In all cases, phenomenophilia denotes perceptual activities that do not fulfill the recognized standards of shareable experience; such perceptions do not feel real, and therein lies their appeal. If the *Critique of Judgment* invests in the potential for aesthetic experience to foster a shared community, phenomenophilia cherishes unshareable, private experiences that affirm the experiential core of human freedom—the “inherent right...to judge the course of the world by [our] own perspectives instead of that of the universal.”⁴⁷

It is this very epistemological and perceptual instability that gives insight into why contingent motion forms became marvelous to behold on the movie screen. If the formlessness of Kant’s flickering fire and rippling brook defies our perceptual ability to delimit them as objects of experience, what would happen if such objects were pinned down and pictured on film? What would it look like if the elusive, unpredictable movements of such phenomena were somehow captured and—perhaps more importantly—made perfectly repeatable? I want to propose that, beyond producing a lifelike representation of motion, cinema naturally converts formless motion into a spatiotemporally bound object by isolating a single point of view and inscribing the temporal

⁴⁵ Terada, *Looking Away*, 65.

⁴⁶ In referring to the organization of a perceptual field, I’m drawing on an account of the role of “framing” in the aesthetic experience of natural beauty. Ronald Moore, “The framing paradox.” *Ethics Place and Environment* 9, no. 3 (2006): 249-267.

⁴⁷ Terada, *Looking Away*, 191.

flux of movement. Simply put, cinematic images of contingent motion are rendered astonishing by exhibiting *framed* perceptions of them.

What does it mean to say that cinema gives us a framed perception of formless motion? First, the cinematic image spatially frames its perception of the world by projecting a singular point of view of the world identical for all who perceive it. The configurational mutations of fire, water, and dust are thus restricted to a single spatial arrangement, no longer contingent upon the unique perspectives of individual beholders. We don't simply see the fire, water, or dust as we would through a window; instead, we *see the seeing* of that fire, water, or dust, and we do so as if through the same set of eyes. In a word, the perceptually unshareable phenomena of contingent motion become potentially *shareable* screen objects for the first time, hence—Kant would say—available for aesthetic judgment. Second, the cinematic image temporally frames its perception of the world by wresting movement from the ephemeral flow of time. Because contingent motion forms challenge our intuitive ability to delimit their formal boundaries and to affirm their empirical referents, cinema's effortless inscription of such unplannable, unreproducible micromovements is rendered astonishing. Temporal framing miraculously subordinates the contingent movements of such phenomena—movements once too rapid and unpredictable to affirm stable reference—to a permanent and repeatable temporal object.

From a Kantian perspective, then, early spectators captivated by contingent motion are not only marveling at the spectacle of a moving picture or at the novelty of the newly animate background. They are also marveling at the capacity for cinematic images to capture and frame contingent motion in the world. Given the aesthetic challenges they pose, contingent motion forms like fire, water, and dust become the most captivating demonstrations of cinema's spatiotemporal inscription. More than mere emblems of the camera's indiscriminate recording, they most impressively display cinema's framed perception as a significant intervention in the history of

beholding the world. Naturally elusive and fleeting—that is, ungraspable—they become miraculously *grasped* by cinematographic inscription. In the words of one early spectator taken by “rising swirls of smoke” and “the rustling of leaves under the force of the breeze,” cinema showed nature “*caught in the act.*”⁴⁸

What I’m calling cinema’s spatiotemporal framing of perception is not itself a new theory of the moving image—i.e. an explanatory mechanism or prescriptive program—but a phenomenological aspect of the moving image that is often paved over by the dominant paradigms of film theory, especially indexical theories of cinematic realism. The notion of a *framed temporality* of the moving image, for example, is difficult to sustain partly because, on the one hand, indexical theories tend to emphasize the *pastness* of the profilmic event, while on the other hand, phenomenologically oriented theories of realism such as Christian Metz’s account of cinema’s “impression of reality” tend to emphasize the *presentness* of the moving image’s temporal unfolding. However, neither archive of the past nor window to the present, the framedness of cinematic time eludes these two opposed aspects of cinematic time (though it doesn’t negate them). Framed temporality has more to do with repeatability—that is, time objectified—than with the visibility of the past or a simulacrum of presentness. Similarly, the framed spatiality of the moving image is neither captured by cinema’s familiar analogies of the window frame—whose moving contents change with respect to the beholder’s bodily position—or the picture frame—which despite presenting a shareable, monocular point of view of a world is static and object-like.

Despite this conceptual slipperiness, however, articulations of cinema’s framed perception can be found throughout classical film theory as a kind of motif, a recurring insight that is often gestured at but rarely developed for its own sake. Bazin’s essay “Death Every Afternoon,” for

⁴⁸ Georges Sadoul, *Histoire générale du cinéma, vol. 1: L’Invention du cinéma 1832–1897* (Paris: Denoël, 1948), 291, emphasis mine; my translation.

example, reflects upon the uncanniness of temporal framing through a meditation on cinema's capacity to perfectly repeat profoundly unrepeatable moments, such as the death of a bullfighter.⁴⁹ Jean Epstein's writings on *photogenie* could be interpreted as an engagement with cinema's framed perception more broadly, especially in light of David Bordwell's insightful gloss of *photogenie* as "an attempt to account for the mysterious *alienating* quality of cinema's relation to reality."⁵⁰ And we can even detect a keen sensitivity to cinema's framed temporality in a passage from Henri Bergson's *Creative Mind* in which Bergson expresses his suspicion of the predetermination and finite closedness—that is, the temporal framing—of the moving image: "The film could be run off ten, a hundred, even a thousand times faster without the slightest modification in what was being shown; if its speed were increased to infinity, if the unrolling (this time, away from the apparatus) became instantaneous, the pictures would still be the same."⁵¹

In suggesting that cinema's spatiotemporal framing of perception is a key feature of the phenomenological novelty of early cinema, then, my aim is not to claim a new ontology of the moving image, but rather to reexamine an aspect of cinema so fundamental that it rarely garners sustained theoretical attention. Doing so, I hope, will help us break some of the habits of mind that guide our understanding of the "moving image," not least of which is the intuition that a photographic moving image is simply a new kind of photograph with the property of motion added onto it.⁵² While it's been an intuitive convention to locate the novelty of the moving image in its

⁴⁹ Andre Bazin, "Death Every Afternoon," in Ivone Margulies, ed. *Rites of Realism: Essays on Corporeal Cinema*. (Durham: NC: Duke University Press, 2003).

⁵⁰ David Bordwell, "French Impressionist Cinema: Film Culture, Film Theory and Film Style" (Ph.D. thesis, University of Iowa, 1974), emphasis mine. Thinking of this concept in relation to Epstein's film theory becomes particularly fruitful when considering his attention to the singularity of small moments of movement on screen, not to mention the proliferation of fog, smoke, water, and fire in his films.

⁵¹ Bergson, *The Creative Mind*, 7

⁵² Implicitly comparing the moving picture with the static pictures that preceded it, Erwin Panofsky (among others) argues that "the primordial basis of the enjoyment of moving pictures was [...] the sheer delight in the fact that things seemed to move, no matter what things they were." Erwin Panofsky, "Style and Medium in the Motion Pictures," *The*

transformation of the photograph, an attention to cinema's framed perception helps us see that the moving image also radically modifies our experience of movement in the natural world. Converting contingent motion into a temporal object, the moving image is in fact a new representational form for viewing the world in motion. By placing cinema in the history of natural beauty rather than in the history of art, we not only grasp the novelty of seeing an image move, but also the novelty of seeing movement *imaged*.

Early Cinema: Water-Effects Films and the Attractions of Contingent Motion

Rethinking the myth of the wind in the trees as a marvel of cinema's spatiotemporal framing can further shed light on early cinematic exhibition practices and emerging genres that capitalized on the kind of aesthetic attention articulated by early spectators. James Lastra, for example, has shown that many early film advertisements emphasized contingent motion forms as testaments to the spectacular realism afforded by the cinematic apparatus: "The smoke of the pipe which the man is smoking is blown across the face of the screen, and slowly disperses in the air—a most remarkable evidence of the fidelity to nature of the Kinetoscope reproductions."⁵³ Likewise, Tom Gunning has pointed out that, at the time of its initial exhibition, the Lumière s' *L'Arroseur arrosé* (1895) was not praised for the proto-narrative innovation of its staged gag but for the thoroughly unstageable flow

Visual Turn: Classical Film Theory and Art History (Rutgers: Rutgers University Press, 2003), 169–84. Dai Vaughan shifts the basis of comparison from the still image to theater in order to account for spectators' interest in what he calls "incidentals." In his account, the first film audiences were likely astonished by such unplanned movements emanating from the background because they would've been familiar only with the painted backdrops of the theater. Vaughan, "Let There Be Lumière." In each case, movement is understood merely as a quality added to a media experience. For Panofsky, cinema adds movement to photography; for Vaughan, cinema adds background movement to theater (coupled with a new sense of spontaneity).

⁵³ Qtd. in Lastra, "From the Captured Moment," 273.

of water through the gardener's hose, "a spectacle impossible in cartoon representations of the gag."⁵⁴

In this section, I examine the discourse surrounding the attraction of water-effects films as a significant extension and codification of the spectatorial attraction to the wind in the trees and other forms of contingent motion. As a genre that emerged from a cluster of phenomenological orientations toward cinema's reproduction of movement, water-effects films best exemplify cinema's capacity for framed perception, and, as such, spectatorial responses to such films provide perhaps the richest insights into the attraction of contingent motion.

Speculations on the particular attraction of water-effects films have drawn little consensus from scholars. Consider, for example, the so-called "wave films," an immensely popular genre of which Birt Acres and Robert W. Paul's *Rough Sea at Dover* (1895) may be the most famous instance. Calling wave films the "first special genre," Palle B. Petterson finds their popularity a mystery, hypothesizing that the attraction derives from an inherent appeal of "nature" onscreen.⁵⁵ Dai Vaughan offers yet another explanation. Speculating about the experience of watching the Lumières' *A Boat Leaving Harbour* (1895), he locates the attraction in the "spontaneity" and uncontrollability of the waves.⁵⁶ But beyond, or perhaps underlying, these accounts, I argue, is an attraction to the particularity of contingent motion rendered onscreen.

⁵⁴ Tom Gunning, "The Attraction of Motion: Modern Representation and the Image of Movement" in Annemone Ligensa and Klaus Kremeier, eds., *Film 1900: Technology, Perception, Culture* (Bloomington: Indiana University Press, 2009), 165-174, 166.

⁵⁵ Palle B. Petterson, *Cameras into the Wild: A History of Early Wildlife and Expedition Filmmaking, 1895-1928* (Jefferson, N.C.: McFarland, 2011), 34; Vaughan, *For Documentary*, 5. Petterson cites John Barnes, who claims that, because Acres shot his films at 40 frames per second and showed them at 15 frames per second, the resulting slow motion would have produced a mesmerizing oneiric quality. Petterson, however, maintains that wave films remained popular even after Acres normalized the shutter speed, suggesting that the film's initial slow motion is not an adequate explanation for its popularity.

⁵⁶ Vaughan, *For Documentary*, 5. Forced to respond to a sudden burst of threatening waves, the rowers "become integrated into [the wave's] spontaneity," thereby integrating the contingency of the world into the human arts as never before.

Many spectators' reviews and testimonials often report on the movements of water as a spectacle of verisimilitude rather than one of spontaneity or natural sublimity, as seen in this report on *Rough Sea at Dover*:

But the final slide—a study of waves breaking on a stone pier—was simply wonderful in its *realistic effect*. We all know how beautiful ordinary instantaneous effects of breaking waves appear on the screen, but when the actual movement of nature is reproduced in addition, the result is little short of marvellous.⁵⁷

Invoking a comparison to the delights of water captured by still photography, the reviewer suggests that the verisimilitude of the water's movement adds to what he calls a “realistic effect,” as if the visual accuracy of cinematographic recording was somehow heightened by the contingent movements of water. We find a similar vocabulary used to describe other films displaying the movements of water. One spectator, for example, called *Surf at Long Branch* (1896) “an excellent subject for *water effects*, the glittering spray being distinctly reproduced.”⁵⁸ Further, the sales catalogue for *A Sea Cave Near Lisbon* (1896) boasts that “this famous film has never been equaled as a portrayal of *fine wave effects*,” and one reviewer gushes over its detailed displays of movement: “the foam-crested waves rush into the recesses of the rocks, clouds of spray are hurled into space.”⁵⁹ Even advertisements began to recognize and codify such attractions: “as the boat reaches the water the spray is thrown in all directions, making this an unusually fine film for exhibiting.”⁶⁰

⁵⁷ Qtd. in Petterson, *Cameras into the Wild*, 32.

⁵⁸ Qtd. in Charles Musser, “A Cinema of Contemplation, a Cinema of Discernment: Spectatorship, Intertextuality and Attractions in the 1890s,” in Wanda Strauven, ed., *The Cinema of Attractions Reloaded* (Amsterdam: Amsterdam University Press, 2006), 171.

⁵⁹ Qtd. in Petterson, *Cameras into the Wild*, 33, my emphasis.

⁶⁰ Qtd. in Lastra, “Captured Moment,” 273



Figure 1.1 Stills from *A Boat Leaving Harbour* (Lumière, 1895) and *Rough Sea at Dover* (Acres and Paul, 1895)

In insisting on isolating the *water effect* as its own category of satisfying verisimilitude, these comments suggest that there is more to the wave film's appeal than can be exhausted by the thrill of

the water's uncontrollable power. Rather than feeling graced by "the presence, in some metaphysical sense, of the sea itself," a "sea liberated from the laboriousness of painted highlights" as Vaughan claims, the spectators' emphasis on "effects" seems attuned to a quantitative degree of verisimilitude.⁶¹ Singling out the finely delineated movements of swelling waves and glittering spray, such reactions are more so appreciations of representational precision than expressions of awe at the magical impossibility of the water's presence. Rather than simply responding to the wave's utter spontaneity, its resistance to authorial control, or the knowledge that it was captured mechanically without the aid of manual reproduction, the spectators seem fixated on the showcase of spatiotemporal detail demonstrated by the inscription of contingent motion. The spectators' desire to describe such details of movement is a testament to this. Seeing such movements framed and externalized, the spectator is inclined to pick out and describe individual movements that emphasize textural granularity and unpredictable trajectories—"spray...thrown in all directions," "the foam-crested waves [rushed] into the recesses of the rocks," "clouds of spray...hurled into space"—as a testament to the marvel of cinematographic inscription.⁶² If Christian Metz argued that motion in general is responsible for cinema's "impression of reality," the attraction to wave films suggests that particular *forms* of motion can exhibit reality effects at varying degrees of intensity.⁶³

⁶¹ Vaughan, *For Documentary*, 6.

⁶² Early spectators are awestruck at cinema's capacity not to enhance, amplify, or slow down contingent motion, but simply to delineate or capture every tiny ephemeral and unplannable movement of chaotic phenomena. This is an important distinction. Much of the rhetoric that explains the astonishment of the moving image draws on what Malcolm Turvey has identified as the "revelationist" discourse in classical film theory, in which techniques like the close-up or slow motion are said to *augment* natural perception and thus reveal ordinarily invisible aspects of the world. See Malcolm Turvey, *Doubling Vision: Film and the Revelationist Tradition* (Oxford: Oxford University Press, 2008). What's illuminating about early spectatorial reactions to wave films, however, is the degree to which the cinematic image appears revelatory without any spatial or temporal manipulation that augments perception. The impression of reality created by contingent motion manifests as an astonishment simply at the inscription of spatial and temporal detail.

⁶³ Christian Metz, "On the Impression of Reality in the Cinema," in *Film Language: A Semiotics of the Cinema* (Chicago: University of Chicago Press, 1974): 3-15.

The aesthetic condition of these phenomena, the spatiotemporal framing of unplannable and formless movement, was also influenced by particular modes of exhibition. As Charles Musser has observed, the experiences of water effects were amplified by the practice of repeating such films on a temporal loop. In what he calls the “cinema of contemplation,” Musser cites a number of Edison Vitascope films between 1896 and ’97, many exhibiting “water effects against a dark background,” which were conventionally projected in this way.⁶⁴ Musser speculates that, when shown over and over again, the perceptual shocks of the “cinema of attractions” begin to dissipate, allowing the spectator to freely explore and savor the recurrent imagery in a mode of meditative absorption.⁶⁵ Even when such mesmerizing films of fluidic motion edged into confrontational shock effects, as with *The Wave* (1896), the shock might have given way to a more contemplative mode of viewing upon successive repetitions, as evidenced by this review:

Then came the waves, showing a scene at Dover pier after a stiff blow. This was by far the best view shown, and had to be repeated many times [...] One could look far out to sea and pick out a particular wave swelling and undulating and growing bigger and bigger until it struck the end of the pier. Its edge then would be fringed with foam, and finally, in a cloud of spray, the wave would dash upon the beach.⁶⁶

As the water’s movements are perfectly repeated over and over, the spectator is further encouraged to savor the details of the wave’s dynamism—“swelling,” “undulating,” “growing”—and the continuous metamorphosis of its material properties—“fringed with foam,” “cloud of spray.” Further, the familiarity availed by repetition encourages a more selective attention—“one could . . . *pick out* a particular wave”—characteristic of a contemplative mode of aesthetic experience.

Watching water effects on loop, Musser argues, the amount of aesthetic attention paid to particular

⁶⁴ Qtd. in Musser, “A Cinema of Contemplation,” 163.

⁶⁵ Musser, “A Cinema of Contemplation,” 169. Musser is here responding to Tom Gunning’s concept, “the cinema of attractions.” Tom Gunning, “Cinema of Attractions: Early Film, Its Spectator and the Avant-Garde,” in *Early Cinema; Space Frame Narrative*, ed. Thomas Elsaesser (London: British Film Institute, 1990).

⁶⁶ Qtd. in Musser, “A Cinema of Contemplation,” 167.

qualities of contingent motion far outweighs the immediate visceral shocks such a film might initially provoke.

The practice of repeating such moving images wouldn't simply provide the spectator with time to recover from the shock of imaged motion; it would also experientially affirm cinema's unique phenomenological status as a framed temporal inscription. Upon repeated viewings, the contingent motion forms captured onscreen would seem less present to the spectator as themselves, as *real* movement, than as framed and contained images with temporal details to be perused and contemplated. Doane testifies to this basic logic when she writes that "the act of filming transforms the contingent into an event characterized by its very filmability, reducing its contingency."⁶⁷ The cinematic repetition of contingent motion takes her point a step further. While contingent motion generally overstimulates the imagination with its continuous metamorphosis, the condition that Kant describes as "beautiful views," the repetition of every unpredictable movement would almost automatically offer the spectator an unprecedented perceptual mastery over such forms. Extracted from the ephemeral flow of time, successive repetitions of spraying water droplets and undulating waves become *less* contingent, and hence more graspable as temporal objects.

In other words, the inscription of contingent motion punctuates the uncanny repeatability of cinematic time because such forms of movement appear so precisely *unrepeatable*. To fully appreciate the phenomenological novelty of cinema's repeatability, consider that, for Bergson, the very nature of lived time is its distinct *unrepeatability*, constantly giving way to "the uninterrupted upsurge of novelty" despite the predictability of laws of nature and patterns of human behavior.⁶⁸ The unrepeatable is one aspect of Bergson's definition of lived time as *duration*, a qualitative, indivisible

⁶⁷ Doane, *The Emergence of Cinematic Time*, 23.

⁶⁸ Bergson, *Creative Mind*, 16.

flow of unceasing creativity. In Bergson's words, "If everything is in time, everything changes inwardly, and the same concrete reality never recurs. Repetition is therefore possible only in the abstract."⁶⁹ It was this very element of Bergsonian duration that Bazin invoked in his reflection on the uncanniness of cinematic repetition:

[Musical] time is immediately and by definition aesthetic time, whereas the cinema only attains and constructs its aesthetic time based on lived time, Bergsonian 'durée,' which is in essence irreversible and qualitative. The reality that cinema reproduces at will and organizes is the same worldly reality of which we are a part, the sensible continuum out of which the celluloid makes a mold both spatial and temporal. I cannot repeat a single moment of my life, but cinema can repeat any one of these moments indefinitely before my eyes.⁷⁰

In suggesting that the repeatability of cinema is distinct from the repeatability of recorded music because cinema is based on the *lived* irreversibility of Bergsonian duration, Bazin invites the hypothesis that certain phenomena on screen are more "irreversible" than others.⁷¹ If contingent motion forms are marked by the apparent unpredictability of their granular trajectories, seeing them spatiotemporally framed would amount to a profound perceptual incongruity.

This perceptual incongruity is made especially manifest in the looped motion of Edison's Vitascope wave films. Because the contingent movements of crashing waves and spraying water droplets—as opposed to, say, the repetitive, formulaic movement of machines—uniquely exhibit the metaphysical principle of time's *unrepeatability* through the unpredictable, chaotic quality of its movement, the repetition of spraying water droplets punctuates its *thisness* with every loop. The

⁶⁹ Bergson, *Creative Evolution*, 52. It's for this very reason that, for Bergson, aesthetic representations of repetition are so unsettling. In his essay *Laughter*, Bergson argues that, as symptoms of mechanicity along with "rigidity" and "predictability," repetitive movements of human bodies provoke unsettling feelings and laughter: "The truth is that a really living life should never repeat itself. Wherever there is repetition or complete similarity, we always suspect some mechanism at work behind the living" (2008: 23). The "fundamental law of life," he writes, "is the complete negation of repetition."

⁷⁰ Bazin, "Death Every Afternoon," 30.

⁷¹ This will in fact be the crux of Bazin's argument in "Death Every Afternoon," namely that the profound unrepeatability of death and the unrepresentability of sex render these phenomena "obscene" when documented on film.

spectator can attend to the water's myriad *differences*—that is, moments of unrepeatable distinction marking the qualitative and irreversible passing of duration—that are made visible when cinematically repeated.

Considering the transformative effects of repeating contingent motion, the “water effect” reveals the extent to which the attraction of cinema’s lifelike spatiotemporal inscription was not simply a technological marvel, but a means of beholding the movements of the world in a new way. Such an appreciation is not simply an ontological given of cinematographic recording, but entails a phenomenological revelation mutually attuned to both representation and referent. In other words, to be astonished by water *effects* is also to be awoken to the astonishing appearance of water itself, to the qualities of formlessness Kant himself struggled to integrate into his account of aesthetic beholding. Cinema’s spatiotemporal framing of perception is rendered astonishing through the precise reproduction of waves and spray, and conversely, such phenomena are rendered astonishing through cinema’s inscription of their contingent movements.⁷² The attraction to cinematic images of contingent motion, then, cannot be divorced from the latent astonishment at their natural referents. They are co-constitutive aspects of the attraction to spraying water droplets, swirling dust particles, and rustling leaves on screen. In this way, cinema is not simply a technology to be marveled at for the sake of its technological or representational novelty. It is a technology for reawakening us to the astonishment of the world itself.

Post-cinema: Fuzzy Objects and Particle Systems

⁷² This line of reasoning should may recall Viktor Shklovsky’s notion of “defamiliarization.” See Viktor Shklovsky, “Art as Technique,” in *Russian Formalist Criticism: Four Essays*, trans. Lee T. Lemon and Jarion J. Reis (Omaha: University of Nebraska Press, 1965). Much like Shklovsky’s defamiliarization, I’m claiming that cinema “removes objects”—in this case, contingent motion forms—“from the automatism of perception.” But instead of using techniques of formal manipulation, such as poetic language and visual alterations, cinema’s spatiotemporal framing *automatically* defamiliarizes the chaotic forms of movement that challenge shareable perception.

In the previous two sections, I've tried to rethink the myth of the wind in the trees by arguing that the attraction to cinematic contingent motion involves a mutual attunement to both the technological novelty of framed perception and to the perceptual indeterminacy of contingent motion forms. More precisely, I argued that the technological novelty of cinema's spatiotemporal framing of perception was triggered by cinematic images of contingent motion, which rendered the unplannable movements of dust and water into the kinds of objects that could be available as aesthetic forms.

While I follow Kant in claiming that the perceptual formlessness of fire and water persists as a primordial convention of human perception, it seems equally clear that the technological means of triggering such a phenomenological revelation—hence the nature of the revelation itself—are subject to cultural and historical change. As a shocking intervention into the history of art and experience itself, film's recording function—i.e. the precise spatiotemporal framing of perception—was once enough to render the representation of water or dust an “effect.”⁷³ But in the media climate of today, aside from the cinephilic spectator who devotes attention to the “peripheral details” within the frame, recordings of the wind in the trees have lost their appeal.⁷⁴ No longer a representational novelty, the automatic verisimilitude of cinematic movement has become a mere attribute of cinema's mode of visual representation.

In this context, it's striking that the fascination with moving images of contingent motion has recently reemerged, albeit in a disguised form. Curiously enough, it's in the hyper-controlled realm of computer-generated images that we are once again fascinated by the swirling of dust

⁷³ The language of “effects” was not just restricted to “water effects,” but a variety of contingent motion forms, as seen in this advertisement: “The waving of grass along the track, the black smoke, and the clouds of dust that follow the train make very vivid effects.” Qtd. in Lastra, “From the Captured Moment,” 273.

⁷⁴ See Keathley, *Cinephilia and History*, 29-54.

particles, the flickering of flames, the rippling of water, and now the waving of hair and fur. By tracing a phenomenological sympathy between the experience of cinematically captured and digitally manufactured contingent motion—two ontologically distinct modes of image-making—I first hope to affirm my reorientation of the “wind in the trees” anecdote away from indexical theories of cinematic contingency. Much like the wind in the trees of early cinema, the attraction to computer-generated contingent motion involves a mutual imbrication of the phenomenology of framed perception and the perceptual indeterminacy of contingent motion forms. Indeed, computer-generated moving images are not recordings of the world like their photographic counterparts, but they are temporal *inscriptions* that similarly transform contingent motion forms into framed temporal objects.⁷⁵ Though the means of this transformation differ significantly, both technologies have the capacity to grasp the ungraspable. I argue that what lies at the bottom of each medium’s attraction is not simply a fascination with technological novelty but a perceptual mediation of the contingent motion of the natural world.

Over the last twenty years, commercially produced computer animation has devoted itself to increasingly convincing representations of phenomena notoriously difficult to produce in hand-drawn animation. Chief among these phenomena are the very incidental movements that captured the attention of early spectators—the movements of water and smoke, dust and wind, hair and fabric.⁷⁶ A number of critics and scholars have collectively singled out the movements of Merida’s hair in *Brave* (2012), the rising dust and dirt in *Wall-E* (2008), the water in *Finding Nemo* (2003), the

⁷⁵ I use the term “temporal inscription” rather than “time-based media” to mark an important distinction between the lived time of musical or dramatic performance and the inscribed time of phonographic recordings, films, and computer-generated moving images. What matters in this distinction is the quality of temporal repeatability, which is crucial to what I call “framed perception.”

⁷⁶ See Dan R. North, *Performing Illusions: Cinema, Special Effects and the Virtual Actor* (London: Wallflower Press, 2008), 151 and Lev Manovich, “Reality Effects in Computer Animation,” in *A Reader in Animation Studies* (Sydney: John Libbey & Company, 1997).

fur in *Monsters Inc.* (2001), and the snow in *Frozen* (2013) as particularly wondrous, mesmerizing, and pleasurable to behold.

Among other scholars, Lev Manovich has noted the connection between the wind in the trees of early cinema—“wind . . . but also waves and sea spray”—and computer graphics researchers’ persistent interest in the rendering of “smoke, fire, sea waves, and moving grass.”⁷⁷ Such phenomena, he argues, “culturally connote the mastery of mimetic representation.”⁷⁸ But nowhere does Manovich pause to consider why such phenomena become “privileged signs of realism;” such a “privilege,” it seems for Manovich, simply stems from a knotty iconographic history that doesn’t concern him.⁷⁹ Though his emphasis on culturally constructed codes and institutions offers a necessary corrective to essentialist understandings of “realism” and “mimesis,” such an emphasis ultimately dismisses the phenomenological insights that link Kant’s aesthetics to early cinema spectators and computer animators.⁸⁰

To understand the extent of these shared insights, it helps to consider the way computer animators describe their craft. The convincing rendering of water, dust, fire, and Merida’s curly locks has emerged with the advent of what computer animators have called “particle systems.”⁸¹ Unlike

⁷⁷ Manovich, “Reality Effects,” 12. Other scholars have made similar observations. Dan North, for example, writes that “Just as, in the early cinema period, audiences may have been fascinated by rustling leaves, water and other simple, natural views, now there is a trend for celebrating the CG rendering of simple things; the dust on a shelf . . . or the fur on a creature.” North, *Performing Illusions*, 151. Harun Farocki’s recent two-channel video installation *Parallel 1* gives us a more explicit commentary on such a phenomenon. Taking us through the increasingly photorealistic animations of wind, fire, smoke, water, and clouds in video games, *Parallel 1* tracks the development of computer-generated animations from a loose configuration of flashing square pixels to animations nearly indistinguishable from their filmed counterparts. *Parallel 1* identifies a crucial landmark in 2006 when the trees of the videogame *Anno 1701* “sway lightly in the wind.”

⁷⁸ Manovich, “Reality Effects,” 12.

⁷⁹ Manovich, “Reality Effects,” 12.

⁸⁰ Echoing Jean-Luc Comolli’s argument in “Machines of the Visible,” Manovich claims that the development of CG effects is largely contingent on the interests of the military-industrial-media complex. He argues, for example, that the development of synthetic clouds, rugged terrains, and trees can be attributed to the American military’s need for rendering natural landscapes in flight simulators.

⁸¹ While a number of scholars have intuitively located an affinity between the CGI renderings of hair and those of fire, water, and smoke, there exists a very close affinity between the processes used to render these kinds of effects. While

the surface-based system of polygonal rendering, “particle systems” describe an animation method that uses the generation and dissipation of points (“particles”) in complex systems of movements. More than simply a technique used to overcome aesthetic problems in the rendering of particular natural phenomena, particle systems reflect a deep phenomenological attention to those phenomena. Consider this passage from LucasArts animator William T. Reeves:

Modeling phenomena such as clouds, smoke, water, and fire has proved difficult with the existing techniques of computer image synthesis. These ‘fuzzy’ objects do not have smooth, well-defined, and shiny surfaces; instead their surfaces are irregular, complex, and ill defined. We are interested in their dynamic and fluid changes in shape and appearance. They are not rigid objects nor can their motions be described by the simple affine transformations that are common in computer graphics.⁸²

Within the surface-based system of polygon rendering, “movement” is understood as the quantitative displacement of a rigid object in three-dimensional space. What Reeves calls “fuzzy objects,” however, are in constant flux; their boundaries are inconsistent.⁸³ In describing the logic necessary to simulate these phenomena, Reeves unwittingly revisits Kant’s epistemological crisis posed by “beautiful views.” Both Kant’s aesthetics and polygonal surface rendering rely on the stasis or rigidity of an object’s *form*. Fuzzy objects are difficult to digitally reproduce for the same reasons that Kant claims they trouble our ability to identify and isolate their empirical referents.⁸⁴

Images of fire, water, and dust, then, have come to “culturally connote” the mastery of mimetic representation at least partly because of the similar phenomenological dynamics that

both effects are rendered using particle systems, fire, water, and smoke are rendered with what practitioners call “animated” particle systems while hair is rendered with “static” particle systems. Animated particles move around distinct points in space while static particles, like hair, consist of a distinct number of curves. See Milos Beocanin, “Particle Systems and their Applications in Computer Animation.” *Machine Design*, Vol. 4 (2012) No. 2: 111-116.

⁸² William T. Reeves, “Particle Systems—A Technique for Modeling a Class of Fuzzy Objects.” *ACM Transactions on Graphics*. 2.3 (1983), 91-108.

⁸³ The distinction between the objects of polygonal rendering and those created by particle systems neatly maps onto the distinction between rigid motion and non-rigid motion, perceptual categories that have been used by both perceptual psychologists and scientists of computer vision.

⁸⁴ As a result, fuzzy objects created with polygon rendering have produced a variety of problems: in the PlayStation 2-generation *Grand Theft Auto* videogames, for example, rolling fog moves in two-dimensional sheets and fire moves in flameless blobs of translucent color.

preoccupied early cinema spectators. Particle systems solve this problem because the objects they produce are neither static nor volumetrically consistent—individual particles spontaneously generate and dissolve in real time. Such objects are never concretely formed because so-called “stochastic processes” are used to create their shape and appearance. In probability theory, a stochastic process denotes a randomly determined system whose patterns can be analyzed statistically but not predicted precisely. With the stochastic processes of particle systems, the programmer gives each particle a set of parameters—a set of *possible* movements, velocities, sizes, colors, etc.—but those variations are then randomly determined in real time. In other words, objects produced by particle systems have the appearance of contingency partly because each tiny trajectory lies outside the animator’s control; *set in motion* rather than *moved*, such objects retain a degree of independence from their makers. It’s for this reason that, much like the autonomy of the natural world captured in early cinema, “particle systems model objects that are ‘alive.’”⁸⁵

The peculiar ontological structure of particle systems—which integrate an element of the random into otherwise highly calculated systems—uniquely embodies the peculiar nature of the phenomena they simulate. After all, elements of the “stochastic”—the random, the contingent—are constitutive of our experience of the real-life movements of fire, water, smoke, and dust. As tools used to simulate the distinctly non-human movements of contingent motion forms, particle systems supply a technological safeguard against the human mind’s predilection for pattern, repetition, and form; they aid in the representation of nonhuman formlessness through the technologized agency of the nonhuman. In integrating the contingency of natural phenomena into their very structure of

⁸⁵ Reeves, “Particle Systems,” 92. In a related argument, Oliver Gaycken has emphasized the fortuitous glitches that emerge in these algorithms (see Oliver Gaycken, “From the Mass Ornament to MASSIVE: Nature, Contingency, and the Calculated Image.” Conference Presentation, Society for Cinema and Media Studies Conference, Montreal, Québec, March 26, 2015.)

simulation, particle systems do not simply solve the problems of polygonal computer animation, but the problems inherent to the non-photographic mimicry of such moving phenomena in general.⁸⁶

Thus, regardless of whether the spectator is aware of the contingency embedded into these image-making processes, the objects produced by particle systems have the exemplary capacity to simulate the chaotic *unplannability* of contingent motion forms. Such simulations seem to exhibit an exceptional intensity of verisimilitude not because they more accurately resemble their referents than do the renderings of other phenomena, but because they cause us to recognize the sheer visual complexity of—and hence, the representational challenge posed by—their referents. The fact that we continue to single-out the reproductions of water and fire, hair and fabric, and dust and smoke as virtuosic suggests that, as with early spectators, our novel encounters with the technologies of moving-image verisimilitude go hand-in-hand with our perceptual rediscovery of contingent motion forms. Despite their distinct technological means of producing a lifelike rendering of framed perception, both early cinema and CGI most saliently display the attractions of their mimetic capacities by reproducing similar kinds of natural phenomena.

In admiring such phenomena, scholars and critics evoke early spectators' attempts to describe cinema's spectacle of verisimilitude. In the popular press, most aesthetic appreciations of such images have taken the form of unreflective expressions of awe and admiration. An overwhelming majority of the reviews of Pixar's *Brave*, for example, mentions the beauty of Merida's curly hair—"alone worth the price of admission"—whose thousands of individually sculpted strands required their own simulation program to achieve the lifelike airy bounce of tangled locks.⁸⁷ Multiple

⁸⁶ It's no coincidence, then, that when William Reeves inaugurated his particle systems process with the sweeping wave of fire in the "Genesis sequence" of *Star Trek II: The Wrath of Khan* (1982), it was one of the first instances in Hollywood where digital effects aimed to simulate complex *natural* phenomena rather than schematic computer images. See Stephen Prince, *Digital Visual Effects in Cinema: The Seduction of Reality* (Rutgers: Rutgers University Press, 2011), 22.

⁸⁷ Christopher Orr, "Brave: A Disappointment Worth Seeing." *The Atlantic*. June 22, 2012. <http://www.theatlantic.com/entertainment/archive/2012/06/brave-a-disappointment-worth-seeing/258841/>

reviews of Disney's *Frozen* take this inarticulate admiration a step further, not only praising the animation's detailed rendering of snowy environments, but also proclaiming a revelation about the "magic" of snow itself.⁸⁸ In academic writing, awe and admiration at such effects have taken on a more veiled form. Scott Bukatman, for example, has argued that CGI's slavish adherence to physical reality has betrayed the spirit of play exemplified by midcentury Hollywood cartoons, but he nevertheless admits to his aesthetic appreciation of Merida's hair in *Brave*: "truth to tell, it's pretty awesome hair."⁸⁹

Though effects-heavy live-action films have generated similar reactions, computer-animated cartoons have garnered the most attention for the rendering of contingent motion.⁹⁰ Unlike CGI effects in live-action films, in which computer-generated phenomena are often diegetically marked as spectacle, computer-animated cartoons showcase the complexity of contingent movement as *ordinary* aspects of their physically convincing environments. The water in *Finding Nemo*, the dust in *Wall-E*, the fur in *Monsters Inc.*, and the snow in *Frozen* aren't so much spectacles interrupting the diegesis as background details that quietly beckon our attention. Unlike films such as *Terminator 2: Judgment Day* (1991), *Jurassic Park* (1993), *King Kong* (2005), *Avatar* (2009), and *Rise of the Planet of the Apes* (2011), which deliberately showcase their CGI through lifelike renderings of impossible fantasies, big-budget computer-animated films invite us to peruse and appreciate the subtle details and textures of

⁸⁸ Bill Goodykoontz, for example, begins his review with "There's something magical about snow." Bill Goodykoontz, "'Frozen,' 4.5 stars." *AZ Central*. November 25, 2013. <http://www.azcentral.com/things/todo/movies/articles/20131127frozen-movie-review-disney-idina-menzel.html>) and Laramy Legel writes "As we all know, there's something magical about snow and wintery weather, and "Frozen" does well to emphasize this beauty at every turn." Laramy Legel, "Review: 'Frozen.'" *Film.com*. November 26, 2013. <http://www.film.com/movies/frozen-review>

⁸⁹ Scott Bukatman, "Some Observations Pertaining to Cartoon Physics; or, The Cat in the Machine," in Karen Beckman, ed., *Animating Film Theory* (Durham: Duke University Press, 2014), 315.

⁹⁰ One negative review of *Life of Pi* (2012) writes "Watching the water here is more rewarding than watching the characters." David Thomson, "Life of Pi's Clumsy 3D Storytelling." *New Republic*. November 27, 2012. <http://www.newrepublic.com/article/books-and-arts/110507/life-pis-clumsy-3d-storytelling>.

their completely fabricated worlds.⁹¹ As cartoons complete with talking animals and exaggerated character design, such films shock us not with their imaginative possibilities—possibilities that were already a staple of their cel-animated predecessors—but with the uncanny familiarity of their natural environments. As with the attraction to the wind in the trees in early cinema, we marvel not at “special effects” or “visual effects”—such terms have no application here—but at “water effects,” “wind effects,” “dust effects,” and “snow effects.” In other words, in both early cinema and computer animation, we marvel not at the tricks used to manipulate or undermine the assumed visual conditions of the medium (i.e. profilmic content) but at the medium’s ability to mimetically render particular natural phenomena, and in so doing transform them for us.

Much like the water-effects films of early cinema, which capitalized on the attraction of contingent motion forms by placing such phenomena front and center, computer-animated films have learned to harness the attractions of computer-generated verisimilitude by tackling ever-more challenging phenomena. Exemplary in this regard is the opening sequence of Disney’s *Frozen*, a musical number introducing us to the labors of ice-harvesting, which showcases the fluidic micromovements of splashing water and jumping ice particles that constitute the textural palette of the film’s world. In the first shot, we’re placed directly underneath a thin sheet of translucent ice lined with jagged grooves and dimples. What is astounding here isn’t simply the surface of the ice itself, but the way that the convincing materiality of that surface is revealed through the movements of the shadowy human figure on the other side. The manner in which the ice distorts the shape and movement of the human body—the way the shadowy forms fill the cracks on the ice’s craggy surface—is the means by which we are familiarized with the nuanced textures of that surface.

⁹¹ It is this paradoxical notion of lifelike fantasies—images that are “referentially fictional but perceptually realistic”—that motivated Stephen Prince’s term “perceptual realism,” which describes images that “structurally correspond to the viewer’s audiovisual experience of three-dimensional space.” See Stephen Prince “True Lies: Perceptual Realism, Digital Images, and Film Theory,” *Film Quarterly* 49, no. 3 (1996), 32.

When the ice cutter's saw violently breaks through the surface and heads straight for us, we first delight in the shock of the unexpected penetration of our immediate space, analogous to what Stephen Bottomore described as the "looming effect" common to early film.⁹² But what arouses a more sustained wonder are the hundreds, perhaps thousands, of tiny bubbles that emanate from the teeth of the saw (Fig 1.2). Most immediately, the bubbles articulate the saw's movement in the water; that is, they make the water visible by disturbing its static transparency, thus enhancing the palpable materiality of the collision of metal and water. Though the bubbles' movements collectively conform to the downward force of the saw—they first swiftly propel downward and then slowly float upward—at a smaller scale each bubble exhibits a wild independence, not only tracing a unique trajectory through the water but exhibiting a unique sequence of configurational mutations with its malleable liquid form. Our awe at such a display stems from the revelation that the unfathomable complexity, variety, and apparent contingency of such movement is constitutive of its uncanny verisimilitude. In other words, the movements of the bubbles astonish us not only because we appreciate the virtuosity of their complex fabrication, but because, in an instant, we recognize that very complexity in our perceptual familiarity with the natural world.

⁹² Stephen Bottomore, "The Panicking Audience?: Early Cinema and The 'Train Effect'," *Historical Journal of Film, Radio and Television* 19, no. 2 (1999): 177–216.

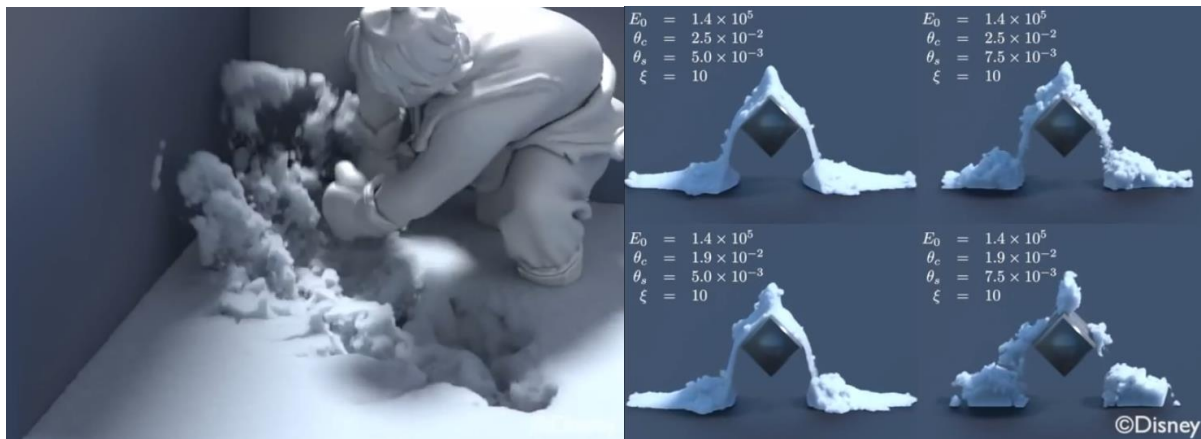


Figure 1.2 A myriad of bubbles in *Frozen* (Buck and Lee, 2013)

A more concentrated form of this wonder can be found in a SIGGRAPH video demonstrating the snow physics algorithms in *Frozen*.⁹³ Though the jargon-heavy demonstration is intended for computer-graphics specialists, the visualizations present a distinct aesthetic appeal to popular audiences. Placing computer-generated snow matter in various motion tests free of the distractions of narrative, the video enhances our attention to the verisimilitude of contingent motion. To isolate maximum detail, the demonstrations occur in a kind of blank three-dimensional space (colored a neutral black or gray), and the demonstrations involving characters from the film render those figures gray automatons, thereby shifting our attention from their bodies to the physical effects those bodies have on their snowy environments (Fig. 1.3). The first motion tests demonstrate the disintegration of snowballs being dropped or thrown onto hard surfaces. At the moment of collision, each snowball immediately breaks up into an unfathomably diverse aggregate of uniquely shaped and sized chunks, each falling along a trajectory that seems at once both perfectly

⁹³ “Disney’s Frozen: A Material Point Method For Snow Simulation,” YouTube video, 3:53, posted by “sungkwan park,” Jan 26, 2014. <https://www.youtube.com/watch?v=O0kyDKu8K-k>. Short for Special Interest Group on GRAPHics and Interactive Techniques, SIGGRAPH is the annual conference on computer graphics.

natural and unpredictable. The resulting scattered array of snow chunks and particles defies a recognizable formal pattern, but conforms to a deeply familiar expectation about the way an actual snowball might break and scatter. Following the snowball collisions, split-screen images are employed to exhibit fine-tuned distinctions between snow matter programmed with varying strength parameters. As four seemingly identical blocks of snow simultaneously fall onto identical metal cubes, we notice that each block—programmed with slightly distinct properties of powderiness, iciness, and wetness—collapses and crumbles in a slightly different way (Fig. 1.4). We notice the subtle differences in how various types of snow matter clump, scatter, stick, and flow, and how each of these material distinctions is made evident through the tiniest variations in the movements of thousands of single simulated particles.



Figures 1.3 and 1.4 A featureless character digs snow (left) and various blocks of snow collapse in a SIGGRAPH demo of *Frozen*'s physics engine (right).

In watching these simulations, we marvel at the unfathomable mathematical complexity on display as much as our own ability to appreciate that complexity. More precisely, we marvel at how the natural complexity of snow particles could be rendered into a fixed, mathematical form. The simulated snow's aesthetic appeal, then, is inextricable from our rediscovery of *actual* snow's complex material properties. In the words of *Frozen*'s principal software engineer Andrew Selle, "Snow's not really a fluid. It's not really a solid. It breaks apart. It can be compressed into snowballs.

All of these different effects are very difficult to capture simultaneously.”⁹⁴ Just as the animators become aware of the perceptual otherness of snow when confronted with the task of simulating its category-defying materiality, we feel that very otherness when we witness its lifelike digital representation. The SIGGRAPH video’s YouTube comments, for instance, not only include expressions of awe and respect for the level of skill on display, but also reflections on the beauty and playful possibilities of snow itself and detailed critiques about how the simulations don’t live up to the real thing.⁹⁵ Such a renewed appreciation of the natural world is not a corollary of these images’ astonishment; it is constitutive of that astonishment.⁹⁶

This kind of mutual astonishment at the movements of the world and their imaged reproduction is not unique to the technological sublimity of the digital era but, as I have been

⁹⁴ "Frozen." *Disney Wiki*. Accessed December 11, 2015. <http://disney.wikia.com/wiki/Frozen>.

⁹⁵ User “Edward Vella” exhibits a feeling of awe—“It’s amazing, it makes me appreciate the effort put into making these movies much more”—as does user “Andrey Romanenkov”—“That’s a really nice snow simulation from Disney!” User “kamikazekiwi3” shows respect for the skill of programmers: “This is truly amazing. As a programmer, you have my utmost respect.” User “iced4life3” suggests a desire for play: “I want to play with snow now.” User “Luka Koprivica” exhibits skepticism: “Your snow always looks too wet! Like its flowing, has too liquid movement . . . it’s too heavy in small portions . . . sure it’s nice, but still very fake.” User “Michael Dudley” exhibits a similar skepticism when he writes “The snow looks too liquidy or gooey when it settles . . .” as does user “Barf Mog:” “More like wet sand than snow.”

⁹⁶ What I call here the “renewed appreciation of the natural world” resonates with what Siegfried Kracauer calls “the redemption of physical reality,” which suggests cinema’s possibility of transcending the discursive abstractions of modernity through its indiscriminate capture of visible details. Kracauer’s recurring interest in the experience of cinematic contingency across his Weimar writings and *Theory of Film* helps us imagine a political dimension of the attraction of contingent motion. In this sense, cinema’s registration of the contingency and formlessness of the wind in the trees may offer a radical resistance to (or what Kracauer might call a “distraction” from) the ideological hegemony of capitalist rationalization, the cause-and-effect logic of 19th century historiographic practice, and the aesthetic structures of language and narrative. Moreover, Miriam Hansen’s reading of Kracauer as a theorist of cinematic experience rather than photographic ontology helps open up this form of resistance to the experiences afforded by digital moving images. See Miriam Hansen, *Cinema and Experience: Siegfried Kracauer, Walter Benjamin, and Theodor W. Adorno* (Berkeley: UC Press, 2012). Exploring such connections further, however, is beyond the purview of this chapter, and may risk diluting the political and historical specificity of Kracauer’s account of cinematic experience as well as the phenomenological specificity of the attraction of contingent motion. My purpose in this chapter is to delineate a structure of *perceptual* experience that Kracauer (among others) was especially sensitive to and influenced by, but which by no means competes with or rethinks Kracauer’s project. For a more focused examination of the political questions that arise between Kracauer and the contingency of digital images, see Gaycken, “Mass Ornament to MASSIVE.” For an essay tracing the influence of Kant’s aesthetics of natural beauty in Kracauer’s “redemption of physical reality,” see Ian Aitken, “The Redemption of Physical Reality:” Theories of Realism in Grierson, Kracauer, Bazin and Lukacs” in *European Film Theory and Cinema: A Critical Introduction* (Edinburgh: Edinburgh University Press, 2001).

arguing, is instead an ongoing and renewable capacity of the moving image. That means that such an experience with digital snow not only recalls but revives the phenomenological logic of early spectators' attraction to the wind in the trees. Whether photographically recorded or digitally manufactured, moving images can point us to the impenetrability of natural phenomena by equally pinning down and picturing the contingent movements of the world. Spatially and temporally framed, their unplannable movements astonishingly become fixed before us as temporal objects.

In arguing for a phenomenological sympathy between these historically and technologically distinct experiences, I do not mean to efface their differences. Indeed, given the distinct image-making processes on display—the magic of cinema's mechanical registration versus the virtuosity of CGI's collective labor—the technological and material attractions of computer animation are significantly different from the early attractions of cinema. But what remains remarkably similar is the phenomenological form of the spectator's attraction to cinema's framed perception. The attraction to contingent motion in both early cinema and CGI, while produced in different manners, in each case involves a mutual attunement to the interplay between the technological novelty of framed motion and the perceptual indeterminacy of contingent motion forms. At their core, then, the power of both historical forms of experience results from the capacity of the moving image to frame the formless movements of the natural world.

Conclusion: Early Cinema, Motion Forms, and the Aesthetics of Wonder

It has been the aim of this chapter to open up one of the most entrenched anecdotes of film history—the attraction to “the wind in the trees” in early cinema—to a mode of phenomenological inquiry that foregrounds the role of movement and form. Dominant accounts have tended to subsume the phenomenon under broader theories of photographic contingency, in which the unplanned movements of leaves and smoke come to emblemize the camera's indiscriminate

capture of physical reality. While such a view has proven useful in drawing attention to cinema's photographic substrate, it has resulted in reducing a complex visual pleasure of cinematic movement to an ontological claim about the photographic medium. Without denying the distinct marvels of the photographic process, I've tried to argue that the wind in the trees anecdote is better understood as an attraction to contingent motion forms rather than as an attraction to the contingency of cinematographic recording. The mysterious attraction to images of wind, water, and dust on screen is intimately related to the peculiar experience of beholding such phenomena in the natural world.

In following this line of inquiry, I have changed the question implicitly asked by realist film theory (and its critics). Instead of asking how the attraction to wind, water, and dust emblemizes the medium specificity of cinema, I have asked how cinema made a spectatorial attraction of wind, water, and dust, natural phenomena that were objects of fascination long before the invention of the moving image. This shift encourages us to think differently about the novelty of the moving image. More than a new kind of image—an image that moves—the animated photograph introduced the world to *imaged movement*: a framed perception of the world in motion. It's through this way of seeing the novelty of the moving image that I have established a phenomenological continuity between the reproduction of contingent motion in early cinema and computer-generated animation.

At the same time, this shift in perspective establishes how a phenomenology of contingent motion both builds on and revises film theoretical insights about the relation between cinematic motion and the impression of reality. Much of this area of inquiry is indebted to Metz's phenomenological assessment of cinematic motion's "impression of reality." For Metz, cinematic motion has a set of essential phenomenological characteristics regardless of the phenomenon onscreen, a sense of perceptual richness, presence and proximity, participation and involvement that

results in cinema's distinct reality effect.⁹⁷ Though a significant step away from indexical theories of realism, there is a danger in reading Metz's claim as implying an easy equation between the experience of cinematic movement and the production of realism (however broadly conceived).⁹⁸ Without denying the reality effects that Metz attributes to cinematic motion, the phenomenology of contingent motion developed here provides a different methodology, emphasizing less the uniqueness of movement as such and more so the way that different forms of movement can heighten, intensify, or activate cinema's impression of reality.

In a similar way, the phenomenology of contingent motion intervenes in a smaller but no less persistent assumption about early spectators' attraction to motion. In most accounts, one of the primary attractions of early cinema was the encounter with motion *as such*. Indeed, a significant part of this can be attributed to the writings of early spectators and exhibitors themselves, for as Doane has noted, "much of the rhetoric accompanying the reception of the earliest films is a sheer celebration of the cinema's ability to represent movement."⁹⁹ To be sure, this fundamental astonishment at motion as such should not be forgotten; the very *fact* of animating photographs instilled a wonder at the very fundamental possibility of a moving picture, and this wonder was indeed reinforced by the Lumieres' exhibition practice of cranking the projected photograph into movement. But there's also a risk here in being complacent with a narrative of early spectatorial experience that neatly corresponds with our intuitions about the novelty of cinema—i.e. if movement *as such* is what's new, therefore movement *as such* is what's fascinating. As a symptom of

⁹⁷ Tom Gunning, "Moving Away from the Index: Cinema and the Impression of Reality," *Differences* 18, no. 1 (2007): 29–52.

⁹⁸ Gunning himself warns against such a reading: "But I would have to admit that 'motion,' even when specified as 'cinematic motion,' probably includes multiple aspects, not just one perceptible factor." Gunning, "Moving Away from the Index," 48.

⁹⁹ Doane, *The Emergence of Cinematic Time*, 22.

this kind of thinking, Erwin Panofsky writes that “the primordial basis of the enjoyment of moving pictures was [...] the sheer delight in the fact that things seemed to move, *no matter what things they were.*”¹⁰⁰ Early spectators’ fascination with the fact of movement becomes, rhetorically, a disregard for the myriad *forms* of movement that appear on screen.

Paying attention to the motion forms on display in early cinema does not negate an account of early spectators’ general fascination with motion but enhances it, encouraging a more variegated phenomenology of the experiences uniquely afforded by moving images in the era of their technological novelty. In fact, the motion form can provide a phenomenological correlate to what Gunning has called the “movement genres” of early cinema, genres of pre-narrative short films in which the attraction of motion was placed front and center.¹⁰¹ Among these movement genres, Gunning includes water-effects films, whose emergence I’ve argued marked the codification of contingent motion as an attraction, as well as “serpentine dances” and “phantom rides.” What’s crucial about these movement genres is not simply the way in which cinema’s capacity for movement is put on display, but how each genre exhibits a particular form of movement that yields its own logic of pleasure and fascination. The serpentine dance, for example, which involves the metamorphic billowing waves of sheets of fabric, pairs the fluidic formlessness of contingent motion forms with the solidity and heft of the human body and heavy drapery. Conversely, in the phantom ride, cameras mounted on the fronts of locomotives yield a palpable illusion of moving forward through space, producing a distinctly kinesthetic thrill.¹⁰² To these we might add J.C. Mol’s time-lapse films, in which the ordinarily imperceptible movement of blooming flowers takes on a

¹⁰⁰ Erwin Panofsky, “Style and Medium in the Motion Pictures,” *The Visual Turn: Classical Film Theory and Art History* (Rutgers: Rutgers University Press, 2003), 169–84, my emphasis.

¹⁰¹ Gunning, “The Attraction of Motion,” 166–168.

¹⁰² In chapter three, I’ll argue that this basic motion form exhibited in the phantom ride is essential to phenomenological theories of camera movement.

balletic grace, coupling a familiar appreciation of natural beauty with a satisfying augmentation of temporal perception. And in Georges Méliès's experiments with the "stop trick," the instantaneous appearance and disappearance of bodies saps them of their weighty permanence, yielding a pleasurable sensation of shock.

The experience of cinematic contingent motion in fluttering leaves and rippling waves similarly produces its own logic of visual pleasure: an aesthetics of *wonder*. Breaking the comfortable slumber of ordinary experience, an aesthetics of wonder involves elements of curiosity and intense reflection. In the words of Michele Pierson, wonder "makes thought a component of aesthetic experience, returning to it an incitement to curiosity and contemplation."¹⁰³ By refreshing us to the confounding complexity of swirling dust, rippling water, and fluttering leaves, cinematic contingent motion taps into wonder's unique combination of aesthetic pleasure and epistemological yearning.

With contingent motion's aesthetics of wonder, our epistemological desire is directed less at understanding the complex movements of dust and water than at newly confronting that complexity. Unlike Marey's chronophotography or Vertov's slow-motion cinematography, cinematic contingent motion does not work by revealing the inner workings of natural phenomena. Such moving images don't explicitly enhance our access to the outside world. They don't *teach* us anything about the physics of water, fire, or dust. Our wonder at these moving images is less a result of their augmenting or extending our perception than it is their reframing of perception, a limiting and delimiting of it. As such, we learn more about the habituated perceptions of our situated selves than data about the hidden operations of the material world.

This complex logic of wonder is not an essential characteristic of cinematic motion, nor, I'd argue, an essential characteristic of the experience of early cinema, but is instead a unique

¹⁰³ Michele Pierson, *Special Effects: Still in Search of Wonder* (New York: Columbia University Press, 2002), 21.

phenomenological capacity of the moving image activated by the spatiotemporal framing of contingent motion.¹⁰⁴ On this way of thinking, we experience moving images *vis-à-vis* our familiarity with various forms of movement in the world, forms that both invite fleeting pleasures of aesthetic engagement and forms that pass us by unnoticed. It is by engaging with the form of contingent motion that technologies of the moving image—photographic as well as computer-generated—continue to provoke and renew a sense of wonder at the movements of natural phenomena.

That contingent motion can renew this sense of wonder through computer animation should provide one possible answer to the question “what remains the same in the era of digital cinema?” Though the digital affords new kinds of moving images—images without inherently earthbound referents—there persists the well-recognized desire to precisely reproduce our perception of the world, to pursue the “myth of total cinema” by other means. This is not just a desire for a perceptual analogue, for a mere copy. In beholding moving images today, not just digital images but early films, what remains the same is the fact of our wonder at the kind of thing a moving image is, and an equally important but far less recognized principle: to be astonished by the moving image is also to be astonished by the movements of the world.

¹⁰⁴ Nor is wonder privy to cinematographic moving images. For example, Tom Gunning has argued that the aesthetics of wonder informs the experience of protocinematic optical devices, particularly the thaumatrope. Tom Gunning, “Hand and Eye: Excavating a New Technology of the Image in the Victorian Era,” *Victorian Studies* Vol. 54. No. 3, Spring 2012: 496.

Chapter 2

Habitual Gestures

Postwar Realism, Embodied Agency, and the Inscription of Bodily Movement

Nine-tenths of our movements obey habit and automatism. It is anti-nature to subordinate them to will and to thought.

Robert Bresson¹

It is often preferable to have a movie actor who moves well than one who “understands” the part. A director ought to be able to explain a part, but very few men or women can move well in front of a camera.

David Thomson²

In what may be one of the most paradigmatic sequences of post-war realism in film history, Maria the young maid is shown toiling about the kitchen in Vittorio de Sica’s *Umberto D* (1952). What would generally be elided in classical narration is here presented in all its mundane detail: Maria is shown striking a match against a wall to light the stove, spraying ants with a water hose, and grinding coffee at the same time as she closes a door with the very tip of her foot. Having the ambition to dedicate an entire sequence to mere household chores, De Sica created a standard of cinematic realism committed to what André Bazin called “the succession of concrete instants of life.”³ De Sica’s extraordinary attention to the ordinariness of these chores was celebrated as a revolution in cinematic storytelling, a leap forward from the narratively determined actions of classical Hollywood to a depiction channeling the duration of lived time. For Bazin, Maria’s mundane tasks helped foster a “truly realist cinema of time”—a “cinema of ‘duration’”⁴—and

¹ Robert Bresson, *Notes on Cinematography*, trans. Jonathan Griffin (New York: Urizen Books, 1977), 11.

² David Thomson, *The New Biographical Dictionary of Film* (New York: Knopf, 2010), 40–41.

³ André Bazin, “*Umberto D*: A Great Work,” in *What is Cinema?: Vol. 2*, trans. Hugh Gray (Berkeley: Univ. of California, Press, 2005), 81.

⁴ André Bazin, “De Sica: Metteur en Scene,” in *What is Cinema?: Vol. 2*, trans. Hugh Gray (Berkeley: Univ. of California, Press, 2005), 76.

likewise for Gilles Deleuze, they would epitomize his concept of the *time-image*, a cinematic mode in which the movement of narrative action would be subordinated to the flow of lived time.⁵

In fact, many accounts of these everyday, ordinary tasks or household chores in postwar realist cinema (and its descendants) are presented as instruments of duration, timeliness, or *temps mort*. The laboring bodies of Italian Neo-Realism, the drudgery of housework in the films of Chantal Akerman, and most recently, the emphasis on the laboring body in the suggestively named “slow cinema” in the last thirty years have all been predominantly examined for the forms of *time* they produce.⁶ Such readings have undoubtedly been influenced by Deleuze’s framework for postwar European art cinema, in which what he calls “movement,” the willed and causally potent actions of bodies, gets supplanted by the non-chronological flow of time. In this paradigm, Deleuze writes, “the human body is no longer what moves; subject of movement or the instrument of action, [the body] becomes the developer of time, it shows time through its tiredness and waitings.”⁷

But what if such banal, everyday tasks were not taken as “developers of time,” and rather were considered as forms of movement unto themselves, that is, as particular kinds of gestures? While the ordinariness of the chores allows us to feel the weight of time on our shoulders, the gestures that constitute those chores—the rotations of the hand grinding the coffee, the flick of the wrist in lighting the match—encourage an unusual mode of perceptual attention to the details of the

⁵ Gilles Deleuze, *Cinema 2: The Time Image*, trans. Hugh Tomlinson and Robert Galeta (Minneapolis: University of Minnesota Press, 1989).

⁶ For work that details with Italian Neo-Realism, the representation of the human body, and temporality see Karl Schoonover, *Brutal Vision: The Neorealist Body in Postwar Italian Cinema* (Minneapolis, U of Minnesota Press, 2012), for a particular emphasis on temporality and the everyday in Italian Neo-Realism, see Andrew Klevan, *Disclosure of the Everyday: Undramatic Achievement in Narrative Film* (UK: Flicks Books, 1999). For work on the films of Chantal Akerman that makes frequent reference to temporality, see Ivone Margulies, *Nothing Happens: Chantal Akerman's Hyperrealist Everyday* (Durham: Duke University Press, 1996). For work exploring temporality in slow cinema, see Ira Jaffe, *Slow Movies: Countering the Cinema of Action* (New York: Columbia University Press, 2014), and for work that deals more explicitly with temporality and the human body in this cinematic milieu, see Elena Gorfinkel, “Weariness, Waiting: Enduration and Art Cinema's Tired Bodies.” *Discourse* 34, no. 2 (2012): 311-347.

⁷ Deleuze, *Time-Image*, xi.

body in motion on screen. This chapter argues that what I call *habitual gestures*—such as walking, sitting, smoking, twiddling thumbs, lighting matches, washing dishes, pouring coffee—occupy a privileged position in theories of postwar realist cinema not simply because they exhibit a flagrant disregard for narrative action and event-oriented temporality, but also because such gestures encourage attention to ordinarily overlooked forms of bodily motion in cinematographic detail. Rather than thinking of such movements as simply ordinary, mundane, or everyday—that is, marked by the absence of narrative interest or communicative meaning resulting in a “reality effect”—I identify them as “habitual” in the sense employed by Maurice Merleau-Ponty, emphasizing not their dailiness but their automatic or non-conscious nature, that is, their mode of being.⁸ In this sense, “habit” indicates less the background of repetitive action than the relative autonomy of bodily function: “habit is neither a form of knowledge nor an involuntary action,” but a “knowledge in the hands.”⁹ For Merleau-Ponty, we do not “lead [the body] towards the movement’s completion,” as if the body were a lifeless vessel manipulated by conscious thoughts and intentions.¹⁰ Rather, our embodied orientation toward the world is constituted by a network of gestural memories, kinesthetic dispositions, and spontaneous copings with the constantly shifting environment, together experienced not as an “I think” but an “I can.”¹¹ This immersive, unreflective aspect of bodily

⁸ I don’t mean to strictly oppose “everydayness” and “habitualness.” Rather, I mean to show how the phenomenological structure of bodily habit partly constitutes the self-concealing nature of this everydayness. For example, when Ludwig Wittgenstein writes “The aspects of things that are most important for us are hidden because of their simplicity and ordinariness (one is unable to notice something – because it is always before one’s eyes),” I would argue that, as such an insight pertains to the perception of habitual gestures, it can be *further* understood (rather than alternatively understood) by considering the backgrounding of consciousness in habitual bodily movement. Ludwig Wittgenstein, *Philosophical Investigations*, trans. G.E.M. Anscombe and P.M.S. Hacker (Hoboken: NJ, John Wiley & Sons, 2010), 56.

⁹ Maurice Merleau-Ponty, *Phenomenology of Perception*, trans. Colin Smith (New York: Routledge, 2005), 166.

¹⁰ Merleau-Ponty, *Phenomenology of Perception*, 108.

¹¹ I mean to evoke Merleau-Ponty’s claim that “Consciousness is in the first place not a matter of ‘I think that’ but of ‘I can.’” Merleau-Ponty, *Phenomenology of Perception*, 159.

knowledge renders habitual gestures phenomenologically invisible to ourselves and in others.¹² And it is precisely for this reason that the camera, in indiscriminately and disinterestedly capturing bodily movement without a consciousness or subjectivity of its own, can make such movements radically visible.

As Walter Benjamin explains in a famous passage from his “Work of Art” essay, “We are familiar with the movement of picking up a cigarette lighter or a spoon, but know almost nothing of what really goes on between hand and metal.”¹³ The film camera, Benjamin writes, “comes into play” in this blind spot.¹⁴ In routinely reaching for the spoon, we are functionally unaware of our body’s movement in space, but cinematographic recording—in its unconscious, unhierarchical

¹² While I argue here that Merleau-Ponty’s account of the kinesthetic background of experience helps explain the phenomenological invisibility of habitual gestures, I don’t mean to foreclose other interpretations within the phenomenological tradition. Useful here is Martin Heidegger’s discussion of readiness-to-hand, wherein Heidegger argues that we ordinarily encounter objects as “equipment” used in the service of some project. On such an account, in using a hammer we do not examine the hammer or engage in a theoretical study of it but skillfully manipulate it, and in doing so we have no conscious experience of the hammer as an object (i.e. as an entity with determinate properties that exist independently of our project-oriented context), and so the hammer could be said to be phenomenologically invisible or transparent. Martin Heidegger, *Being and Time*, trans. Joan Stambaugh (New York, NY: SUNY Press, 1996), 67-71. Also useful is Michael Polyani’s distinction between subsidiary and focal awareness, a slight modification of Heidegger’s account, wherein when we use a hammer to drive in a nail, our awareness of the hammer’s handle jolting our hand as we strike is best understood as a “subsidiary attention,” not any less in degree compared to our awareness of the nail but different in kind: the hand and handle “are not, like the nail, objects of our attention, but instruments of it.” Such an awareness “is merged into my focal awareness of my driving in the nail.” Michael Polyani, *Personal Knowledge: Towards a Post-Critical Philosophy* (New York: Routledge, 1998), 55. Polyani’s discussion has been invoked by a number of philosophers discussing a wide range of habitual movements, including David Sudnow on the automaticity of a piano player’s keystrokes and the phenomenology of improvisation, and L.A. Suchman on the office worker’s rhythms and techniques of manipulating office technology. David Sudnow, *Ways of the Hand: The Organization of Improvised Conduct* (Cambridge, MA: MIT Press, 1978) and Lucy A. Suchman, *Plans and Situated Actions: The Problem of Human-Machine Communication* (Cambridge: Cambridge University Press, 1987).

¹³ Walter Benjamin, *The Work of Art in the Age of Its Technological Reproducibility, and Other Writings on Media*, eds., Michael W. Jennings, Brigid Doherty, and Thomas Y. Levin, trans. Edmund Jephcott, Rodney Livingstone, Howard Eiland, et al. (Cambridge, MA: Belknap Press, 2008), 37.

¹⁴ Benjamin, “Work of Art,” 37. In my gloss of Benjamin’s argument, I’ve elided a significant qualification. Benjamin continues: “This is where the camera comes into play, with all its resources for swooping and rising, disrupting and isolating, stretching or compressing a sequence, enlarging or reducing an object.” Benjamin, “Work of Art,” 37. Here, Benjamin places his argument squarely within the tradition of the revelationist film theorists (as understood in Turvey’s basic formulation), explicitly arguing that the camera’s intervention into the epistemological gap can be attributed to various cinematic techniques such as camera movement (“swooping and rising”), editing (“disrupting and isolating”), slow and fast motion (“stretching or compressing”), and shot scale (“enlarging or reducing an object.”). I deliberately excise this qualification because Benjamin’s theory of the “optical unconscious,” of which this passage is a prime example, is not limited by a reliance on cinematic techniques.

registration of moving phenomena—never fails to pick up the tiny twitches of the index finger, the anticipatory narrowing of the eyes, the torso’s subtle lean forward in our execution of this ordinary movement.¹⁵ Though Benjamin describes an epistemological capacity of the camera to capture what’s overlooked in habitual gestures, the reactions of early spectators suggest that this capacity can be experienced on screen. Early films, for example, often astonished spectators by displaying the micromovements of bodies engaged in habitual movements. A journalist reporting on Edison’s *The May Irwin Kiss* (1896), for example, noted that the eighteen-second film’s “*Six hundred different phases of a kiss leave little to the imagination,*” and a commentator writing on the Lumieres’ *Workers Leaving the Lumiere Factory* wrote that “*every little movement, every twitch of a muscle stands out so clearly that we seem to see the picture in real life.*”¹⁶ Articulating the realism of moving bodies on screen by quantifying individual “phases,” “little movements,” or “twitches” testifies both to an astonishment at cinema’s capacity to inscribe the perceptual plenitude of bodily movement and a renewed perception at the plenitude of bodily movement itself. As the astonishment of the medium’s novelty began to be displaced by narrative modes (and corresponding modes of attention), Bela Balazs still attributed much of cinema’s power to its amplification of “the most minute and fleeting facial expressions and gestures,” arguing that cinema could foster a renewed perceptual sensitivity to the bodily aspects of culture inscribed in the “gait and everyday gestures of people in the street or at

¹⁵ Indeed, an interest in the opacity of habitual gestures has run parallel with the development of cinema. The chronophotography of Eadweard Muybridge not only recorded human bodies engaged in athletic feats (as with the work of his contemporary Etienne-Jules Marey), but also ordinary gestures such as reading a book, drinking a glass of water, sipping tea, kneeling in prayer, getting out of bed; social gestures such as waltzing, tipping one’s hat, spanking a child; and laboring gestures such as sweeping, hammering, and emptying a pale of water. Diagramming the unseen instants of human movement through static representations of time, the chronophotographs of habitual gestures aspired to document, to borrow Benjamin’s phrase, what *really goes on* in the fractions of a second when the mind is absorbed in its projects.

¹⁶ Qtd. in Jonathan Auerbach. *Body Shots: Early Cinema’s Incarnations* (Berkeley: Univ of California Press, 2007), 74. Qtd. in Pasi Väliäho, *Mapping the Moving Image: Gesture, Thought and Cinema Circa 1900* (Amsterdam: Amsterdam University Press, 2010), 93.

their work.”¹⁷ Habitual gestures on screen testified to a certain epistemological capacity of cinematographic inscription that nevertheless had a phenomenological dimension—to not only indiscriminately *capture* the gesture of picking up the spoon, but also to *make visible* what really goes on between hand and metal.

This attention to the inscription of bodily detail shares an important phenomenological structure with what I described as cinema’s spatiotemporal “framing” of motion in chapter one. There, I argued that early spectators’ fascination with the movements of wind, smoke, and water involved a mutual astonishment at the complexity of those movements and at cinema’s capacity to capture their details, i.e. to present spatially and temporally “framed” perceptions of them. Early spectators and early film theorists’ reactions to bodily detail evoke a similar astonishment at the complexity of bodily movement made visible through cinema’s imaged motion. While the movements of bodies and the movements of smoke, water, and wind may not arouse the same form of wonder, bodily movement shares with contingent motion an element of what I called the “unplannable:” to see every little twitch and spasm, every ripple of flesh on screen is to encounter an image of something that could not have been designed or reproduced. Like early spectators’ fascination with the wind in the trees, then, early spectators’ astonishment at the moving body involves a *dual* attunement to the novelty of cinematographic inscription and the complexity and plenitude of bodily movement.

Building upon this phenomenology of astonishment in early cinema, my aim in this chapter is to examine how an aesthetics of habitual gestures emerging in postwar realist cinema *reactivates* this way of seeing through various cinematographic techniques, forms of narrative pacing, and performance styles. That is, the aesthetics of habitual gestures makes use of cinematographic

¹⁷ Béla Balázs and Erica Carter, ed., *Béla Balázs: Early Film Theory: Visible Man and the Spirit of film*. Vol. 10. (New York: Berghahn Books, 2010), 109, 13.

recording's indiscriminate and detailed capture of bodily movement—its registration of the excessive movement of the body that lies *between* and *within* willed actions—in order to make visible the autonomy of bodily movement that lies beneath the artifice of performance.

In the kitchen sequence from *Umberto D*, for example, the viewer does not only attend to the insignificance of the actions Maria intentionally performs—striking the match, grinding the coffee, closing the door—but also to the details of bodily habit that otherwise go overlooked in performing such ordinary gestures. We attend, that is, to the *manner* in which such gestures are performed, the specificity of her body's movement in relation to its environment, and the role of non-conscious bodily intelligence in executing such gestures. For example, consider what we see *in* Maria's simple gesture of closing a door with her foot. When Maria sits down to grind the coffee, the camera closely follows her foot as her toes stretch to barely reach the edge of the door. Though the motivations for such a gesture are mysterious, what's on display is Maria's non-conscious bodily intelligence that precedes and exceeds her conscious *decision* to close the door: her intuitive sense that if she slumps down in her chair and stretches her leg just so, she can just barely make contact with the door. Such a gesture does more than denote its own narrative insignificance. It also taps into the natural ability of cinematographic recording to capture the movements *between* actions, movements that display the semi-autonomous or habitual faculties of embodied being in the world as a moving body co-constitutive with its environment. By virtue of being captured on screen, but also foregrounded in the frame, fragmented through montage, and contextualized within a sequence of narrative suspension, these details of movement focus attention on *what really goes on* between the foot and the door. As Bazin suggests, Italian Neo-Realism favors non-actors chosen for their “general comportment” rather than their use of acting techniques.¹⁸ The aesthetics of habitual

¹⁸ Bazin, “De Sica,” 65.

gestures is a means of accessing that general comportment, a means of foregrounding the actor's embodied way of moving that precedes but is ultimately inextricable from calculated performance.

To make my case for the habitual gesture as a significant cinematic motion form, I first consider the documentary effects produced by the aesthetics of habitual gestures. I argue that the rhetoric of realist performance style in Bazin's writings on Italian Neo-Realism provides the scaffolding for what I call the body's "ways of moving," culturally and idiosyncratically inscribed patterns of movement made perceptually available to cinema spectators through the aesthetic presentation of habitual gestures. After reexamining the kitchen scene from *Umberto D* with an emphasis on Maria's ways of moving, I provide a close reading of William Wyler's *The Best Years of Our Lives* (1946), which not only employs habitual gestures for a reality effect but integrates the aesthetics of habitual gestures into its classical narrative structure. Second, I consider the relationship between bodily habit and bodily expression by examining the work of Robert Bresson, who both constructs a dedicated aesthetic of habitual gestures in his films as well as instructs his actors to cultivate habits on set through the endless repetition of movement. I argue that Bresson's practice of cultivating bodily habits creates a mode of bodily expression that acknowledges cinema's capacity to pick up on non-conscious movements not explicitly intended, a mode of revelatory expression rather than communicative expression. Finally, I step outside of the era of postwar realist cinema to consider the philosophical implications that the aesthetics of habitual gestures has for an ordinary understanding of bodily movement and a general phenomenology of seeing moving bodies on screen. Examining a collection of found-footage experimental films by Austrian filmmaker Martin Arnold, I show how the very nature of cinema's indiscriminate capture of human movement acknowledges the habitual nature of all human movement.

In each of the examples I examine, from classical Hollywood to European art cinema to contemporary avant-garde film, I refuse the temptation to construct habitual gestures as a

monolithic aesthetic with predetermined effects. Though I argue that the revelatory potential of cinematographic inscription in general has a privileged relationship with habitual gestures, my aim is to show how this relationship has been put to a range of *aesthetic* purposes, from the classical narrative pleasures of *Best Years of Our Lives* to the reflexive modernism of Martin Arnold. If this range of aesthetic effects has a grounding commonality, it lies in how such effects encourage a reconsideration of some of film theory's most fundamental intuitions about performance, expression, and bodily movement on screen, arguments which stem from deep-seated assumptions about the relationship between agency and human movement. As Maxine Sheets-Johnstone observes, “movement is at the root of our sense of agency.”¹⁹ Indeed, conventional wisdom would suggest that the self-movement of our bodies is an extension of inner motivation, an outcome of thoughts and feelings.²⁰ In drawing attention to the non-conscious aspects of bodily movement uniquely captured by cinematographic recording, the aesthetics of habitual gestures helps us understand how the experience of seeing moving bodies on screen may already undo such assumptions.

Ways of Moving

Even the less beautiful and the non-beautiful can move in a *beautiful way*.

Friedrich Schiller²¹

¹⁹ Maxine Sheets-Johnstone, *The Primacy of Movement* (Philadelphia: John Benjamins Publishing, 2011), xvii.

²⁰ For example, Nicolás Salazar Sutil writes that “whatever the motive may be...motion is the prolongation or secretion of an inner motivation. Motion is the outcome of premotor thoughts, and conversely, inner motives are triggered as a result of outer motion.” Nicolás Salazar Sutil, *Motion and Representation: The Language of Human Movement* (Cambridge, MA: MIT Press, 2015).

²¹ Friedrich Schiller, “On Grace and Dignity” in Jane Veronica Curran and Christophe Fricker, eds., *Schiller's On Grace and Dignity in its Cultural Context: Essays and a New Translation* (Rochester, NY: Camden House), 126.

In his essay on the films of Vittorio de Sica, Bazin writes that Italian Neo-Realism “calls upon the actor to *be* before expressing himself.”²² What might such a mysterious phrase mean, and how might it illuminate Bazin’s privileging of naturalness over simulated expression and technique in his writing about Neo-Realist acting? Though Bazin makes it clear that this naturalness or “being” entails a rejection of the traditional principles of expressiveness in stage acting, in which an emotion is made legible through trained movements of the actor’s body (often the face), it’s less certain how “being” is aesthetically achieved or what it entails. The non-actor’s ignorance of acting techniques, Bazin suggests, is a necessary condition for the avoidance of expressionism, but is not sufficient for the achievement of “being” on screen. Though Bazin offers little explanation for what it means for an actor to *be*, he offers a clue in the next few lines: the boy who plays Bruno in *Bicycle Thieves*, he writes, was for De Sica “a silhouette, a face, *a way of walking*.”²³

Bruno’s “way of walking” describes a *form* of movement culturally and contingently inscribed in the body as a habitual gesture. A way of walking—and, as Bazin will soon elaborate, a “way of crying...of laughing”—resides in the realm of “being” rather than in the realm of acting.²⁴ De Sica can instruct Bruno to walk this or that direction, even to walk quickly, slowly, aimlessly, or sullenly, but Bruno’s *way* of walking is retained beneath these conscious modifications. In fact, as Bazin explains, when De Sica cast the role of Bruno for *Bicycle Thieves*, he “did not ask [Bruno] to perform, just to walk. He wanted to play off the striding gait of the man against the short trotting steps of the child.”²⁵ Bruno’s short trotting, his way of walking, is not thought or premediated or performed but

²² Bazin, “De Sica,” 65.

²³ Bazin, “De Sica,” 65, emphasis mine.

²⁴ Bazin, “De Sica,” 66.

²⁵ André Bazin, “*Bicycle Thief*,” in *What is Cinema?: Vol. 2*, trans. Hugh Gray (Berkeley: Univ. of California, Press, 2005), 55.

ingrained in his body. The motor coordination involved in the activity of walking must take place at a level of bodily memory that is below conscious awareness.

Indeed, there's a danger in reading this line of reasoning as a naïve realism, that is, as a technologically guaranteed *correspondence* between Bruno's "natural" gait and his way of walking on screen. But this need not be the case. For instance, one can accept the likely possibility that Bruno's awareness of the camera might trigger an unnatural consciousness of his ordinarily habitual ways of moving. Bruno's way of walking on camera therefore may not be isomorphic to his way of walking in the world.²⁶ But this does not mean that Bruno's onscreen gait would appear to be any less uniquely *his*, that it is nonetheless a function of deeply ingrained bodily habits. What matters is not the guarantee of an "authentic" gait of the one true Bruno—how would a viewer measure or verify the authentic gestures of a non-actor?—but the fact that walking is the kind of bodily movement for which a *way* or manner of moving can be made distinctly legible under the right conditions of attention.

In other words, if Italian Neo-Realism sought a "realism" of bodily movement, it was achieved precisely in its ambition to distill a spectatorial *attention* to the habitual ways a particular body moves, its ordinary, non-conscious, and idiosyncratic manner of walking, lifting, reaching, or sitting that cinematographic recording cannot fail to capture. Though capturing the details of habitual gestures is a passive condition of cinematographic recording, it was part of the achievement of Italian Neo-Realist cinema to exercise the formal choices necessary to signal and shape our attention to the particularity, idiosyncrasy, and gestural virtuosity of habitual gestures. Shining

²⁶ What this entails is that we need not apply the film theoretical myth of the onscreen child's candidness to Bruno's gait in order to justify Bazin's claims. For an early film theoretical account of the authenticity of children and animals on screen, see Balazs, *Visible Man*, 63.

through the artifice of narrative and performance, such aspects of habitual movement achieve a distinct form of realism.

Bazin's interest in cinematic bodies' "ways of moving" shares a history with a tradition of French sociological studies of habitual movements that began in the 1930s, namely what is shared across what Marcel Mauss calls "techniques of the body" and what Pierre Bourdieu calls "habitus." Mauss and Bourdieu were both interested in aspects of culture ingrained and inscribed in bodily dispositions. In contradistinction to the more or less *bodiless* sociology of Emile Durkheim, Mauss and Bourdieu both identified the human body as the locus of certain cultural regimes, showing how the body as physiological given becomes a social object through learning culturally specific forms of movement.

In his essay, "Techniques of the Body" (1934), Mauss examines the cultural histories of bodily techniques such as manners of swimming, digging, marching, walking, and sleeping. Each way of moving contains within it a cultural history, such as the "loose-joined swinging of the hips" of Maori women, or the way a "girl...raised in a convent" can be identified by "[walking] with her fists closed."²⁷ What distinguishes such actions of technique from other kinds of actions, Mauss writes, is that bodily techniques "are felt by the author as *actions of a mechanical, physical or physico-chemical order* and...they are pursued with that aim in view."²⁸ That is, as *techniques*, such actions are not generally felt to carry the weight of social influence and education. They are both felt and perceived as natural or biological. In Mauss's words, they are "more or less habitual."²⁹ The bodily technique's status as equally biological and social is in fact one of the groundbreaking insights of Mauss's essay. If such

²⁷ Marcel Mauss, "Techniques of the Body," trans. Ben Brewster, *Economy and society* 2, no. 1 (1973): 70-88, 73.

²⁸ Mauss, "Techniques of the Body," 75, emphasis in original.

²⁹ Mauss, "Techniques of the Body," 85.

bodily techniques are generally thought of as purely instrumental in purpose and biological in origin, and thus absent from the spectrum of communicative or meaningful gestures, Mauss strove to demonstrate that such techniques signify far beyond their use value. Far from a degree-zero of cultural signification, the techniques of the body are imbued with a history, a culture, a class, a gender, a particular way of being in an irreducibly social world. Though detailed studies of bodily technique predate Mauss—from Frederick Winslow Taylor’s attempts to expedite bodily movement in the factory to Marey and Muybridge’s motion studies—Mauss’s study differs in that its ambition is not to perfect the techniques of the human body or extract generalized biological data of bodily movement, but to observe the ways in which such bodily techniques are always inscribed with culturally significant differences, differences perceived as subtle variations in movement patterns.

In this sense, Mauss’s interest in the cultural signification of ordinary habitual movements paved the way for a realist cinematic sensibility to the individual body’s way of moving.³⁰ Mauss’s *sociological* sensitivity to the cultural differences of habitual gestures is intimately related to De Sica and Bazin’s *aesthetic* sensitivity to the ways individual bodies move on screen. Indeed, as Bazin celebrated film more for the possibilities of transcending cultural difference than for studying that difference, he instrumentalized his sensitivity to bodily movement to an entirely different end than did Mauss. But what remains in common between them is the perceptual sensitivity to subtle differences in otherwise overlooked bodily movements, the kinds of bodily movements generally not deemed worthy of such attention because of their status as ordinary, non-communicative gestures, that is, their presumed biological or merely functional purpose.

³⁰ We can perhaps see a more direct relationship between Mauss and film theory in the following statement from Bela Balazs in *Visible Man*: “When we see a person’s movements or his sensitive hands, do we not recognize the spirit of his ancestors?” Balazs, 13, *Visible Man*.

While Bazin theorized the ways in which such a sensitivity to patterns of bodily movement can be activated by particular cinematic practices, Mauss's anthropological gaze is constitutive of that sensitivity. For Roland Barthes, a similar sensitivity can be fostered by the lover's gaze. Describing the experience of beholding the body of his lover, Barthes locates his fetishization in the absolutely particular way his lover's body moves and positions itself while smoking a cigarette:

What is it in this loved body which has the vocation of a fetish for me? What perhaps incredibly tenuous portion—what accident? [...] a way of spreading the fingers while smoking?³¹ [...] [There] are subtle, evanescent trivialities which swiftly pass over the other's body: a brief (but excessive) way of parting the fingers...³¹

Somewhere between idiosyncrasy (“a way of spreading the fingers”) and contingency (“subtle, evanescent trivialities”), such movements are inflected equally with Mauss's attention to habitual patterns of movement and Bazin's sensitivity to the unrepeatable singularity of movement inscribed in cinematic time. Indeed, the *punctum*-like quality of these movements echoes Barthes's contemporaneous claims about photography—“the photograph is the absolute Particular, the sovereign Contingency...the *This*”—but much different here is its uniquely cinematic attention to forms of movement.³² If both the lover's gaze and the anthropologist's gaze afford the beholder the kind of attention necessary to see a body's idiosyncratically and culturally inscribed ways of moving, what the cinema of habitual gestures offers is an aesthetic access to this fleeting attention to human movement. While the distinctness of habitual gestures is always *there* on screen due to the detailed and indiscriminate capture of bodily movement, cinema can create the conditions necessary for the viewer to *see* them.

Returning to the kitchen sequence in *Umberto D*, we can see the ways in which De Sica creates the conditions for us to attend to Maria's ways of moving. Such an attention isn't simply a

³¹ Roland Barthes, *A Lover's Discourse: Fragments*, trans. Richard Howard (London: Penguin Books, 1977).

³² Roland Barthes *Camera Lucida*, trans. Richard Howard (New York: Hill and Wang, 1981), 4.

corollary of De Sica's choice to represent ordinary or mundane actions in real time, but is also a result of formal elements and details of performance that shape how such actions are shown. Consider the simple but significant detail that when Maria first strikes a match to light the stove, she forgets to turn on the gas, thus requiring her to repeat these gestures a second time. Indeed, this repetition most immediately signifies Maria's grogginess after just waking up. Still half asleep and rubbing her eyes, Maria has not unreasonably overlooked a step of her daily routine. Following Deleuze's reading, we might imagine that such a needless repetition punctuates the experience of duration introduced by the long-take and the insignificance of the chores. In his brief reading of the sequence, what matters for Deleuze are not the "mechanical, weary gestures" themselves but the fact that the thoughtlessness of those gestures opens up Maria's mind to the anxiety of her unwanted pregnancy.³³ The emptiness of Maria's gestures, for Deleuze, generates the temporality of thought rather than action. On such a view, the insignificant repetition of striking the match might function to prolong the dragging pace and suspension characteristic of this altered temporality.

But Deleuze's singular focus on inaction and the temporality of thought obscures what we see *in* the repetition of the gesture. In seeing Maria repeat the *same gesture*—the rapid swipe of the match against the wall at a consistent 45-degree angle—we come to learn its distinctness and gestural specificity as a highly idiosyncratic habit. That is, we go from seeing *that* Maria strikes the match to seeing *how* she strikes it. This is achieved not only in the fact of the repetition but through the shaping of attention that has begun from the beginning of the scene. In the previous shot, De Sica uses a deep space composition to prolong Maria's slow, weary steps to the kitchen, refining our attention to her movement. And when she reaches the stove, her failed attempt to light the burner thwarts our natural tendency to anticipate the sequence of her actions. Because we are no longer caught up in the flow of her movement, we are forced to see the details of its idiosyncrasy—the

³³ Deleuze, *Cinema 2*, 1.

consistent speed, angle, and trajectory of the swipe of her wrist against the wall. The shot's framing and *mise-en-scene* also encourage our attention to the habitual nature of the gesture: at nearly the center of the frame lie the linear markings on the wall that have built up over time from striking a match day after day (Fig. 2.1). Importantly, the markings all share exactly the same angle and length, reinforcing the habitual specificity of the gesture that Maria performs in both attempts at lighting the match. While they are indeed fictional aspects of set design, these indelible inscriptions of daily habit still shape our perception toward the *actress's* gestures—that is, the body on screen—thereby projecting our imaginations into the *character's* embodied history in the diegesis: we imagine Maria the maid performing the same gesture every day. Once again, the aesthetics of habitual gestures does not rest on a correspondence theory of realism—i.e. an isomorphism between the actor's onscreen and offscreen bodily movement—but is about shaping the viewer's attention to the *habitualness* of her habitual gestures. The set design plays an important formal role in creating that mode of attention. What's more, the repetition of striking the match doesn't simply slow down time or simulate contingency; it also draws attention to the way Maria habitually moves, the way her body seems to be automatically accustomed to this ordinary space.



Figure 2.1 Linear markings in *Umberto D* (De Sica, 1952)

A similar kind of effect occurs when Maria fills the kettle with water at the sink. This time, instead of performing the same gesture twice, Maria performs a gesture that she had earlier performed in the film—angling the hose on the faucet in order to spray the ants. What’s significant in this second iteration is that De Sica omits the shot of the ants that clarifies the purpose of the gesture. What guarantees our recognition of the action is first the repeated camera angle and distance (she’s framed in medium shot with her back to the camera) and second the repeated details of the gesture—that she reaches with her right hand, palms facing up, with the hose between her second and third fingers. Though this gesture happens much too quickly for us to note these individual details, we can *recognize* them in the repeated gesture (just as we can *recognize* the physiognomy of a face without attending to its constituent features). In fact, it is our ability to

recognize the gesture that allows De Sica to omit an eyeline match showing the ants. De Sica demonstrates a confidence in how well he has manipulated our attention not simply to the banality of time passing, but to the specificity of Maria's habitual gestures registered in cinematographic detail.

Though Bazin doesn't attend to these details in his reading of this sequence, such details seem to constitute what he would have called Maria's "being" on screen. Achieving a temporality of "duration" was for Bazin only one effect of Italian Neo-Realism, an effect that came to take on a far more singular attention in Deleuze's *Cinema 2*. Bazin equally, if not more so, celebrated Neo-Realism for the ways it captured bodies on screen.³⁴ Unlike Deleuze's reading, which places an emphasis on Maria's subtly unfolding interiority, Bazin singles out the camera movement that "follows the movement of [Maria's] leg so that the image finally concentrates on her toes feeling the surface of the door."³⁵ Such a profoundly tactile description not only evidences Bazin's interest in human bodies in general, but possibly bespeaks an undeveloped fascination with bodily habit in particular. As I mentioned earlier, what's on display in this gesture is a kind of absorption in bodily intelligence rather than a distracted reverie. Before Maria *decides* to close the door, her body exhibits an unthinking kinesthetic awareness of its ability to barely reach the tip of the door.

Achieving "being" is not simply a matter of eschewing acting techniques or choosing non-actors. "Being"—that is, a subject's way of being in the world—is aesthetically cultivated at least partly through the careful presentation of habitual gestures. If such movements harbor a "reality effect," it is importantly not in their signification of meaninglessness, what Barthes would call "a

³⁴ For a sustained look at Bazin's preoccupation with the human body, see Schoonover, *Brutal Vision*.

³⁵ Bazin, "Umberto D," 82.

signified of denotation.”³⁶ Rather, the reality effect of such gestures lies in drawing attention to ways of moving that precede and yet are inextricable from what Bazin would call “acting:” a particular rhythm when walking, the position of the fingers in gripping a hose, the sweep of the wrist in striking a match.

Ways of Moving Differently

To get used to a hat, a car or a stick is to be transplanted into them, or conversely, to incorporate them into the bulk of our own body. Habit expresses our power of dilating our being-in-the-world, or changing our existence by appropriating fresh instruments.

Maurice Merleau-Ponty³⁷

Though the cinematic aesthetic of habitual gestures is most strongly associated with the critical legacy of Italian Neo-Realism, other national cinemas in the wake of WWII would exhibit a similar attention to bodily movement, including the close-ups of skilled hands folding dough in Georges Rouquier’s documentary *Farrebique* (1946), or as we’ll see later, the myriad manual techniques on display in the cinema of Robert Bresson.³⁸ A similar aesthetic also made its way into Hollywood in the postwar years. As Bazin reminds us, “several American filmmakers took part in the war, and some of the horror, some of the shocking truths, with which it overwhelmed the world,

³⁶ Roland Barthes, “The Reality Effect,” in Richard Howard, trans., *The Rustle of Language* (Berkeley: Univ. of California Press, 1986), 148.

³⁷ Merleau-Ponty, *Phenomenology of Perception*, 166.

³⁸ Despite being largely scripted with many fabrications, *Farrebique* evinces an unmitigated reality effect in its emphasis on skilled labor. Though the actions themselves may have been “staged,” the precision of these habitual gestures—their demonstration of embodied skill and the immediate pleasure of seeing their micromovements—is saturated with a sense of embodied authenticity that no doubt contributes to Bazin’s judgment that the film “preserves [its images’] total singularity.” Andre Bazin, “*Farrebique*, or the Paradox of Realism,” in Bert Cardullo and Alain Piette, eds., *Bazin at Work* (New York: Routledge, 1997), 107. A remarkably similar effect occurs in Robert Flaherty’s *Man of Aran* (1934), an early documentary known for its staging of apparently real-life happenings. In a brief moment when a village child fishes using his toes to guide the fishing line, such a gesture testifies to the boy’s lived experience in this particular milieu and to the presumed generations through which this technique has passed. As we can see here, and indeed in a host of other examples, the aesthetic of habitual gestures may not be confined to the era of postwar realism, but it is indeed in this historical moment that habitual gestures take on a certain aesthetic and political urgency.

could be translated by them as well into an ethic of realism.”³⁹ Chief among these filmmakers was William Wyler, and by Bazin’s estimation none of Wyler’s films captures this realist sensibility—in both form and content—better than *Best Years of Our Lives* (1946). A drama following the struggles of three WWII veterans adjusting to life at home, *Best Years* participates in the aesthetic of habitual gestures in its semi-biographical depiction of the real-life WWII veteran amputee Harold Russell. In paying close attention to Russell’s prostheses (what his character, Homer Parrish, refers to as his “hooks”) as he performs ordinary tasks with great dexterity, *Best Years* doesn’t simply instrumentalize Russell’s body in the service of its realist aesthetic, but actively reflects on cinema’s capacity to capture the ordinary ways—or in this case, extraordinary ways—his body moves.

In documenting the absolute particularity of Russell’s habitual ways of moving, such moments fully engage with the natural conditions of cinematographic inscription of bodily movement in order to invite a sympathy both with Russell’s character and his *being* expressed on screen. In this way, the film integrates the very fact of habitual bodily movement into the structure of its narrative investments. Put differently, *Best Years* creates the formal, narrative, and documentary conditions to make the cinematographic inscription of habitual gestures the very center of its aesthetic ambitions, raising important questions about the relationship between technique and habit and the experience of moving bodies on screen.

Best Years begins by explicitly introducing the central importance of Homer’s habitual gestures both to the plot of the film and to a certain documentary consciousness the film works to cultivate. On his way home from the war, Homer shares a plane ride with two other veterans, Al and Fred, who happen to be from the same town. After the three of them chat together casually about

³⁹ Andre Bazin, “William Wyler, or the Jansenist of Directing,” in Bert Cardullo, ed., *Bazin at Work: Major Essays & Reviews from the Forties & Fifties*, trans., Alain Piette (New York: Routledge, 1997), 6.

their time in the war, their expositional conversation is halted when Homer lights everyone's cigarette (Fig 2.2). The stillness and quietness of this moment—what amounts to about forty seconds of screen time in medium shot with just one cut and almost no dialogue—affords us the perceptual attention to watch closely, just as Al and Fred watch closely, as Homer performs the ordinary task. Each movement is precisely executed, methodical but natural, demonstrating a technical mastery at the same time as a comfortable familiarity. We first notice gestural idiosyncrasies necessitated by the shape and engineering of his prosthetic hooks. In order to accommodate the limitations of his prostheses, for example, Homer must pass the cigarette from his right hook to his left before lifting it to his mouth; and in striking the match, Homer doesn't keep the matchbox steady but whisks it in the opposite direction to gain the necessary friction. These ways of maneuvering may seem strange or sorely intricate, but such intricate steps aren't simply impediments to Homer's ability. Simply put, these habitual gestures constitute the *way* that Harold Russell's body moves. Immediately after lighting the cigarettes he jests "you oughta see me open a bottle of beer." Explaining that "the army taught me to use these things," Homer speaks proudly of relearning bodily habits that so often go unnoticed as mundane and ordinary: "I can dial telephones, I can drive a car. I can even put nickels in a jukebox."



Figure 2.2 Harold Russell lights his cigarette in *Best Years of our Lives* (Wyler, 1946)

What have we experienced in these forty seconds? Indeed, sequences such as this one, which single out Homer's bodily otherness and perhaps exploit the voyeurism of the cinematic apparatus, have raised questions of a clinical gaze.⁴⁰ The fascination evoked by Russell's movements in these sequences has been both critiqued by some critics denouncing the film's representation of disability and denied by others who try to redeem that representation.⁴¹ But to deny our fascination with Russell's gestures is to deny a fascination with a uniquely cinematic experience of bodily movement. Just as *Umberto D* created the spatiotemporal conditions for registering the gestural idiosyncrasies of Maria lighting a match, so too has *Best Years*. Though Wyler's film may be less aesthetically audacious

⁴⁰ See Kaja Silverman, *Male Subjectivity at the Margins* (New York: Routledge, 1992), 89-90.

⁴¹ For a more sympathetic, though still critical, reading of the film's representation of Harold Russell, see David Gerber, "Heroes and Misfits: The Troubled Social Reintegration of Disabled Veterans in 'The Best Years of Our Lives.'" *American Quarterly* 46, no. 4 (1994): 545-574.

in its narrative suspension, the reality effect produced by Russell's gestures may in fact be *more* palpable. For not only has Wyler created the conditions for isolating Russell's gestural precision in cinematic detail, documenting Russell's way of moving through the world. He also documents a history of how that way of moving came to be.

Specifically, the habitual movement on display here documents Russell's relearning of his bodily orientation toward the world, what neurophenomenologist Francisco Varela would call "the embodied history of the subject," a concept that is related to Mauss's "techniques of the body" but is distinct in its emphasis on articulating a structure of experience.⁴² For Varela, following Merleau-Ponty, our embodied orientation toward the world is partly constituted by a kind of gestural memory, an "embodied history" experienced as a range of abilities or "I can's." Our willed and intentional movement through the world, our gestural projects, are always underwritten by this history. Indeed, unfamiliar environments and new situations require spontaneous creativity, but this creativity remains a negotiation with the kinetic dispositions and ingrained gestural routines that constitute one's embodied history, or what I've been calling one's ways of moving.

Best Years gives aesthetic form to Russell's embodied history by integrating the relearning of his gestures into our narrative investment. That is to say, unlike *Umberto D*, *Best Years* is at least implicitly *about* Russell's habitual gestures; our investments in Homer Parish's successful homecoming are inextricably tied to Russell's everyday motor capabilities, that is, the development of his habituated *at-homeness*, in both the phenomenological and emotional senses of the term. Russell's embodied history isn't simply the traumatic rupture of his bodily habits through his injury—which, we imagine, might be the limits of signification of a still photograph of Russell—but is more so the relearning of his kinetic dispositions and gestural routines, a unique capacity of the

⁴² Francisco Varela, "The Reenchantment of the Concrete," in Jonathan Crary and Sanford Kwinter, eds., *Incorporations* (New York: Zone Books, 1992), 333.

perceptual and narrative possibilities of the photographic moving image. When Russell's character says "I can dial telephones, I can drive a car, I can even put nickels in a jukebox," the film integrates Russell's actual embodied history—his new range of "I cans"—into our narrative investment in Homer Parish.⁴³ In showing Russell performing such tasks in all their cinematographic detail, *Best Years* grants us a mode of attention to Russell's embodied history that is unique to both cinematic motion and cinematic storytelling.

Best Years shapes our attention to Russell's/Homer's embodied history through a number of cinematic strategies. Paramount here is the way the film juxtaposes Homer's ordinary gestures to the piano playing of his uncle Butch, played by the well-known American composer and pianist Hoagy Carmichael. Butch provokes an attention to habitual gesture that complements our attention to Homer performing ordinary tasks: though both actors play fictional roles, their profilmic demonstrations of masterful dexterity—put on display during their performance of a piano duet—testify to their real-life embodied histories and ways of moving.

In his essay on Wyler, Bazin singles out this duet scene for Wyler's distinctive ability to simultaneously represent two poles of action through his use of the long take, deep focus, and careful framing and staging. While Homer and Butch play a duet rendition of "Chopsticks" in the foreground, Fred phones his love interest in the far background, regrettably fulfilling his promise to her father and ending their relationship. In Bazin's analysis, the background (Fred on the telephone)

⁴³ If *Best Years* engages in the project of documenting Russell's habitual gestures, it's particularly apt that Wyler cast Russell as Homer only after seeing him demonstrate those gestures in *Diary of a Sergeant* (1945), a documentary produced by the American military to boost the morale of amputee veterans. The film tends to linger on Russell's prostheses as he practices using them. When Russell brushes his teeth, the task is broken down into minute, deliberate steps shown in close-up: Russell grasps the cap of the toothpaste tube and sets it down, pulls out a toothbrush from its holder with his left-hand prosthetic and hands it off to his right, then gently pushes down on the tube with his left-hand prosthetic as he catches the toothpaste on the brush with his right. Though Russell's voiceover narration rightly explains that he had to "learn [ordinary tasks] all over again," the footage of Russell performing these tasks shows us that it isn't just a manner of relearning, but of learning differently; these images inspire a self-reflexive fascination rather than render Russell an object of pity or wonder, for they make us aware of the complex operational techniques we perform every day.

is the primary location of our interest while the foreground (the piano duet) is merely “secondary, although interesting and peculiar enough to require our keen attention since it occupies a privileged place and surface on the screen.”⁴⁴ For Bazin, the duet functions somewhere between dramatic interest and pure spectacle: “the viewer cannot ignore it because he is also interested in the fate of the crippled sailor and because he doesn’t see someone play the piano with hooks every day.”⁴⁵ But what Bazin doesn’t mention is the sequence’s attention to the *perceptual* fact of human dexterity: the piano duet isn’t simply an amusing distractor that maintains a dynamic tension in the single shot, but a separate realm of realism altogether that links Butch’s piano-playing and Homer’s ordinary tasks through their virtuosic dexterity.

The connection between Homer and Butch is established in an earlier sequence, in which Butch softly plays piano while having a heartfelt conversation with Homer about his disability (Fig. 2.3). What’s crucial about this sequence is the way in which the dexterity and grace of Butch’s hands is juxtaposed with Homer’s anxiety about how people perceive his *lack* of hands. When Butch calls over Homer to the piano, Homer stands over Butch’s fingers and admires his playing. The framing allows us to see Butch’s hands in full view, but just as important is the *way* that he plays, or more particularly, the way Hoagy Carmichael plays. Carmichael’s playing style is marked by a sense of comfort and looseness. He has a distinctly *soft* touch, regardless of the tempo of the tune he’s playing. Everything about this sequence puts that softness on full display, as he plays slowly and sensuously, his fingers sinking into the keys. For example, when Butch pulls up a chair for Homer (a gesture as smooth and delicate as his piano-playing), the camera tracks in closer for a tighter framing, both providing a sense of privacy but also giving us a closer look at Butch’s hands. And by

⁴⁴ Bazin, “William Wyler,” 14.

⁴⁵ Bazin, “William Wyler,” 5.

avoiding eye contact and looking down at the piano keys, Homer both reveals his discomfort with the intimacy of Butch's questions and directs our gaze toward Butch's fingers. As Butch's soothing words console Homer's anxiety about his prostheses, his mesmerizing playing and fluent keystrokes embody the tenderness and sensitivity of his demeanor.



Figure 2.3 Harold Russell and Hoagy Carmichael in *Best Years of Our Lives*

Our appreciation of the gestural details of Carmichael's playing is inextricable from the virtuosity of the long-take aesthetic on display. Jean-Marie Straub comments on a similar phenomenon in his film *The Chronicle of Anna Magdalena Bach* (1968), which features extensive, uncut sequences of musical performances:

[The quality of chance] exists in every fraction of a second of the film, if only because every musician could make a mistake in every fraction of a second... The duration multiplies the quality of chance even more. It's a joke when some say it's a static shot, the camera doesn't move, nothing happens. There is more happening than in a pan, a car chase, or a pursuit. Every finger is moving, and one even senses the air, and besides, that is the essence of the cinematographer: They say when people saw *Le déjeuner de bébé* or *L'arroseur arrosé* by Lumière, they didn't cry out: Oh! bébé is moving, or l'arroseur is moving. They said, the leaves are moving in the trees. The bébé who moved they had

already seen in the magic lantern. What was new for them was precisely that the leaves were moving. The “leaves” in the Bach film are the fingers and hands of the musicians and the unbelievable gestures of Leonhardt.⁴⁶

Invoking the contingency of the “wind in the trees” caught on camera, Straub instead locates contingency in the movements of the body on screen. Just as the camera captures the details of the world’s complex movements—the openness and contingency of the fluttering leaves—it also captures the details of the human body on screen. The virtuosic dexterity of the piano player’s fingers registers an excess of visual information that hones our sensitivity to bodily movement unfolding in time: *every tiny movement* of the pianist’s fingers bears the pressure of a successfully executed note. In the case of the piano sequence in *Best Years*, Carmichael’s fingers register an excess of visual information that compels our close attention to the details of his gestures. The long take doesn’t only afford us the freedom to look around the screen, as in Bazin’s account, but gives us the time necessary to absorb the contingencies and idiosyncrasies of embodied performance.⁴⁷

Though Straub’s passage directly relates to our experience of Carmichael’s piano-playing, we can extend Straub’s logic to the cinematic experience of habitual gestures more generally. In this sense, Carmichael’s musical dexterity as bodily habit sharpens our sensitivity to the dexterity of Russell’s embodied movement: the “unbelievable gestures” Straub speaks of are as much Russell’s as Carmichael’s. This identification between Carmichael’s and Russell’s respective dexterities is made explicit as the scene unfolds. When Homer complains to Butch that the sight of his injuries makes people “conscious” of their own hands, we realize that Butch’s nimble fingers similarly makes us

⁴⁶ Jean-Marie Straub. “Gespräch mit Danièle Huillet und Jean-Marie Straub,” *Filmkritik* 10 (1968): 689-90; Meynell, *Little Chronicle*, 59.

⁴⁷ By reframing the concept of cinematic contingency (“the duration multiplies the quality of chance even more”), Straub discovers that defining cinematic “contingency” confronts a problem of scale. If we accept that the “wind in the trees” is an unplanned phenomenon captured by the undiscerning apparatus, to what extent are the micromovements of the fingers, the face, the body in general, “planned” movements? I explore the consequences of this observation in the conclusion of this dissertation.

“conscious” of the hands that Homer lacks. And yet, at the same time, our experience of Butch’s playing sharpens our sensitivity to the particularity of Homer’s embodied movements. Butch’s fingers serve as both a counterpoint *and* an analogy to Homer’s prostheses—they simultaneously show us what Homer *cannot* do as well as foreground the extraordinary dexterity required for the ordinary things he *can* do. These demonstrations of manual technique serve as autonomous aesthetic displays that evoke the psychological feelings accompanying Homer’s—and Harold Russell’s—postwar life as an amputee. The “reality” of Homer’s experience—that of having to relearn the subtle and elaborate gestures necessary to perform simple tasks, that of defamiliarizing the unconscious mechanisms of the body in order to build new habits—is transmitted into our experience of Butch’s piano playing.

The “Chopsticks” duet that follows, then, functions as the convergence between these two poles of dexterity, that is, between Homer’s defamiliarization of ordinary manual tasks and Butch’s nimble fingers playing the piano, both of which draw our attention to the non-narrative, profilmic gestures that testify to prolonged bodily training (Fig 2.4). Returning to Bazin’s reading of the scene, what we have in the background and foreground is not simply primary narrative interest versus secondary narrative interest but two distinct cinematic realisms. What differentiates them, in a sense, is the distinct temporality they possess. Fred’s phone call belongs solely to the temporality of the fictional world, unfolding in the diegetic present and projecting us into the future, while Homer and Butch’s piano-playing points us backward in time and beyond the diegesis. As we watch the performance unfold, we can’t help but imagine the “piano lessons” between Homer and Butch—and by extension, between Russell and Carmichael—that undoubtedly preceded this performance of skill. The diegetic past, profilmic past, and lived history prior to that past fuse together in these demonstrations of habituated dexterity. Our eyes gravitate toward the foreground not simply because, as Bazin suggests, we’ve “never seen somebody play the piano with hooks,” but because we

are emotionally and epistemologically invested in the lived experience that Homer's piano-playing reveals.



Figure 2.4 Deep-focus composition in *Best Years of Our Lives*

In making phenomenological claims on the bodies that have animated them, the habitual gestures in *Best Years* anticipate and extend the project of *Umberto D's* habitual gestures. Though *Best Years* risks the charge of making a spectacle of the ordinary, in taking such a risk it teaches us to heed the blurred line between ordinary routine and extraordinary technique. Both, it shows us, are habitual gestures at their core.⁴⁸ For while Maria making coffee seems a far cry from Carmichael's piano-playing, each set of gestures evidences the semi-autonomous unfolding of a body in its

⁴⁸ For more on the distinction and non-distinction between routine and technique, see Erin Manning, *The Minor Gesture* (Durham, NC: Duke University Press, 2016), 99.

environment, a “being” that precedes calculated acting. Though these movements are distinct, they testify to the same capacity of the body. What an aesthetic of habitual gestures offers, then, is an account of realist performance style not defined negatively *against* melodrama or expressionism, as that which is absent from drama as the “ordinary” or “everyday,” but defined as a positive revelation and distillation of a kind of movement generally overlooked in the body. Instead of simply signifying the absence of narrative signification, the aesthetic of habitual gestures yields a signification of a different sort: namely, the culturally and idiosyncratically specific markers of a body’s way of moving.

The Cultivation of Habit

What no human eye is capable of catching, no pencil, brush, pen or pinning down, your camera catches without knowing what it is, and pins it down with a machine’s scrupulous indifference.

Robert Bresson⁴⁹

If De Sica and Wyler make use of habitual gestures to manifest a documentary consciousness, Robert Bresson takes the possibilities of bodily habit to a different level, clearly indebted to the tenets of Neo-Realist performance but profoundly distinct from Bazin’s “being” on screen. Consider, for instance, a sequence in his *Mouchette* (1967) that bears a striking resemblance to Maria’s toiling in the kitchen in *Umberto D.*⁵⁰ A similarly troubled young girl buffeted on all sides (she bears the burden of an alcoholic father, a bedridden mother, and cruel schoolmates) engages in the same mundane chore of preparing coffee, presented step by step without ellipsis. The sequence’s isolation of habitual gestures clearly owes a debt to its predecessor, but it seems to take Bazin’s proclamation about Neo-Realist acting—that the actor’s being on screen comes before “expressing

⁴⁹ Bresson, *Notes on Cinematography*, 14.

⁵⁰ It’s important to mention a similar sequence in Chantal Akerman’s *Jeanne Dielman*, as the continuing lineage of coffee-making as an emblem of the ordinary, and of the habitual gesture, in cinematic realism.

himself”—a radical step further.⁵¹ For while the sequence in *Umberto D* is interspersed with quiet moments of blank-faced contemplation suffused with emotion by the accompaniment of expressive camera movements, a melancholy soundtrack, and the sudden appearance of tears, the companion sequence in *Mouchette* provides no such access to or legible appearance of interiority. Mouchette’s mind doesn’t wander; in fact, the contents of her mind seem nowhere to be found. Unlike the sequence in *Umberto D*, which includes shots devoted to Maria’s face, Mouchette’s face is barely shown, obscured by the frame or turned away from the camera, blocking access to her emotional subjectivity. Mouchette’s habitual gestures are simply shown for themselves. And yet, as a number of critics have suggested, we perceive in her habitual gestures a subtle feeling of *delight*.⁵² Somehow, despite the lack of non-diegetic music, expressive camera movement, or access to facial expression, the chore seems a brief respite from the misery and cruelty that inundates the film. How might Bresson, best known for his actors’ trademark asceticism and *lack* of expression, have achieved such an effect with nothing more than making coffee? What could it mean for such seemingly inexpressive habitual gestures to clearly express an interior state?

Answering such questions requires considering the deeply intertwined relationship between Bresson’s cinematic techniques, his theory of bodily expression on screen, and a philosophy of habitual gestures. Mouchette’s gestures in the kitchen are just one example of a range of habitual gestures throughout Bresson’s oeuvre, including handwriting in *Diary of a Country Priest* (1951), the nimble thefts in *Pickpocket* (1959), the dexterous craftsmanship in *A Man Escaped* (1957), and hands

⁵¹ Bazin, “De Sica,” 65.

⁵² For example, Marcia Garcia describes Mouchette as “delighting in the simple routine.” Marcia Garcia, *Cinematic Quests for Identity: The Hero’s Encounter with the Beast* (New York: Rowman & Littlefield, 2015), 229. Lindley Hanlon describes her as “enjoying the ratchety noise” of the coffee grinder as she spins it. Lindley Hanlon, “Sound as Symbol in *Mouchette*,” in James Quandt, ed., *Robert Bresson (Revised)* (Bloomington: Indiana University Press, 1998). And Jacques Ranciere speaks of the “freedom she at least has in her gestures.” Jacques Ranciere, *Intervals of Cinema*, trans. John Howe (New York: Verso Books, 2014),

exchanging banknotes in *L'Argent* (1983). Often isolated in close-up without cutting to the face,⁵³ such gestures exhibit a sense of bodily autonomy that, as is often argued, resists the articulation of character psychology and expression.⁵⁴ What's more, Bresson is known to have instructed his actors to repeat such movements over and over until they became "automatic," a practice to which many critics attribute the trademark expressionlessness of Bresson's actors.⁵⁵ Against such common readings, I argue that Bresson's cultivation of bodily habit is not simply a means of emptying out expression as such but a way of creating a different form of expressivity: in suppressing his actors' ability to *communicate* their expressions in a Stanislavskian sense of expressive-realist performance,⁵⁶ Bresson harnesses cinema's ability to *reveal* unintentional expressions through the detailed inscription of bodily movement. And what is so often revealed by the camera in Bresson's films is the virtuosity of habitual bodily movement cultivated through repetition, a kind of bodily expertise that by definition cannot be *acted* but only absorbed into the (actor's and character's) body as habit. In creating the conditions for making bodily habits both perceptible and, as I will show, diegetically significant, Bresson creates a realist mode of cinematic expression that acknowledges not only

⁵³ For an account that pays particular attention to Bresson's denial of the face, and how it relates to issues of expression, see Noa Steimatsky, *The Face in Film* (Oxford: Oxford University Press, 2017). Steimatsky's arguments regarding the question of Bresson's zero-degree of expression, and its relation to theories of signification, has deeply influenced the arguments that follow here. See also Noa Steimatsky, "Of the Face, In Reticence," in *Museum without Walls*, ed. Angela Dalle Vacche (New York: Palgrave Macmillan, 2012).

⁵⁴ This account of Bresson's style is well known and pervasive. Much of this can be traced back to Bazin's influential essay on Bresson. Andre Bazin, "*Le journal d'un cure de campagne* and the Stylistics of Robert Bresson," in *What is Cinema?: Volume 1*, trans. Hugu Gray (Berkeley: Univ. of California Press, 2005).

⁵⁵ Bresson, *Notes on Cinematography*, 12.

⁵⁶ I follow James Naremore's use of the phrase "Stanislavskian aesthetics" to mean, in the general sense, "an expressive-realist attitude that determines most of the films we see," and more specifically to indicate a performance style that includes "spontaneity, improvisation, and low-key psychological introspection." In this sense, when I identify Stanislavskian performance with a "communicative" mode of expression, this should *not* be taken to mean that meanings or interiorities are made legible through histrionic gestures; the term "communicative" is simply meant to indicate that interiorities are made legible through details of performance. James Naremore, *Acting in the Cinema* (Berkeley: University of California Press, 1988), 2.

cinema's capacity to capture the subtleties of bodily movement, but also the primacy of habit in bodily movement in general.

On first glance, it would appear that Bresson's practice of cultivating bodily habit is instrumentalized to eliminate any trace of what would ordinarily be identified as expression—bodies writhing in throes of inner turmoil, the contortions of anguished faces. In his *Notes on Cinematography*, Bresson writes that, by directing his actors to repeat gestures over and over, their gestures become habitual and automatic, marked by a lack of discernible emotion and legible motivation.⁵⁷ Just as repeating a word over and over can cause the word to become, however briefly, a meaningless material sound, Bresson suggests that the repetition of gestures distances the actor—or in Bresson's preferred term, the "model"—from the gesture's lived, psychological context. A gesture or action becomes a mere movement, a mechanical instruction rather than a familiar means of orienting one's body within their environment. According to this explanation, such a practice would prevent the model from mobilizing his intentions or thoughts in service of "acting," that is, actively pretending to embody a character embedded in a narrative situation. On this account, the cultivation of bodily habit through repetition is for Bresson a means of emptying the body of any legible trace of its interiority, i.e. of expression.

But a closer examination of both Bresson's own reflections on his practice and the films themselves reveals that the cultivation of habit does not simply have an inverse relationship to bodily expression.⁵⁸ Rather, the cultivation of bodily habit allows Bresson to reverse the hierarchy between the mind and the body. Instead of seeing the body as expressing the contents of the

⁵⁷ Bresson writes, "Models...become *automatic* (everything weighed, measured, time, repeated ten, twenty times) and are then dropped in the middle of the events of your film." Bresson, *Notes on Cinematography*, 12.

⁵⁸ Kent Jones similarly makes the argument that Bresson's models are not "inexpressive" as is often described. Kent Jones, "A Stranger's Posture: Notes on Bresson's Late Films, in *Bresson (Revised)* (Bloomington: Indiana University Press, 1998).

mind—as is consistent with a Stanislavskian acting technique, a marker of what Bresson calls the “cinema” as opposed to what he calls “cinematography”—Bresson uses the cultivation of bodily habit to alter the very conditions of expression. Expression is not eliminated; instead, *what* is being expressed by the body radically changes.

Such a reading rests on the fact that Bresson is not opposed to expression as such, but more precisely to the model of theatrical expression that *communicates* emotional content through legible codes of bodily movement and tone of voice. He writes, for example, that “To put sentiments on his face and into his gestures is the art of the actor, is theater. Not to put sentiments on his face and into his gestures is (still) not cinematography. Involuntarily expressive models (not willfully expressive ones).”⁵⁹ At the bottom of the notoriously “unexpressive” performances of Bresson’s models, then, at least in Bresson’s own words, is not the *lack* of expression but the suppression of willed or voluntary expression. The idea that the body expresses only what the mind intentionally means to express is a hallmark of what I’ll call a *communicative* model of expression (or what might alternatively be called a Cartesian model of expression), which presupposes a one-to-one correspondence between bodily movement and interior mental content (the feeling or idea being expressed). Under this model—manifestly dualist in its philosophical orientation—expressions are necessarily posited as willed or voluntary. The communicator is conceived as intentionally *deploying* the body to express a premeditated thought, wish, or desire.⁶⁰

⁵⁹ Bresson, *Notes on Cinematography*, 39.

⁶⁰ For more on the philosophical problems of a communicative model of expression, see Brian Massumi, “Introduction: Like a Thought,” *A Shock to Thought: Expression after Deleuze and Guattari* (New York: Routledge, 2002). Bazin also explicitly critiques a communicative model of expression in his writings on performance style in Italian Neo-Realism: “In the realm of means of expression, neorealism runs counter to the traditional categories of spectacle—above all, as regards acting. According to the classic understanding of this function, inherited from the theater, the actor expresses something: a feeling, a passion, a desire, an idea. From his attitude and his miming the spectator can read his face like an open book. In this perspective, it is agreed implicitly between spectator and actor that the same psychological causes produce the same physical effect and that one can without any ambiguity pass backwards and forwards from one to the other. This is, strictly speaking, what is called acting.” Bazin, “De Sica,” 65.

But what might it mean, then, for an actor to be “involuntarily expressive?” Here, a different model of expression should be adopted, one that is intimately bound up with the nature of habitual movement and the capacities of cinematographic inscription. Throughout *Notes*, Bresson suggests that there is another result of the practice of gestural automatism besides draining the actor’s discernible intention, will, and consciousness. While the technique indeed *suppresses* acting—and hence what might be called a discernible expressiveness—the resulting laconic and seemingly automatic movements of the actor’s body cause a commensurate *heightening* of the viewer’s attention to a different aspect of bodily movement. Without the conventionally emotive body guiding the viewer’s expectations of internally motivated bodily movement, the viewer’s attention becomes especially sensitive to bodily nuance: “Give more resemblance in order to obtain more difference. Uniform and unity of life bring out the nature and character of soldiers. Standing at attention, the immobility of them all shows up the individual signs of each.”⁶¹ What Bresson suggests here is a fundamental distinction between the actor’s suppression of expression and the camera’s natural ability—and hence the spectator’s ability—to *pick up* on expression. Quoting Montaigne, Bresson writes “*Every movement reveals us*’ [...] But it only reveals us if it is automatic (not commanded, not willed).”⁶²

Bresson’s line of reasoning suggests a philosophy of bodily expression uniquely suited to the unique capacities of cinematographic inscription.⁶³ Call it a *revelatory* model of expression as opposed to a communicative one. On such a model, the kind of movements best suited to demonstrate the capacity of cinematographic inscription are not gestures that willfully articulate emotional states or

⁶¹ Bresson, *Notes on Cinematography*, 37.

⁶² Bresson, *Notes on Cinematography*, 67.

⁶³ The discourse of cinema’s capacity for revealing bodily expression is most associated with the early film theory of Bela Balazs, who argued that techniques such as facial close-ups could allow the spectator to grasp the emotional or communicative content of the soul by amplifying subtle movements often overlooked in modern society.

thoughts but habitual gestures that suppress the mind's deliberation and thus open up the body to other zones of expression. As Richard Moran puts it, as if flowing directly from Bresson's own writing, "in the world captured by film, not only are the smallest human gestures amplified, but even silence and immobility are transformed into fields of expression."⁶⁴ He continues:

In this regard, we might say that what the camera discovers, or creates the occasion for, is that, just as the human body must be in some posture or other, either moving or at rest, and if moving then moving in a certain way, and if sitting down then sitting down in a certain way, whether slouching or sitting up, just so it reveals that any posture of the body is expressive of the person whose posture it is, and that in this way, one is indeed "incessantly giving oneself away" (*Claim of Reason*, 351). And hence from this it follows, if not logically, then cinematically, that for a simple activity such as *sitting in a chair or walking across a room*, there will be worlds of difference revealed by the camera, depending upon whether it is Buster Keaton sitting in a chair, or Marlon Brando walking down the waterfront docks, or Fred Astaire walking up a wall. What the camera may be said to reveal is that there is no "zero-degree" of bodily posture or movement, that one is always inhabiting one or another of the possibilities of this existentielle, and that any such possibility is itself irremediably specific and characterizing.⁶⁵

Though the body on screen is always revealing itself—one cannot turn off one's expressiveness—habitual gestures such as "sitting in a chair" or "walking across a room" have a special capacity to amplify that sense of irreducible, fundamental revelation for a viewer. Such an amplification is not a matter of spatial or temporal magnification (as with the revelationist rhetoric attached to the close-up and slow motion), but is a function of cinema's framed perception of the world in motion—its non-conscious registration of spatiotemporal details unfolding in a world phenomenologically separated from its viewers. These little details—what Stanley Cavell calls the "most apparently insignificant repetitions, turnings, pauses, and yieldings of human beings"—are "as interesting to [the film camera] as is the beauty or the science of movement."⁶⁶ This is precisely because, for Cavell, as for Moran and Bresson, "under examination by the camera, a human body becomes for its

⁶⁴ Richard Moran, "Stanley Cavell on Recognition, Betrayal, and the Photographic Field of Expression." *The Harvard Review of Philosophy* 23 (2016): 29-40, 30.

⁶⁵ Moran, "Photographic Field," 37-38, emphasis mine.

⁶⁶ Stanley Cavell, "What Photography Calls Thinking," in William Rothman, ed., *Cavell on Film* (New York: SUNY Press, 2005), 126.

inhabitant a field of betrayal more than a ground of communication.”⁶⁷ The moving body on screen thus illustrates a point central to Merleau-Ponty’s nondualist account of bodily expression, namely that “Because we are in the world, we are *condemned to meaning*.”⁶⁸ Whether intentionally or unintentionally produced, bodily movements cannot be considered apart from one’s recognizable ways of moving, one’s cultural habits, one’s mood and affect, and one’s continuous coping with the shifting environment saturated with other meaning-making beings. When the details of this bodily movement are indiscriminately recorded by the camera, the most relatively inexpressive, static, or habitual movements can take on a form of expressiveness rarely *noticed* in everyday life, but which is always irrevocably *there* in everyday life, fully present on the surface of every moving body.

The trademark “inexpressiveness” of Bresson’s actors and the automaticity of their gestures, then, function as a limit case for illustrating this special convergence between the expressiveness of the human body and camera’s ability to pick up that expressiveness. Cinematographic inscription’s natural capacity for registering and displaying “every movement” of the body thereby becomes its capacity to render the uncommunicative body a field of expression. Communicative expressiveness—what Bresson calls “acting” and which he consigns to the domain of the theater—demands a form of attention incommensurate with the cinema’s capacity to capture the granular elements of bodily movement. But when bodily movement on screen is turned inward, absorbed in its projects through the cultivation of habitual gestures, the viewer’s attention becomes receptive to subtler movements and thus subtler modes of expression. Under the right set of aesthetic conditions, those subtle movements can take on a profound salience and significance, either as

⁶⁷ Cavell, “What Photography Calls Thinking,” 126.

⁶⁸ Merleau-Ponty, *Phenomenology of Perception*, xxii.

emblems of “being” on screen as we saw in De Sica and Wyler, or as we’ll see in Bresson’s case, as something else entirely.

Turning back to the coffee-making sequence in *Mouchette*, we can see how Bresson’s cultivation of bodily habit opens up fields of bodily expression and modes of attention commensurate with that expression. As stated earlier, the mystery of this sequence lies in how it offers the viewer none of the visual markers of emotional expression and yet evinces a sense of Mouchette’s delight. Instead of *communicating* delight through codified signs of bodily performance such as a smile or lilting gait—as one would, Bresson would say, in the theater or in classical cinema—Mouchette (or we might equally say, the actress Nadine Nortier) registers a feeling of delight through the discernible satisfaction in her bodily expertise. These rehearsed gestures are not deployed in the service of communicating such a delight, nor do the cinematic supplements of non-diegetic music or camera movement superimpose emotion onto the movement of the body. Rather, such a delight is revealed through the details of bodily virtuosity registered by the camera. This is an effect that indeed owes itself to Bresson’s stated practice of having his models repeat gestures over and over, absorbing new habits into muscle memory, but we need not rely on Bresson’s testimony to perceive how Nortier’s gestures have been absorbed as bodily habits. The formal details of the entire sequence, not only including Nortier’s performance style but its editing, framing, and its placement within the film’s narrative structure, all shape our attention to see what cinematographic recording naturally reveals.

What is first noticed in the sequence is that Mouchette’s movements exhibit a sense of confidence and familiarity manifested through a seamless flow from one step to another. When cranking the coffee grinder as she holds it in place with her foot (an unusual technique seemingly designed to maximize leverage on her small frame), she adds a dash of speed to the last few rotations, a small but measured modulation that indicates a knowing familiarity. And in what may be

the sequence's most virtuosic movement, Mouchette fills the four bowls in one single swooping pour without hesitation, demonstrably confident that the angle and trajectory of her arm exactly follows the curve of the bowls to avoid spillage (Fig. 2.5). To accentuate her sureness and ease, the camera echoes this smooth gesture with a corresponding sweep to the right, as if the camera was suddenly brought to attention by the force and confidence of this culminating gesture. The camera's movement here does not editorialize as does the slow track-in on Maria's contemplative face in *Umberto D*, but focalizes attention to the particularity of Mouchette's movements by mimicking their trajectories. Indeed, while we may grant Bresson his own preferred term for the quality of this movement—“automatic”—in that Mouchette's body registers a kind of immediate and undeliberate familiarity, her actions couldn't be less *mechanical*. Mouchette's bodily movements are automatic only in the way that a runner's well-practiced strides are; their automaticity is resolutely organic, evoking a sense of effortlessness achieved by years of practice but are still discernibly *exerted*. The terms “automaticity” and “habit” simply constitute the vocabulary of bodily intelligence understood as an array of kinesthetic possibilities cultivated through experience and repetition.



Figure 2.5 Mouchette pours coffee in *Mouchette*.

Mouchette's self-assurance is also compounded by a subtle playfulness. Not only is Mouchette humming from beginning to end, but she adds small ludic flourishes throughout her task. As she approaches the stove with the drawer full of coffee grounds in hand, she twirls the grinder by its crank, finding a brief moment of play in between the steps of her task. And instead of placing the metal top onto the pot, she casually flips it into place—a hole in one (Fig. 2.6). This sporting gesture, repeated later in the film when she tosses a sponge into the sink after washing dishes at the local bar, illustrates the bodily memory and habit necessarily cultivated to execute it successfully.⁶⁹ It doesn't only *signify* playfulness as a gesture likely scripted by Bresson, but testifies to a cultivated bodily possibility, an "I can" that the camera captures. This kind of play is not marked by spontaneity, aimlessness, or diversion. Play here does not oppose work in the conventional sense, but complements it, functioning as a means of indulging in the virtuosity of Mouchette's bodily intelligence without digressing from the task at hand. In this way, it's telling that Mouchette's twirling of the crank mimics the gesture required for grinding, as if to perpetuate the well-practiced rotation of her forearm, and that the toss of the top accomplishes a necessary function of the task while playfully testing the precision of her muscle memory. Such details are made both visible and significant by the aggregate of Mouchette's bodily habits, Bresson's placement of the camera, and most importantly, the camera's own capacity to indiscriminately capture those very details. For it is the combination of Bresson's aesthetic control of the image (including Nortier's movements) and, even more significantly, what he *cannot* control (the movements *within* those movements) that amplifies the almost undetectable extraordinariness of this most ordinary of tasks.

⁶⁹ This gesture begs comparison to Maria's closing the door with her foot in *Umberto D.* Both gestures are self-imposed tests of bodily knowledge. But Mouchette's gesture is seamlessly integrated into her task, and thus serves to intensify her sense of mastery over her task. Maria's gesture, by contrast, is isolated as a solitary moment of engaging with her bodily capacities and, what's more, is something that Maria struggles to do. We focus on the stretch of her leg, not its contact with the door.



Figure 2.6 Mouchette tosses the metal top in *Mouchette*

As a result, Mouchette's routine, in Jacques Ranciere's words, is rendered "a pure exercise in virtuosity" that manifests a feeling of "freedom," or in Lindley Hanlon's words, an indication of Mouchette's "amazing spirit amidst such hardship."⁷⁰ Mouchette's habitual gestures, then, are rightly described as an "expression," a way of showing or revealing an interior state that matters deeply to the diegetic world of the film and the lives of its inhabitants, though none of these aspects of Mouchette's movements are "expressive" in the conventional sense. This is the case not simply because the manual techniques required for making coffee are not communicative gestures, but also because they do not carry with them an inherent or necessary communicative valence. One could imagine, for example, an actress performing these same actions but with a rhythmic vivacity that superimposes the feeling of delight onto her gestures. Equally so, an actress could move with stooped shoulders and a lowered head to evince a sense of weariness brought on by the routine's mundanity. Even Maria in *Umberto D*, despite being celebrated for her anti-expressionist

⁷⁰ Jacques Ranciere, *Intervals of Cinema*, trans. John Howe (New York: Verso Books, 2014), 64. Lindley Hanlon, "Sound as Symbol in *Mouchette*," in James Quandt, ed., *Robert Bresson (Revised)* (Bloomington: Indiana University Press, 1998), 313.

performance style, helps foster the elegiac tone of the kitchen sequence by moving around the kitchen with a discernible lethargy. Mouchette, however, does not “act” or communicate a sense of ease and delight—that is, translates an emotional state into legible bodily movements. Rather, her interior state is revealed through the details that evince the virtuosity of her practiced movements. The playfulness, confidence, and familiar ease perceived in Mouchette’s ordinary task are qualities that stem directly from Nadine Nortier’s cultivation of bodily habit through repetition. These qualities cannot be “acted” any more than the successful riding of a bicycle can be feigned. In Bresson’s words, the cultivation of habit makes “[the model’s] relations with the objects and persons around them *right*, because they will not be *thought*.”⁷¹ Regardless of the fictional context in which they are embedded, habitual gestures always transcend pretense; they “become one with [their] models” because they *belong* to the body.⁷² But instead of simply employing the habitual gesture to produce a sense of documentary realism, Bresson creates the precise fictional context for bodily habit to acquire narrative significance beyond a documentation of the actor’s “being.” In this way, Nortier’s documented virtuosity simply *is* Mouchette’s respite from hardship and misery. Nortier’s absorption in bodily movement, a self-effacing indulgence in bodily habit that is documented and made visible by the camera, becomes Mouchette’s brief release from the burden of consciousness.⁷³

⁷¹ Bresson, *Notes on Cinematography*, 12.

⁷² Bresson, *Notes on Cinematography*, 18.

⁷³ Mouchette’s absorption in her movement recalls Michael Fried’s readings of figures engaged in reading, praying, and working from eighteenth century French painting to contemporary photography. Fried argues that the emerging pictorial representation of the engagement in such activities signals a radical shift from a “theatrical” mode of spectatorship to an “absorptive” mode, which works to “establish the fiction that no one is standing before the canvas.” Michael Fried, *Absorption and Theatricality: Painting and Beholder in the Age of Diderot* (Berkeley: Univ. of California Press, 1980), 108. Though incorporating Bresson’s habitual gestures into Fried’s ambitious theory of the developing reflexivity of Western art doesn’t aid our understanding of Bresson, it is perhaps telling that Fried’s more recent foray into the “absorptive” moving image devotes significant attention to habitual gestures and bodily virtuosity. In a reading of Gordon and Parreno’s *Zidane: 21st Century Portrait*, Fried draws a connection between the habitual gestures therein and Robert Bresson: “We are...given repeated shots of his legs and feet, including close-ups that reveal him scuffing the toes of his cleats against the turf as he walks along – why does he do that? His gait becomes intimately familiar to us by the end of

This narratively motivated absorption in the movement of the body is found throughout Bresson's mature work. Susan Sontag calls this absorptive mode activated by bodily movement a "project" through which Bresson's protagonists escape the burden of consciousness:

Large sections of *Un condamné à mort s'est échappé* and *Pickpocket* are wordless; they are about the beauties of personality effaced by a project. The face is very quiet, while other parts of the body, represented as humble servants of projects, become expressive, transfigured. One remembers Therese kissing the white feet of the dead Anne Marie at the end of *Les Anges du péché*, the bare feet of the monks filing down the stone corridor in the opening sequence of *Procès de Jeanne d'Arc*. One remembers Fontaine's large graceful hands at their endless labours in *Un condamné à mort s'est échappé*, the ballet of agile thieving hands in *Pickpocket*. Through the "project"—exactly contrary to "imagination"—one overcomes the gravity that weighs down the spirit.⁷⁴

As Sontag suggests, it is by the grace of habitual movement that Bresson's heroes overcome, however briefly, the gravity of the spirit. While absorbed in their bodily movement, much like Mouchette's absorption in the routine of making coffee, Bresson's heroes enjoy a respite from their own subjectivity. This is nowhere more apparent than in *A Man Escaped* and *Pickpocket*. In each film, Bresson's practice of closely framing the intricate gestures of hands as they perform highly elaborate maneuvers bespeaks the mind's blissful detachment from the body. In Mirella Jona Affron's words, the protagonists in both films "are shown exercising their craft with patience and rigour...until dexterity becomes automatism, and automatism gives way to grace."⁷⁵ For both Michel and Fontaine, their practiced manual labors function as kinetic projects in which they lose themselves and thus overcome their conditions, however momentarily. Bresson's camera, by focusing on hands while avoiding the face, acknowledges their habitual nature, their autonomy from the deliberation of the mind. Watching Fontaine's hands guide the spoon seamlessly through the grooves of the door

the film (Somewhere in the neighborhood is Robert Bresson's magnificent *Au Hasard, Balthazar*)." Michael Fried, "Douglas Gordon and Philippe Parreno's *Zidane*," in *Douglas Gordon: Superhumanatural*, (Die Keure: Belgium, 2006), 106.

⁷⁴ Susan Sontag, "Spiritual Style in the Films of Robert Bresson," in James Quandt, ed., *Robert Bresson (Revised)* (Bloomington: Indiana University Press, 1998), 66.

⁷⁵ Mirella Jona Affron, "Bresson and Pascal: Rhetorical Affinities," in James Quandt, ed., *Robert Bresson (Revised)* (Bloomington: Indiana University Press, 1998), 176.

that confines him or almost imperceptibly remove a safety pin from a piece of paper and then direct the pin into a lock slot in one uninterrupted gesture, we are confronted with a display of bodily habit whose virtuosity testifies to Fontaine's unreflective absorption in the movements themselves.⁷⁶ Indeed, as Fontaine remarks in voice-over, it is daily manual labors such as these that "[prevent] him from thinking." In *Pickpocket*, the balletic intricacy of Michel's gestures equally testifies to a kind of unthinking pleasure that exists independently of the crimes those gestures enact. Despite the disparate purposes such gestures are put toward—Mouchette's coffee-making is an ordinary routine, Michel's pickpocketing a criminal compulsion, Fontaine's handiwork a means of escape—each example documents the virtuosity of bodily habit that constitutes the character's absorption. The graceful movements of Michel's gestures transcend the nefariousness of their purpose just as the swift confidence of Mouchette's gestures transcend the baseness and ordinariness of their material conditions. Indeed, Michel "steals" and Mouchette "makes coffee," but the visible gestures and subtle movements that make up these actions convey an expression that has little to do with the personal motivations of these actions. Instead of using the bodies of his actors as the vehicles of expression, Bresson creates the conditions of narrative and performance style to give expressive form to the virtuosity of the body.

If the habitual gestures of Bresson's actors can be called "expressive," what they express is not a communicable feeling or idea delivered from the mind to the movements of the body, but rather, paradoxically, the very absence of communication, a state of absorption in movement itself.

⁷⁶ Indeed, as Brian Price suggests, it is hard to deny that this cinematographic technique forsakes character psychology or character-oriented identification for a more somatic relation to the image. But it is not quite the case that "we are meant to see these hands as if they were our own." Brian Price, *Neither God nor Master: Robert Bresson and Radical Politics* (Minneapolis: U of Minnesota Press, 2011), 28. Despite the kinesthetic response provoked by such images, the precision of bodily idiosyncrasy and virtuosity on display as well as the use of gestural camera movement has a tendency to maintain a subject-object distinction between our bodies as spectators and the bodies on screen. Such shots do not allow us to "learn how he did it," as Price contends, but more so show us that "learning" such masterful gestures could not be accomplished by seeing but only by doing. Price, *Neither God nor Master*, 28. One cannot imitate such movements, or as Bresson might put it, *think* them, but only embody them as habits.

Unlike language or communicated gestures, habitual gestures do not *represent* an interior state of affairs; they do not *articulate*. In Bresson's words, habitual gestures are "right" because they are beyond the spectrum of communication and representation, the realm of truth and falsity. They are "right" to the extent to which they flow from the body's muscular abilities and their spontaneous coping with the environment. Bresson's trademark control of his actors is not an absolute suppression of expression, but a means of suppressing the traces of a willed, communicative expression in order to make visible the *ableness* or *habitualness* of habitual movement. Bresson's cultivation of bodily habit only places formal control in the service of revealing a document of bodily virtuosity uniquely visible in cinematographic recording. The popular critical view of Bresson as an extreme "formalist," then, a filmmaker understood to control every aspect of his films—not only narrative, editing, and pacing, but more radically, the words and gestures of his actors—often obscures this medium-specific corollary of his direction of actors. His technique is equally formalist and realist, using the utmost design and control by the filmmaker to make visible the autonomy of bodily movement that underlies the artifice of performance. Bresson writes, "Mark out clearly the limits within which you seek to let yourself be surprised by your model. Infinite surprises within a finite frame."⁷⁷ Such "surprises" are not quantifiable improvisations, the way we might expect John Cassavetes or Jacques Rivette to foster the conditions to be "surprised" by the movements of their actors. Rather, being "surprised" by the body on screen (as Bresson puts it here) is a way of seeing the inscription of bodily movement that is amplified by the suppression of acting. No matter how much the actor's movement is directed, how precise Bresson's instructions or how initially unnatural the instructed movement feels to the actor, upon repetition the gesture takes on its own idiosyncrasy by becoming one with the actor's body. While gestures can be instructed or diagrammed—i.e. they

⁷⁷ Bresson, *Notes on Cinematography*, 53.

can be conceived as abstractions—the bodily habits that result from repetition achieve an idiosyncrasy as singular as the model who performs them and a contingency as singular as the moment of recording. It is this singularity of habitual movement—a bodily possibility rather than an abstract set of motor instructions—that the camera cannot fail to capture, and that Bresson compels us to notice.

It is in this sense that Bresson’s approach to habitual bodily movement resonates, however counterintuitively, with De Sica and Wyler’s practice of accessing an actor’s “being on screen.” Despite the aim of denaturalizing the gesture through repetition, the virtuosity that results is uniquely and discernibly incorporated into the actor’s body. Where Bresson’s practice diverges from his forebears is in the kind of realism he extracts from bodily habit. Instead of placing a trust in the camera’s ability to capture the actor’s being on screen—that is, by capturing a lifetime of the actor’s ways of moving or by fostering a fictional imagination of the character’s lifetime of bodily habits—Bresson harnesses a deeper, more primordial or even biological aspect of bodily habit. He documents not the culturally or historically inscribed ways of moving that precede a fictional context, but provokes the body’s natural capacity to create *new* possibilities of movement, to create new habits. It should come as no surprise, then, that Bresson’s directorial commitment to the cultivation of habit is grounded in a conviction about the primacy of habit in all bodily movement:

Nine-tenths of our movements obey habit and automatism. It is anti-nature to subordinate them to will and to thought. I think that most of our gestures, and even our words, are automatic. If your hand is on your knee, you didn’t put it there; it put itself there. Montaigne wrote a wonderful chapter on this subject, about how our hands go where we don’t tell them to go. Our hands are autonomous, you see. Our gestures, our limbs, themselves are autonomous; they’re not under our command. That’s the cinema as well, or what I conceive of as acting that’s suited to the cinema. What filmic acting is *not* is thinking out a gesture, thinking out words. In reality, we don’t think of what we’re going to say; the words come even as we think, and perhaps they even make us think. Looked at this way, theater acting is unrealistic and unnatural. What I attempt with my films is to touch on what’s real about human speech, behavior, action.⁷⁸

⁷⁸ Bret Cardullo, “Spirituality as Style: Robert Bresson in Conversation (June 2, 1983, part 2),” in Bret Cardullo, ed., *The Films of Robert Bresson: A Casebook* (New York: Anthem Press, 2009), 212. Bresson’s views on language here closely mirror those of Merleau-Ponty, especially as they are articulated in the chapter “The Body as Expression, and Speech” from *Phenomenology of Perception* and his essay “Indirect Language and the Voices of Silence.” See Maurice Merleau-Ponty,

Insofar as it “touches on what’s *real* about human speech, behavior, action,” the cultivation of bodily habit is not simply a radically modernist break with tradition, but a form of realism unto itself. Its realism derives from a radical acknowledgment of a condition of human behavior rather than a superficial imitation of it. The cultivation of habit, then, to borrow a phrase from Raymond Durgnat, makes Bresson “the strictest of the neo-realists,” for he takes the promise of the non-actor’s naturalism to its greatest extreme, replacing the actor’s techniques of dissemblance with the techniques of the habitual body.⁷⁹ What Bresson discovers is that the actor stripped of his ability to act is not simply a degree-zero of expressionless “being” but a plenitude of bodily possibilities, habitual “I cans” that, when captured on film, express the mind’s absorption in its own bodily movement. Bresson’s practice of cultivating habits, then, acknowledges the natural capacity of the cinematographic medium to capture precisely the quality of the body’s non-conscious aspects of movement—its automatic variations and copings with the environment, its gestural virtuosity—in all its detail.

Capturing the In-Between

[The] more often we interrupt someone in process of action, the more gestures we obtain.

—Walter Benjamin⁸⁰

“Indirect Language and the Voices of Silence,” in Maurice Merleau-Ponty and Michael B. Smith, *The Merleau-Ponty Aesthetics Reader: Philosophy and Painting* (Evanston: Northwestern University Press, 1993), 76-84. The crux of Merleau-Ponty’s theory of language is that it stems from his theory of gesture, rather than vice-versa. Spoken words are not externalizations of inner representations of thought, but rather “the body converts a certain motor essence into vocal form.” It is for this reason that, in a phrase nearly indistinguishable from Bresson’s, Merleau-Ponty writes that “The orator does not think before speaking, nor even while speaking [...] his speech is his thought.” Merleau-Ponty, *Phenomenology of Perception*, 209.

⁷⁹ Raymond Durgnat, “The Negative Vision of Robert Bresson,” in *Robert Bresson (Revised)* (Bloomington: Indiana University Press, 1998), 424.

⁸⁰ Walter Benjamin, *Understanding Brecht*, trans. Anna Bostock (London: NLB, 1977), 20.

As I've argued in the previous three sections, De Sica, Wyler, and Bresson make aesthetic use of cinema's indiscriminate and detailed capture of movement in order to reveal the autonomy of bodily movement that lies beneath the artifice of performance. In all three cases, the realist aesthetic of habitual gestures derives from a set of practices that make visible cinema's capacity to record the movements between and within willed actions. In this final section, I more fully investigate the technological and film theoretical dimensions of this cinematic capacity. To do so, I open up the category of habitual gestures beyond the ambitions of postwar realism to a set of contemporary avant-garde films that forsake narrative aims for medium-specific reflexivity, particularly with regard to the cinema's detailed inscription of bodily movement. Specifically, I examine the first three found-footage works by Viennese experimental filmmaker Martin Arnold, films that halt, repeat, and reverse small intervals of human movement in classical Hollywood films, the very kinds of films that typically suppress attention to the cinematographic excesses that lie outside narrative signification. Foregrounding the non-signifying micro-intervals of recorded motion that lie between narratively significant actions, Arnold's films make radically visible the condition of cinematographic inscription to capture and display the non-voluntary habitualness of *all* bodily movement.

In the introduction to this chapter, I invoked the reactions of early film spectators who often conveyed their astonishment at cinema's inscription of bodily movement by quantifying the micromovements of bodies, articulating the "Six hundred different phases of a kiss" in *The May Irwin Kiss* and "every little movement, every twitch" of *Workers Leaving a Factory*. Here I want to speculate about the epistemological effects such reactions might suggest. If at first cinema spectators and theorists might be astonished by cinema's representational capacity to capture these tiny movements, what might happen if they began to conceive of their *own* bodies as made up of "hundreds" or "thousands" of little movements? What would it feel like to suddenly be aware of the tiny variations that make us walk in an exceedingly particular way, or the thousand flickers of facial movement that

communicate a surprised expression? When Vachel Lindsay writes that “people [on film] become dolls and mechanisms,” and when Jean Epstein writes that “the screen deals mercilessly with the least forced gestures” and “the gestures which work best on screen are *nervous* gestures,” might they be testifying to a way of seeing the non-volitional aspects of bodily movement uniquely accessible in the moving image?⁸¹ The detail, excess, and contingency of cinematographic motion are not simply attractions of the medium, but grounds for changing our experience of our own bodies. If our ordinary sense of agency, control, and consciousness derives in large part from the experience of the self-movement of our bodies, what would it mean to see the tiniest twitches and flickers of our body’s movement that we could not have possibly intended or been aware of?

It is these very aspects of cinema’s inscription of bodily movement that Arnold’s found-footage films make visible. In *pièce touchée* (1989), *passage à l’acte* (1993), and *Alone. Life Wastes Andy Hardy* (1998), Arnold reworks short segments from classical Hollywood films, halting, repeating, and reversing the tiniest intervals of film until characters become jittery automata, their once legible gestures rendered unrecognizable. Often working with only seconds of footage of dramatically insignificant moments (*pièce touchée*, for example, expands 18 seconds of a husband coming home and kissing his wife to over 15 minutes), Arnold’s temporal manipulations dwell on the interstitial movements that constitute gestures like walking, reaching, and pointing; sitting, hugging, and kissing; opening a door, turning one’s head, and flipping a switch. Originally woven into the fabric of narrative action, these gestures—and more precisely, the infinitely minute movements that constitute them—become the very subjects of Arnold’s films.⁸² As a result, Arnold is able to manufacture an

⁸¹ Vachel Lindsay, *Art of the Moving Picture* (New York: The Macmillan Company, 1922), 25. Jean Epstein, “Magnification,” in Richard Abel, ed., *French Film Theory and Criticism: A History/Anthology, Volume 1: 1907-1929* (Princeton: Princeton University Press, 1988), 238, my emphasis.

⁸² Similar aesthetic strategies and effects can be found in Ken Jacob’s *Tom Tom the Piper’s Son* (1969), Hollis Frampton’s *Critical Mass* (1971), Jean-Luc Godard’s *Histoire(s) du Cinema* (1988), Matthis Muller’s *Home Stories* (1990), and Christian Marclay’s *Telephone* (1995).

aesthetics of habitual gestures that, instead of working in the service of a reality effect, reflects on the medium's capacity to reveal the habitual aspects of bodily movement.

Consider a simple action during the breakfast table sequence from *To Kill a Mockingbird* that Arnold appropriates in *passage à l'acte*: reproaching his son for misbehaving, Gregory Peck (as Atticus Finch) stretches out his hand, points to the chair at the dining table, and tells his son to “sit right down.” By repeating and reversing short clusters of frames, Arnold extends this gesture to a duration of roughly one minute and forty seconds, rendering Peck's momentary gesture and utterance an assemblage of stuttering movements and sounds. As we inch across this gesture in time, we explore not the finite static frames that comprise it, but the seemingly infinite combination of tiny movement intervals that *could be seen to* comprise it. Despite the claims of a number of critics, Arnold's films do not simply “remind the viewer of the discontinuity of individual frames that underlies all cinema.”⁸³ Unlike, for example, Douglas Gordon's *24 Hour Psycho*, which breaks the illusion of cinematographic motion in Hitchcock's 109-minute film by prolonging each frame to fit a 24-hour runtime, Arnold compulsively finds and displays the *movements* within gestures. What Arnold ruptures is not the illusion of cinematographic motion, but the seamless representation of actions. Peck's simple action of pointing to the chair becomes a seemingly improvised cluster of looping twitches, flexes, and jabs, temporal segments that help us see Peck's unremarkable “action” as *this* action at *this* moment executed in just *this* way.⁸⁴ We can't help but notice, for example, that Peck

⁸³ Erika Balsom, “The Films of Peter Tscherkassky, Martin Arnold, and Gustav Deutsch,” in Peter Tscherkassky and Eva Heller, eds. *Film Unframed: A History of Austrian Avant-Garde Cinema* (Vienna: SYNEMA-Gesellschaft für Film und Media, 2012), 271.

⁸⁴ This is not to say that some of Arnold's editing patterns do not carry clear and deliberate stylistic agendas. In *Alone. Life Wastes Andy Hardy*, an innocent kiss on the cheek that Andy gives his mother is transformed into a prolonged erotic caress, suggesting an Oedipal undercurrent in the wholesome Hardy family. Indeed, much scholarship on Arnold, and even Arnold's own commentary on his work, invokes a Freudian impulse to reveal the hidden “unconscious” of Hollywood cinema, as if the films were bastions of unexpressed desires undergoing psychoanalysis to bring them to the surface (see Balsom). But even as Arnold *actively* constructs new expressions out of seemingly neutral gestures, his artistic process still ultimately acknowledges what cinematography *passively* reveals in its indiscriminate recording of moving

rotates his head towards the chair in the exact same stretch of time that it takes him to extend his forearm, and that as he points toward the chair he rapidly bounces his wrist three times. We are not just shown but made to see the movements within gestures and actions.

What is visible in these micro-intervals are all the non-signifying segments of recorded motion that comprise comprehensible actions and their corresponding intentions. This is something that cinematography naturally does but that Arnold makes us see. Narratively significant “actions,” the products of rational, deliberate, and reflective thought deploying its will through the body, give way to non-conscious embodied movements. This effect is diametrically opposed to Merleau-Ponty’s remarks about the effects of seeing the moving body in slow motion. Watching Henri Matisse paint in slow motion in the 1946 documentary *Henri Matisse*, Merleau-Ponty notes that Matisse’s gestures take on the appearance of deliberation, choice, and analytic reflection: “the [slow motion] camera gives us a fascinating version of the event only by making us believe that the painter’s hand operated in the physical world where an infinity of options is possible [...] That same brush that, seen with the naked eye, leaped from one act to another, was seen to meditate in a solemn, expanded time.”⁸⁵ If slow motion might be said to manufacture a false appearance of mindfulness in bodily movement, bestowing an apparent deliberateness to Matisse’s nonconscious gestural choices, the stuttering repetitions and reversals of Peck’s gesture make its nonconscious aspects radically visible. In contradistinction to slow motion, Arnold’s manipulations halt the flow of comprehensible actions but maintain the speed and vitality of lived bodily movement. Watching Peck’s gestures broken apart, neither frozen into evenly analyzable units nor slowed to emulate the

bodies. Meanings can be found inside these bodily movements because what a body expresses is not an absolute, translatable *content* isomorphic with some intentional communication.

⁸⁵ Maurice Merleau-Ponty, “Eye and Mind,” in Maurice Merleau-Ponty and Michael B. Smith, *The Merleau-Ponty Aesthetics Reader: Philosophy and Painting* (Evanston: Northwestern University Press, 1993), 83.

temporality of cognitive reflection, we come to discover that it is a poor question to ask whether each individual bounce of his wrist in pointing to the chair is an “intended” or “voluntary” gesture.

In making each seemingly insignificant bounce of the wrist its own cinematic event, Arnold gives visual form to the fact that cinematographic recording in itself does not distinguish between actions and the movements that comprise them. Each individual bounce of the wrist—i.e. that which is overlooked in the action we might call “Atticus instructs his son to sit down”—is crucial to the *thisness* of Atticus’s action regardless of whether we could possibly detect intention or consciousness in each micro-gesture. Each bounce, then, is neither fully voluntary nor involuntary in the way that *all* gestures are as movements of the body. Indeed, Arnold’s manipulation of Peck’s movements causes them to lose their affect and tone. What’s lost is the slight mitigation of sternness that each bounce of the wrist lends to Atticus’s disciplining, for each successive bounce softens Atticus’s instruction from a rigid command to a gentle reminder. But what’s gained is a refreshed awareness that each of these bounces matters to create this quality. As lived movements captured in time, these gestures can only be understood as *non-voluntary*, bound up in a network of unconscious muscular habit and spontaneous coping with the changing environment.

In giving visual form to cinematography’s capture of the non-voluntariness of bodily movement, Arnold’s films reveal that it is not as simple as it seems to distinguish between planned and unplanned, intended and unintended, or acted and spontaneous behaviors on screen. As Cavell explains in a passage from *The World Viewed*, there is always an element of the non-voluntary in the actor’s actions no matter how scripted the film:

It was always part of the grain of film that, however studied the lines and set the business, the movement of the actors was essentially improvised—as in those everyday actions in which we walk through a new room or lift a cup in an unfamiliar locale or cross a street or greet a friend or look in a store window or accept an offered cigarette or add a thought to a conversation. They could all go one way or another. Our resources are given, but their application to each new crossroads is an improvisation of meaning, out of the present. These trivial facts take us back to the idea of acting on film. [...] The ontological fact that actions move within a dark and shifting circle of intention and consequence, that their limits are our own, that the individual significance of an act (like that of a

word) arises in its being this one rather than every other that might have been said or done here and now, that their fate (like the fate of words) is to be taken out of our control—this is the natural vision of film.⁸⁶

Despite the fact that an actors' words and actions are scripted in Hollywood films, the cinematographic inscription of their movements captures and reveals an irreducible element of the non-voluntary inherent to the *lived* movement of the body, scripted or otherwise. The bodily habit endemic to such ordinary actions as “lifting a cup” and “walking into a new room” is always balanced by what Cavell calls the “improvisatory” nature of bodily movement in the lived present, the spur-of-the-moment bodily autonomy within a particular milieu that cannot be broken down into categories such as the performed or the natural, the voluntary or the involuntary. Habit and improvisation are two sides of the same coin that constitute the non-voluntariness of bodily movement. *Habit* points to the automatic nature of such familiar gestures—the primacy of muscle memory that works autonomously as a bodily “I can”—while *improvisation* elicits the singularity of *this* particular gesture at *this* moment in *this* environment that is endemic to the singularity of cinematographic inscription.

It is precisely this dialectic of habit and improvisation that is seen in the three bounces of Peck's wrist. It is equally the case that Bresson invokes this dialectic when he writes of the “infinite surprises” that shine through the imposed limits of habituated movement. Bresson imposes the limits of habit to draw out what the “grain of film” cannot fail to pick up, the infinitely minute elements of difference that mark the presence of a lived body captured on film. And even without the aid of these manipulations, similar revelations can slip through the cracks of classical narrative

⁸⁶ Stanley Cavell, *The World Viewed: Reflections on the Ontology of Film, Enlarged Edition* (Cambridge, MA: Harvard University Press, 1979), 153. Similar arguments, but more directly related to the problem of action in philosophy, are made in Stanley Cavell, “Must We Mean What We Say,” in Stanley Cavell, *Must We Mean What We Say: A Book of Essays* (Cambridge: Cambridge University Press, 1969).

films in what Christian Keathley has called cinephiliac moments.⁸⁷ For example, when Humphrey Bogart walks across the street after pausing to look up at the sky in *The Big Sleep*—what Manny Farber famously called “one of the fine moments in 1940s film”—there’s surely something not only in the narrative inexplicability of the pause but in the idiosyncrasy of its manner that attracts Farber.⁸⁸ Bogart doesn’t simply pause, look up, and walk, but does so in his own way (owing itself to his culturally and contingently inscribed habits), and also in *this* way (owing itself to spur-of-the-moment improvisation). The gesture’s lack of narrative significance allows Farber to dwell on the irreducible elements of habit and improvisation that are always part of Bogart’s movement but here made visible, however momentarily, and however specifically to Farber’s distinctly cinephilic mode of viewing. Arnold indeed creates the visual conditions for seeing what the cinephile is disposed to seeing, but he also reflects on the conditions for that cinephilic perception. He interrogates what it is about a moving image and a moving body that leads the cinephile to fetishize such moments.

Laura Mulvey has similarly recognized a sympathy between Arnold’s films and this kind of cinephilic spectatorship, yet she insists that Arnold’s manipulations “combine reference to the strip of celluloid with the presence of the cinema machine, the uncanny of the inorganic and the automaton.”⁸⁹ Mulvey situates such a reading in a long film theoretical tradition of seizing on the automaton-like qualities of certain cinematic performances as emblems of the mechanical nature of the projection apparatus, such as when Benjamin admires Chaplin’s “jerky succession of tiny movements” because they “apply the law of filmic sequence to that of human motorics.”⁹⁰ But in

⁸⁷ Keathley, *Cinephilia and History*, 7.

⁸⁸ In fact, recalling that Bogart looks up at a sign rather than looks up at the sky in response to a thunderclap, Farber tellingly overstates the gesture’s inexplicability.

⁸⁹ Laura Mulvey, *Death 24x a Second: Stillness and the Moving image* (Islington, UK: Reaktion Books, 2006), 172.

⁹⁰ Qtd. in Mulvey, *Death 24x a Second*, 178. Mulvey also invokes a similar argument from Raymond Bellour who, commenting on Barthes’s reading of Fellini’s *Cassanova* at the end of *Camera Lucida*, similarly writes “The figure’s movements, slightly jerky and unfinished with a rigid posture, made its body one with the movement of the film.” Qtd.

applying this familiar theoretical trope to Arnold's films, Mulvey misses something crucial, with regard to both Arnold's films in particular and the phenomenon of cinema's inscription of bodily movement more generally. Though Arnold renders human figures automaton-like in their stuttering repetitions, what he ultimately shows us is cinema's acknowledgment of the profoundly *lived* quality of bodily movement in its contingency and idiosyncrasy, its spontaneity and habit. To read these stuttering figures as emblems of the apparatus's inorganic mechanicity—the concrete objectivity of the photogram, the automaticity of the projector—is to ignore how they grant perceptual access to the distinctly *vital* qualities of the human body that cinema captures in moving detail. If such images strike us with a sense of the body's automaticity, it is importantly not the automaticity of the machine, but that of the habitual nature of the body, its thoroughly organic non-conscious intelligence.

In indiscriminately capturing human movement in its entirety and particularity—that is, in not discriminating between the scripted action and the actual bodily movement—the camera reveals the inherent looseness and flexibility in the mind's hold on the body. In other words, the characteristic detail or *thisness* of cinematographic capture acknowledges and in certain instances reveals a significant philosophical condition of bodily movement: while we tend to think of ourselves as planning, intending, or premediating our actions, the precise bodily movements that constitute those actions are neither conscious nor unconscious, voluntary nor involuntary, but somewhere in between. In a way, then, the cinematographic inscription of moving bodies complements the traditions in twentieth-century philosophy that have challenged the Cartesian dualist position that tends to treat the body as a lifeless object solely animated by the mind's conscious control. Henri Bergson argued that actual bodily movement or action is always

in Mulvey, *Death 24x a Second*, 179. Similar arguments are made by Pasi Valiaho in Pasi Väliäho, *Mapping the Moving Image: Gesture, Thought and Cinema Circa 1900* (Amsterdam: Amsterdam University Press, 2010).

inseparable from “nascent muscular sensation” or “tendencies,” non-conscious navigations of embedded motor memories.⁹¹ Merleau-Ponty took such conceptions of bodily movement further, conceiving of such tendencies as an entire array of bodily intelligence—what he calls the kinesthetic “background”—that we dwell within as embodied beings.⁹² In each case, as Erin Manning explains, the binary categories of voluntary and involuntary, intended and unintended ultimately obscure what it means to move one’s body:

This differentiation between conscious and nonconscious movement, between so-called “free” movement, on the one hand, and automatic or reflex movement, on the other, is problematic for several reasons.[...] [It] hierarchizes forms of movement according to conscious behavior, ignoring the complex tendencies within consciousness that open it to nonconscious inflections. [...] In our everyday movements, especially in relation to movements that have become habitual, a movement might nonetheless feel completely volitional [...] What is important to realize...is that the feeling of volition is not volition itself. The feeling of volition is more aptly defined as a certain recognition, in the moving, of our having already moved “just this way.” But movement-moved is never twice the same: it is always altered by the ecologies that create this singular field of relation, and that influence how it will unfold this time.⁹³

To see the betweenness of cinematographically captured movement is also to see how our lived movements lie somewhere *between* voluntary and involuntary. Caught in a web of our habits, improvisations, and decisions, our kinesthetic dispositions, spur-of-the-moment copings, and intentions, bodily movement always occupies a status of the in-between. It’s no wonder that “we hardly know what really goes on between hand and metal” in the routine gesture of reaching for a spoon. Absorbed in our projects, goals, and actions, in our anticipations of and reciprocal movements with others, we overlook the details of our movements—our *means* of being—for the

⁹¹ Henri Bergson, *Matter and Memory*, trans. N. M. Paul and W. S. Palmer (New York: Zone Books, 1988), 111.

⁹² See Merleau-Ponty, *Phenomenology of Perception*. J.L. Austin came to similar conclusions by paying attention to the words we ordinarily use to describe our actions, arguing that the ascription of intention is not required for someone to count as responsible for an action; whether an action is intended or involuntary is simply not a question that can or should be asked of every action. See, for example, J.L. Austin, "A Plea for Excuses: The Presidential Address." In *Proceedings of the Aristotelian Society*, vol. 57, pp. 1-30 (Hoboken, NJ: Aristotelian Society, Wiley, 1956).

⁹³ Manning, *The Minor Gesture*, 19.

sake of accomplishing our ends.⁹⁴ Cinematographic recording's capacity to see such a gesture more fully is a condition of the impartiality of its seeing, its perception-less vision, or what Benjamin would call its "optical unconscious."⁹⁵

But it is another thing entirely for us to *see* this unconscious seeing and to acknowledge what that seeing shows us: namely, the habitual nature of bodily movement. The films of De Sica, Wyler, Bresson, and Arnold build the structures of attention necessary to see this seeing. In different ways, they help us understand what it means for moving bodies to feel "real" on screen—for behaviors to seem "natural," for movements to appear "authentic." In each case, a kind of realism is achieved not simply by placing a faith in the apparatus—the this-was-thereness of the photographic index, the mimetic plenitude of the photographic moving image, or the feeling of presence endemic to the illusion of movement—but by putting formal pressures on the image and on actors that bring out these capacities. The realism of bodily movement achieved in these films does not derive from an attempt to suppress or hide the mediation of cinematographic motion. We are not made to see bodily movement as if in "real life," in natural perception, or in "everyday" circumstances. Rather, such a realism makes apparent what cinematographic motion uniquely has the capacity to show us in the movement of the body, its autonomy and its non-conscious intelligence. Though long explored in the domain of philosophy, such aspects of the moving body are newly *experienced* in the moving image. Seeing the habitual nature of bodily movement is part of what it means to see bodily movement *imaged*, pinned down and pictured and abstracted from the movement of the world.

⁹⁴ In the words of Giorgio Agamben, "*The gesture is the exhibition of a mediativity: it is the process of making a means visible as such.* It allows the emergence of the being-in-a-medium of human beings..." Agamben, "Notes on Gesture," 57.

⁹⁵ Benjamin, "Work of Art," 37.

Chapter 3

Spatial Unfurling

Lateral Movement, Twofoldness, and the Aspect-Perception of the Mobile Frame

[In] order to exist a form must have bounds, limits, set, and setting. The rectangle's content can be precisely that.

—Michael Snow¹

It's a persistent intuition in film theory and criticism that a moving camera seems to move *us* through the film's world along with it. In the "phantom rides" of early cinema, cameras mounted on the fronts of locomotives make us feel the familiar illusion of moving forward through picturesque landscapes. In *Citizen Kane* (1941), when the camera rushes toward and dissolves through the broken skylight at Susan Alexander's El Rancho nightclub, the camera's inquisitive propulsion seems to carry us through space, evoking our desire to explore the film's world. And in *The Shining* (1980), as the camera's ghostly point of view hovers behind Danny riding through the empty hallways of the Overlook hotel, we cannot help but feel as if we are moving through space with, alongside, or even *as* the camera.

This unmistakable feeling of moving with the camera has long been accepted as an essential perceptual condition of camera movement. Since European filmmakers began exploring the aesthetic possibilities of the moving camera in the 1920s, critics and theorists have recognized how the camera's moving perspective evokes the optical effects produced by our own movement through space. Writing about F.W. Murnau's moving camera, M. Kann writes "As the eye moves, so must the lens."² Advancing a similar observation with the help of perceptual psychology, David Bordwell writes that "we can hardly resist reading the camera movement effect as a persuasive surrogate for

¹ Michael Snow and Louise Dompierre, *The Collected Writings of Michael Snow* (Waterloo: Wilfrid Laurier Univ. Press, 2010), 60.

² Qtd. in Patrick Keating, "The Homeless Ghost: The Moving Camera and its Analogies," *[in]Transition* 2.4 (2016). <http://mediacommons.futureofthebook.org/intransition/homeless-ghost>

our subjective movement through an objective world.”³ And considering the implications of Bordwell’s observation for theories of art, Arthur Danto finds that because “the experience [of camera movement] is of *ourselves* moving,” the moving camera “seems to overcome...the distance between spectator and scene.”⁴

Such observations, which tend to rest on a compatibility between human perceptual cues and camera optics, have gained added aesthetic significance in recent phenomenological approaches to film theory, which explore the ways in which cinema draws on and aestheticizes the perceptual and affective foundations of ordinary embodied experience.⁵ Identifying a deep phenomenological sympathy between the experience of embodied movement and the perceived movement of the camera, such theorists have placed our identification with the moving camera at the center of their accounts of cinematic experience. Drawing heavily from Maurice Merleau-Ponty, for whom the perception of the world is inextricable from our movements within it, such accounts tend to argue that camera movement, more than any cinematic device, gives us the sense of being oriented in a world.

In different ways, the work of Jennifer Barker, Scott Richmond, and Vivian Sobchack has focused on how camera movements evoke familiar kinds of embodied movement through space. Barker broadly privileges our mimetic muscular reactions to camera movements, claiming that “physical movement of the camera is the closest approximation of muscular movement of the human body.”⁶ Richmond, drawing on both Merleau-Ponty’s phenomenology and James Gibson’s

³ David Bordwell, “Camera Movement and Cinematic Space,” *Ciné-Tracts* 1.2 (1977): 23.

⁴ Arthur Danto, “Moving Pictures,” in Noël Carroll and Jinhee Choi, eds., *Philosophy of Film and Motion Pictures: An Anthology* (John Wiley & Sons, 2009), 110.

⁵ Similar observations have been made in Daniel Morgan, “Where Are We?: Camera Movements and the Problem of Point of View.” *New Review of Film and Television Studies*, 14:2, 222-248, 229-230.

⁶ Jennifer M. Barker, *The Tactile Eye: Touch and the Cinematic Experience* (Berkeley: University of California Press, 2009), 110

perceptual psychology, argues that cinematic experience can be radically redefined by accounting for our embodied experience of the subjectively moving camera (simulated or not), that is, by camera movements that penetrate into space along the z-axis.⁷ And most influentially, Sobchack develops a phenomenological theory of spectatorship that relies on recognizing the moving camera as an embodied consciousness related to the world as we are: she claims “camera movement echoes the essential motility of our own consciousness as it is embodied in the world and able to accomplish and express the tasks and projects of living.”⁸ In Sobchack’s account, whenever we see the camera move, we are attuned to the subjectivity of what she calls the film’s “body”—through its movement, we sense its agency, vitality, and intentionality.⁹ For each theorist, the movement of the camera recalls our own experience of being situated in the world, moving through that world, and feeling the possibilities of movement and action therein.

While it seems intuitive to say that all camera movements make us feel as if we are moving through space with them—that they feel familiar and *real*—such a claim reinforces a fallacy persistent throughout film theory, that it is the natural condition of cinematographic recording to reproduce our ordinary perception of movement. Just as realist theorists claim that persons and objects move with lifelike precision when captured on screen, so too do these more recent theorists say that the moving camera simulates the experience of our own embodied selves moving. The problem with such an assumption is that it takes a perceptual achievement of certain *forms* of camera

⁷ Scott Richmond, *Cinema’s Bodily Illusions: Flying, Floating, and Hallucinating* (Minneapolis: University of Minnesota Press, 2016), 51-72. While Richmond eschews the term “camera movement” because of its medium-specific implications, what he calls the “illusion of bodily movement” is essentially produced by actual camera movements or simulated camera movements, or what David Bordwell would call the “camera movement effect.” Bordwell, “Camera Movement,” 23.

⁸ Vivian Sobchack, “Toward Inhabited Space: The Semiotic Structure of Camera Movement in the Cinema,” *Semiotica* 41, no. 1-4 (1982): 317

⁹ Vivian Sobchack, *The Address of the Eye: A Phenomenology of Film Experience* (Princeton: Princeton University Press, 1992), 203-247.

movement as exemplary for all camera movements, so that what a camera movement *is* becomes defined long before reflecting on the particular forms a moving camera can take.

In what follows, I will offer an alternative phenomenology of camera movement built on a motion form I call *spatial unfurling*, an effect produced by particular ways of moving the camera that suppress the illusion of embodied movement and exploit the aesthetic potential of the flatness of the screen.¹⁰ By playing with, inverting, and transforming our experience of inhabiting a three-dimensional world, spatial unfurling exhibits a distinctly non-anthropomorphic aesthetic that considers a moving camera not simply as a surrogate for the spectator, but as a kind of paintbrush for generating two-dimensional screen phenomena. By visually emphasizing the flatness and two-dimensionality of the screen, spatial unfurling contributes to this dissertation's interest in the *framedness* or *imagedness* of cinematic motion, but largely in its spatial rather than temporal dimensions. If the previous two chapters asked what happens to the movements of smoke and water or the movements of human bodies when spatially and temporally framed in a moving image, this chapter asks what happens to the movement of a perspectival point of view when confined to a flat rectangular screen. As we saw with the previous two chapters, the literal *limits* of cinema's framed perception are also its possibilities for creating new forms of aesthetic experience beyond the natural perception of motion. Integrating the surface of the screen into an account of camera movement, I will argue, is part of what it means to engage in a phenomenology of cinema as an *aesthetic* experience instead of merely as an analogy to natural perception.

¹⁰ There are various arguments involved in claims that cinema is an "illusion." For a systematic breakdown of these arguments, see Gregory Currie, *Image and Mind: Film, Philosophy and Cognitive Science* (Cambridge: Cambridge University Press, 1995), 19-47. Throughout this chapter, my use of the term "illusion" as it pertains to the experience of camera movement follows Scott Richmond's account of what he calls cinema's "illusion of bodily movement," which involves a palpable kinesthesia without epistemological deception. Richmond, *Cinema's Bodily Illusions*, 12. To experience an illusion of moving through space, Richmond explains, is not to be fooled into thinking that you are actually moving through the world on screen, but it is nevertheless to experience a palpable, visceral sensation of movement that is felt as an illusion. Richmond, *Cinema's Bodily Illusions*, 12.

To make my case for a non-anthropomorphic phenomenology of camera movement built on the aesthetics of spatial unfurling, I'll first argue that phenomenological film theory's account of the moving camera does not describe an essential condition of camera movement but rather an effect of particular ways of moving the camera—forward movements-into-depth—which strongly evoke the sense of an embodied mobile perspective. Our tendency to bodily identify with the moving camera, then, is merely one possible effect resulting from particular kinds of movements within particular kinds of spaces. Using Wolfgang Schivelbusch's account of the experience of train travel—a kind of proto-cinematic spatial unfurling—as an alternative phenomenological model of subjective movement, I then examine lateral movement as an alternative but ordinary form of camera mobility that foregoes the feeling of directed intention, anticipation, and kinesthesia characteristic of movement-into-depth. Reading Schivelbusch alongside sequences from the films of Leos Carax, Bruce Baillie and Gus Van Sant, I locate the forms of visual rhythm and flat abstraction uniquely produced by lateral camera movement within a proto-cinematic history of technologized spatial experience. Second, I look to the more extreme abstractions produced by camera movement in Michael Snow's *La région centrale* (1971), building a case that the effects of such movements are best understood in the terms of Richard Wollheim's "twofoldness" theory of picture perception, according to which the *aesthetic* perception of a picture involves a simultaneous attention to its surface qualities as well as its depictive content. Finally, I expand my phenomenological analysis of lateral movement's rhythms and Snow's abstractions to develop a more flexible phenomenology of camera movement that privileges the spectator's aspect-perception over analogies with natural perception. Examining Ken Jacobs's found-footage experiments *Georgetown Loop* (1996) and *Disorient Express* (1996), I argue for a phenomenology of camera movement that proceeds from the spectator's *ways of seeing* the screen.

Without a doubt, pointing out the limitations of the anthropomorphic model of camera movement is not a new gesture. Anthropomorphic analogies for the moving camera have long faced their most immediate challenges from what David Bordwell has called the “forbidden movements” that “block an anthropomorphic reading,”¹¹ or what Patrick Keating has called “omniscient” camera movements, which soar into the air or otherwise defy human limitations.¹² What’s more, as digital cinema’s virtual cameras can easily move through walls and go places no human body could physically occupy, the disembodiment of the moving camera seems more prevalent now than ever.¹³ My aim, however, is to offer a different kind of critique. Instead of arguing that certain kinds of camera movement warrant their own theoretical camps—that of the “forbidden,” the “omniscient,” or the “virtual”—I will argue that the persistent marginalization of these examples reveals a deeper problem in the way we think about the moving camera. The moving camera, I’ll argue, instills a deep phenomenological uncertainty at its very core, and part of the problem of camera movement has been film theory’s tendency to conceal that uncertainty. The need to rethink the moving camera stems not from the ubiquity of virtual cameras and computer-generated worlds but from the fundamental phenomenological ambiguity of all camera movements as forms of movement unique to the moving image.

From Moving to Unfurling

Before considering the limits of the sympathy between ordinary mobile perception and the perception of the moving camera, I want to consider the particular situations in which such an

¹¹ Bordwell, “Camera Movement,” 24.

¹² Keating, “The Homeless Ghost.”

¹³ For a theoretical account of digital cinema that places a significant emphasis on the aesthetic possibilities of virtual cameras, see William Brown, *Supercinema: Film-Philosophy for the Digital Age* (New York: Berghahn Books, 2013).

account has explanatory power. When phenomenological film theorists argue that all camera movements remind us of our movement through space or make us feel as if we're moving through the world with the camera, they're implicitly privileging movements into depth along the z-axis, that is, movements that tap into the phenomenology of human movement as movement *forward*.

Forward camera movement encourages our identification with the camera for two main reasons. First, when I move forward through space, my sensation of moving is predominantly produced by optical stimulation alone, regardless of vestibular and muscular sensations.¹⁴ It is for this reason, as perceptual psychologist James Gibson discovered, that moving images are particularly useful for simulating the visual and kinesthetic conditions of forward movement. Faced with the task of teaching would-be war pilots how to fly airplanes, Gibson found that moving images worked as strikingly accurate simulators of the pilot's visual field, yielding an "enhanced perception" of the kinetic depth effect consistent with forward movement.¹⁵

Second, when I move forward, I associate the onrush of space in my optical field with the feeling of intentional self-propulsion.¹⁶ When Sobchack writes that camera movement is the visual manifestation of intentionality, of "being directed toward an object of consciousness," she's implicitly describing the feeling of moving forward: put simply, moving *forward*—that is, moving in the direction we currently face—is intimately related to a feeling of moving *toward*, that is, movement

¹⁴ Gibson writes, "The impression of forward movement of the observer can be produced optically without any contribution from the vestibular or the muscle sense." James J. Gibson, "The Visual Perception of Objective Motion and Subjective Movement," *Psychological Review* 61, no. 5 (1954): 304–14.

¹⁵ James J. Gibson, *The Ecological Approach to Visual Perception: Classic Edition* (Psychology Press, 2014), 184–5.

¹⁶ For Merleau-Ponty and James Gibson, this feeling accompanies forward movement regardless of the means of transportation. For Merleau-Ponty, the experience of driving a car is to absorb the car into one's embodied sense of self: "If I am in the habit of driving a car, I enter a narrow opening and see that I can 'get through' without comparing the width of the opening with that of the wings, just as I go through a doorway without checking the width of the doorway against that of my body. The hat and the car have ceased to be objects with a size and volume which is established by comparison with other objects. They have become potentialities of volume, the demand for a certain amount of free space." Merleau-Ponty, *Phenomenology of Perception*, trans. Colin Smith (New York, NY: Routledge, 1962), 165.

felt as directed, purposeful, and intended. Filmmakers have often utilized the forward movement of the camera for this very effect. In *Citizen Kane*, when the forward-moving camera is stopped by—and then magically dissolves through—the prohibitive door at the Thatcher library, the camera’s movement evokes our desire to explore, to move through the world with a sense of investigative agency; in David Bordwell’s words, the camera “imitates the process of investigation itself.”¹⁷ Simulating what it’s like to face the world and move toward it, forward camera movements strongly evoke the familiar feeling that our intentional bodily movements will result in predictable changes in the visual array.

Particularly useful in explaining this feeling of towardness is the phenomenological notion of “horizon.” Like the perceived line dividing land and sky, a horizon marks the endpoint of our perception but beckons us to go toward and beyond it. More generally, a horizon constitutes the palpable existence of that which I do not intend or directly perceive, of what lies just around the corner of our perceptual field. Thus, the concept of the horizon encourages an analogy between the incompleteness that marks both human perception and the perception of the camera. In the words of Victor Perkins, “There is always an out-of-sight just as there is always an off-screen.”¹⁸ Such a notion of incompleteness tacitly undergirds what Noel Burch calls offscreen space, a sense that the space that lies outside of the camera’s view is nevertheless present to the spectatorial imagination. Thus, the very ability for the camera to move, and consequently for the framed viewpoint to shift, invites comparison to the embodied and enworlded incompleteness of human vision. Regarding this comparison, Sobchack writes that the frame is “a limit, but like that of our own vision it is

¹⁷ David Bordwell, “*Citizen Kane*,” in Bill Nichols, ed., *Movies and Methods: Volume 1*. (Berkeley: UC Press, 1976), 284.

¹⁸ Victor Perkins, “Where is the World?: The Horizon of Events in Movie Fiction,” in John Gibbs and Douglas Pye, eds., *Style and Meaning: Studies in the Detailed Analysis of Film* (Manchester University Press, 2005), 22.

inexhaustibly mobile and free to displace itself.”¹⁹ This general identification with the mobile frame as an equally situated, limited perceiving consciousness leads to more anthropomorphic accounts of the kinds of experiences camera movements produce. For Jennifer Barker, camera movement is the “the closest approximation of muscular movement of the human body.”²⁰ We feel the movement of a whip pan “in our muscles,” for example, because “we have whipped our heads from side to side.”²¹ Both Barker and Sobchack present the camera’s vision as if oriented *toward* the world in way that feels familiar; in each case, the camera faces the world as if a physiological consciousness embedded in the world as we are.

The horizon also provides a useful theoretical model for explaining the experience of anticipation and enticement of distant, unfolding space uniquely produced by forward camera movement. Reflecting on the phenomenological horizon, Merleau-Ponty writes “I can feel swarming beneath my gaze the countless mass of more detailed perceptions that I anticipate, and upon which I already have a hold.”²² Any forward-moving traveling shot distills Merleau-Ponty’s sense of horizon as *anticipated perception* into a compelling image of a world’s continuous unfolding. Caught up in the animation of the unfolding world in its incompleteness and openness, our attention moves centripetally as we project ourselves forward through space along with the unseen camera. Thus, watching the phantom rides of early cinema, we feel as if we’re “chasing the horizon into the depth of an ever-unfolding image.”²³ In Scott Richmond’s phenomenology of cinema, which (in contrast

¹⁹Sobchack, *Address of the Eye*, 131.

²⁰Barker, *The Tactile Eye*, 75.

²¹Barker, *The Tactile Eye*, 75.

²²Merleau-Ponty, *Phenomenology of Perception*, 395.

²³Tom Gunning, “Landscape and the Fantasy of Moving Pictures: Early Cinema’s Phantom Rides,” in Graeme Harper and Jonathan R. Rayner, eds., *Cinema and Landscape* (Intellect Books, 2010), 57.

to the work of Sobchack and Barker) is explicitly modeled on cinematic illusions of forward movement, we get a similar picture. As with the phantom ride, Richmond's flagship example, the Stargate sequence from *2001: A Space Odyssey* (1968), "emphasizes the unseen aspects of the environment by moving toward a horizon."²⁴

The problem with such accounts is not that they lack explanatory power for the kinds of camera movement they describe, but that they purport to explain the phenomenology of camera movement in general from these select examples. In so doing, the theoretical exemplification of forward movement risks reducing the experience of camera movement to a mere simulation of ordinary perception. But for all the ways in which the moving camera activates our perceptual familiarity with moving through space, camera movement is first and foremost a *screen* phenomenon: the moving camera's phenomenological effects always result from the manipulation of the screen's two-dimensionality and rigid rectangular boundaries. In order to think about the moving camera in this way—that is, to become aware of the screen as structuring the appearance of a moving camera—we need to proceed from different, though equally prevalent, kinds of examples.

Chief among these examples is *lateral* camera movement. By "lateral camera movement" I mean tracking shots that move parallel to space rather than penetrate into it. Instead of recalling the familiarity of forward bodily locomotion, lateral camera movements more readily recall the already technologically mediated experiences specific to passengers in locomotives or automobiles looking out the passenger-side window. Though familiar in the modern world, such experiences radically shift the phenomenological expectations of bodily locomotion. When one's vision is restricted to the passenger-side window of a moving vehicle, the particular experience of moving through space—or rather, of *being moved* laterally—undermines the terms of mobile perception described in Merleau-

²⁴ Richmond, *Resonant Perception*, 202.

Ponty's phenomenology, James Gibson's ecological theory of perception, and other action-oriented theories of perception.²⁵ Part of the reason for this, as Gibson explains, is that the essential passivity of passenger locomotion results in a loss of kinesthesia:

In the case of active locomotion, such as running, there is, of course, a large component of kinesthetic stimulation from the proprioceptors that accompanies the purely visual stimulation from the retinas. But in the case of passive or involuntary locomotion, such as riding in trains, automobiles, and planes, the kinesthetic component may almost wholly drop out.²⁶

By evoking the perceptual conditions of passenger locomotion, lateral camera movements also evoke this sense of loss. Foregoing the feeling of intention, will, and kinesthesia particular to forward camera movement, lateral camera movement foregoes the feeling of a thick, embodied situatedness in a world that perceptually varies with respect to my willed action. Likewise, in reducing my visual field to a lateral view, I severely limit my view upon the world as a horizon of anticipated movement; while I can anticipate the direction of the space that passes before me, the space isn't so much anticipated as *unfurled*, as if spontaneously generated from the edge of the window.

This particular form of movement that results from lateral camera movement, which I'll henceforth refer to as *spatial unfurling*, has other phenomenological properties that distinguish it from forward movement. For example, variations in the speed of lateral movement can have transformative effects that do not apply to forward movement. While the velocities of walking, running, biking, and driving vary widely, the optical experiences of forward movement therein remain rigidly consistent: the phenomenological differences resulting from shifts in velocity are quantitative rather than qualitative. With lateral movement, however, velocity not only intensifies but transforms experience.

²⁵ See, for example, Alva Noë, *Action in Perception* (Cambridge, MA: MIT Press, 2004).

²⁶ Gibson, "Objective Motion and Subjective Movement," 305.

Wolfgang Schivelbusch has written extensively on the novel experience of train travel in the nineteenth century as a function of its radical increase in speed, especially as compared to coach travel. In what he terms “panoramic” perception, the experience of train travel effaces our sense of bodily continuity with the world we inhabit by rendering the viewable foreground a blurred, two-dimensional abstraction. In Victor Hugo’s firsthand account, “flowers by the side of the road” become “streaks...of red or white,” and “grainfields” becomes “great shocks of yellow hair.”²⁷ The sheer speed of train travel, paired with a lateral point of view, dissolves the passenger’s sense of being physically continuous with the foreground of his visual field. The viewed space appears as a discrete, flattened image unfurling within the window frame. Indeed, while the objects of the landscape far off in the distance retain their shape, they are radically separated from the body of the passenger by the “almost unreal barrier” of the blurred foreground.²⁸ Schivelbusch names this mode of perception “panoramic” because, much like the nineteenth century visual entertainment of the same name, space unfolds as if it were a never-ending flat image.²⁹

Panoramic perception thus anticipates the phenomenological specificity of experiencing moving *images* in opposition to the phenomenological specificity of embodied movement. This basic fact has long been recognized. Reflecting on Schivelbusch’s account of train travel, Lynne Kirby has referred to the train passenger’s window as a “framed, moving image,”³⁰ and Mary Ann Doane, in an essay subtitled “The Moving Image,” writes that “The railway passenger, like the cinema spectator, is

²⁷ Qtd. in Wolfgang Schivelbusch, *The Railway Journey: The Industrialization of Time and Space in the Nineteenth Century* (Berkeley: Univ of California Press, 2014), 55.

²⁸ Schivelbusch, *Railway Journey*, 189.

²⁹ I’m referring specifically to the *moving* panorama (as opposed to the *circular* panorama), which scrolled laterally before the spectator. For a media archeological study of the moving panorama, see Erkki Huhtamo, *Illusions in Motion: Media Archaeology of the Moving Panorama and Related Spectacles* (Cambridge, MA: MIT Press, 2013). The term “panoramic perception”

³⁰ Lynne Kirby, *Parallel Tracks: The Railroad and Silent Cinema* (Durham: Duke University Press, 1997), 2.

subjected to a succession of images mediated by a frame.”³¹ But rarely do such comparisons investigate the logic of their phenomenological intuitions. I argue that the train passenger’s view is like a moving image not simply because it mediates a mobile viewpoint with a rectangular screen-like boundary (i.e. the window), but because the framed visual field exhibits aesthetic autonomy as an *image*—i.e. space appears to move on its own, separated from the space contiguous with my body. In other words, the rushing space in a passenger’s window—within a certain perceptual and bodily orientation—approaches the condition of what Noel Carroll has called a *detached display*.³² In Carroll’s essay “Defining the Moving Image,” in which he proposes five necessary conditions for something to be a “moving image,” one of those conditions is that a moving image must be a “detached display,” a visual array with which “we are unable to orient ourselves toward...in the space that is continuous with our own bodies.”³³ For Carroll, this condition helps distinguish moving images from the visual arrays presented in optical devices such as mirrors, binoculars, telescopes, and even windows; unlike the (moving) visual arrays encountered through those devices, the space presented in a moving image is radically severed from my embodied perception.³⁴

³¹ Mary Ann Doane, “‘when the direction of the force acting on the body is changed’: The Moving Image,” *Wide Angle* 7, nos 1-2 (1985): 42-58, 42.

³² What I mean by “within a certain perceptual and bodily orientation” is simply that the “detachedness” of panoramic perception requires that the passenger orient their body and their gaze in a particular way in order to achieve the effect. That is, if panoramic perception is a technics of the moving image, then a significant part of that technics involves the technique of the body’s participation, not unlike the dexterity required to successfully operate a flipbook.

³³ 3. Noël Carroll, “Defining the Moving Image,” in *Theorizing the Moving Image* (New York, NY: Cambridge University Press, 1996), 63. Describing a similar phenomenological condition of the moving image in the terms offered by Gibson’s ecological psychology, Richmond calls this basic condition cinema’s modulation and suspension of “perceptual covariation.” By this, Richmond means that the contents of the screen do not vary with respect to my bodily movements in the movie theater. In fact, this suspension of “postural” covariation is crucial to Richmond’s argument about the palpable illusoriness of cinema’s illusion of embodied movement: “In heightening the ‘visual’ part of vision, by suspending and modulating the covariation of postural information, cinematic appearance is manifestly illusory.” Richmond, *Cinema’s Bodily Illusions*, 89.

³⁴ Carroll’s notion of the detached display entails a definition of the “image” in general that does not rely on the logic of representation. On this view, what marks an image as distinct from a “view” (i.e. perceived through a window or perceptual instrument) and from a sculpture is the sense in which we cannot orient ourselves around the contents of an image. Such a definition resonates with Jean-Luc Nancy’s notion of the image as “the distinct:” “The distinct is at a distance, it is the opposite of what is near. What is not near can be set apart in two ways: separated from contact or from

This is precisely what the train passenger experiences on Schivelbusch's account. What the passenger sees is not the displacement of inhabitable space produced by the train's movement but "the motion of the landscape itself."³⁵ The railroad "created" and "choreographed" a new landscape.³⁶ In Victor Hugo's firsthand account, trees do not pass by, as if passively displaced by the movement of the locomotive, but actively "perform a mingling dance on the horizon."³⁷ In becoming a flattened, unrolling abstraction—in the words of Dolf Sternberger, a "painted surface"³⁸—the space outside becomes an image rather than a view; the window becomes a frame rather than an opening onto the world.

The status of the train window as a proto-moving image, however, is not Schivelbusch's concern. Preoccupied with aligning his phenomenological account with the vocabularies of Georg Simmel and Walter Benjamin, Schivelbusch understands the train traveler's radical discontinuity with the outside world as a loss of the aura of spatiotemporal presence (Walter Benjamin) or as an intensification and multiplication of visual impressions typical of urban modernity (Georg Simmel). But viewed positively, panoramic perception is more than the severing of the traveler's bodily continuity with the space before him, his "removal from that 'total space' which combined proximity and distance."³⁹ It is equally the emergence of a moving image—an autonomous, framed

identity. The distinct is distinct according to these two modes: it does not touch, and it is dissimilar. Such is the image: it must be detached, placed outside and before one's eyes (it is therefore inseparable from a hidden surface, from which it cannot, as it were, be peeled away: the dark side of the picture, its underside or backside, or even its weave or its subjectile), and it must be different from the thing. The image is a thing that is not the thing: it distinguishes itself from it, essentially." Jean-Luc Nancy, *The Ground of the Image* (New York: Fordham Univ Press, 2005), 2

³⁵ Schivelbusch, *The Railway Journey*, 60.

³⁶ Schivelbusch, *The Railway Journey*, 60.

³⁷ Qtd. in Schivelbusch, *The Railway Journey*, 55.

³⁸ Qtd. in Schivelbusch, *The Railway Journey*, 61.

³⁹ Schivelbusch, *The Railway Journey*, 63.

picture of movement—that is separate from the visible field of possible action. To be sure, this effect is not unique to the gaze out the passenger’s window, especially once we consider the range of optical devices whose popularity grew throughout the nineteenth century. But what distinguishes train travel’s “moving image” from that of its protocinematic contemporaries—moving panoramas, philosophical toys, etc.—is its complete and utter immateriality.⁴⁰ The “image” here does not emerge from a tangible, artificial object but is rather the product of a new technologized relation between self and world. The lateral view’s sense of detachedness or imagedness is not technologically or ontologically guaranteed but is asymptotically *approached*. In other words, the sense of a moving image that emerges only results from a perceptual orientation afforded by a technological transformation of our visual field. The fact that this orientation produces an “image” rests solely on its distinction and autonomy from its lived spatiotemporal context, a phenomenological condition that is produced by the abstraction of the speedy lateral view and the rectangular boundary of the train window as devices for demarcating pictorial space from ordinary perceptual space.

This apparent separation between self and world carries portentous implications for phenomenologies of perception. In phenomenological terms, the train traveler’s view displays a disruption of possible action; in violating the continuity between and mutual imbrication of

⁴⁰ Equally, train travel’s moving image is not a product of animation (hence my choice of the term “moving image” rather than “moving picture”), and yet lateral movement has an intimate relationship with the possibilities of animation. In 1980 independent filmmaker Bill Brand created what he coined a “masstranscope,” a linear zoetrope painted alongside a subway platform in Brooklyn, New York. Viewed through a slitted wall adjacent to the subway car, a series of images running alongside the train is animated into a motion picture. Using the same basic optical principle employed in the zoetrope and cinematic animation, the masstranscope simply inverts the locus of movement—from object to perceiver—illustrating what Gestalt psychologists have long understood as the relativity of perceived motion. In light of Schivelbusch’s theory, the masstranscope suggests that the phenomenological strangeness of train travel’s lateral perception is directly related to the technologies of animation—the zoetrope, the phenakistoscope, the thaumatrope, etc.—that gained popularity in the nineteenth century. Though train travel doesn’t produce a *motion picture* like these other devices—that is, an illusion of animated motion derived from the succession of still images—it induces a radical break in our experience of moving through space by transforming the continuous deep space seen through the window into the autonomous shallow space of the moving image.

embodied self and world, the view interrupts what Merleau-Ponty terms the “I can”⁴¹ of consciousness or what Gibson termed “affordances,”⁴² that is, the potential for acting upon and within the world. If, as Merleau-Ponty writes, “to see is to *have at a distance*”⁴³ and “to move one’s body is to aim at things through it,”⁴⁴ then the familiar world presented to the train traveler is deeply felt as *out of reach*. A space of potential action and mutual imbrication is thereby relegated to a space of aesthetic sensation. In other words, the experience of train travel suspends the very definition of perception as the experience of one’s mutual imbrication in the inhabitable and actionable world.

If Schivelbusch’s moving image emerges only when a sense of inhabitability and depth is evacuated, such a moving image should seem to have little in common with the cinema, in which the illusion of perspectival depth is said to be automatically reproduced by the camera.⁴⁵ Perhaps for this reason, most arguments for the protocinematic nature of train travel avoid comparisons concerning the representation of space. When Mary Ann Doane states that “The train, and the cinema as well, contribute to the dissociation of the subject from the space of perception,” she identifies Schivelbusch’s *phenomenological* argument with a general *ontology* of cinema; indeed, cinema ontologically dissociates its viewer from the space of the screen, but part of the uniqueness of the

⁴¹ Merleau-Ponty, *Phenomenology of Perception*, 159.

⁴² Gibson, *Ecological Approach to Visual Perception*, 127-146.

⁴³ Maurice Merleau-Ponty, “The Primacy of Perception,” in James M. Edie, ed., *The Primacy of Perception: And Other Essays on Phenomenological Psychology, the Philosophy of Art, History and Politics* (Evanston: Northwestern University Press, 1964), 166, emphasis in original.

⁴⁴ Merleau-Ponty, *Phenomenology of Perception*, 161.

⁴⁵ Most medium-specific accounts of the cinema emphasize the illusion of perspectival space—e.g. Andre Bazin’s privileging of composition-in-depth, Jean-Louis Baudry’s emphasis on the camera’s reproduction of Renaissance perspective, and Sobchack’s positing of cinematic space as inhabitable, navigable, and intentional with respect to the camera. See Andre Bazin, “Evolution of the Language of Cinema,” in *What is Cinema?: Volume 1*, trans. Hugh Gray (Berkeley: University of California Press, 2004); ⁴⁵ Jean-Louis Baudry, “Ideological Effects of the Basic Cinematographic Apparatus,” in Philip Rosen, ed., *Narrative, Apparatus, Ideology: A Film Theory Reader* (New York: Columbia University Press, 1986); and Vivian Sobchack, “The Scene of the Screen: Envisioning Photographic, Cinematic, and Electronic Presence,” in *Carnal Thoughts: Embodiment and Moving Image Culture* (Berkeley: Univ. of California Press, 2004).

medium is its ability to overcome that ontological condition. Likewise, a number of theorists (Schivelbusch included) tend to metaphorize train travel's annihilation of space and time, sense of disorientation, and perceptual shock as precursors of montage.⁴⁶ In these cases, the phenomenological particularity of train travel's panoramic perception is subordinated to its general evocation of sensorial shifts that emerged in nineteenth century urban modernity.

But as I've been trying to suggest, embedded within Schivelbusch's account of train travel lies a phenomenological model for particular camera movements that deny our embodied identification with the camera.⁴⁷ The reduction of depth and spatial abstraction endemic to the train's lateral view strongly invoke the kinds of experiences that particular camera movements can produce—it's just that these are not the camera movements that theorists have tended to examine. Taking Schivelbusch's panoramic perception as a phenomenology of a particular form of motion—what I'm calling spatial unfurling—we can begin to build the grounds for a non-anthropomorphic theory of camera movement that can accommodate the multiple kinds of perceptual effects produced by the moving camera. In this sense, spatial unfurling isn't simply a motion form that has been neglected by theories of camera movement. It also opens up a new way of seeing the moving camera—and more broadly, a new way of seeing the moving image.

⁴⁶ Unsurprisingly, Schivelbusch's account of train travel has been taken up by a number of film scholars who identify the emergence of cinema with the broader sociocultural shifts associated with nineteenth century modernity. Christian Keathley has adopted the concept of panoramic perception to describe the cinephile's tendency to visually scan the totality of the screen for marginal details. Christian Keathley, *Cinephilia and History, or the Wind in the Trees* (Bloomington: Indiana University Press, 2005). And Lynne Kirby, following Schivelbusch's emphasis on train travel's reconfiguration of space and time, has argued for the railroad as a kind of "protocinematic phenomenon;" the quick succession of various landscapes viewed through a framed moving image anticipates the radical spatial discontinuities and temporal leaps produced by montage effects. Kirby, *Parallel Tracks*, 2.

⁴⁷ In Tom Gunning's treatment of phantom rides, for example, he acknowledges that the experience of train travel anticipated the experience of lateral displacement central to the moving panorama and the "pan" in early cinema. But ultimately, he argues that the lateral displacement of panning camera movements pales in comparison to the thrilling movement-into-depth on display in the phantom ride. Following the broader trend in phenomenologically-oriented film theory, Gunning privileges a mode of cinematic experience that neatly identifies the perception of the moving camera with the mobile viewpoint of our bodies. See Gunning, "Landscape and the Fantasy of Moving Pictures."

The Perceptual Aesthetics of Lateral Camera Movement

The visual characteristics of the train passenger’s experience of spatial unfurling—a sense of radical abstraction, flatness, and speed—have long been explored by filmmakers. Walter Ruttmann’s *Berlin: Symphony of a Great City* (1927), for example, begins with a rapid montage of lateral views from a speeding train that yield various linear patterns and flashing rhythms. The vibration of telegraph wires, the blur of bushes rushing by, and the rhythm of passing train tracks together give a sensation of overwhelming speed. What introduces these images is a non-photographic abstract animation of pulsing horizontal rectangles and rotating semi-circles, anticipating and acknowledging the visual patterns that follow (Fig. 3.1). Decades later, Stan Brakhage’s *The Wonder Ring* (1955) explores similar effects produced by New York’s elevated “El” train, exploiting the abstractions produced by the train passenger’s lateral view in order to yield a sense of poetic reverie lurking in the everyday.⁴⁸

⁴⁸ It should be noted that the abstractions endemic to lateral movement give the simulation of lateral tracking shots a privileged position in the history of animation. Given the apparatus of cel animation—a static camera placed above cel layers atop an animation stand—the simulation of camera movements into depth have been notoriously difficult to achieve. Because the mathematically precise perspectival movement of backgrounds had to be drawn by hand, movements into depth would need to be drawn frame by frame, and so were rarely produced. As Kristin Thompson explains, horizontal and vertical tracking shots (as opposed to z-axis movements) were far easier to achieve: “A track in any direction is relatively simple; a lengthening of the background provides the space necessary to allow the camera’s apparent shift.” Kristin Thompson, “Implications of the Cel Animation Technique,” in Stephen Heath, ed., *The Cinematic Apparatus: Technology as Historical and Cultural Form* (Basingstoke, UK: Palgrave Macmillan, 1980), 106-120, 114. Though multiplane animation techniques developed by Disney in the 30s and 40s made z-axis effects more feasible, they were still labor-intensive, and were rarely adopted by lower-budget studios. See Thomas Lamarre, *The Anime Machine: A Media Theory of Animation* (Minneapolis: U of Minnesota Press, 2009), xxv. Thus, in contemporary examples of “limited animation,” such as in most mass-produced Japanese animation, it is far more common to see the simulation of rapid lateral camera movement, which require only looped abstractions to be drawn to achieve the effect.



Figure 3.1. Lateral-view abstraction in Ruttmann's *Berlin: Symphony of a Great City* (1927)

While such films use lateral camera movements to deliberately evoke the radical perceptual effects of the train passenger's view, similar perceptual effects are produced by more conventional lateral tracking shots. Often used to follow moving characters or to establish a scene's sense of space, the lateral tracking shot is a commonly used device for cinematic storytelling that has been put to a number of practical and aesthetic uses.⁴⁹ Near the end of *400 Blows* (1959), for example, the minute-long lateral tracking shot that follows Antoine as he runs away to the ocean produces a sense of dynamic energy as it amplifies the movement of the background, but it equally forecloses a sense of progress and direction by blocking our view of what lies ahead. In *The Shining* (1980), distant lateral following shots follow their subjects at rigidly parallel angles in order to emphasize the maze-like geometry of the Overlook Hotel, thereby producing a kind of movement that feels more architecturally than anthropomorphically determined. And in *Seven Chances* (1925), Buster Keaton uses the lateral track for a self-reflexive gag. During the film's iconic chase scene, a lateral tracking shot of Keaton fleeing a horde of brides ends in an unforeseen collision with that very horde; the gag capitalizes on the fact that the lateral view unfurls space rather than anticipates it.

⁴⁹ In choosing to follow a character, the lateral tracking shot conveniently avoids the potential problem of tracks being visible in the shot.

What unites these examples is their potential to rupture our experience of camera movement as a surrogate for our own movement through space. Indeed, this rupture is a central insight of Brian Henderson's essay "Toward a Non-Bourgeois Camera Style," in which he argues that particular lateral tracking shots employed in the post-'68 films of Jean-Luc Godard refuted the bourgeois ideology endemic to the camera's reproduction of Renaissance perspective. By unflinchingly scanning a flat plane of action placed 90 degrees before it and thus refusing a sense of anthropomorphic subjectivity and spatial depth, Godard's camera represents "a refusal to participate in bourgeois space."⁵⁰ Despite its political thrust, Henderson's argument stems from a basic phenomenological intuition about how lateral camera movements can withhold kinetic depth effects. Henderson notes that with Godard's tracking shots, "the viewer is not drawn *into* the image, neither does he make choices within it; he stands outside the image and judges it *as a whole*."⁵¹ Though for Henderson this distanced relation to the cinematic image marks an aesthetics of political modernism—i.e. Godard's tracking shots defeat cinema's spatial illusionism identified by apparatus theory—it also articulates a mode of cinematic experience, a consistent perceptual aspect of the moving image, that is necessarily elided in phenomenological film theory.⁵²

⁵⁰ Brian Henderson, "Toward a Non-Bourgeois Camera Style: Part-Whole Relations in Godard's Late Films," in *A Critique of Film Theory* (New York: Dutton, 1980), 80.

⁵¹ Henderson, "Camera Style," 65.

⁵² Cinema's spatial illusionism is a shared insight of both apparatus theory and phenomenological film theory. Following Merleau-Ponty's presentation of being-in-a-world as a kind of situatedness within a field of possible action, phenomenological film theory presents screen space as palpably (if not *actually*) inhabitable. For Jennifer Barker, the perception of cinematic space is characterized by our projection of possible movement and action within it. While we cannot physically inhabit the space represented on screen, we at some level feel as if we can. In Barker's words, "We do *know* the impossibility of stepping into the movie and touching the figures inside it, but...we don't *feel* that impossibility as we're watching the film." Barker, *The Tactile Eye*, 104. Sobchack further explains that such a feeling of inhabitability is a phenomenological condition of the *moving* image. Reflecting on the single moment of animated motion from Chris Marker's *La Jetée*—a blink of an eye from a woman lying in bed—Sobchack finds that, suddenly, space becomes "habitable" and "fleshed out," infused with a "real possibility of bodily movement and engagement." Sobchack, "Scene of the Screen," 146. Similarly, in his phenomenological exploration of cinematic motion's "impression of reality," Christian Metz writes that "motion...draws [objects] from the flat surfaces to which they were confined [...] Movement brings us volume." Christian Metz, "On the Impression of Reality in the Cinema," in *Film Language: A Semiotics of the Cinema* (Chicago: University of Chicago Press, 1974), 7.

More than an aesthetic antidote to cinema's endemic illusion of perspectival depth, lateral camera movements offer experiences of movement that require new vocabularies for articulating their aesthetic effects. Consider, for example, a sequence from Leos Carax's *Mauvais Sang* (1986) in which the camera laterally tracks alongside the jubilant running of Denis Lavant to the tune of David Bowie's "Modern Love." The sequence immediately follows a conversation between Alex (Lavant) and Anna (Juliette Binoche), in which Anna falls into a depression over her fiancé. Eager to proffer an emotional outlet for Anna, whom he secretly loves, Alex turns on the radio to a mournful ballad. As soon as the song ends, Bowie's thumping synth-pop tune begins, introducing a tonal dissonance to the melancholic scene. Alex exits the apartment, but Bowie's tune follows him even as he leaves its diegetic source. When we cut to a lateral view of Alex walking screen right, the camera begins to accelerate, and Alex's hunched-over posture steadily opens up, ultimately exploding into a propulsive dance down the street.

Most descriptions of the sequence focus on the sheer physicality and manic energy of Denis Lavant, whose acrobatic talents are on full display.⁵³ But to explain the effect of the sequence purely in terms of Lavant's performance would overlook the particular feeling of kinetic energy uniquely produced by the speed, trajectory, and angle of the moving camera. To describe this feeling in phenomenological terms, we should first note that we don't quite *feel* the kinesthetic pull of moving through space along with Alex. Had the camera followed Lavant from behind or tracked backward in front of him, the sense of kinesthetic participation would be different. In such a case, we might be said to *identify* with Alex's movement through the camera's movement, or more precisely, we might link up our fictional alignment with Alex to the kinesthetic pleasure of moving through space as he

⁵³ See, for example, Fergus Daly and Garin Dowd, *Leos Carax*. (Manchester: Manchester UP, 1988), 95 and Jonathan Rosenbaum, "The Problem with Poetry: Leos Carax." *Film Comment* 30, no. 3 (05, 1994): 12.

does.⁵⁴ And yet, without the illusion of bodily movement, without the mimetic kinesthesia typified by camera movements that encourage anthropomorphic engagement, we still experience a pointedly *kinetic* excitement. This sequence is not simply a depiction of but a cinematic enactment of exuberant movement, an equally diegetic and formal antidote to what Anna says earlier in the scene: “nothing *moves* anymore.”

Such a kinesis, rather than kinesthesia, can be largely attributed not simply to our identification with Lavant’s propulsive dancing, but to the vibratory pulses of vertical lines that quickly pass along the screen in the opposite direction (Fig. 3.2). In this, the selection (or fabrication) of the backdrop is key. Lavant runs in front of a series of corrugated surfaces with painted stripes, alternations of white and gray, which produce intense rhythmic movements that resonate with the pulsing soundtrack. With the camera moving at such a speed, the alternating vertical lines don’t simply appear to be laterally displaced by the movement of the camera; in other words, their succession doesn’t simply mark our movement forward (as would the interpolation of single static objects between the camera and Lavant). Rather, the blurred vertical lines presented in rapid succession become a nearly abstract moving image of pure visual alternation, similar to the beginning of Ruttmann’s *Berlin*. Entranced by the rhythm of the moving composition, the monotonous repetition of light and dark, Lavant’s body seems to simultaneously traverse space *and* run in place. In a sense, the background doesn’t just move in a single direction but *flashes* like a strobe light. Thus, we experience Lavant’s increase in speed through the increase in visual rhythm; the perceived energy and vitality of his body is amplified by, but is also inseparable from, the audiovisual rhythm that propels and is propelled by his movement. The effect is exacerbated when

⁵⁴ For an account of how theories of cinematic identification might have purchase on such camera movements, see Scott Richmond, “The Exorbitant Lightness of Bodies, or How to Look at Superheroes: Ilinx, Identification, and *Spider-Man*,” *Discourse* 34, no. 1 (2012): 113-144.

we briefly cut to a closer framing: with even less spatial reference to identify the camera's directional movement, Lavant's speed is sensed through the pulsing rhythm of the background.



Figure 3.2. Lateral camera movement and pulsing visual rhythm in *Mauvais Sang* (Carax, 1986)

A similar sequence from Carax's own *Holy Motors* (2012), with the same actor no less, helps clarify what's going on here (Fig. 3.3). Performing a series of acrobatic stunts in a motion-capture studio, Lavant runs on a treadmill as a digital screen behind him projects rectangular polygons of alternating shades of black and white that rapidly glide to the left, simulating Lavant's traversal of space. While Lavant here is literally running in place, and the camera's only movement is a subtle track forward, the optical effect is almost identical to the "Modern Love" sequence. Both sequences, regardless of their profilmic differences, produce two co-present perceptual aspects: we can see the shot as if the camera laterally follows Lavant through space or as if Lavant runs in place in front of the pulsing abstraction of the background.⁵⁵ Despite the deliberate abstraction of the projected

⁵⁵ In fact, in *Holy Motors*, this effect neatly emblemizes a broader conceit of the film. The plot of *Holy Motors* consists of following Mssr. Oscar (Lavant) around the streets of Paris in a limousine as he fulfills a series of "appointments" in which he acts in various roles for publicly staged fictional performances. We at first assume that Oscar's performances are watched despite the lack of cameras or audiences, but as the film progresses, Oscar's performances become increasingly private, making us wonder why these performances happen, for whom are they performed, and to what extent are they fictional. It is in this blurring of fiction and reality that the perceptual effect of the treadmill shot carries

forms behind Lavant, which make no pretense to simulate actual inhabitable space, the feeling of speed is undeniable. Both sequences invite comparison to the novel experience of train travel, particularly the rhythmic repetition of railyard objects. As Schivelbusch puts it, in panoramic perception, “the objects were attractive in their state of dispersal.”⁵⁶ Notably, physicians were concerned with the eye fatigue from “watching too many telegraph poles *flash* by a moving train,” a medical danger they associated with cinema spectatorship, as both visual activities put a “strain on the eye to follow the object it is looking at.”⁵⁷ Between these two sequences, Carax demonstrates the role of the frame’s spatial delimitation in the phenomenological effect of lateral camera movement: beyond a surrogate for our movement through the world, the moving camera is simply one tool for generating different forms of spatially framed perception.



Figure 3.3 Spatial unfurling in *Mauvais Sang* (Carax, 1986) and *Holy Motors* (Carax, 2012)

Both sequences present visual rhythm—the steady alternation of strong and weak elements—as an index of the camera’s velocity, of its movement through space (whether such movement is actual or virtual). Movement here is less the simulation of our movement through

significant meaning. Just as we never forego our absorption in the explicitly staged events throughout Oscar’s workday, we never forego the perceptual aspect of Lavant’s movement through space despite knowing that he is merely running on a treadmill in front of a screen.

⁵⁶ Schivelbusch, *The Railway Journey*, 189.

⁵⁷ Qtd. in Kirby, *Parallel Tracks*, 48 (my emphasis).

space—space that is familiarly volumetric and inhabitable—and more properly the immediate movement of *screen* space with relation to the frame. Though we can indeed imagine ourselves running alongside Lavant or even inhabiting Lavant’s moving body, the kinetic feeling the sequences produce encourages us to stand outside his spatial situation and experience the sequence as a flat, imaged whole.

This is the kind of movement that phenomenological accounts of camera movement are troubled by. In these accounts, the spectator’s attention to the frame is almost always attenuated, as the kinesthetic feeling of moving forward is said to induce a perceptual blindness to the edges of the screen. Thus, when theorists analogize the perception of the moving camera to our own *frameless* perception, intended objects are seen to flow seamlessly in and out of a visual field. For example, Sobchack writes:

[As] the film’s vision moves toward its intentional objects, others gently peel away out of frame—and much less abruptly than we *think* [...] [Things] become gradually invisible before they vanish from the frame and the visual field [...] This is not to deny the geometric rectangularity of the frame nor its function for us as objective spectators, but it is to assert that the frame’s function in the subjective visual activity of the film is not to halt vision abruptly [...] The frame is *invisible* to the seeing that is the film. It is a limit, but like that of our own vision it is inexhaustibly mobile and free to displace itself [...] For the film as for us, then, openness upon the world that is the act of viewing “implies that the world be and remain a horizon” that extends beyond any immediate view seen by an existential presence that “is of it and is in it.”⁵⁸

In Sobchack’s account, while we are consciously aware of the rectangular frame delimiting the field of vision, the experience of camera movement attunes us to the film’s perception as an intentional, unframed seeing analogous to our own, which thereby attenuates our attention to the frame.

Similarly, Richmond writes that just as “one of the most significant aspects of motion perspective is progressive occlusion at the edges of the visual field,” during the embodied illusion of moving through space “we have progressive occlusion at the edges of the *screen*.”⁵⁹

⁵⁸ Sobchack, *Address of the Eye*, 131, emphasis in original.

⁵⁹ Richmond, *Cinema’s Bodily Illusions*, 87, emphasis in original.

In these accounts, camera movement's evocation of a navigable, inhabitable world requires that we see the frame's spatial delimitation as infinitely displaceable. Functioning like a horizon—a perceivable limit that indicates the possibility of going beyond it—the frame exists in order to beckon the possibility of the camera's mobility.⁶⁰ It is in this sense that, during the experience of camera movement, the frame is not empirically but phenomenologically invisible: as we engage in a felt sympathy with the moving camera—as an agent of our embodied illusion of movement or as an intentional entity moving as we do—the edges of the frame soften from inattention.

Because such an account rests on a normative sympathy between cinematic perception and ordinary perception, it effaces the extent to which certain camera movements actually heighten our attention to the boundaries of the frame and the flatness of the screen. In the sequences from the Carax films, the flat vertical lines flashing in the background strikingly parallel the vertical edges of the film frame, thereby foregrounding the geometrical rigidity of the frame and the flatness of the screen. The soft edges of the screen become hardened. The rectangularity of the screen is no longer an arbitrary convention of our view upon the filmic world, but is now, briefly, aesthetically integrated into the pictorial contents composed within. The frame and its rectangularity are made aesthetically necessary. To borrow a phrase from Michael Fried, the sequence might be said to “acknowledge” the rectangularity of the frame, taking on the challenge of addressing the frame as an intrinsically formal fact of its aesthetic presentation rather than a contingent condition of its medium.⁶¹

⁶⁰ One might call this the phenomenological version of Stanley Cavell's ontological observation that “a painting is a world while a photograph is *of* the world.” Stanley Cavell, *The World Viewed: Reflections on the Ontology of Film* (Harvard University Press, 1979), 24.

⁶¹ Michael Fried, “Shape as Form,” in *Art and Objecthood: Essays and Reviews* (Chicago: University of Chicago Press, 1998).

One such expressive possibility is the sense of *presentness* that accompanies the flatness of the moving composition. Such presentness should not be confused with the “present tense” that Christian Metz has attributed to the movement of the moving image,⁶² but has more in common with the presentness Michael Fried and Stanley Cavell have identified with modernist visual art or with the “impression...of a continuous present” that characterizes the later works of Stan Brakhage.⁶³ Despite the Carax sequence’s linear temporality, the composition’s flatness and rhythmic regularity give off the impression of a pictorial fullness, a sense of an image being all there at once, to be beheld in a kind of perpetual present devoid of progress or anticipation. That a moving image evokes presentness seems unlikely given the conditional temporality of the medium. After all, in modernist criticism it is painting, not cinema, that has a privileged relationship to presentness. In the words of Stanley Cavell, the planarity and stasis of painting evoke a “total thereness;” a painting is “wholly open to you, absolutely in front of your senses, of your eyes, as no other form of art is.”⁶⁴ But in Carax’s cinematic sequence, the flatness of the abstraction sufficiently engages the planarity and rectangularity of the screen, and the flashing visual rhythm suppresses the inherent linearity of recorded time. Lavant is indeed *represented* as spatiotemporally situated, as running toward something off in the distance, but the immediate formal effect of the composition places him within a pulsing rectangle that we experience as totally there, all at once. That the movement of the camera is the agent of this formal achievement evidences the range of aesthetic possibilities rarely considered within phenomenological and cognitive theories of camera movement. Unhinged from its mimetic

⁶² Metz, “Impression of Reality,” 5-6.

⁶³ R. Bruce Elder, *Image and Identity: Reflections on Canadian Film and Culture* (Waterloo: Wilfrid Laurier Univ. Press, 2010), 253.

⁶⁴ Cavell, *World Viewed*, 109. Though Cavell and Fried’s notions of “acknowledgment” and “presentness” have explicit ties to theoretical accounts of modernist art, I do not wish to mobilize these aspects of these terms in my description of the Carax sequences. Such terms are simply useful insofar as they illuminate perceptual aspects of these sequences.

adherence to embodied vision, the moving camera harnesses the expressive possibilities of the screen's geometrical limits.

We can see this effect employed to various uses. In one of the most formally daring sequences of Mikhail Kalatozov's *The Cranes are Flying* (1957), a lateral tracking shot shows the protagonist Veronika frantically running alongside a speeding train to attempt suicide (Fig. 3.4). Though the sequence culminates in violently jerky handheld camera movements and fast-motion, the dominant aesthetic feature of the sequence is the pulsing rhythm of motion-blurred fence slats rushing by, causing the entire screen to flash with an intensity that evokes Veronika's inner turmoil. Or to take a far less virtuosic example, in a scene from Otto Preminger's *Carmen Jones* (1954) in which Carmen and Joe are shown traveling by Jeep in rear-projection, a cut to a lateral view introduces a subtle sensation of speed that complements Carmen's growing vivacity. Victor Perkins writes,

The picture achieves a new openness now that the action is seen from alongside the jeep, with the frame of the windscreen no longer enclosing our view. The fresh angle conveys also a much stronger feeling of movement since it brings into play what the previous shot had suppressed, the rapid flow of the background scenery. Its fluid, varied pattern reinforces the free-ranging rhythms of Carmen's song.⁶⁵

⁶⁵ Victor Perkins, *Film as Film: Understanding and Judging Movies* (London: Penguin Books, 1972), 80.



Figure 3.4 The rhythm of blurred fence slats in *The Cranes are Flying* (Mikhail Kalatozov, 1957)

Lateral camera movements can also yield expressive possibilities of the screen other than that of presentness. In the experimental film *All My Life* (1966), Bruce Baillie explores the poetic effects of lateral movement and visual rhythm without channeling the image's affective energy through a human figure (Fig. 3.5). Accompanied by Ella Fitzgerald and Teddy Williams' lilting jazz tune "All My Life," the film simply consists of a lateral tracking shot that slowly moves along a dilapidated fence, blue sky, and brown grass, occasionally passing by brilliantly red rosebushes. Seemingly attuned to the pace of the music, the alternating fence pickets steadily emerge from the left side of the frame, producing a soothing visual rhythm. As with the Carax examples, the verticality of the pickets acknowledges the vertical edge of the frame; but without a human figure onscreen, the left edge of the frame becomes the locus of action that draws our attention. Focusing on the continuous unfurling of the fence pickets, we're not so much keyed in to the unfolding of a

cinematic world as we are the abstract, purely formal rhythmic regularity vibrating on the screen's surface. In effect, we're lulled into a kind of temporal loop that produces a feeling of continuity and flow devoid of progress and exploration;⁶⁶ we are, as the song indicates, simply *waiting* for rather than anticipating the unforeseen radiance of red rosebushes and the culminating ascent into blue sky.



Figure 3.5 The lulling rhythm of unfurling fence slats in *All My Life* (Baillie, 1966)

A still different example is the lateral tracking shot of Matt Damon and Casey Affleck walking together in Gus Van Sant's *Gerry* (2002), a film that tells the tragic story of two hiking

⁶⁶ In his *Art and Perception*, Rudolph Arnheim reminds us that “there are mobile works that are not sequential. A dance composition is likely to unfold logically from its beginning to its end, but a waltz in the ballroom is not. Similarly, certain kinds of music, intended to establish a particular mood, are stationary, without a beginning, end, or development. The movements of a sculpture mobile have no progression. They reveal the varieties of spatial relation within a set of jointed elements [...] When sequence is confused with mobility, misinterpretations result.” Rudolf Arnheim, *Art and Visual Perception: A Psychology of the Creative Eye* (Berkeley: University of California Press, 2004), 376.

companions who get lost in the desert (Fig. 3.6). By tightly framing his two subjects in shallow focus, using a telephoto lens, and keeping the camera's speed perfectly uniform with the pace of the actors, Van Sant draws our attention away from the laterally moving background and toward the *vertical* patterns of rhythmic motion produced by the actors' heads bobbing up and down.⁶⁷ Despite both the camera's and the actors' continuous movement to the left, we focus our attention not on their progressive movement through space but on their movements with respect to the upper and lower barriers of the frame. This *traveling* shot, then, does not so much depict locomotion as it does the various levels of audiovisual synchronicity and asynchronicity between the two protagonists. Instead of functioning as an infinitely displaceable horizon of perception, the mobile frame rigidly encloses—and aesthetically presents—the human figures in order to spatially choreograph their movements within a two-dimensional array. In reducing space to a flat plane of figure and ground, the shot opens up new expressive possibilities at a quiet but pivotal moment in the narrative: the suspension of mobile progression evokes the hikers' complete sense of disorientation, and their asynchronous movements suggest a fomenting discord between them.



Figure 3.6 Lateral camera movement and visual rhythm in *Gerry* (Van Sant, 2002)

⁶⁷ This shot is a clear homage to a similar shot in Bela Tarr's *Werckmeister Harmonies* (2000), but I've chosen to examine Van Sant's version because it places more emphasis on the oscillation between synchronicity and asynchronicity.

In each of these examples, ordinary camera movements encourage us to see relations of movement on the surface of the screen and the audiovisual rhythms such movements produce. These aspects of movement necessarily resist the phenomenological expectation that we move through space with the moving camera. Because forward camera movement activates perceptual depth cues consistent with an active, intentional movement through space, it yields an experience in which our perceptual *knowledge* of the camera's movement coincides with our *kinesthetic experience* of screen space. This coincidence is constitutive of the illusion of bodily movement such movements produce. With certain lateral movements, however, our epistemological and aesthetic faculties are in productive tension. Just as the train passenger *knows* that she looks at the world moving by but is presented with an autonomous moving image separated from her body, the spectator of lateral movement knows that what she sees is produced by a camera's movement through space but sees the abstract visual rhythms colliding with the frame. In both cases, denying the immersion of kinesthetic participation opens up the spectator to a mode of viewing uniquely attuned to the two-dimensional composition of screen space. Such a denial occasions the emergence of a moving image *seen as* a moving image, an autonomous, framed array of moving phenomena radically separated from the surrounding world.

If phenomenological film theory looks to forward camera movement as a model of cinema's kinesthetic participation—camera movement feels like embodied movement; screen space feels like ordinary space—lateral camera movement's spatial unfurling effect offers a way of seeing the movements on the screen as phenomenologically severed (not just ontologically severed) from the world occupied by the spectator. In placing these two models side by side, we not only avoid the pitfalls of overly deterministic theories, but help elucidate the problems at the heart of theorizing a phenomenology of camera movement. On the one hand, phenomenological film theory's desire to efface an attention to the frame works to extend the long-held identification of the camera with the

eye, an intuitive conviction about the nature of cinematic experience as an immersive simulation of being-in-the-world. On the other hand, lateral movement's spatial unfurling invites us to reacquaint ourselves with the strangeness of moving images as zones of experience radically disassociated from our bodies, pointing us back to the experience of cinema as *imaged motion*—a lifelike world of motion uncannily framed, contained, and separated from lived experience.

Placing each theoretical model on a continuum of experience acknowledges the dual nature of all cinematic motion perception. As an inherently malleable apparatus for modulating perceptual experience, the cinema screen offers a wide spectrum of spatial phenomena, from thickly illusory spaces of depth that efface the screen's material flatness to abstract patterns of light and color that acknowledge and exploit that flatness. As a surface for the projection of moving images, the screen exhibits the potential to shift between these modes of experience with fluidic ease. Rather than normativize anthropomorphic camera movements, a phenomenology of spatial unfurling encourages an examination of the effects that cameras and screens can uniquely produce as technological mediations of embodied perception, that is, as apparatuses with which and through which we see the world. Seen in this light, our tendency to identify anthropomorphically with the moving camera becomes not a universal phenomenological condition of camera movement but a particular effect, a technological achievement that orients us toward the moving image in a particular way.

Seeing Double

In the previous sections, I examined lateral camera movement as a means of rethinking the way the moving camera has been understood as a surrogate for the body in phenomenological theories of cinematic experience. If forward camera movements tend to yield palpably illusory modes of familiar embodied experience—Richmond's "illusion of embodied movement,"

Bordwell's "kinetic depth effect," Gibson's "motion perspective"—lateral movement's capacity for spatial unfurling suppresses those illusory forms of screen engagement. Instead of encouraging an analogy with our own frameless vision, spatial unfurling produces forms of flatness, abstraction, and visual rhythm that make expressive use of the rectangular film frame as a two-dimensional array of screen space. In this section, I'll explore how these aesthetic qualities yield a way of seeing cinema marked by a phenomenological doubleness: though we remain aware of the camera's movement through space and continue to see the mobile frame as the infinitely displaceable horizon of its embodied vision, our aesthetic attention is equally devoted to the two-dimensional patterns of light that such profilmic movements produce before us. It is the aim of this section to investigate the nature of this doubleness as a necessary feature of *aesthetic* perception, thereby considering the implications for understanding the moving camera beyond analogies to *natural* perception.

Richard Wollheim's concept of the "twofoldness" of picture perception offers a useful starting point to consider how pictures are experienced as instances of art. Against Ernst Gombrich, who claims that seeing a picture involves wavering between seeing what it depicts and seeing the marks—colors, lines, splotches—that constitute it, Wollheim argues that both the configurational and recognitional aspects of a painting are simultaneously present in our appreciation of pictures as art objects.⁶⁸ Instead of a theory of seeing the physical surface of the painting *as* its depictive content—as with the paradigm case of Ludwig Wittgenstein's "seeing-as" in the duck-rabbit, in which we cannot see the duck and rabbit simultaneously⁶⁹—Wollheim argued that we see the

⁶⁸ Wollheim's is the most developed, but not the only, account to posit a general twofoldness of picture perception. For example, in an article on picture perception, Gibson writes "I conclude that a picture always requires two kinds of apprehension that go on at the same time, one direct and the other indirect. There is a direct perceiving of the picture surface along with an indirect awareness—an indirect perceiving, knowing, or imagining of virtual surfaces as the case may be." James J. Gibson, "The ecological approach to the visual perception of pictures." *Leonardo* 11, no. 3 (1978): 227-235, 232.

⁶⁹ Ludwig Wittgenstein, *Philosophical Investigations*, trans. G.E.M. Anscombe and P.M.S. Hacker (Hoboken: NJ, John Wiley & Sons, 2010).

depictive content *in* the surface array (i.e. a matter of *seeing-in* rather than *seeing-as*). The artist, Wollheim writes, “cannot be thought content to leave the two visual experiences in such a way as one floats above the other;” that is, these two aspects are constitutive of a single complex experience rather than independent experiences that simply occur at the same time.⁷⁰

Wollheim’s theory of perceiving paintings is compelling precisely because painting is a medium for which the *look* of the surface—the way in which paint is applied, the curve of a line, the thickness of paint, the patterns of color—explicitly matters to a properly *aesthetic* experience of it rather than as a mere picture of visual information. As Michael Podro explains in a slight modification of Wollheim’s twofoldness, there exists a “symmetry” between the representational content of a painting and the look of its surface.⁷¹ In Podro’s account, when we see the face of a woman while looking at the *Mona Lisa*, we see the woman—the painting’s representational content—at the same time as we see the *look* of the painting’s surface. Looking at Raphael’s *Madonna with the Fish*, for example, we cannot separate the experience of “recognising bodily movement of the figure of the virgin” from registering “the sweep of Raphael’s line.”⁷² James Elkins echoes Podro’s account: “To speak *only* [...] of the figure, or the represented thing [...] is to capitulate to a concept of pictures that imagines there is a gap between marks and signs.”⁷³ To look at a painting as a painting—that is, as an object for aesthetic experience rather than as a mere picture of information—is to consider the surface of the painting, the particular textures and forms that constitute representational content.

⁷⁰ Richard Wollheim, *Art and its Objects* (Cambridge University Press, 2015), 149.

⁷¹ Michael Podro, “Depiction and the Golden Calf,” in Philip Alperson, ed., *Philosophy and the Visual Arts* (Netherlands: Springer, 1987), 9.

⁷² Podro, “Golden Calf,” 18.

⁷³ James Elkins, “Marks, Traces, Traits, Contours, Orli, and Splendores: Nonsemiotic Elements in Pictures,” *Critical Inquiry* 21.4 (1995): 834.

This model can be used to think about the experience of the screen's surface in camera movement. To be sure, the surfaces of cinematic images are not worked upon in the same way as those of paintings. Freighted by theories of the automatic nature of photographic registration, cinematic images have long been condemned to a representational determinism in certain traditions of film theory, in which formal creativity is restricted to the activity of manipulating referential content rather than freely generating it.⁷⁴ Realist and phenomenological theories of cinematic perception thus tend to marginalize attention to the surface of the screen.⁷⁵ In the most extreme cases, cinema's automatic realism is invoked as a counterexample to Wollheim's twofoldness thesis. According to Robert Stecker, for example, "People often don't notice anything other than pictorial content while caught up in a movie."⁷⁶ In phenomenological and cognitive theories of cinematic perception, we find a similar privileging of cinema's illusory realism as the starting point for more nuanced accounts of spectatorial investment in cinematic worlds onscreen. A version of this can be found in Joseph Anderson's "ecological" theory of cinematic perception, which concedes that the spectator's attention *alternates* between the "incompatible perceptions" of "scene and surface."⁷⁷ Because the three-dimensional array contains more vital information, Anderson claims, we privilege

⁷⁴ See, for example, Roger Scruton, "Photography and Representation." *Critical Inquiry* 7, no. 3 (1981): 577-603.

⁷⁵ On the other side of the theoretical divide, Rudolph Arnheim's formalist film theory celebrates the flatness and rectangularity of the screen as one of the major conditions of film's artistic potential, but his account of spectatorial experience thereof is inconsistent. At times, Arnheim describes a simultaneous experience of surface and depth similar to Wollheim's twofoldness. For example, he writes: "we can perceive objects and events as living and at the same time imaginary, as real objects and as simple patterns of light on the projection screen." Rudolph Arnheim, *Film as Art* (Berkeley: University of California Press, 1968), 29. But at other times he suggests we experience the two registers in a two-step process: "In Ruttman's film *Berlin* there is a scene of two subway trains passing each other in opposite directions [...] Anyone watching this scene realizes, first of all, that one train is coming toward him and the other going away from him (three-dimensional image). He will *then* also see that one is moving from the lower margin of the screen toward the upper and the other from the upper toward the lower (plane image)." Arnheim, *Film as Art*, 12.

⁷⁶ Robert Stecker, *Aesthetics and the Philosophy of Art: An Introduction* (Lanham: Rowman & Littlefield Publishers, 2010), 187.

⁷⁷ Joseph D. Anderson, *The Reality of Illusion: An Ecological Approach to Cognitive Film Theory* (Carbondale: SIU Press, 1998), 47-48.

the space of illusory depth. In this regard, our momentary awareness of the screen's flatness can seem "obtrusive," as when we crane our necks as if to see around an obstruction in illusory space only to be confronted with the stolidity of screen space.⁷⁸ In such accounts, the surface of the screen is either ignored as an aspect of spectatorial attention or regarded as an obstacle to the richness of an immersive cinematic experience.

Camera movement, on this view, only counts as a technique to circumvent such an obstacle, in that it enacts the spectator's desire to willfully move through screen space. But if considered within the phenomenology of spatial unfurling, camera movements need not only bring us with them through an illusory world, but can be *seen as* the gestural agents of two-dimensional screen phenomena. In other words, camera movements can take on the superficial materiality of animate brushstrokes, producing the very material stuff that constitutes the look of the screen's surface. The overt twofoldness of spatial unfurling necessarily involves a simultaneous perception of a moving viewpoint in space and the seemingly autonomous surface effects we see on the screen (such as the flashing vertical lines in the Carax examples).

This simultaneity is constitutive of what it means to view a moving image as an aesthetic object, that is, as a kind of picture whose appreciation entails a simultaneous attention to the look of its surface and what it depicts. In this way, camera movements can take up the conditions of the train passenger's panoramic perception. If the train window automatically and indiscriminately renders the rushing landscape a "painted surface," the filmmaker can similarly use the moving camera as an aesthetic resource to convert space into the painted surfaces of moving images. The camera need not only carry us through the world it inhabits; it can also create a world from scratch.

⁷⁸ Anderson, *The Reality of Illusion*, 48.

Put simply, the moving camera can *paint* the screen with the visual material it captures from its own movement.

We can see this logic, and what it entails, more clearly in a collection of films by experimental filmmaker Michael Snow. In films such as *Standard Time* (1967), *Back and Forth* (1969), and *La région centrale* (1971), Snow uses camera movements to simultaneously present a world photographed by the camera and exhibit the screen as a surface seemingly painted with light and color. In *Back and Forth*, the camera pans left and right and tilts up and down at various speeds, thereby gradually transferring movement from the camera to screen space itself. In *La région centrale*, an intricate array of spinning, twirling, and rotating camera movements at various speeds and trajectories determines the threshold between three-dimensional figuration and two-dimensional abstraction, between our sense of moving with the camera as a kind of bodily surrogate and seeing the blurs of moving color that only the inhuman speeds of a machine can produce. In William Wees's words, these films encourage us to "look *at* the image as well as into it."⁷⁹

Perhaps the most virtuosic demonstration of this comes from *La région centrale*, in which the twists, rolls, and revolutions of the camera are generated by a machine that explodes the aesthetic economy of spatial unfurling to its most inconceivable extreme. As Snow puts it, "the camera moves around an invisible point completely in 360 degrees not only horizontally, but in every plane of a sphere. Not only does it move in predirected orbits and spirals, but it itself, also turns, rolls, and spins [...] The film is a cosmic strip."⁸⁰ Engineered so that the camera always points outwards toward the landscape, Snow's elaborate camera apparatus guarantees that the camera never faces the

⁷⁹ William Charles Wees, *Light Moving in Time: Studies in the Visual Aesthetics of Avant-Garde Film* (University of California Press, 1992), 156, emphasis added. While Wollheim's twofoldness hasn't been explicitly taken up in film studies, Wees language here suggests that it has been grasped intuitively, finding its way into critical discussions of films.

⁸⁰ Michael Snow, "On *La Région Centrale*." *Film Culture*, no. 5 (Spring 1971), 58.

direction it moves, thereby violating an essential criterion of anthropomorphic movement.⁸¹ That is, instead of moving forward *through* space to emulate familiar forms of human locomotion (as we might while walking, driving, or even flying), Snow's camera scans space, still very much bound to its apparatus. It pans, tilts, rotates, and spirals, exploring a seemingly infinite flexibility afforded by its apparatus, but it does not penetrate into the space it beholds. Compounded by breakneck speeds during the film's operatic finale, these scanning camera movements gradually produce painterly swirls of color on the surface of the screen. In this way, the absence of the eponymous "central region"—the invisible center of the sphere inscribed by the camera's movement—is constitutive of the film's flattened, unfurling aesthetic.

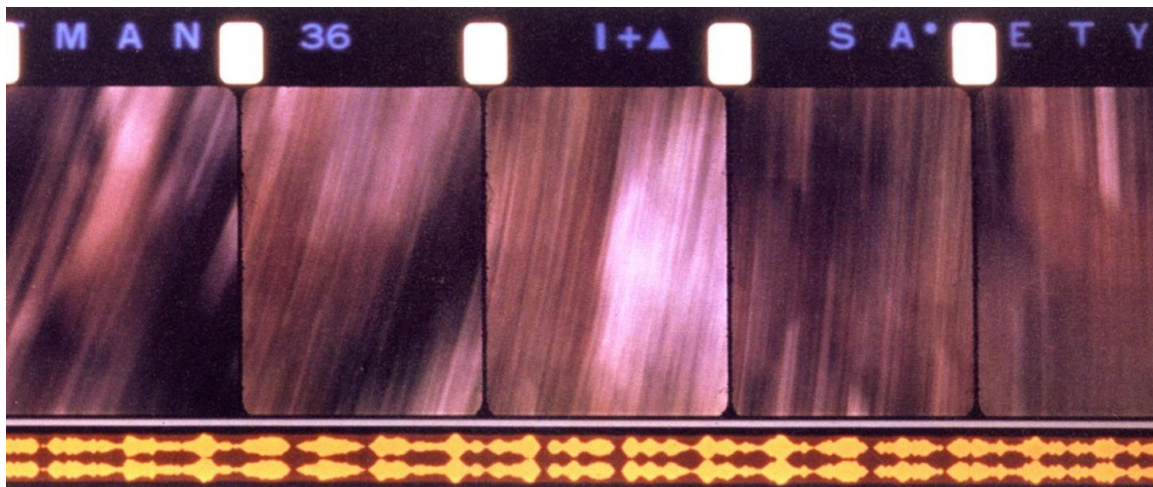


Figure 3.7. Five frames (with soundtrack) of blurred motion in *La région centrale* (Snow, 1971)

But more than simply showing how the velocity of camera movements determines the threshold between representation and abstraction, *La région centrale* creates visual patterns—and corresponding patterns of aspect-perception—that emerge from the infinitely various but precise trajectories of the moving camera. Even before the film reaches the speeds necessary for producing flattened blurs of color, particular non-anthropomorphic camera movements displace the agency of

⁸¹ P. Adams Sitney makes a similar observation about the absence of anthropomorphic camera movement in *La région centrale*, proclaiming that the film's camera movement comes from a "disembodied perspective." P. Adams Sitney, *Visionary Film: The American Avant-Garde 1943-1978* (New York: Oxford University Press, 1979), 359.

movement from the camera to the visual forms projected onscreen. For example, when the film's second section introduces the camera's capacity to rotate on its own axis, the screen's pictorial space takes on an autonomy absent in the slow lateral pans of the first section; in addition to registering the movement as the camera's rotation, we see the horizon line independently rotate within the confines of the frame, almost as if a flat, static image is rotating immediately behind the frame. Likewise, when the camera rotates 90 degrees and positions the horizon as a vertical line bisecting the frame, we briefly see the horizon as a coarse squiggle spontaneously emerging from the bottom of the frame as the camera moves downwards. In each case, the positional orientation and trajectory of the camera produces the perceptual condition for us to see the meeting between land and sky as an animated line drawing itself along the screen's surface.

The most extreme example of this autonomy of screen movement occurs at the beginning of the second half of the film, when the moon spirals and rotates against a black background with the independent vitality of an animated figure. Completely divorced from the spatial context of the landscape, the moon barely registers as anything but a blurred white circle moving against blank space, a flat geometric figure seemingly drawn from the experimental animations of Hans Richter or Walter Ruttmann. And yet, we never forego the knowledge that the camera's movement produces such movements. Seen within the context of Snow's overt display of technologically mediated vision, this seemingly non-photographic image beckons us to imagine the camera movements that produced it. As Maureen Turim observes, "[*La région centrale*] does not relinquish its hold on the recognizable, the landscape, the day/night cycle, even as it carries its work of subversion and abstraction of representation to an extreme."⁸² Though the film, in a sense, oscillates between the recognitional and configurational aspects of the moving image, and thereby reveals the

⁸² Maureen Cheryn Turim, *Abstraction in Avant-Garde Films* (Ann Arbor: UMI Research Press, 1985), 129.

constructedness of the camera's automatic capacity for representing perspectival space, a general twofoldness persists throughout. The camera's movement is as much the subject of the film as is the landscape the camera records. As a result, our knowledge of the camera's movement remains a constant; it constitutes the epistemological background to our immediate experience of the screen's painterly abstractions. Just as we cannot subtract our knowledge of the activity of painting from the look of the canvas's surface, Snow's film guarantees that we cannot subtract our knowledge of the moving camera from the screen's surface even when the normative perceptual cues for camera movement have been suppressed. Our immediate experience of the film is informed as much by our knowledge of or reflection upon the mechanisms of its construction—of which we are sporadically reminded by the machine's shadow—as by our renewed aesthetic awareness of the screen's two-dimensionality.

This twofoldness, then, is constitutive of the experience of *La région centrale*, and it is part of Snow's project to give visual form to this ontological condition of camera movement by emphasizing the surface of the screen. If Snow's camera movements evoke the medium of painting, they do so not because they evoke the bodily presence of its maker, but because they evoke a sense of the design, composition, and orchestration of the screen's framed surface. As Snow himself has indicated, our awareness of the frame is crucial to the experience of the film: "The single rectangle can contain a lot. In *Région* the frame is very important as the image is continuously flowing through it...It can seem sad that in order to exist a form must have bounds, limits, set, and setting. The rectangle's content can be precisely that."⁸³ In other words, Snow shows us the extent to which camera movement—despite its tendency to absorb us, to draw us into the world on screen, to feel

⁸³ Snow, *Collected Writings*, 60.

ourselves moving with it—remains an aesthetic form, an achievement of a framed composition, a moving *image*.

The twofoldness of camera movement entails a simultaneous awareness of the screen as a worked surface and the figurative forms that such work has achieved, but unlike the twofoldness of painting, the worked surface of the cinema screen is as much an achievement of the camera itself as it is the filmmaker's. Snow is intent on presenting an aesthetic experience that registers the machinic otherness of the cinematic apparatus. The camera's movements importantly do not register the gestures of Snow's embodied subjectivity but those of a machine.⁸⁴ The otherworldly camera movements are "composed" by Snow in an "overall score for the film" but could only ever be executed by an apparatus that far exceeds the human body's capacity for movement.⁸⁵ The swirls and rotations, smears and squiggles we see in Snow's film do not convey the embodied subjectivity of the artist but the nexus of technological apparatuses—camera, screen, gyroscopic machine—that Snow has orchestrated. Thus, Snow's entire project in *La région centrale* is an exploration of the experiential possibilities of camera movement as a distinctly non-anthropomorphic way of seeing the world. The technologically enhanced camera movement not only suppresses our desire to identify anthropomorphically with the moving camera, but, in Snow's words, aspires to "make a film in

⁸⁴ In this, Snow offers us a useful heuristic for rethinking camera movements as brushstrokes. Though this analogy has been used before to describe the camera movements of Stan Brakhage and Marie Menken, I'm using it in an importantly different way. The jerky and uncontrolled handheld camera movements of Brakhage's films more readily evoke the bodily presence of the camera operator's gesture—where, as with a brushstroke, the movement indexes the precise individual actions of the artist wielding his instrument in a particular spatiotemporal context. As such, the "strokes" of Brakhage's camera reinforce the realist illusionism endemic to the camera: even when the wild and jerky movements create abstract blurs, they distinctly register the movement of the camera as an index of the raw, embodied presence of the filmmaker wielding the camera as an extension of his embodied self. Indeed, this evocation of painterly gesture appropriately invites parallels with Merleau-Ponty's account of painting as a registration of pre-conscious embodied gesture: "it is the expressive operation of the body, begun by the least perception that develops into painting and art." Maurice Merleau-Ponty, "Indirect Language and the Voices of Silence," in Ted Toadvine, ed., *The Merleau-Ponty Reader*, (Evanston: Northwestern UP, 2007), 269.

⁸⁵ Snow, *Collected Writings*, 60.

which what the *camera-eye* did in the space would be completely appropriate to what it saw.”⁸⁶ Snow is interested in capturing an aesthetic presentation “appropriate” to the otherworldly movement and perception of the camera itself. Free from the encumbrances of the human body, the camera does not have to face the world or move forward through it. And unlike the human eye’s field of vision, the camera’s projected expression is uniquely framed. *La région centrale* thematizes these conditions through the camera’s ways of moving.

Commenting on his ambition to capture the authenticity of the camera’s vision, Snow claims to have drawn inspiration from Cézanne’s landscape paintings, which similarly achieved an “incredibly balanced relationship between what [Cézanne] did and what he (apparently) saw.”⁸⁷ The invocation of Cézanne is telling. In Merleau-Ponty’s noteworthy account, Cézanne’s painting registers the pre-reflective, pre-habitual experience of things as they appear immediately to the senses. Painting from a “lived perspective” rather than a “geometric or photographic one,” Cézanne strove to represent the organization, substance, and materiality of objects as they appear to us immediately in our visual fields.⁸⁸ He thus eschews the fixed, single-line contour of Renaissance perspective in favor of a multiplicity of dense outlines that reflect the anticipated solidity of intended objects. For Merleau-Ponty, Cézanne didn’t represent objects realistically in accordance with scientific and mathematical codes of optical accuracy, but rather found the visual means of expressing the primordial elements of perception as a lived, embodied experience. Something analogous, though not quite similar, happens in *La région centrale*. In Snow’s film, the movements of the camera do not capture something primordial and prereflective about *human* perception, but

⁸⁶ Snow, *Collected Writings*, 57.

⁸⁷ Snow, *Collected Writings*, 57.

⁸⁸ Maurice Merleau-Ponty, “Cezanne’s Doubt,” in Ted Toadvine, ed., *The Merleau-Ponty Reader* (Evanston: Northwestern UP, 2007), 73.

about camera perception, or more precisely, about the camera and the screen. *La région centrale* is analogous to Cézanne's painting insofar as it adapts Cézanne's ambition to express the phenomenology of natural human perception to a phenomenology of the camera's vision. Like Cézanne, Snow finds (and constructs) the visual means of expressing the camera's distinctly non-anthropomorphic vision. So instead of a moving image that reflects our ordinary embodied experience of the world, where we anticipate a horizon of possible action and movement on screen, each of the visual elements of *La région centrale* conveys its conditions of possibility: the scanning movements of the camera capture something of the indiscriminateness of automatic recording, the abstractions produced by rapid movement foreground the flatness and rectangularity of the screen, and the impossible trajectories of Snow's apparatus exploit the unencumbered portability of the camera.⁸⁹

With *La région centrale*, then, Snow pushes the limits of camera movement beyond its endemic illusionism to explore the kinds of experience a camera and screen can together afford. In other words, Snow's radicalized spatial unfurling reminds us of what it means to experience camera movement in general as a technique of cinematic perception and expression. He gives the general twofoldness of aesthetic experience a visual correlate in two-dimensional screen abstractions. The screen's flatness here is not an obstacle to be overcome, but a condition of the medium that carries with it certain aesthetic possibilities.

In this way, Snow's explicitly medium-specific investigation of the twofoldness of camera movement helps us develop a phenomenological vocabulary for describing ordinary techniques of

⁸⁹ Here, we might again draw a useful contrast to the films and writings of Stan Brakhage. Just as Brakhage's approach to camera movement is distinctly anthropocentric in its attempts to index the embodied presence of the filmmaker's movements, Brakhage's writings are utterly concerned with *human* vision, especially what is primordial to human vision prior to the limiting influence of language and form. See, for example, Stan Brakhage, *Metaphors on Vision* (New York: Anthology Film Archives, 1963).

spatial unfurling. In the “Modern Love” sequence from the previous section, for example, the speed, angle, and trajectory of the moving camera produces the conditions for us to see a depictive twofoldness in the screen’s representation of movement. If it is the conventional power of the moving camera to encourage our identification with its virtual movement through scenographic space—that is, to identify the subject of depiction as the unseen camera itself—here we experience a productive tension between the depictive content of camera and screen. Just as the rushing landscape appears to the train passenger as moving on its own, and just as the moon in *La région centrale* slides and shimmies along the screen’s surface as if animated, the vertical lines in the background of the “Modern Love” sequence seem to flash as autonomous rhythmic patterns of light and dark. And yet, as a spectator, we never lose an awareness that those abstract patterns depict the camera’s traversal through space. After all, we do not doubt the veracity of our perception of a wagon’s wheel spokes turning backward as the wagon moves forward. In a similar way, the abstractions specific to spatial unfurling do not arouse epistemological uncertainty. As Arthur Danto reminds us, “we have learned to live with the eye and mind being in a conceptual antagonism.”⁹⁰ But because such screen abstractions do not kinesthetically invite my bodily participation, they allow for a greater attention to the surface of the screen. In Wollheim’s terms, the configurational and recognitional elements of the moving image are simultaneously present to me. I don’t oscillate between these two modes of experience, seeing one and then the other. Rather, both aspects are constitutive of a single experience.

This twofoldness is crucial to the experience of *La région centrale*, but it is equally crucial to the experience of camera movement as an *aesthetic* phenomenon of a screen medium, that is, as a kind of picture whose appreciation entails a simultaneous attention to the look of its surface and

⁹⁰ Arthur Danto, “Moving Pictures,” in Noël Carroll and Jinhee Choi, eds., *Philosophy of Film and Motion Pictures: An Anthology* (Hoboken, NJ: John Wiley & Sons, 2009), 110.

what it depicts. Overstating the sympathy between our perception of camera movement and our natural experience of embodied movement, phenomenological and cognitive theories of camera movement have neglected the extent to which the camera movement effect remains an aesthetic phenomenon distinct from the realm of natural perception. Camera movement's capacity for intimate perceptual familiarity and kinesthetic participation is not an essential condition of camera movement but a particular aesthetic achievement directly tied to the particular forms of motion a moving camera can produce.

Seeing Aspects of the Moving Camera

Thus far, by examining how spatial unfurling manifests in ordinary lateral camera movements and the machinic spherical movements of *La région centrale*, I've suggested that particular kinds of camera movement resist anthropomorphic identification and thus complement phenomenological film theory's emphasis on spatial immersion with a more screen-conscious form of perception. Moving the camera along the z-axis tends toward an experience of immersion, absorption, or identification with the mobile viewpoint; the edges of the screen fade into the periphery as the spectator moves along through space with, as, or alongside the unseen camera. Conversely, lateral movements, rapid pans and tilts, and axis-bound spherical movements tend to take us *out* of the screen; the edges of the screen come into view, and space begins to seemingly emerge from the screen and move in relation to the screen's boundaries.

I suggested in the previous section that this spatial unfurling effect exaggerates a sense of twofoldness constitutive of experiencing images as art objects. I'm now going to examine the more fundamental twofoldness that *all* camera movements conditionally produce, regardless of orientation, direction, and trajectory. Motivating this mode of inquiry is a fundamental fact about the kind of perceptual phenomenon that a camera movement produces: to adopt the moving point of

view produced by a camera movement is, at its bottom, to see the movement of space as the movement of an off-screen point-of-view. When the camera moves, Edward Branigan reminds us, “the objects are in motion, though not in movement, because it is the *viewpoint* on the objects that is changing.”⁹¹ In what we might call the *camera movement paradox*, there exists an apparent disconnect between screen movement and depicted movement. When the moving picture depicts the camera (or the cameraman? a frame? a viewpoint? me? we?⁹²) rushing toward and dissolving through the broken skylight at Susan Alexander’s El Rancho nightclub, the subject of depiction is not viewable onscreen. The broken skylight, we want to say, does not approach the camera; *we* (i.e. the camera) approach the skylight.⁹³ While we clearly see the skylight move on screen, the skylight cannot be said to move in terms of what the film depicts. A photograph of that skylight, or even a static shot of that skylight, is a photograph or shot *of* that skylight; but when the camera moves with respect to the skylight, what exactly is the moving image an image *of*?⁹⁴

While our language for describing that depiction attempts to elide the paradox—that is, we persist in calling such screen phenomena “camera movements” though no camera appears onscreen—a number of theorists have begun their inquiries into camera movement by addressing this paradox in one way or another. Branigan, for example, expands the camera movement paradox

⁹¹Edward Branigan, *Projecting a Camera: Language-Games in Film Theory* (New York: Routledge, 2013), 153.

⁹² The number of possible subjects of movement is of course multiplied by fictional seeing: to this list of subjects, we might add “a character” (as in moving optical POV shots), “the narrator,” or any number of ambiguous figures in between. For an account of how questions of fictional seeing and point of view are radically complicated by camera movement, see Morgan, “Where Are We?” Similar arguments are developed in Daniel Morgan, “Max Ophuls and the Limits of Virtuosity: On the Aesthetics and Ethics of Camera Movements.” *Critical Inquiry* 38 (1): 127–163.

⁹³ Rudolph Arnheim notably did not share this intuition. He argued that when a camera moves through space, the spectator is led to believe that the static objects displaced by the moving camera are in motion, not the camera itself. Arnheim, *Film as Art*, 30-31. While this seems to be a strange phenomenological description, and is perhaps willfully in tune with his formalist theoretical tendencies, Arnheim’s description nonetheless evokes a desire to acknowledge the camera movement paradox.

⁹⁴ For a similar discussion of the logical conundrum inherent to the depiction of camera movement, see Danto, “Moving Pictures,” 110.

into his larger metatheoretical thesis about the language of film theory and criticism: *any* critical invocation of the “camera,” such as in descriptions of “camera movement,” are not statements of fact but linguistic aids to description. Bordwell calls for more prescriptive measures, calling for the eradication of the profilmic definition of camera movement—i.e. “the camera as a mechanism coasting through a three-dimensional studio”—and instead opts for the term “camera movement effect,” which refers not to an actual camera but to the kinetic depth cues produced onscreen.⁹⁵ Sobchack echoes Bordwell’s desire to eliminate a profilmic definition of camera movement, arguing against the “theoretical transformation of camera movement into...discrete and determinate movements in geometric space.”⁹⁶ Most recently, Ryan Pierson, writing about the perceptual possibilities of animation for evoking and transforming an experience of camera movement, has considered (though ultimately dismisses) defining the camera in motion “not as a physical entity but as anything which takes a view of a world.”⁹⁷ In each case, the question of what a camera movement depicts is jettisoned in favor of what it feels like to watch it.

Such arguments, which seek to create a distinction between the physical camera and what we see on screen, help us see an often overlooked perceptual condition of camera movement. Because the onscreen *movement* produced by camera movement is not that of an object—i.e. the camera—but of space itself, the relationship between what a camera movement shows and what it depicts is left in an unusually precarious position. Automatically attuned to a set of perceptual depth cues, we see the onscreen movement of space *as* a movement of the offscreen camera instead of, in Bordwell’s

⁹⁵ Bordwell, “Camera Movement,” 23. In this sense, cel animation and CGI each have the capacity for the “camera movement effect” without properly using a moving camera.

⁹⁶ Sobchack, “Toward Inhabited Space,” 320

⁹⁷ Ryan Pierson, “Whole-Screen Metamorphosis and the Imagined Camera (Notes on Perspectival Movement in Animation),” *Animation* 10, no. 1 (March 1, 2015): 8.

words, “a series of expanding, contracting, and labile configurations.”⁹⁸ These abstract configurations that constitute the illusion of the unseen camera’s moving perspective are there but not seen. They are phenomenologically invisible. According to Bordwell, it is “virtually impossible” to see such configurations under “normal circumstances.”⁹⁹ But what might be the circumstances for seeing them? If camera movements harbor another way of being seen, a perceptual aspect that remains hidden under “normal” conditions, how might we access it, and what might be the stakes of doing so?

To probe this issue, I want to look at the film *Georgetown Loop* (1996) by Ken Jacobs. Unlike the other films examined in this chapter, *Georgetown Loop* explores camera movement by manipulating the screen rather than the camera. Continuing his experimentation with found footage, for which he is perhaps best known, Jacobs creates new cinematic experiences of camera movement not by wielding a camera but by manipulating already existing images.

The film begins by showing us footage from a 1903 phantom ride film that takes its viewers through the eponymous railway loop in the city of Georgetown, Colorado. Offering the expected spectatorial pleasures of the phantom ride, the film delights its spectators with views of the snowy, mountainous landscape, the occasional silver mine, and a fellow train riding in front of us filled with enthusiastic passengers. Likewise, the phenomenological pleasures of the phantom ride’s movement into depth are firmly in place. We feel the forward propulsion of the train’s moving perspective in our bodies, and our attention is drawn toward the center of the image as we anticipate and delight in the unfolding of space.

⁹⁸ Bordwell, “Camera Movement,” 23

⁹⁹ Bordwell, “Camera Movement,” 23

Curiously, though, this otherwise familiar phantom ride takes up only the right half of the wide-screen projection, producing a sense of great suspense for what might fill its place. When, at roughly two-and-a-half minutes in, the phantom ride footage reaches its end, the wait is over. The film restarts the footage, but this time projects its mirror image alongside it in the blank space, effectively creating a split-screen display. What results is a mesmerizing kaleidoscopic effect: our attention is immediately drawn to the central axis between the images, from which two-dimensional abstract swirls of space contract and expand in various degrees of speed and intensity (Fig. 3.8). Although each moving image retains its picture of perspectival movement, the Gestalt switch triggered by their juxtaposition is overwhelming enough that we are compelled to watch the film as a kind of moving Rorschach test. The shock of Jacobs's film is that he manipulates us into watching a phantom ride as a picture of pure motion rather than as representation of perspective perspectival movement.¹⁰⁰ Instead of seeing a framed mobile perspective that reveals and conceals the world with its movement through space, we are compelled to see formless matter spontaneously emerge from the central axis and glide laterally across the screen's surface. In this way, Jacobs *finds* the visual effects evocative of spatial unfurling within z-axis camera movement.

¹⁰⁰ I mean to use the term "pure motion" in a similar way that Gestalt psychologist Max Wertheimer used the term "pure movement" to describe the apparent perception of movement without a moving object that is seen to change its position in space. The "pure motion" in Jacobs's film, then, evokes the sense that the swirls of space are seen as abstractions rather than perceptual cues indicating a moving viewpoint. See Robert M. Steinman, Zygmunt Pizlo, and Filip J. Pizlo. "Phi is not beta, and why Wertheimer's discovery launched the Gestalt revolution," *Vision Research* 40.17 (2000): 2257-2264.



Figure 3.8 Rorschach-like juxtaposition in *Georgetown Loop* (Ken Jacobs, 1996)

While it seems that Jacobs is playing a trick on us, manipulating our perceptual faculties into seeing moving abstractions where none exist, I think he's more so showing us, or rather teaching us, what's strange about all camera movements: by compelling us to see as two-dimensional the streams of motion that camera movements conditionally produce, he disrupts our perceptual habit of participating in what we ordinarily perceive as the camera's movement. Importantly, what the images compel us to see is not an empirically new image but an *aspect* created from the combined Gestalt of their juxtaposition. To borrow Bordwell's words, Jacobs doesn't modify the image itself but merely alters the "normal circumstances" under which the visual effects of the moving camera can be seen in shockingly new ways.

This startling perceptual shift has much in common with a unique effect in animation that Pierson terms "whole-screen metamorphosis." In challenging the perceptual conventions of perspectival movement typical of live-action and CG animation, whole-screen metamorphoses undercut our sense of having a stable world, a consistent field of possible action that we are situated within. As an example, Pierson examines the climax of Norman McLaren's *Blinkity Blank* (1955), in

which the fluttering, two-dimensional movements of flat figures on the screen's surface shockingly break into the z-axis, as if suddenly flying *forward* into the depth of the screen. In Pierson's analysis, such a moment shouldn't be understood as a metaphorical camera movement, as if an imagined static camera has spontaneously begun to move; rather, it's as if "deep space did not so much as exist before the movement into it."¹⁰¹ It's as if we've entered a new world with new possibilities that were previously unimaginable.

Pierson's phenomenological analysis of the Gestalt shift offers a useful vocabulary for describing the analogous aesthetic shift in *Georgetown Loop*. Understood as the inverse of McLaren's paradigm-shifting movement-into-depth, Jacobs' kaleidoscopic flattening radically changes the perceptual possibilities of the world we're initially given. It's not as if the mobile perspective from the moving train has dramatically changed, as if the camera has suddenly occupied a new point of view that shocks us with its difference. Rather, the ground itself has changed. In Pierson's words, there's the sense that "something has changed without our having a means of orienting ourselves in relation to the change."¹⁰² The important difference with Jacobs, though, is that both grounds, both worlds, co-exist as transparently co-constitutive *aspects*. Both fully present to be seen, the movement-into-depth and flat lateral swirls are two different aspects of the same moving image, beckoning us to choose between them.

This idea of seeing aspects of images gets its fullest, and most well-known, articulation in the second part of Wittgenstein's *Philosophical Investigations*. There, he discusses the philosophical implications of a fundamental characteristic of human perception, that we can see one thing—a

¹⁰¹ Pierson, "Whole-Screen Metamorphosis," 14.

¹⁰² Pierson, "Whole-Screen Metamorphosis," 14.

picture, an object, a state of affairs—in multiple ways or “aspects.”¹⁰³ We can see a “W” *as* an upside-down “M”; we can see a crude schematic drawing of a cube *as* a two-dimensional array of three conjoined quadrilaterals; and in Wittgenstein’s most famous example, we can, and in fact must, see the duck-rabbit illustration *as* a duck or a rabbit, but never both at the same time. While each of these perceptual shifts involves a slightly different psychological structure, they all share the feeling that we *see* the image differently while also seeing that it has not changed. This paradoxical structure lies at the heart of the perceptual effects at work in Jacobs’s *Georgetown Loop*. In creating the conditions to perceive both the movement-into-depth and the flat lateral swirls within the pair of mirrored phantom rides, Jacobs plays with our capacity to see—and *choose* to see—multiple aspects within a single moving image.

This willed form of aspect-perception matters for Jacobs’s film because it serves a pedagogical function. Instead of radically changing the world we’re given, Jacobs shows us how to detach ourselves from that world if we so choose. Unlike McLaren’s film, which breaks free from the perceptual determinism of live action cinema, from the perspectival conditions of the camera and the world it gives us, Jacobs finds a way to show us the multiple visual forms already at play in camera movements that strongly evoke a kinetic depth effect. Jacobs’s films produce a kind of aspect-dawning that persists even after the Gestalt has been restored.

We can see this process more clearly in his companion film, *Disorient Express* (1966) (Fig. 3.9). Unlike *Georgetown Loop*, this film *begins* with the kaleidoscopic juxtaposition of mirror images (this time projected upside down), and then shows us the original footage on its own. In effect, we’re offered a kind of perceptual training: when we return to the original footage, we can’t quite look at it the same way. Though the “circumstances” have returned to normal, our retention of the

¹⁰³ Ludwig Wittgenstein, *Philosophical Investigations*, trans. G.E.M. Anscombe and P.M.S. Hacker (John Wiley & Sons, 2010), 152.

perceptual paradigm shift has placed us at a critical distance from our hard-wired receptivity to depth cues and embodied kinesthesia. Instead of simply being locked into the illusion, we start to peruse the surface of the frame for the abstract dynamism and formless variability that was activated by the mirror image. Specifically, we've learned how the sharpness of the train's turns and the proximity and location of passing objects affect the intensity of dynamic, two-dimensional motion. We now see that the most intense velocities of motion occur at the edge of the frame: the space that emerges from the vanishing point must abruptly exit the frame with an overwhelming force. No longer an infinitely displaceable horizon of perception, the frame becomes both empirically *and* phenomenologically visible; instead of mimicking the soft boundaries of our own perceptual field, the edges of the frame now seemingly produce the space that bursts forth. By teaching us to look with our eyes instead of our bodies, Jacobs helps us to see the phenomenological particularity of a distinctly *framed* mode of perception.

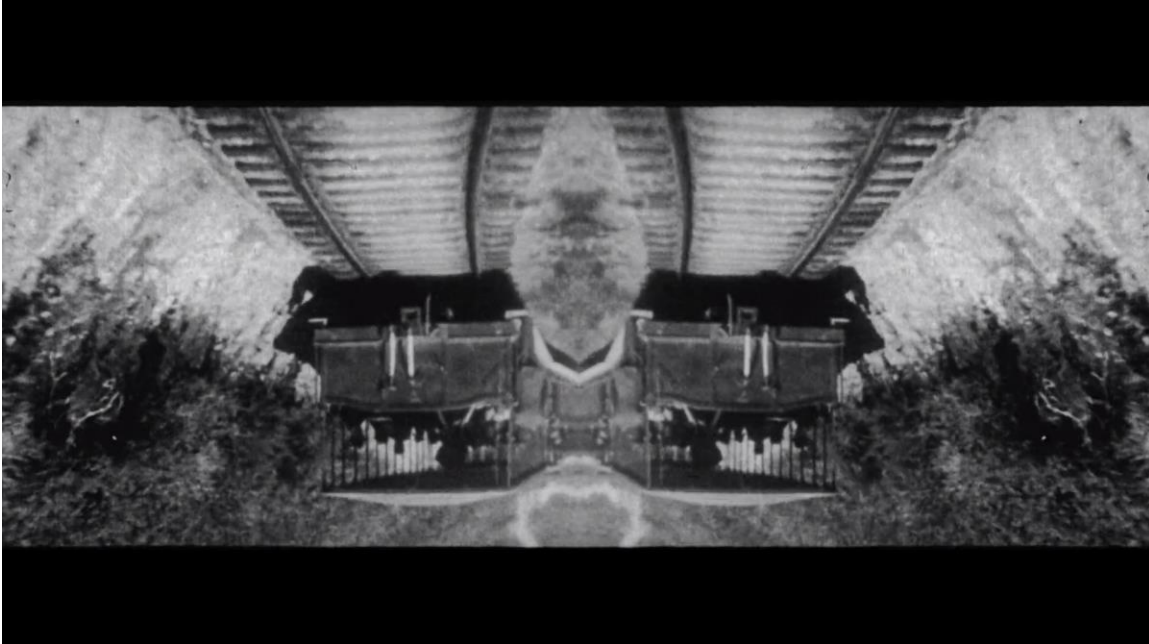


Figure 3.9 Rorschach-like juxtaposition projected upside-down in *Disorient Express* (Jacobs, 1996)

In a sense, we learn that *all* camera movements harbor a kind of duck-rabbit effect—we just had to be taught how to see it. For even when the illusion of perspectival movement is at its most

palpable, Jacobs shows us how to see beyond the limits of habitual perception, to view the screen as something other than a field of possible action. In demonstrating how little alteration is necessary to dislodge us from the compulsory illusion of bodily movement, Jacobs' films foreground the hidden aspects of camera movement. Conversely, these films show us how our tendency to identify anthropomorphically with the moving camera is not a phenomenological condition of camera movement but an effect, a technological and aesthetic achievement that encourages us to see a perceptual *aspect* of the moving image.

Showing us why camera movements are exemplary cases of aspect perception in cinema, Jacobs' films offer a powerful alternative to the kind of logic that guides popular intuitions about the moving camera. The hallmark of aspect-perception, according to Wittgenstein, is the paradoxical feeling that we *see* the image differently while also seeing that it has not changed. Our capacity to see aspects constitutes our capacity to expand our experience without altering what stands in front of us; it allows us to go beyond habitual ways of seeing without foregoing sense-making. Aspects, according to Wittgenstein, do not teach us something about the external world; they are not properties of an object or image. And yet, the experience of aspect-perception compels us to believe that what we see is there for anybody else to see. As with making judgments of beauty, seeing aspects is constituted by the expectation that others can see what we see, that what we see is available for others, is somehow *there*, even though the experience of seeing aspects unequivocally comes from *here*, within me. In Stephen Mulhall's reading, aspects are *seen* rather than known. That is, the dawning of an aspect is not a result of interpretation or inference (i.e. something demonstrable by reason), but is immediate, felt, spontaneous, taken for granted. Seen in this light, Bordwell's invocation of camera movement's unseen abstract configurations is merely an analytical inference. Jacobs's films, however, produce the conditions for transforming Bordwell's inferential *knowing* of the screen's surface into a genuine aspect, an experience of *seeing* differently. Jacobs' films

offer the kinds of experience that go beyond what can simply be known, inferred, or interpreted through experience. They provide the aesthetic circumstances for *seeing*, rather than logically deducing, the paradox of camera movement, a paradox that reminds us of the strangeness of moving images as a category of representation.

What seeing-aspects adds to a phenomenological account of camera movement is an acknowledgment of cinema as an *aesthetic* experience, particularly a pictorial aesthetic experience. Both Bordwell's perceptual psychology and Sobchack, Barker, and Richmond's analogy with Merleau-Ponty's embodied phenomenology restrict camera movement to an experiential determinism that precludes the possibility of seeing onscreen movement as anything other than kinesthetic movement. In terms of its perceptual aspects, camera movement thus becomes a profoundly singular image form. In Richmond's formulation, camera movement's capacity for perceptual modulation requires its fusion with the spectator's hardwired receptivity to perceptual cues. In such an account, we are "captivated" and "compelled" to perpetuate the illusion—"we cannot resist it, even if we are inclined to; and we are interested in it, it holds us."¹⁰⁴ In such a view, we become one with the machine; we could not escape even if we wanted to. Despite phenomenological film theory's deference to the cinematic apparatus, then, its picture of cinematic experience risks repeating the determinism of apparatus theory. What such accounts lack is an openness to aesthetic exploration, both on the side of the filmmaker and the spectator. Cinema's capacity to merge with the spectator's body remains an aesthetic feat, just like its capacity to create reflective distance.

Delineating the sympathies between natural and cinematic perception only marks the beginning of a phenomenology of cinematic experience. For even at its most familiar, its most

¹⁰⁴ Richmond, *Resonant Perception*, 165.

kinesthetic, its most geometrically precise, cinema remains an image, the experience of which is difficult to parse. Before we can say what a camera movement is, and by extension, what cinema is (or “was”), we need to articulate the ways in which camera movements are images, are bounded *motion forms*. A “form,” Snow reminds us, “must have bounds, limits, set, and setting.” Integrating those bounds into an account of one’s experience is part of what it means to engage in a phenomenology of cinema as an *aesthetic* experience instead of as an analogy to natural perception. I’ve tried to show the ways in which camera movements are bounded forms—that is, moving *images*—and are necessarily experienced as such.

Bleeding Pixels

Compression Glitches, Datamoshing, and the Technical Production of Digital Motion

The accident doesn't equal failure, but instead erects a new significant state, which would otherwise not have been possible to perceive.

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Over the past two decades, the growing transition to the digital production, distribution, and exhibition of cinema has spawned a flurry of theories proclaiming a large-scale ontological shift of the medium.² Most of these accounts involve logical hypotheses about the technological distinctions between the respective image-making processes of analog and digital photography, especially how these distinctions alter the “indexical” relation between photographic image and profilmic reality.³ Against this, there's been a growing backlash of theorists firmly maintaining that cinematic *experiences* have remained largely unchanged, or at least have changed in subtle ways irrespective of technological distinctions.⁴ Such theorists claim that while the nature of cinema's photographic substrate has indeed radically changed with the digital revolution, the central

¹ Sylvere Lotringer and Paul Virilio, *The Accident of Art* (New York: Semiotext(e), 2005), 63

² Paolo Cherchi Usai, *The Death of Cinema: History, Cultural Memory and the Digital Dark Age* (London: British Film Institute, 2001); Lev Manovich, *The Language of New Media* (Boston: MIT Press, 2001); D. N. Rodowick, *The Virtual Life of Film* (Cambridge, MA; London: Harvard University Press, 2007)

³ Tom Gunning helpfully summarizes claims about the loss of indexicality as such: “the indexicality of the photograph depends on a physical relation between the object photographed and the image finally created. The image on the photographic negative derives from the transformation of light sensitive emulsion caused by light reflecting off the object photographed filtered through the lens and diaphragm. In a digital image, however, instead of light sensitive emulsion affected by the luminous object, the image is formed through data about light that is encoded in a matrix of numbers.” Tom Gunning, “What's the Point of an Index? or, Faking Photographs,” in *Still/Moving: Between Cinema and Photography*, ed. Karen Beckman and Jean Ma (Durham: Duke University Press, 2008), 23-40, 40.

⁴ See John Belton, “Digital Cinema: A False Revolution,” in *October* 100, *Obsolescence* (Spring 2002): 98-114; Gunning, “Faking Photographs;” Noël Carroll, “Forget the Medium!,” in *Engaging the Moving Image* (New Haven: Yale University Press, 2003); Stephen Prince, “Introduction: Beyond Spectacle,” in *Digital Visual Effects in Cinema* (New Brunswick, NJ: Rutgers University Press, 2012). Francesco Casetti, *The Lumiere Galaxy: Seven Keywords for the Cinema to Come* (New York: Columbia University Press, 2015). Similar observations about the dichotomy between ontological/technological and phenomenological/experiential approaches to digital cinema are made in Gertruch Koch, “Carnivore or chameleon: The fate of cinema studies.” *Critical Inquiry* 35, no. 4 (2009): 918-928.

properties at the heart of cinematic experience have not: the perception of a rectangular screen, the belief in the referential nature of images recorded by the camera, and perhaps least controversially, the experience of the movement of the moving image.⁵ In the words of Noël Carroll, “Forget the medium; watch the movement.”⁶

Throughout this dissertation, I’ve remained methodologically committed to bracketing how our knowledge of the technological processes responsible for cinematic motion might inform our experience of motion on screen. Just as I’ve been largely unconcerned with the mechanics of projection or the psychological processes responsible for cinema’s “illusion” of seamless motion from the succession of still images, I’ve eschewed an attention to the ways that digital capture and projection changes this underlying process. Indeed, in chapter one, the guiding principle was to show how certain forms of motion—and the logics of pleasure they produce—can *persist* across photographically recorded and digitally manufactured moving images. And in chapter three, my investigation of the phenomenologies of camera movement circumvented accounts that locate a firm division between the aesthetic possibilities of real cameras and virtual ones. While digital technology undoubtedly allows for the creation of new motion forms that are unique to it—impossible camera movements, morphing effects, motion-capture, etc.—I’ve been committed to showing how perceptual forms can traverse the technological divide.⁷ After all, the technological processes that underlie digitally produced movement are almost entirely invisible.

⁵ For example, Belton argues that the experience of digital projection does not differ from the experience of 35mm: “Digital projection [...] does not, in any way, transform the nature of the motion-picture experience. [...] What is being offered to us is imply something that is potentially equivalent to the projection of traditional 35mm film.” Belton, “Digital Cinema,” 104. Gunning critiques claims that digital photography is not indexical in Gunning, “Faking Photographs.”

⁶ Carroll, “Forget the Medium,” 9.

⁷ In fact, each of these motion forms has garnered significant attention. For a theory of digital cinema that foregrounds impossible camera movements (i.e. cameras that move through walls), see William Brown, *Supercinema: Film-Philosophy for the Digital Age* (New York: Berghahn Books, 2013). For accounts of the morph effect, see Vivian Sobchack, ed. *Meta Morphing: Visual Transformation and the Culture of Quick-Change*. (Minneapolis: U of Minnesota Press, 2000). For work on motion-capture, see Tom Gunning, “Gollum and Golem: Special Effects and the Technology of Artificial Bodies,” in

But if the technological processes of digitally produced motion were to reveal themselves to our perception, what forms would they take? In this chapter, I'm going to attend to one way in which the processes of digitally produced motion *do* reveal themselves to the senses: the compression glitch. Currently the most ubiquitously consumed moving-image format in the world, digitally compressed videos have radically changed the way moving images are distributed and consumed, paving the way for digital video disc formats like DVD and BluRay, online streaming services, peer-to-peer file sharing, and user-generated video sites like YouTube. Compression glitches and compression artifacts are visible distortions of the moving-image file types that underlie these platforms (such as MPEGs and AVIs) that have undergone “lossy” compression, a process that involves discarding certain elements of a file's image data in order to shrink its file size.⁸ Such a process, in turn, can produce distortions within the image, moments of error when the new file doesn't play as smoothly or seamlessly as its “original.”

Compression glitches can be most immediately identified by the sudden eruption of blocky image patterns—an effect called “motion-blocking”—that deform moving figures or objects on screen.⁹ The most common kind of motion-blocking artifacts are geometric splotches that appear in

From Hobbits to Hollywood: Essays on Peter Jackson's Lord of the Rings (2006): 319-350 and Tanine Allison, "More than a man in a monkey suit: Andy Serkis, Motion Capture, and Digital Realism." *Quarterly Review of Film and Video* 28, no. 4 (2011): 325-341.

⁸ To be clear, compression glitches are, for the most part, not aspects of digital theatrical spectatorship. For a number of scholars, my implicit claim that compression glitches are indeed one of “*cinema's* motion forms” would seem to require some explanation. Anne Friedberg, for example, has claimed that “Computer ‘users’ are not spectators.” Anne Friedberg, “The End of Cinema: Multimedia and Technological Change,” in Christine Gledhill and Linda Williams, eds., *Re-Inventing Film Studies* (New York: Arnold, 2010). My use of the word “cinema” throughout this dissertation, however, makes no definitive claims about spaces of exhibition. In this, I'm following Francesco Casetti's observation that “we continue to call ‘cinema’ what we watch at home, in our home theater, or while traveling, on our tablet, thanks to our ability to rent DVDs or download films online.” Casetti, *The Lumiere Galaxy*, 3.

⁹ Adrian Mackenzie, “Every Thing Thinks: Sub-Representative Differences in Digital Video Codecs” in Casper Bruun Jensen and Kjetil Rodje, eds., *Deleuzian Intersections: Science, Technology, Anthropology* (New York, Berghahn Books, 2010), 139-162, 151. Motion-blocking is an artifact of the codec's organization of the image into 8x8 pixel blocks: “Practically, in encoding a given frame of video, the MPEG- 2 code divides the 720 × 576 pixel DVD image into 8 × 8 pixel blocks. [...] The image has been turned into in an array of small blocks that can be quickly transformed separately. This can be seen by freeze-framing a complex visual scene on a DVD. It will appear ‘blocky.’” Adrian Mackenzie. “Codecs,” in *Software Studies: A Lexicon*, ed. Matthew Fuller, (Cambridge, MA: MIT Press, 2008), 48-55, 51.

dark areas of the screen or during fade-outs. More disruptive artifacts, which I'll refer to as glitches, can render moving faces unrecognizable (Fig. 4.1) or create trails of image residue that drag behind moving bodies (Fig. 4.2); they can also disturb cuts between shots by superimposing the textures from the subsequent shot onto the current image (Fig. 4.3) or by forcing moving figures from subsequent shots to break through the current image (Fig. 4.4). Marked by a peculiar combination of fluidic transformations and pixelated patterns, compression glitches have come to be regarded as minor but unavoidable instances of seemingly random image distortion.



Figure 4.1 A compression glitch in *Strangers on a Train* (Hitchcock, 1951)



Figure 4.2 A compression glitch in *Strangers on a Train*



Figure 4.3 A compression glitch in *Margaret* (Lonergan, 2011)



Figure 4.4 A compression glitch in *Margaret*

But a closer look at the visual qualities of glitches, and at the process of compression, reveals a systematic intelligence at work that is directly related to the technological processes underlying digital compression's reproduction of movement. Instead of a succession of individual images flickering through a projector at the rate of 24 frames per second, digitally compressed videos

essentially repeat the visual contents of preceding frames while altering only the pixels that change in color or light value.¹⁰ That is, video compression codecs (the devices responsible for compressing raw data) reduce the data of their source files by seeking out movement itself: they sort the visual information within a moving image by isolating motion on screen from those elements that remain largely static. Codecs seek out, for instance, the movements of walking human figures against their static background. Or, in a mobile composition, codecs seek out the blur of a landmass rushing by against the unchanging blue field of a cloudless sky. Simply put, codecs privilege visual *change* while largely ignoring what stays the same within the frame. In contradistinction to the indifferent and mechanical rhythm of the film projector, agnostic to the forms of movement on screen, the codec is wholly bound up with the specificity of individual *movements* that we see—particular gestures and facial expressions, zooms and camera movements, cuts and dissolves and wipes.

As conspicuous errors of this normally invisible process, compression glitches make the codec's intelligent sorting of motion momentarily visible. Interrupting the codec's regimented separation of motion from stasis, compression glitches extract *movement itself* (technologically speaking, algorithmic motion instructions) from its original visual context. The dance becomes extricated from the dancer. On this view, compression glitches aren't mere malfunctions or visual degradations, nor are they simply windows into hidden technological processes. More deeply, compression glitches are visual expressions of the codec's interpretation and reconstruction of every bit of cinematic motion on screen. Though they indeed degrade, obscure, and roughen cinema's lifelike reproduction of a world in motion, in doing so they visually *thematize* movements

¹⁰ Indeed, VHS and television also reproduce cinematic motion without a succession of individual images. But VHS and television do not "glitch" in quite the same way. My interest here is in the way glitches manifest an expression of the specificity of compression algorithm's reconstitution of movement. Moreover, as Mackenzie explains, the codecs' processes of motion estimation, which I'll discuss in more detail later, are distinct from both film and television's production of motion: "the pictures that accompany the I- Picture in a MPEG- 2 bitstream are, therefore, really nothing like film frames. There will never be a flicker in an MPEG video because the boundaries between pictures are not constructed in the same way they are in film or even in television with its interlaced scanned images." Mackenzie, "Codecs," 53.

themselves—the sweep of a hand, the trajectory of a camera’s mobile perspective. That is, compression glitches create new ways of seeing and apprehending the *movements* of the moving image—their shapes, their intensities, their forms.

In what follows, I explore these ways of seeing in two distinct but interrelated modes of experience. First, I examine compression glitches in their everydayness, considering in particular how their seamless incorporation into the fabric of home viewing has created a new phenomenological orientation toward movement on screen. Because the appearance of a compression glitch is often a function of the intensity and magnitude of movement on screen (i.e. the codec visibly hiccups when overworked), compression glitches’ patterns of emergence yield what I call *movement-sensitive spectatorship*—a sensitivity to the formal magnitude of particular movements. Second, I’ll describe the aesthetics of compression glitches as afforded by the glitch art practice known as “datamoshing.” As a technique that exploits compression glitches for aesthetic effect, datamoshing provides the opportunity to study the motion forms unique to compression glitches and the broader technological logics those forms express. Nicknamed “bleeding pixels” for the fluidic forms it displays, datamoshing both expresses digital compression’s extraction of movement from its visual contexts as well as thematizes the perceptual primacy of structures, patterns, and wholes, i.e. *forms*, in our perception of cinematic motion.¹¹ By disrupting the digital reproduction of movement in ways that heighten our attention to its formal qualities, datamoshing yields what I call a *pedagogy of cinematic motion perception*. Through each of these modes of experience—movement-sensitivity and perceptual pedagogy—the “bleeding pixels” of compression glitches prompt an encounter with cinematic motion *as* cinematic motion, thereby aesthetically

¹¹ William Brown and Meetal Kutty write that the technique is “sometimes referred to as ‘bleeding pixel effect.’” William Brown and Meetal Kutty, “Datamoshing and the Emergence of Digital Complexity from Digital Chaos.” *Convergence* 18, no. 2 (2012): 165-176, 168.

enacting the central critical method practiced throughout this dissertation. That is, compression glitches make us see the *qualities* and *forms* of cinematic motion as distinct from the people, things, actions, and events that such movements comprise. Taken as significant, though overlooked, aspects of cinematic experience and as aesthetic objects unto themselves, compression glitches produce a reflexive relation to the perceptual specificities of cinematic motion that they interrupt, degrade, and transform.

To be sure, compression glitches are not the stuff of cinematic motion proper; they are by definition non-repeatable apparitions detached from cinematographic inscription, visible byproducts of the technological apparatus rather than the cinematic text. In this way, compression glitches’ “bleeding pixels” stand apart from the other motion forms in this dissertation, occupying a liminal space between the movement inscribed onscreen (the realm of “imaged motion”) and the technical apparatus generating that movement. But the very enterprise of examining the *phenomenological* particularities of these distinctly *technological* aspects of cinematic motion constitutes its own methodological intervention: it models a kind of inquiry that circumvents longstanding debates about digital cinema and cinematic technology more generally. To invoke Carroll’s bold injunction about film theory in the digital age, should we in fact “forget the medium” and “watch the movement,” or forget the movement and watch the medium? Even when film theorists restrict themselves to claims about the “experience” of digital cinema, they rarely agree on what should enter the phenomenological threshold of that experience: the disappearance of grain and the flicker? the reduced dynamic range? the alleged “loss” of the index?¹² Because compression glitches provide an undeniably *visible* artifact of a digital medium, they present a historically unique condition in which the technological means of producing the moving image are given a visual form. What’s

¹² For an account of these microperceptual differences between digital and analog cinema, see Babette Mangolte, “Afterwards: A Matter of Time. Analog versus Digital, the Perennial Question of Shifting Technology and its Implications for an Experimental Filmmaker’s Odyssey,” in *Camera Obscura, Camera Lucida. Essays in Honor of Annette Michelson* (Amsterdam, Amsterdam University Press, 2003): 261-274.

more, the very forms of movement unique to compression glitches—esthetic phenomena unto themselves—do not only instantiate the logic of the “medium” that create them, but bear a revelatory relation to the phenomenon of cinematic motion. Thus, by incorporating a phenomenology of compression glitches into the horizon of spectatorial experience in the digital era, we can both account for the ways that glitches provide access to the technological processes they disrupt and, more importantly, describe how they afford new aesthetic experiences of cinematic motion through that disruption.

The Compression Glitch as Glitch: Movement-Sensitive Spectatorship



Figure 4.5 A compression glitch in *Vertigo* (Hitchcock, 1958)

Captured from a downloaded movie file of Alfred Hitchcock’s *Vertigo* (1958) playing on VLC, the “world’s most popular” yet notoriously glitch-prone media player, the image above (Fig. 4.5) is a screenshot of a compression glitch. This pixelated semi-impressionist collage is neither a work of art nor an image culled from the internet. It is a frozen moment of a live malfunction of the .H264 codec at work on my personal computer, processing the movements of a 1080p .MP4 file of

Hitchcock's masterpiece. As such, this captured moment of a glitch is uniquely mine, unrepeatably and absolutely particular, and yet its distinguishing visual qualities are intimately familiar to most of us. The image serves as a reminder of a generally overlooked but instantly recognizable malfunction typical to most moving images watched on home computers and digital video discs. While some describe such effects as visually arresting and others regard them as bothersome—they may in fact be both at the same time—what matters is that such effects are utterly familiar and yet are rarely contemplated.¹³ Part of the very fabric of our digital video platforms, they've seeped into the background of contemporary home viewing without much consideration as to how they affect spectatorial experience.

Rather than simply ask what the compression glitch is and what causes it, in this section I ask how such an aesthetically radical but easily overlooked visual malfunction has affected the visual habits of spectators. I'll argue that the very ordinariness of compression glitches has created a new phenomenological orientation toward the movement of the moving image. As perceptible expressions of the compression algorithm's reproduction of motion, the regular disturbances of glitches create habits of anticipation, expectation, and sensitivity that unconsciously alter our intuitions about cinematic motion in the age of digital compression. To make my case, I'll present a phenomenological account of compression glitches in their ordinariness alongside a technological explanation of their patterns of emergence.

Indeed, as essentially ephemeral accidents, compression glitches are difficult to pin down for reflection. They are by definition peripheral to the moving image text and to the media platform, be it a DVD or Blu-ray player, computer media player, or streaming site. What's more, as non-

¹³ There's a long tradition of savoring the "beauty" of technological errors in cinematic experience that precedes the digital. Laura Marks, for example, names "video decay" as one of qualities that makes it a "haptic" medium. Laura Marks, *The Skin of the Film: Intercultural Cinema, Embodiment, and the Senses*. (Durham: Duke University Press, 2000), 172. Following Marks, Lucas Hildebrand calls VHS distortions "beautiful, arousing, or even emotionally moving." Lucas Hildebrand, *Inherent Vice: Bootleg Histories of Videotape and Copyright* (Durham: Duke University Press, 2009), 71.

repeatable screen events, each glitch is a one-of-a-kind malfunction of the algorithm's live processing of movement; unlike the inscribed details in a film or media file, we cannot scrub backward on a media player's progress bar to study the same glitch.¹⁴ Thus, undertaking a phenomenology of compression glitches *as glitches* entails a reflection upon glitches as phenomena that constitute the background of our field of attention. As an entrenched feature of digital spectatorship, the regularity of compression glitches inextricably shapes the phenomenology of digital home viewing.

One of the most important distinctions that has been made about the glitch in general in recent scholarship is the idea that a glitch is not the failure of a technical system but the system's perceivable manifestation of an error. According to Hugh S. Manon and Daniel Temkin, a glitch is a "program's failure to fully fail upon encountering bad data," or as Rosa Menkman explains, "failure is a phenomenon to overcome, while a glitch is incorporated further into technological or interpretive processes."¹⁵ Put simply, glitches don't require reparative attention. They're mere bumps along the road, jarring at first but, after constant exposure, they become merely pesky disruptions. What this entails is that a glitch is not strictly an *interruption* of a media experience as are software crashes, forced shutdowns from power surges, or even the data buffering that suspends the flow of online streaming.¹⁶ Glitches quickly become absorbed into the perceptual field of a technology's ordinary mode of operation.

¹⁴ For more on the liveness and non-repeatability of glitches, see Sean Cubitt, "Glitch." *Cultural Politics* 13, no. 1 (2017): 19-33. This aspect of glitches marks them as distinct from what I've called *imaged motion* and cinema's *framed perception*. Strictly speaking, then, genuine compression glitches (as opposed to those recorded in datamoshing) do not fully constitute "cinematic motion" as I've used it throughout this dissertation because they are not inscribed. However, as we'll see, compression glitches bear a revelatory relation to the material particularities of cinematic motion.

¹⁵ Hugh S. Manon and Daniel Temkin, "Notes on Glitch." *World picture* 6 (2011): 118. Rosa Menkman, *The Glitch Moment(um)*. (Amsterdam: Institute of Network Cultures, 2011), 27.

¹⁶ For an account of the experience of disruption in buffering, see Neta Alexander, "Rage Against the Machine: Buffering, Noise, and Perpetual Anxiety in the Age of Connected Viewing." *Cinema Journal* 56, no. 2 (2017): 1-24.

To borrow Martin Heidegger's terms in his discussion of the being of equipment, the regularity of glitches does not yield a confrontation with the "Obtrusiveness" or "Obstinacy" of the technology—that is, its brute materiality suddenly revealed in the face of its mechanical failure—but, as David Berry has suggested, is much closer to what Heidegger calls "Conspicuousness:" a mode of being in which equipment may not function optimally, prompting us to shift our orientation as we cope with a particular dimension of its "unavailableness."¹⁷ What this entails is that glitches do not yield a distinct phenomenological separation between what Heidegger calls ready-to-hand and present-at-hand. In Heidegger's famous formulation, ready-to-hand names our relation to equipment in our practical use of it—i.e. the hammer rendered transparent in the act of nailing—while present-to-hand names the brute materiality of equipment made visible by its failure—i.e. the *broken* hammer's material obtrusiveness. Glitches complicate the division between these two states. As Berry puts it, the regularity of glitches make computational devices "appear to oscillate rapidly between *Vorhandenheit/Zuhandenheit* (present-at-hand/ready-to-hand)."¹⁸ The very regularity and brevity of glitches creates a new phenomenology of malfunction.

Compare this to the failure of a projector, which for the apparatus film theorists carried an aura of revelation, a clean break from ready-to-hand to present-at-hand. In his account of cinema's illusion of motion in his "Ideological Effects of the Basic Cinematographic Apparatus," Jean-Louis Baudry argues that because cinema's illusion of continuous movement must efface the material condition of discontinuous images inherent to the cinematographic apparatus, cinema harbors a "denial of difference."¹⁹ As a result, for Baudry, it is the "breakdown" of the projector that brings

¹⁷ David Berry, "Glitch Ontology," <http://stunlaw.blogspot.com/2012/05/glitch-ontology.html>. Last accessed May 22, 2017. For Heidegger's discussion of equipment, see Martin Heidegger, *Being and Time*, trans. Joan Stambaugh (New York, NY: SUNY Press, 1996), 67-71.

¹⁸ Berry, "Glitch Ontology."

¹⁹ Jean-Louis Baudry, "Ideological Effects of the Basic Cinematographic Apparatus," in Philip Rosen, ed., *Narrative, Apparatus, Ideology: A Film Theory Reader* (New York: Columbia University Press, 1986), 290-1.

the spectator “abruptly back to discontinuity—that is, to the technical apparatus which he had *forgotten*.”²⁰ Baudry here figures the projector’s failure as a revelatory encounter with its brute materiality. Glitches, however, are simply part of the technology’s field of expectation. Our methods for working around them—indeed working *with* them—are embedded in the array of habits that constitute our ordinary use of computational devices.

Given their ubiquity, frequency, and tolerability, compression glitches in particular are exemplary of this phenomenology. If I am streaming Netflix or watching a film or television show in VLC, compression glitches may momentarily freeze the image—or as some users have described, the image may “catch”—but importantly they do not halt the temporal progress of the moving image.²¹ Compression glitches are akin to a kind of visual stammer, a momentary stalling of movement that then quickly manifests into a brief sputtering of visual distortion—e.g. motion blocking, overlaying, smudging, etc. Regardless of my aesthetic appreciation of or frustration with these effects, my familiarity with glitches as minor and relatively unobtrusive disruptions tends to subordinate them to the absorptive flow of the moving image. In the brief duration of a compression glitch, the sound often remains pristine and the progress bar churns along. A few milliseconds of a glitch usually will not cause me to scrub the progress bar backwards to refresh the distorted images. Most often, glitches do not distort the image completely beyond recognition; my perception will generally “fill in” what the image has missed. Glitches are simply a tolerable nuisance, a frequent but forgettable *component* of the compressed moving image. After all, VLC remains the “world’s most popular” media player despite its notoriety for glitches.

²⁰ Baudry, “Ideological Effects,” 291, emphasis in original.

²¹ On a discussion board at VLC’s website, user JimX describes the appearance of motion-blocking as such: They “catch”, freeze, pixelate, etc. “Artifacts/pixilation/tearing,” *The VideoLAN Forums*. <https://forum.videolan.org/viewtopic.php?t=84385>. Last accessed May 22, 2017.

It is precisely because compression glitches are not experienced as failures but as intimately embedded *probabilities* of compressed video that they can have such a profound, if unnoticed, effect on our perceptual habits. I want to suggest here that the regularity of glitches does more than simply habituate us to the digitality of the medium, but also more importantly sensitizes us to movement on screen in a new way. To understand how this works, consider the simple but important fact that compression glitches are not random, but are caused by a select number of possible pressures.²² The pressures that cause a glitch may indeed involve any combination of a computer's processing power, from the power of the machine's hardware to the other applications that might be running currently with a media player. Or, if a user is streaming compressed video, glitches may be contingent upon fluctuations in bandwidth speed. But a significant concentration of these pressures that may result in a glitch comes from the formal qualities of the *movement itself* in a compressed video. For example, Mackenzie writes "at a very deep level, the architecture of an MPEG-2 codec reflects an assumption that all movement *costs* something in time, computation or bandwidth."²³ The compression glitch is a symptom of this cost.

This sense of movement "costing" computation power is tied to the basic process of how codecs reproduce cinematic motion. Recall that codecs minimize data redundancy by only changing what moves from frame to frame. To do this, motion algorithms predict or estimate the changes in only those "blocks" of the image in which movement is apparent. As Cubitt explains, codecs reduce data by replacing actual frame-to-frame changes with algorithmic motion *instructions*, which are estimations of the movements already contained within the source image:

²² Indeed, as Manon and Temkin point out, "from the point of view of the file, whose genetic predispositions are rigid and fixed, there is nothing random about glitching." Manon and Temkin, "Notes on Glitch." But I'd add here that given the mechanics and patterns of emergence of the compression glitch, our *experience* of the compression glitch is not quite random either.

²³ Mackenzie, "Every Thing Thinks," 145.

The MPEG-4 family of codecs isolates “initial frames,” also known by the animation term *key frames*, uncompressed frames that are used as a reference for filling in compressed frames that come between them. In the old animation studios...lead artists did the first and last ‘key’ frames, and lower-skilled... “in-betweeners” filled in the implied movement between them. Vector animation programs automate the process, extrapolating from first and last frames the trajectories of action needed to move from one to the other. This information is encoded not as full-frame animation but as an instruction set, from which the use of the term vector, referring to an algorithm that requires far fewer lines of code than describing the changing condition of every pixel.²⁴

As Cubitt’s comparison with studio animation labor practice makes clear, codecs involve a kind of algorithmic version of below-the-line animation laborers estimating the movements between keyframes. Despite creating the appearance of a mere copy of the original, codecs are not “reproducing the original but reinventing it,” *on the fly*.²⁵ This means that each time a compressed video is played, what we are watching is in essence a live performance of the codec’s processing of particular instances of cinematic motion on screen. Movements on screen therefore *cost* the algorithmic labor used to process them. Compression glitches don’t just make us see this process of algorithmic labor hidden behind the illusion of the image’s technological reproducibility; they are also symptomatic of the strenuousness of that very labor.

In other words, if movement costs algorithmic labor, glitches show us that some movements, especially those that exhibit a *plenitude* or *magnitude* of movement, cost more than others. As a result, certain formal choices—the movements of the camera, the movements of actors and the environment (and the camera’s angle and distance from those movements)—directly affect the possibility of glitches. As Cubitt explains, quoting a primer for creating Flash video, “Encoding artifacts [i.e. compression artifacts] are increasingly likely in hand-held sequences when the prediction system is more likely to predict wrongly: ‘If your camera is not steady, most of the image moves, causing a high percentage of pixels in the video to change from frame to frame. A steady

²⁴ Sean Cubitt, *The Practice of Light: A Genealogy of Visual Technologies from Prints to Pixels* (Cambridge, MA: MIT Press, 2014), 248-9.

²⁵ Cubitt, *The Practice of Light*, 249.

camera reduces the number of pixels that change from frame to frame, giving you better quality at higher compression rates (lower data rates).²⁶ Similarly, as Mackenzie notes, the rapid visual change brought on by cuts can sometimes trigger motion artifacts: “A change in camera shot or an edit breaks the flow of movement between adjacent frames...A momentary but visible splintering of the images...occurs.”²⁷ More visual change requires more work from the motion-estimation algorithm, making the image more prone to glitches. In terms of the expenditure of algorithmic labor, an action sequence *costs* more than a shot-reverse shot dialogue sequence; an elaborate camera movement *costs* more than a static shot; and rapid cutting *costs* more than a long-take.

The codec’s labor of reconstituting movement can be made most clearly visible by examining the bitrate of the images unfolding onscreen, an option available on some DVD players and easily accessible on VLC media player.²⁸ The bitrate quantifies the amount of data being processed and displayed by the media player in real time. Examining the bitrate as it unfolds alongside a film, it becomes quite easy to make sense of the correlation between bitrate and movement on screen. Watching *Vertigo*, for example, we discover that a static shot of Scottie speaking hovers around 1500 kb/s, while the explosion of animated flower petals during Scottie’s dream hovers around 5000 kb/s. In shots that involve camera movement, variations in bitrate can seemingly be attributed to lighting (darker shots exhibit less visual change), camera distance (more background exhibits more visual change), camera direction, and camera speed. The famous rotating tracking shot of Scottie and Judy’s kiss, a relatively slow and darkly lit shot, hovers around 2500 kb/s, while a wide, brightly lit tracking shot of Scottie and Judy walking through a park hovers around 6500 kb/s.

²⁶ Cubitt, *The Practice of Light*, 249.

²⁷ Mackenzie, “Every Thing Thinks,” 151

²⁸ According to Mackenzie, “Variations in this bitrate indicate different ratios of DCT [Discrete Cosine Transform] and motion estimation being done by the player’s codec.” Mackenzie, “Every Thing Thinks,” 151.

Watching the bitrates fluctuate with the magnitude of movement on screen produces a certain cognitive dissonance. On the one hand, the fluctuating numbers reinforce the pervasive intuition that the visual contents of our personal computer screens are being computationally processed in real time. Consider similar visualizations of data streams like those that show us our computer processor's fluctuating resources, or those that deliver internet bandwidth speeds as they rise and fall. Such visualizations of data flow do not only correspond with our understanding of how computation works, but they also tap into our experience of computers as machines whose speed and performance ebb and flow with the demands of our use. What always underlies the experience of computational media is an unreflective awareness of the invisible engine of computational processing.

On the other hand, seeing individual camera movements and gestures create such wildly different fluctuations in data contradicts a central intuition about the ontology of the moving image. After all, it is one of the most basic facts of the moving image that the illusion of motion is created through the succession of still images. Even though this process is radically altered by digital compression, the source images of compressed video—digital or analog—are still produced through this most basic of mechanisms.²⁹ Given this technological logic, the apparatus responsible for recording and projecting motion has an agnostic relation to the particularity of motion on screen. In fact, this fundamental incongruity was precisely one of the reasons that Henri Bergson deemed cinematic motion “false motion.” Bergson pointed out how the life-like movements on screen must be reconstituted through the indifferent, mechanical movement of the apparatus, “an impersonal movement abstract and simple, *movement in general*.”³⁰ What Bergson observed in the projector's

²⁹ For example, Mackenzie reminds us that “Digital video typically arrives at the codec as a series of frames.” Mackenzie, “Codecs,” 50.

³⁰ Henri Bergson, *Creative Evolution*, trans. Arthur Mitchell (New York, Random House, 1944), 332.

machinic indifference has since been internalized as an unquestionable aspect of the basic mechanics of cinematic motion. In other words, it's intuitive that the movement of the projector does not *work harder* during a chase sequence rather than a dialogue sequence. Mechanically propelled at the rate of twenty-four frames per second, the velocity of the filmstrip has little to do with magnitude and velocity of movement on screen.

It's for this reason that malfunctions in projection are not analogous to compression glitches. If the projector breaks down, such a contingency may indeed reveal the mechanism through which cinematic motion is produced—that is, reveal the discontinuity of individual images—but the patterns of breakdown are indifferent to the formal qualities and intensities of the movement on screen. Similarly, if the film slips through the gate or the image suffers from jitteriness, such errors are direct manifestations of *physical* malfunctions. Even the hiccups of analog videos, which are generally referred to as glitches, are similarly tied to their physical materiality. In Cubitt's words, such errors "are evidence of the handling of the tape, of its physical passage through moments of history."³¹ A VHS tape may tend to glitch at moments where the user has paused and replayed the video over and over, damaging the integrity of the magnetic tape through overuse.³² A projected film's jitteriness and the VHS glitch are thus indexical signs of their material causes, wholly indifferent to the contents of the image.

By contrast, the appearance of compression glitches is not an index of a physical presence but of the algorithmic labor processing the formal aspects of movement on screen.³³ Such glitches are conditions of particular movements with particular magnitudes and intensities. The technological

³¹ Cubitt, "Glitch," 24.

³² Lucas Hilderbrand argues that "the specificity of videotape becomes most apparent through repeated duplication, wear, and technical failure: that is, we recognize videotape as tape through its inherent properties of degeneration." Hilderbrand, *Inherent Vice*, 34.

³³ For an in-depth account of digital video as an index of an algorithm, see Braxton Soderman, "The Index and the Algorithm." *Differences* 18, no. 1 (2007): 153-186.

substrates responsible for making compressed moving images move must *churn out* such movement, *process* it, *labor* over it. With digital video, movement isn't simply recorded and projected, as if by a passive machine; rather, particular movements are actively *reconstituted*. Artifacts and glitches express the laboriousness of that reconstitution when the intensity of movement becomes too much to bear.

Given that glitches in general tend to be absorbed into our everyday expectations of a technology's functioning, how might the compression glitches' patterns of emergence affect our perceptual habits? In other words, how might compression glitches be conditioning spectators' orientation toward the movement on screen? Whether or not spectators understand the technological correlation between movement and glitches on screen, we can safely postulate that a habituated *sensitivity* to the magnitude or intensity of movement on screen—what I call a *movement-sensitive spectatorship*—is present in the age of digital video compression. As the disruptive aspects of glitches recede into familiarity—that is, as glitches become no longer remarkable events but regular aspects of compressed video's everyday functioning—our habituation to their regularity gives way to a certain spectatorial disposition. Familiar with the patterns of compression glitches, the movement-sensitive spectator *feels* the movement on screen as data being processed. As a kind of intuition, the sensitivity to the magnitude of movement is the phenomenological corollary of our habituated familiarity with the patterns of compression glitches. Such a sensitivity importantly does not entail a knowledge of a codec's processes nor of the factual correlation between on-screen movement and the appearance of glitches. Rather, this habituated orientation toward the dynamics of movement on screen is better conceived as an *orientation* toward digitally compressed videos, a set of unconscious expectations and anticipations, familiarities and anxieties.³⁴

³⁴ It should be made clear that I do not posit movement-sensitive spectatorship as an automatic spectatorial orientation determined by the ubiquity of digital compression, but rather as a possibility determined by the conditions of compression glitches and their patterns of emergence. This distinction is a subtle but significant. What this means is that no amount of exposure to or familiarity with compression glitches guarantees movement sensitivity, but supplies its necessary, if not sufficient, conditions for such a sensitivity.

It is precisely because glitches are not failures, but minor disruptions whose patterns of regularity have become embedded into our habits of perceptual expectation, that glitches can set off a sensitivity to the magnitude or intensity of movement on screen. In phenomenological terms, a single glitch re-opens our *horizon* of anticipation for more glitches. Recall from the previous chapter that for phenomenologists like Maurice Merleau-Ponty and Edmund Husserl, the “horizon” of perception constitutes the palpable existence of that which I do not intend or directly perceive, of that which lies *just around the corner* of my perceptual field. Merleau-Ponty’s evocative description of the horizon invoked in the previous chapter bears repeating here: “I can feel swarming beneath my gaze the countless mass of more detailed perceptions that I anticipate, and upon which I already have a hold.”³⁵ In the case of watching compressed video, a single glitch activates a horizon of palpably anticipated glitches as pure possibilities, or more precisely, as pure *probabilities*. With every intensification of onscreen movement, we feel the probability of a glitch’s appearance, as if bubbling up underneath the surface of the screen and threatening to burst forth.

If I am watching *Vertigo* on a media player, for example, and a single glitch has thrown me into this unreflective state of movement-sensitivity, the film’s iconic dolly zooms that represent Scottie’s experiences of vertigo may take on a second layer of intensity, one wholly alien to the diegetic world of the film. Rapidly shifting the spatial contents of the screen, the dolly zooms pinch a nerve of movement-sensitivity. They thus not only *represent* Scottie’s bodily and mental volatility; they also trigger a sensitivity to the compressed moving image’s technological volatility. This sensitivity might also be triggered at a moment when such formal magnitude would seem incongruous with narrative intensity. The high-bitrate tracking shot of Scottie and Judy walking through a park invoked earlier, for example, is a moment of relative tranquility and ease in the diegesis, but as a screen phenomenon it may pinch the same nerve of movement-sensitivity. The

³⁵Maurice Merleau-Ponty, *The Phenomenology of Perception*, trans. Colin Smith. (New York, NY: Routledge, 1962), 395.

feeling particular to that affective pinch is what Bergson would have called a *qualitative intensity*. The magnitude of movement is not *measured* by the spectator but immediately felt as an intensity.³⁶ The movement-sensitive spectator does not pause to estimate the relative bitrates of onscreen movements; once again, movement-sensitive spectatorship exists independently of any knowledge of the mechanisms of compression's processing of data. Rather, as with affective states, aesthetic feelings, muscular efforts, or sensations of pressure and heat, movement-sensitivity is felt in terms of greater or lesser magnitudes despite being uncountable or unavailable to quantitative measurement. Within a Bergsonian framework, then, movement-sensitivity pulls the spectator away from the habits of mind that make sense of movement as a sequence of immobilities or a transition from one place to another; figured as a qualitative intensity, onscreen movement feels more *movement-like*, that is, it becomes more like a durational intensity that ebbs and flows.

Movement-sensitivity thus opens up an aspect of cinematic motion to spectatorial sensation, a way of seeing movement on screen, that is distinct from narrative absorption but parallel to it. Though always bound up with my attunement to representational forms like characters and spaces and events, my attunement to the purely intensive dimensions of movement on screen attains a more palpable presence in the throes of movement-sensitivity. My sensitivity to the magnitude of movement *hovers over* or *alongside* my narrative engagement with the moving image rather than interrupts it. For this reason, the movement-sensitivity caused by prolonged exposure to compression glitches is always adjacent to, but also *available* to, an aesthetic mode of engagement.

It is this intimate relation to an aesthetic appreciation of form that makes movement-sensitive spectatorship distinct from other phenomenologies of failure and disruption particular to spectatorship in the digital age. For example, movement-sensitive spectatorship can be productively

³⁶ Henri Bergson, *Time and the Free Will: An Essay on the Immediate Data of Consciousness*, trans. M.L. Pogson (Mineola, NY: Dover Publications, 2001), 1-74.

contrasted with Neta Alexander's account of the experience of buffering, which also involves an underlying set of phenomenological habits triggered by a common technological disruption. In Alexander's account, buffering—the sustained suspension of data flow endemic to digital video streaming services—“creates a phenomenological mode of waiting” that gives way to feelings of frustration and anxiety.³⁷ The interruption of the continuous stream of the moving image by the buffering screen's “loading” GIF sparks a fitful need to fill the dead time with “neurotic, anxious movements;” but over time, “unease or frustration often turn into indifference, which transforms into forgetfulness.”³⁸ Indeed, this tendency to *forget* the frustrations of buffering through habituated exposure resonates with the phenomenology of compression glitches, which become generally overlooked or functionally invisible. But unlike the appearance of the compression glitch, which exhibits a logical regularity that is intimately related to the movements on screen, buffering “seems to be devoid of any logic,” popping up without rhyme or reason.³⁹ Habituated exposure to buffering, then, only attenuates our frustration at its disruption; not much is *gained* from that habituated exposure. By contrast, the essential non-arbitrariness of the compression glitch, i.e. its relation to the magnitude of movement on screen, does more than simply inure the spectator to its frequent interruptions. Even while glitches may prompt anxiety or frustration, they grant a distinctly aesthetic sensitivity to the formal particularity of the moving image before them.

This renders the phenomenology of compression glitches ultimately incommensurate with an aesthetics of failure. While glitches are indeed forms of disruption, degradation, and noise, *putting up with* or *getting used* to glitches cannot be reduced to a mere toleration of video compression's shortcomings, a succumbing to the “cruel optimism” embedded in late capitalist structures of media

³⁷ Alexander, “Rage Against the Machine,” 19.

³⁸ Alexander, “Rage Against the Machine,” 21, 19.

³⁹ Alexander, “Rage Against the Machine,” 14.

consumption.⁴⁰ Because glitches are also expressions of the compression algorithm's engagement with the formal particularities of its moving image text, getting used to glitches also entails getting used to—i.e. becoming accustomed to, at home with—the ways in which they are expressive of the codec's live processing of movement on screen. For Merleau-Ponty, “to *get used to* a hat, a car or a stick is to be transplanted into them...to incorporate them into the bulk of our own body.”⁴¹ In a similar way, our habituation to compression glitches is indeed capable of rendering them functionally invisible as *disruptions*, but it is equally capable of making palpable its accidental aesthetic affordances. By deadening some aspects of our attention, the habits engendered by digital media free up our attentional field to other forms of sensibility.

Given this view of habit as affordance, movement-sensitivity can thus also be productively contrasted with other forms of “medium-sensitivity” that have emerged in the wake of new moving-image technologies. In *Early Cinema in Russia and its Cultural Reception*, Yuri Tsivian speaks of the early spectator as a “medium-sensitive” viewer, more interested in and attuned to the encounter with the moving image than the content on screen, and Robert Spadoni has argued that the dawn of synchronized sound caused a “return of the medium-sensitive viewer.”⁴² My account of movement-sensitive spectatorship similarly names a phenomenological orientation toward a moving-image medium in its historical and technological specificity. However, what I identify as a sensitivity to the magnitude of movement in the age of digital compression doesn't imply the viewer's *conscious* awareness of a technology's novelty. Compression glitches importantly do not announce themselves as spectacular features of their respective medium, as did the phenomenon of animated motion in

⁴⁰ I'm here referring to Neta Alexander's invocation of Lauren Berlant's *Cruel Optimism* as a broader ideological structure that the anxiety of buffering instantiates. Lauren Berlant, *Cruel Optimism* (Durham: Duke University Press, 2011).

⁴¹ Merleau-Ponty, *Phenomenology of Perception*, 166, my emphasis.

⁴² Yuri Tsivian, *Early Cinema in Russian and its Cultural Reception*, trans. Alan Bodger (New York: Routledge, 2005), 170. Robert Spadoni, *Uncanny Bodies: The Coming of Sound Film and the Origins of the Horror Genre* (Berkeley, Univ of California Press, 2007), 13.

the Lumiere exhibitions and Al Jolson's miniature sound spectacles in *The Jazz Singer*. Quite the contrary, compression glitches are meant to be overlooked. Digital compression, like many of the digital formats of production and exhibition, seek to replace their analog predecessors quietly and discreetly. Discarding aspects of the image that are by definition inaccessible to the human sensorium, from a peripheral range of light and color values to the pixels that barely change in a static background, codecs factually alter what we perceive while remaining more or less invisible.⁴³ This, of course, is part of the reason why the project of theorizing the "experience" of digital cinema is such embattled terrain. For as much as computer-generated imagery has garnered claims about the return to medium-sensitivity and the "cinema of attractions," far subtler perceptual shifts ushered by digital technology have occurred in the *background* of spectatorial experience.

One of my reasons for examining compression glitches is precisely because they are digital artifacts relegated to this background of experience—i.e. they are functionally invisible—and yet they are undeniably *visible phenomena*. This distinction is crucial, for much of the debates about digital cinema have boiled down to disagreements about what can count in our "experience" of the digital. What perceptual aspects should be included in our experience of digital technology? Does our knowledge of a technological process irrevocably shape our experience of that technology?⁴⁴ These questions are as central—however implicitly so—to the emerging scholarship on digital compression

⁴³ In Mackenzie's words, "Nearly all video codecs transform spatially extended images into sets of frequencies. This allows them to isolate those components of a sound or image that are most perceptually relevant to human eyes and ears. According to Jonathan Sterne, this basic process—"The technique of using a model of a [perceiver] to remove additional data"—is called "perceptual coding." Jonathan Sterne, *MP3: The Meaning of a Format* (Durham, NC: Duke University Press, 2012), 2.

⁴⁴ This particular question is related to a much broader debate concerning the primacy of form in aesthetic experience and judgment. See, for example, Nelson Goodman's "Art and Authenticity," in which Goodman posits a comparison between two pictures that look exactly alike but only one of which is a forgery. He concludes "My knowledge of the difference between the two pictures, just because it affects the relationship of the present to future lookings, informs the very character of my present looking. This knowledge instructs me to look at the two pictures differently now, even if what I see is the same." Nelson Goodman, "Art and Authenticity," in Denis Dutton, ed., *The Forger's Art. Forgery and the Philosophy of Art* (Berkeley: University of California, 1983), 104. For an argument that takes a similarly anti-formalist stance, see Kendall Walton, "Categories of art." *The philosophical review* (1970): 334-367. For an account that responds to such anti-formalist critiques, see Nick Zangwill, *The Metaphysics of Beauty* (Ithaca, N.Y.: Cornell University Press, 2001).

as they've been to debates in the early 2000s about the ontology of digital cinema. For example, when Cubitt makes the claim that viewers of compressed video are condemned to a "labor of interpretation," an "active" effort in filling in the visual gaps left by the codec's imperceptible degradation of the image—i.e. not *glitches* but the compressed image in general—he seems to make a leap from the technological to the phenomenological.⁴⁵ If codecs by definition eliminate color, light, and movement values that are *imperceptible*, how could the invisible image degradation require an active effort to stitch together what's on screen, as if straining to make out a blurry shape in the distance?⁴⁶ Or, when Adrian Mackenzie claims "at a phenomenological level, [codecs] deeply influence the very texture, flow, and materiality of sounds and images," but maintains elsewhere that such sensations are only accessible in the form of "sub-representative differences" that "cannot be identified, measured, or calculated as such," how do we phenomenologically attend to that which cannot be identified?⁴⁷ Logically extrapolating the perceptual *experience* of compressed video from the *technological process* of compression, such arguments recall a familiar rhetorical tendency in theories of digital cinema, from Babette Mangolte's claim that we can always see the pixels that make up the

⁴⁵ Cubitt, *The Practice of Light*, 258.

⁴⁶ Cubitt's logical extrapolation of the perception of compressed images is quite clearly motivated by a desire to read compression as political allegory. As technological agents of massive data circulation and commodification, codecs are the perfect emblems of corner-cutting neoliberalism. They sacrifice image quality for server and hard drive space, placing the profit-driven goals of circulation ahead of an authentic engagement with the image. But it should be noted here that attempts to redeem the political value of compressed images may follow a similar reasoning. In her influential essay "In Defense of the Poor Image," Hito Steyerl champions the compressed, visually degraded, and highly circulated "poor image" over the fetishized high-res image with its elitist aura of aesthetic authenticity. Because the poor image's visual degradation is an index of its capacity to circulate quickly and widely, the poor image takes on "another form of value defined by velocity, intensity, spread." Hito Steyerl, "In defense of the poor image." *e-flux journal* 10, no. 11 (2009). The "poorness" of compressed images thus becomes an emblem for a participatory image culture that freely appropriates, manipulates, and circulates images against the capitalist authority of Hollywood copyrights or the cultural authority of artistic authenticity. What's important to note about these seemingly opposed arguments is that they equally treat our *experience* of digital video and its glitches, or at least their perceptual qualities, as a direct function of the technology's role in the global marketplace.

⁴⁷ Mackenzie, "Codecs," 49.

digital image if we look close enough,⁴⁸ to D.N. Rodowick's claim that due to its numerical ontology digital cinema may "never fully realize the phenomenological density of time, pastness, and causality of the projected film experience,"⁴⁹ to William Brown's claim that digital cinema radically changes analog cinema's conception of space because virtual cameras can move through walls (despite the fact that cameras had already been doing so for decades).⁵⁰ For both theories of digital images in general and of digitally compressed images in particular, an overwhelming confirmation bias persists: a desire to *sense, feel, or see* a technological change on screen, to convert an epistemological fact into a phenomenological datum.⁵¹

Thus, when it comes to theorizing cinematic technology, the distinctions between "ontological" and "phenomenological" approaches are not clear because there is little agreement upon what in fact counts as a datum of *experience*. When, for example, Tom Gunning argues that Rodowick's claims "derive primarily from deductions about its technical processes (emphasizing its numerical basis rather than discussing its phenomenology)," he cements a division between his own preferred "phenomenological" approach and what he claims to be Rodowick's "deductive" or

⁴⁸ Mangolte writes, "You can manufacture softness in digital, but if you look carefully it appears fake because it has the same hard edges that sharpness has. The outline of the pixel is always there underneath the softness or the sharpness." Mangolte, "A Matter of Time," 265.

⁴⁹ Rodowick, *Virtual Life of Film*, 109

⁵⁰ Brown, *Supercinema*, 21-50.

⁵¹ My argument here is similar to, but distinct from, an imputation of technological determinism. Francesco Casetti nicely summarizes that heuristic as such: "There is an academic tradition, of which authors such as Marshall McLuhan and Friedrich Kittler are often considered major exponents, holding that the 'material base' of the medium not only determines the way we perceive what it shows to us—and the world for which it acts as mediator—but also directly defines the nature of the medium itself. Following this line of thought, cinema would be reduced to a support and a device. If this were the case, every change in the technological complex would result in a change in the medium's nature, and those who preach the death of cinema would be correct, against all evidence to the contrary." Casetti, *Lumiere Galaxy*, 5. Following this remark, Casetti will claim that "Granting a central position to experience, meanwhile, means overturning this perspective [...] In this context, what identifies a medium is first and foremost a mode of seeing, feeling, reflecting, and reacting, no longer necessarily tied to a single 'machine,' not even to the one with which it has been traditionally associated."

“logical” one, reiterating his central point that “We see digital images, not a matrix of numbers.”⁵² But the question remains, what do we see *in* digital images, and what are we willing and not willing to *bracket* in our phenomenological descriptions of those images, especially given that, by Gunning’s own admission, the digital transformation “has been broad and pervasive” yet “appears oddly invisible”?⁵³ Similarly, when Carroll proclaims “Forget the medium, watch the movement,” he is condemning a mode of argumentation that makes logical inferences of a physical/technological substrate (what he calls a “medium”) before accounting for the experiential, historical, or institutional changes made by that technology.⁵⁴ But what of the medium should we forget, and more importantly, what of the movement we should watch?

While my account of compression glitches does not provide a definitive answer to this methodological conundrum, it offers a model for the kind of inquiry that can offer a productive middleground. Compression glitches are discrete, *visible* events that bear a direct relation to their digital substrate. My claims for a new orientation toward the movement of the moving image ultimately rest not on logical deductions or sub-perceptual registers, but on undeniably visible artifacts of digital technology that work on us in mostly unnoticeable ways. That which is *phenomenally* visible but is *phenomenologically* overlooked through habit is precisely the kind of object that can be brought to light through phenomenological reflection. This is especially the case with the study of new media, which have become integrated into our habits of being and thinking at unprecedented rates. If, as Wendy Chun argues, “our media matter most when they seem not to matter at all, that is, when they have moved from the new to the habitual,” compression glitches matter for our contemporary understanding of the moving image once they’ve faded into the

⁵² Tom Gunning, “The Sum of its Pixels,” *Film Comment*, 43-5 (September-October 2007), 78.

⁵³ Gunning, “Sum of its Pixels,” 78.

⁵⁴ See Carroll’s distinction between “medium” and “artform” in Carroll, “Forget the Medium,” 7.

background of our attention.⁵⁵ As I've tried to suggest here, it is precisely the background of our experience—where glitches are overlooked as glitches—that has affected our unreflective orientations toward the movement of the moving image in the digital era.

The Aesthetics of “Bleeding Pixels:” A Pedagogy of Motion Perception

In the previous section, I examined compression glitches *as glitches*, exploring how our habituated familiarity with their patterns of interruption create a sensitivity to the magnitude of movement on screen. In this section, I'll examine the aesthetic qualities of compression glitches themselves—particularly, the motion forms specific to them—through a phenomenological description of the glitch art practice known as datamoshing. Instead of considering how glitches shape our orientation toward movement on screen, here I'll be more concerned with the new aesthetic of cinematic motion produced through compression glitches.

As in the previous section, my aim in describing the aesthetics of compression glitches in glitch art is to offer a model of inquiry that traverses the division between techno-centric and experience-centric accounts of digital cinema. Just as theories of compression reproduce a techno-centric reasoning familiar in theories of digital cinema—extrapolating an account of experience from the logic of a technological process—theories of glitch art tend to fall prey to similar media- or techno-centric heuristics. Glitch art in general and datamoshing in particular are subject to a fairly overdetermined set of hermeneutic strategies inherited from the history of twentieth century art. As a practice that quite literally *breaks* the normal functioning of an imaging technology to reveal its material conditions, glitch art courts the long tradition of agonism in the avant-garde—a revolt against artistic tradition, the institution of art, and in this case, mainstream media—as well as the familiar modernist heuristic of baring the device—the aim to explore the essence of a given medium

⁵⁵ Wendy Hui Kyong Chun, *Updating to Remain the Same: Habitual New Media* (Cambridge, MIT Press, 2016), 1.

by reflecting on its physical properties. Theorists and practitioners of glitch art have reproduced both ideologies. Rosa Menckman, for example, inheriting an avant-gardist rhetoric, claims that glitch art “forces the audience to move away from the traditional discourse around a particular technology” and “recognize the inherent politics behind the codes of digital media.”⁵⁶ And for Ed Halter, taking a modernist stance, “The very moments that indicate the specificity of the medium occur when that medium starts to break down, to suffer and reveal imperfections. The technology becomes visible through its failures. Glitches and errors constitute evidence of its origins; we see the material through disruption.”⁵⁷ These two positions often congeal into a rhetoric evocative of what Rodowick has named *political modernism*, a post-1968 paradigm of radical leftist film theory and practice.⁵⁸ In particular, much of glitch art rhetoric resembles the aesthetic program of a group of British avant-garde filmmakers, including as Peter Gidal and Malcolm LeGrice, who engaged in destructive abstraction as a primary means of engaging in a leftist politics.⁵⁹ In this sense, glitch art is often posed as a means of critiquing mainstream media by breaking the normal functioning of and thus exposing the materiality of its apparatus.

While datamoshing undoubtedly participates in this idiom, there’s a danger in reading the technique solely as a *revelation* or *baring* of its apparatus (whether politically agonistic, philosophically reflexive, or both). For as we’ve seen in the case of compression glitches in the previous section,

⁵⁶ Rosa Menckman, "Glitch Studies Manifesto," in Geert Lovink and R. Miles, eds., *Video Vortex Reader II: Moving Images Beyond YouTube* (No. 6. Institute of Network Cultures, 2011): 336-347, 340.

⁵⁷ Ed Halter, “The Matter of Electronics,” *Vague Terrain*, last modified February 3, 2010, <http://vagueterrain.net/content/2010/02/matter-electronics>.

⁵⁸ D.N. Rodowick, *The Crisis of Political Modernism: Criticism and Ideology in Contemporary Film Criticism* (Berkeley: Univ. of California Press, 1995).

⁵⁹ According to Rodowick, “Gidal insists on strategies of semiotic reduction that systematically eliminate any elements of signification that do not belong to specifically cinematic materials of expression [...] Gidal wants to obstruct strategically the spectator’s conditioned desire to attribute reference and meaning to the image by insisting on its material opacity. In Gidal’s films the photographed image must be read in real time *through* the material opaqueness of the image in the form of graininess, emulsion density relative to exposure, and the instability of framing and focus.” Rodowick, *Political Modernism*, xvii-xviii.

when it comes to compressed digital video, the devices are already baring themselves. Glitches are simply part of the horizon of expectation in our consumption of compressed video. In fact, popular reactions to datamoshed videos suggest as much. For instance, if one scrolls through the YouTube comments for the popular datamoshed music video of Chairlift’s “Evident Utensil,” an overwhelming number of comments make jokes about the familiarity of the images as everyday computer malfunctions.⁶⁰ User BackslideDan writes “There’s no actual animations or video trickery in this music video.⁶¹ Youtube’s player just really sucks now.” User destructokid1337 writes “I can’t even imagine how this would look being played by VLC.”⁶² And User Drew Chong simply quips “VLC – The Music Video.”⁶³ That we can, and in fact are supposed to, recognize datamoshing’s forms on screen from our everyday consumption of online videos, downloaded movie files, DVDs, and Blu-Rays complicates the modernist heuristic datamoshing invites. Less a startling revelation or baring of the digital apparatus, datamoshing is an invitation for a sustained aesthetic encounter with the compression glitch as a familiar but overlooked phenomenon.

By eschewing a modernist heuristic of medium-reflexivity, we can open up datamoshing to a mode of analysis that allows a more flexible relation between datamoshing’s technological and aesthetic qualities: an analysis that does not *infer* a technological logic from its aesthetic qualities but which employs an understanding of technological processes in the service of phenomenological

⁶⁰ Similar comments can be found on the comment thread for Kanye West’s “Welcome to Heartbreak” video, which also uses extensive datamoshing effects. User ChronoYinger writes “Damn why my graphics card still broken” and user Itachisan125 writes “Back when we had shitty computers so we can't tell that it was the video or not!” ChronoYinger (2016) and Itachisan125 (2016) Re: “Kanye West – Welcome to Heartbreak ft. Kid Cudi” [Video File]. Retrieved from <https://www.youtube.com/watch?v=wMH0e8kIZtE> . Last accessed May 23, 2017.

⁶¹ BackslideDan. (2014) Re: “Chairlift – Evident Utensil.” [Video File]. Retrieved from <https://www.youtube.com/watch?v=mvqakws0CeU>. Last accessed May 23, 2017.

⁶² Destructokid1337. (2016) Re: “Chairlift – Evident Utensil.” [Video File]. Retrieved from <https://www.youtube.com/watch?v=mvqakws0CeU>. Last accessed May 23, 2017.

⁶³ Drew Chong. (2016) Re: “Chairlift – Evident Utensil.” [Video File]. Retrieved from <https://www.youtube.com/watch?v=mvqakws0CeU>. Last accessed May 23, 2017.

description.⁶⁴ In doing so, I'll show how datamoshing exploits the technological logic at the heart of compression—the extraction of movement from its representational contexts—in order to create a pedagogy of motion perception: a roughening of the perception of movements on screen that engenders a reflexive encounter with the processes of motion perception. The affordances of digital compression's technical production of motion are here exploited not simply so we can *see* those technical conditions or so we can disrupt their normal functioning, but so that we can experience an aesthetics of motion otherwise unavailable without those technical conditions. In this way, datamoshing perpetuates but radically expands the condition of movement-sensitive spectatorship symptomatic of everyday compression glitches: it similarly exploits the perceivable malfunction of a technology as a tool in order to open up spectatorial experience to new modes of sensibility and perception. Specifically, I'll argue, what movement-sensitive spectatorship does for *motion sensation*—movement's intensity, magnitude, velocity—datamoshing does for *motion perception*—movement's shape, structure, form.

To begin, I want to give a basic account of the technological processes behind datamoshing. Coined by the art collective Paper Rad in 2005, datamoshing refers to any process by which the normal functioning of compression algorithms is deliberately broken for aesthetic purposes. Though there are many tools and methods for datamoshing, from various software programs designed for codec breakage to downloading incomplete movie files, the general means by which a datamoshed video are produced involve intervening in the codec's regimented organization of compressed video frames, specifically what are known as I-Frames and P-Frames.⁶⁵ When a codec produces a

⁶⁴ As an example of “inferring a technological logic from its aesthetic qualities,” consider a familiar modernist reading of flicker films such as Peter Kubelka's *Arnulf Rainer* or Tony Conrad's *Flicker*, where the discontinuous flashes of light that make up such films would be *read* as reflective of the material discontinuity of singular photographs.

⁶⁵ For the sake of simplifying the process, I've elided a discussion of B-Frames (“backward” frames), which are similar to P-Frames, but unlike P-Frames, which gather their prediction data from a single preceding reference frame, B-Frames use prediction from an average of one preceding and one succeeding frame. From here on, any mention of P-Frames will mean to encompass P-Frames and B-Frames.

compressed video, it breaks up the individual frames of its source footage (analog or digital) into I-Frames and P-Frames. I-Frames (“image frames” or “keyframes”) are essentially identical to their original source frames, reproducing the entirety of their visual data, while P-Frames (“predictive frames”) use motion algorithms to predict or estimate the changes in only those “blocks” of the image in which movement is apparent.



Figure 4.6. A visualization of “motion instructions” or “motion vectors” that constitute a P-Frame.

By removing I-Frames, repeating P-Frames, or looping clusters of P-Frames, the datamoshing artist disturbs the codec’s mimetic functioning. As a result, motion instructions from P-Frames are mapped onto images they weren’t intended for, thereby separating movement itself—that is, motion instructions—from its initial representational context. This interruption produces new aesthetic relations between still images and movement instructions, resulting in various forms of abstraction that warp the original footage. Such relations, in Thomas Y. Levin’s words, “could be described as a

memory of the movement contained in one time-based sequence within a subsequent time-based sequence...A smooth haunting of one image by another.”⁶⁶

It is at first difficult to see this relatively simple programmatic logic at work in datamoshed videos, whose immediate aesthetic effect is an overwhelming array of swirling colors and fluidic formlessness, a kind of visual chaos emerging from the source footage. In the words of datamoshing practitioners Owingsville Mahn and Laura Baginski, “If this keyframe is being withdrawn from the compressor, be it on purpose or by chance, chaos is being generated.”⁶⁷ Testifying to this formlessness, scholars and artists who describe datamoshing often use a vocabulary that revolves around organic and fluidic metaphors. Besides being nicknamed “bleeding pixels,” datamoshing effects have been collectively described using the words “digital sludge,” “grime,” and “paint,” with particular effects being described as “melting” and “blooming.”⁶⁸ These metaphors reflect how compression glitches cause figures to transform and fuse into each other in ways that recall the malleable, protean qualities of fleshy substances and viscous fluids. As a subset of digital glitches, then, errors whose aesthetic qualities are often marked by jerky movements and temporal jumps—that is, mobile *discontinuities*—the compression glitch is distinct primarily because of the unusually

⁶⁶ Thomas Y. Levin, “Datamoshing as Syntactic Form: Reading Digital Video Compression Algorithm Hacking,” Conference Presentation at Kracauer Lectures in Film and Media Theory, December 13, 2011.

⁶⁷ Qtd. in Shad Gross, “Glitch, Please: Datamoshing as a Medium-Specific Application of Digital Material.” In *Proceedings of the 6th International Conference on Designing Pleasurable Products and Interfaces*, pp. 175-184. ACM, 2013, 180. Similar descriptions are echoed in other critical work on datamoshing. Brown and Kutty refer to the effects as “incomprehensible,” describing the overall datamoshing aesthetic as “colours becoming in time.” Brown and Kutty, “Datamoshing,” 170, 173.

⁶⁸ For “digital sludge,” see Levin, “Datamoshing as Syntactic Form.” For “grime,” see “Compression Artifact,” https://en.wikipedia.org/wiki/Compression_artifact#Artistic_use. Last accessed May 23, 2017. For “paint,” see Brown and Kutty, “Datamoshing.” For “melting,” see Brown and Kutty, “Datamoshing,” 170. For “blooming,” see Yuichi Ito, Carl Stone, Masashi Yamada, and Shinya Miyazaki. “Datamoshing Technique for Video Production, The Society for Art and Science.” *Proc. of NICOGRAPH International* (2013): 60-71, 159.

organic qualities of movement it creates.⁶⁹ In the words of Brown and Kutty, datamoshing breaks down the source image into “digital soup.”⁷⁰

Beyond a value-neutral description, the language of fluidity is consistent with heuristics that reinforce datamoshing as a degradation or destruction of *form*. Recall from chapter 1 that fluidic motion presented a problem for the role of form in Immanuel Kant’s aesthetics because it was deemed too chaotic and contingent to be perceptually shareable. It is for similar reasons that liquid and fluidity took on a major role as antagonists to form in certain strands of modernist and postmodernist art. Works like Jackson Pollock’s “drip” paintings, Robert Smithson’s staged “spills” such as *Asphalt Rundown* (1969) and *Glue Pour* (1969), and Edward Ruscha’s “Liquid Words” series of paintings have each exhibited what Rosalind Krauss and Yve-Alain Bois, following Georges Bataille, have called the *informe*, a general undoing of the perceptual categories that undergird the primacy of form in modernist art. In this sense, datamoshing’s “bleeding pixels,” besides being an intriguing oxymoron, also allows datamoshing to participate in the *informe*’s legacy of entropy and decay at the same time as it participates in glitch art’s idiom of destruction.

A closer description of the aesthetic effects of datamoshing, though, reveals a more complex relation between fluidity and solidity, chaos and form. Instead of the degradation or destruction of order and form—an aesthetic description shaped by the agonism of avant-garde aesthetics—

⁶⁹ Such a notion of the glitch’s aesthetics of discontinuity is articulated by Manon and Temkin: “The aesthetic of the glitch tends toward blockiness, toward crystalline fragmentation. Even an audio glitch creates the impression of edges. As many have noted, this opposes the “bleeding” or “warmth” we perceive in some forms of analog distortion (the famous advantage of tube amplifiers over solid state). This instantaneous fracturing is what glitch artists savor. Manon and Temkin, “Notes on Glitch,” 27.

⁷⁰ Brown and Kutty, “Datamoshing,” 173. Mark Hansen’s argument about datamoshing exhibits a similar emphasis on chaos and formlessness, but uses a more sophisticated logic. He argues that “compressed images introduce a processual logic at the level of pixel, the qualitative thisness or Firstness of the image, that differs categorically from cinematic continuity and televisual flow.” Mark B.N. Hansen, “Algorithmic Sensibility: Reflections on the Post-Perceptual Image,” in *Post-Cinema: Theorizing 21st-Century Film*, eds. Shane Denson and Julia Leyda (Sussex: Reframe Books, 2016). While I agree with Hansen that compressed images and datamoshed images violate the logic of “inter-image relations” (which I’ll explore in detail shortly), Hansen too quickly replaces the logic of inter-image relation with a logic of the “pixel.” While pixilation is indeed an aesthetic quality of datamoshed images, the aesthetic *logic* of datamoshing has far more to do with moving forms as perceptual *wholes*—moving bodies, camera movements—rather than the pixels that constitute them.

datamoshing is better described as a shifting or repurposing of order. Trajectories and patterns of movement initially absorbed by their corresponding objects in fact assert their own formal autonomies, albeit in new and strange ways.⁷¹ Such effects are the perceptual ramifications of datamoshing's fundamental technological principle: the extraction of recorded movement, that is, the trace or "memory" of movement, from its representational context. More precisely, if datamoshing makes visible the invisible technological processes at work in compressed videos, what it reveals about those processes is the codec's algorithmic sorting of visual information by picking out motion itself from a moving-image field. So while it's appealing to describe the effects of datamoshing as nothing more than an imposition of chaos on form, what is more precisely at work is a *translation* of cinematographically recorded motion into a startling new visual language.

In order to parse that visual language, we need to provide a rigorous description of the aesthetics of datamoshing, one that is especially attuned to the *forms of motion*—the patterns or structures of movement—that recur throughout datamoshed videos. Once again, "form" here simply names a perceived unity across time, a visual structure used to classify a set of moving phenomena. In this way, describing forms of motion is not meant to undercut the attribution of datamoshing's "formlessness." Datamoshing's forms simply operate at a smaller scale than their

⁷¹ A majority of the scholarly articles on datamoshing briefly acknowledge this basic phenomenon in some way, but they rarely dwell on its significance, choosing instead to linger on the familiar set of phenomenological terms. Brown and Kutty, for example, write "from the digital soup and swirling colours changing in time, patterns seem spontaneously to emerge." Elsewhere, they describe seeing "colours from which emerge temporarily recognizable shapes that disperse as quickly as they arise." Brown and Kutty, "Datamoshing," 173, 169. Similarly, Levin briefly argues that the "Evident Utensil" video "teases us with a Gestalt perceptual game of figure and ground." Levin, "Datamoshing as Syntactic Form." And in Gross's close analysis of Takeshi Murata's datamoshed video installation *Monster Movie*, he describes how "colors have started to bleed out from shapes." Gross, "Glitch, Please," 180. More than simply an oscillation between figuration and abstraction—a sweeping description that could equally characterize everything from dadaist films from the 20s, to American Structural film, to the entire corpus of glitch video art—what these critics are grasping at—yet missing—is a more subtle engagement with the faculties involved in the perception of movement that datamoshing engenders.

general formlessness; their emergence is a function of close attention. It is only by attending to these formal structures that we can begin to locate a correspondence between datamoshing's aesthetic particularities and the technological processes that underlie it. In fact, an attention to form is the very means by which the visual qualities of datamoshing can be made intelligible as not only expressions of the codec's technological logic of motion production—i.e. as a baring of the device—but as perceptual experiences that produce a pedagogy of motion perception. In the following phenomenological descriptions, I aim to show how the particular aesthetic achievement of datamoshing lies not in its visible breakage of a pervasive imaging technology for the sake of medium-reflexivity, but rather in its use of digital compression's technological affordances for the sake of perceptual reflexivity.

At bottom, the aesthetics of datamoshing is perhaps most visually distinguishable by its transformation of the cut. Because datamoshing works primarily by eliminating I-Frames, which can almost always be found at the beginning of new shots (when the contents of the image have radically changed), datamoshed cuts rarely entail an instantaneous flash from one shot to the next. Rather than sharp changes of visual perspective, cuts in datamoshing are visually marked by the interruption of discrete figural movements from a subsequent shot encroaching upon the content of a previous shot. These new kinds of inter-image transition are organized around the movements of figures rather than the spatio-temporal continuity of recorded time.

To see how this works, I'll examine the 2008 music video "Evident Utensil" by the band Chairlift, which limits its datamosh degradation to the most fundamental effects of the technique. In a moment from the video about 35 seconds in, a brief medium shot of two band members against a green background suddenly freezes, and then the isolated face of the lead singer erupts from the center of the screen, *wiping away* the content of the previous image with a whip of her hair. In transitions like this one, the figure's movement from the subsequent shot seemingly breaks

through the space of the previous shot.⁷² It is as if the frozen image takes on a kind of organic materiality, functioning as a tangible atmosphere through which the emerging figure moves. The frozen image becomes a two-dimensional layer of physical stuff that can be displaced—penetrated through, pushed around, swept away—by the figure’s movement emerging beneath it, thereby punctuating the trajectory of that movement by visualizing its trace, not unlike the gestural sweep of a stick through sand made visible as an imprint (Fig. 4.7)



Figure 4.7 Movements of figures “break through” space in “Evident Utensil” (left) and “Psy – Gangnam Style Datamosh” (right)

A slightly different effect of such transitions occurs when the frozen visual contents of a static frame seem to *attach* themselves to a moving figure in a subsequent shot. In just moments after the transition examined above, we “cut” to a close-up of the male lead singer. Rather than breaking through the two-dimensional layer above him, wiping away its layers with its movements, the man’s face subtly emerges from within the image as if his face had been painted with the image like a kind of war camouflage. Instead of the frozen image taking on the materiality of a sandbox of color whose grains are displaced by the movements emerging beneath it, here the image takes on a stickier, more viscous materiality as a kind of pixelated paint. Such a materiality similarly punctuates

⁷² This effect is similar to what Ryan Pierson has called “moving-camera wipes,” a transition effect emerging in television series like *Scandal* and *Sherlock Holmes* in which a new scene emerges from behind a human figure displaced by a moving camera. Ryan Pierson, “Handling the Optics of Scandal (or, Prisoners of the Moving-Camera Wipe),” <http://www.the-brink.org/blog/2015/3/12/handling-the-optics-of-scandal>. Last accessed May 23, 2017.

the emerging movement that is revealed through it, but in a very different way. Because the man's face is painted with the very image that covers the entire screen, it only reveals its presence through movement. That is to say, we see an abstract, flat image—now a messy green collage of multiple image layers—move in the form of the man's face singing the words we hear. If the video were paused, the man's face would once again disappear into the sea of green (Fig. 4.8). Such a perceptual effect, where we seize a recognizable form from the temporal Gestalt of its movement, confronts us with the cognitive primacy of the motion form. In a sense, it is the glitch-aesthetics equivalent of the ordinary phenomenon in which we recognize a friend from behind by their gait. As glitch artist Nicolas Provost puts it in his description of datamoshing aesthetics, "It is movement that makes reappear contours and form, which recreates the space and which proves to be the veritable support of the image."⁷³

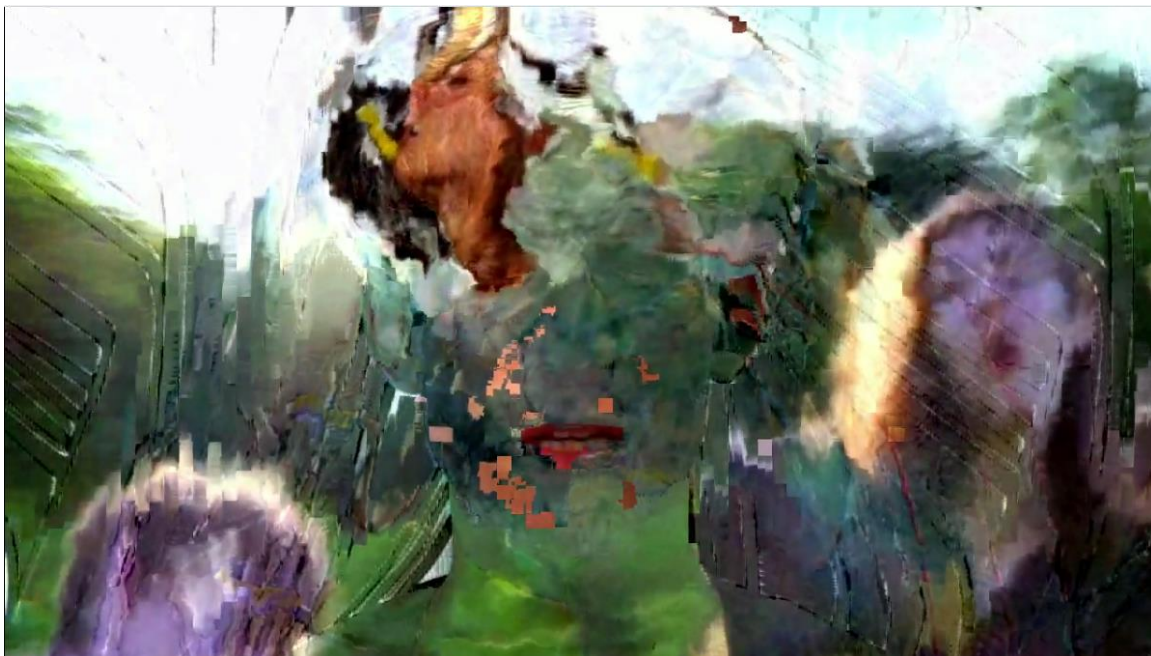


Figure 4.8 A face wears an image like camouflage paint in “Evident Utensil”

⁷³ Qtd. in Vladimir Lukin, "Movement Behind Your Back: Cinematic Technology in Light of Simondon's Philosophy of Technology," (Master's Thesis, University of Amsterdam, 2015), 66.

In each inter-image transition, adjacent shots are merged together by the *movement of a figure*, either by crashing through the image or by its movement subtly revealing itself underneath the image. While this may seem akin to more conventional transitions like dissolves and wipes, those techniques impose graphical patterns on the image that guide the gradual transition from one *shot* to the next: with dissolves, one shot fades into transparency at the same time as the next shot emerges from transparency; with horizontal wipes, the vertical border of a shot moves laterally across the screen from left to right to reveal the next shot, “wiping” it away.⁷⁴ Even the abundance of image transitions built into software editing suites and presentation programs like PowerPoint operate by the same logic, imposing one-size-fits-all graphical patterns on the visual contents on the two shots being joined together.⁷⁵ What’s radically new about the graphical patterns in datamoshing is that they are wholly determined by the specific *movements* captured within the shot. As a result, no two “transitions” are the same; they are as unique as the physical movement captured on camera—the whip of the hair in just *this* way, the movement of the face at *this* very moment.

The result of building shot transitions around these movements is that the movement of a figure is experienced or perceived with a sense of perceptual independence from the figure itself. In wiping away the space that surrounds it, the *whip* of the lead singer’s hair asserts its independence from the hair itself (which would be rendered invisible by the transition had it not moved). In a similar way, the revelation of the man’s face from beneath the overlaid image makes his entire presence to our perception contingent upon the coordinated movement of his facial muscles. The movement of the face gives rise to the face itself, rather than vice versa; the figure’s movement is somehow separated from the figure.

⁷⁴ Wipes also make use of any number of shapes to “wipe” the previous shot away with the second shot.

⁷⁵ In fact, Levin predicts that the transition effects particular to datamoshing will soon follow the fate of these pre-packaged transition effects in editing suites. Levin, “Datamoshing as Syntactic Form.”

A number of other datamoshing effects can also be described in similar terms. One of the most common of these effects, known as a “bloom” amongst datamoshing practitioners, causes elements of the image to appear to melt, warp, or morph. Such an effect can be seen in the first shot of the “Evident Utensil” video, when the image of a man standing against a striped background begins to melt downward, leaving only the man’s eyes unmoved in the center of the frame. The formal specificity of this melting effect stems from the way the contents of the image seem to both move in a consistent direction at the same time as they gradually lose their formal rigidity. For example, as the man’s face and torso move down the frame, the structural integrity of his body—the contour of his head and shoulders, the spatial coherence of his facial features, the patterns on his clothes—all rapidly lose integrity as they approach a formless mush. The effect is created by repeating a single P-Frame—that is, a single unit of motion instructions—over and over. Such a technique essentially perpetuates the movement instructions of a single frame of vectors over time (Fig. 4.9). Instead of freezing the image, which would be the result of repeating a single frame of film (or I-Frame), repeating a single P-Frame continuously moves the pictorial content within the frame according to the same vectors set by the motion instructions. What we see is the result of a single matrix of movements—here a general downwardness—impose itself on the still image, producing a continuous downward liquification evocative of melting (Fig 4.10).



Figure 4.9 A single P-Frame with motion vectors visualized and the “blooming” that results from repeating that P-Frame multiple times (from *Umberto D*).

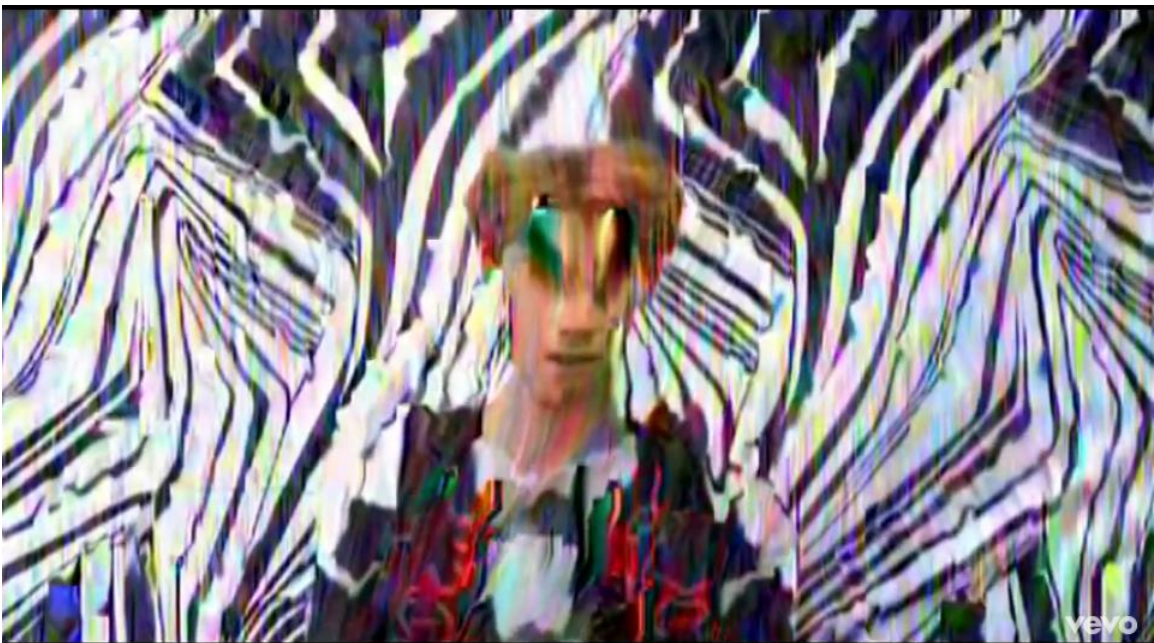


Figure 4.10. The figure melts downward in a “blooming” effect in “Evident Utensil”

When repeating a P-Frame with relatively large amounts of movement data (e.g. quick figure movements where more space is traversed from frame to frame), blooming produces a layered *trail* of movement segments behind a moving figure. In an effect from “Evident Utensil,” the lead singer’s quick turn of her head leaves a trail of micro-segmented positions of her face moving in time not unlike Etienne-Jules Marey’s chronophotography or futurist experiments in photodynamism (Figs. 4.11 and 12). For just a moment, the ordinary movement of the singer’s face blossoms with a blocky chronophotograph of that movement. But unlike Marey’s chronophotographs, which are stilled for analysis, the momentary datamoshing trail appears as a brief visual accent of the figure’s trajectory. The trail serves to visually punctuate the particular movement’s form—its shape, character, trajectory—without halting the flow of the movement itself.



Figure 4.11 The “trail” effect in “Evident Utensil”

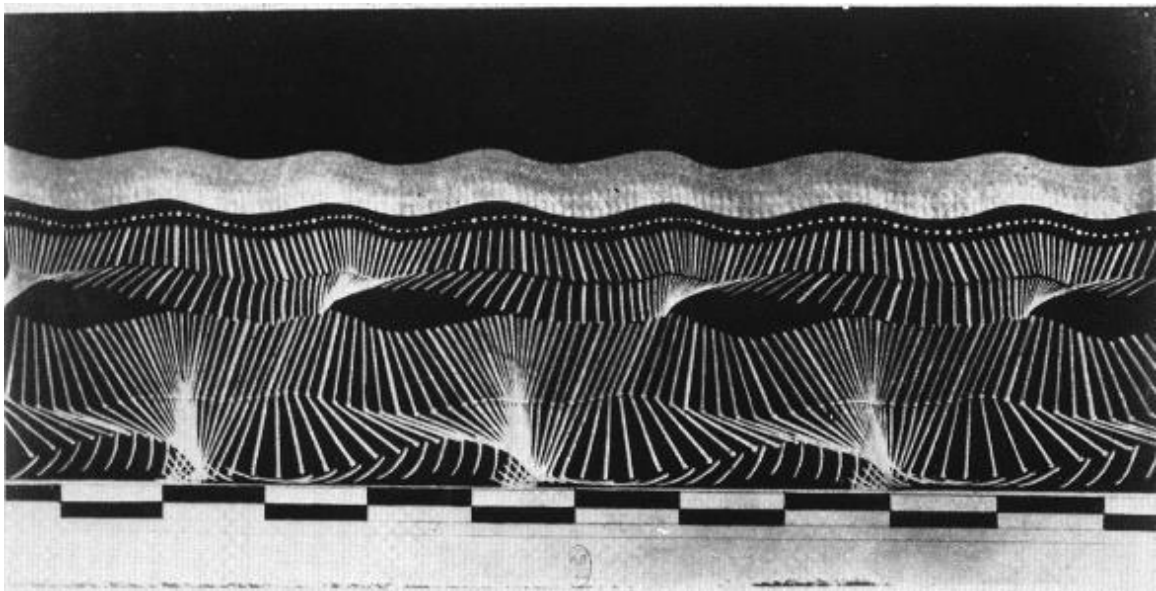


Figure. 4.12 “Geometric chronophotograph of the man in the black suit” (Marey, 1883)

Whether through melting “blooms,” chronophotographic “trails,” figural “wipes,” or “camouflaged” overlays—each its own motion form—datamoshing visually displaces movement itself from its moving figures.⁷⁶ In each of these effects, movement *bleeds out* from the objects that move, spilling beyond the spatial boundaries of the moving figure as well as the temporal boundaries of the shot. This is not a simple matter of degraded resolution or visual chaos, of a general blurring, warping, or disintegration of the image. Rather, every degradation of pictorial fidelity results from the visual expression of pure movement data; every swirl, flow, and melt is a direct expression of motion instructions estimating the movements within the source footage.

This techno-aesthetic condition entails an important implication for the characteristic fluidity of datamoshing’s aesthetics. Datamoshing’s fluidity (its “bleeding pixels,” “digital sludge”) is not simply an agent of formlessness, that is, a general destruction and degradation of the image, but is conversely the very means by which datamoshing *emphasizes* the formal qualities of movement on screen.⁷⁷ Movements are given thematized expression through various methods of liquifying the image and the moving figures therein: forms of motion take perceptual precedence over the people and things that move. In phenomenological terms, portions of the datamoshed image take on the properties of what Gestalt psychologist Fritz Heider calls a *medium*—a shapeless volume of particles,

⁷⁶ This rhetoric of separating movement from the objects that move has been used to describe the animation technique of rotoscoping and the digital visual effects practice of motion capture (sometimes referred to as “digital rotoscoping”), each of which translates the positional change of a profilmic person or object into an animated figure. The work of capturing the movements of bodies in these techniques can be analogized to codecs’ algorithmic motion instructions, which similarly extract positional change over time as movement data. But this analogy works only at a technological level, not at an aesthetic one. For while rotoscoping and motion capture completely transplant movement from one body to another, creating coherent animated figures that move in recognizable ways, datamoshing only partially displaces movement from its moving figures.

⁷⁷ Datamoshing’s fluidic aesthetic has also served as a source of allegorical readings. Brown and Kutty, for example, claim Takeshi Murata’s *Monster Movie*, a datamoshed work I discuss below, “literally realizes Lev Manovich’s dictum that, from the perspective of the computer, a digital film is simply ‘colours changing in time.’” Later, they modify this claim: “datamoshes visualize a non-common sense ‘logic’ of changing subjectivity, swallowing up and emergence, or what in short we shall call, after Manovich and Deleuze and Guattari combined, *colours becoming in time*.” While I certainly follow Brown and Kutty’s aesthetic logic that undergirds this claim—that “shapes and figures emerge from what is otherwise a swirl of colours”—the rush to identify datamoshing as an *emblem* or *allegory* for digitality as such or for a process-ontological subjectivity reproduces the methodological problem I’ve been trying to trace in claims about digital cinema. Brown and Kutty, “Datamoshing,” 169, 173, 169.

like liquid or gas.⁷⁸ For Heider, a *medium* is opposed to a *thing*, a rigidly structured entity that *moves through* a medium, displacing its volumetric mass of particles. Adopting Heider's terms, then, we might say that datamoshing transforms the moving image such that certain portions of the image function as mediums that visually articulate the *things* (i.e. figures) that move through them, not unlike the way the trajectory of a boat is visually expressed by its wake in the water. The various effects produced by datamoshing produce different kinds of fluidic materiality—the sticky paint-like quality of the camouflaged overlay, the sand-like quality of the figural wipe, or the deck of cards-like quality of the chronophotographic trail—but in each case a figure's movement is given visual expression by the medium it moves through.

What this yields is a pedagogy of motion perception created through the defamiliarization of cinematic movement. Recalling Viktor Shklovsky's famous pronouncement that the project of defamiliarization in art is to "make the stone *stony*," here we might say that datamoshing hones our attention to the precise qualities that mark the idiosyncrasies of individual movements, such as the radial sweep of the hair whip along the surface of the screen, the complex coordination of micromovements that allow us to identify a face beneath layers of color, or the trajectory of a face as it turns direction.⁷⁹ The pictorial distortions unique to the compression glitch are put in the service of thematizing the *forms* that undergird these particular movements—their trajectory, shape, or sense of recognizable wholeness.

It is precisely for this reason that the experience of datamoshing is better understood through the lens of a phenomenological aesthetics rather than the modernist aesthetics of breakage and revelation. What we're getting here is not simply a window into the processes of codecs, i.e. a

⁷⁸ Fritz Heider, "Thing and Medium," In *On Perception, Event-Structure and Psychological Environment: Selected Papers* (New York, International Universities Press, 1959), 1-34.

⁷⁹ Viktor Shklovsky, "Art as Technique," in *Russian Formalist Criticism: Four Essays*, trans. Lee T. Lemon and Jarion J. Reis (Omaha: University of Nebraska Press, 1965), 12.

picture of a digital technology's material conditions. While such a heuristic isn't necessarily inaccurate—datamoshing indeed gives us privileged visual access to the codec's technological processes—it does a serious disservice to the incredibly complex formal work and perceptual experience going on in datamoshing videos. If initially the recognizable distortions of datamoshing are visual signifiers of malfunction, the sustained encounter with those distortions yields something else entirely. Datamoshing provides an aesthetic mode that forces us to reflect on the conditions by which we perceive cinematic motion and the myriad forms that it takes. Figural wipes and chronophotographic trails visually thematize the wholeness of a particular movement's trajectory, i.e. the sense of completeness in the singular sweep of a hair flip. Camouflaged overlays create a perceptual game that strips a moving figure of all other identifying markers such that only its movement allows it to be recognized, thus thematizing the way movement signatures are bound up in perceptual judgments.⁸⁰ Medium-reflexive revelation is not the teleological *end* of datamoshing's visual distortions, but the very *means* by which it creates a reflection on motion perception.

This particular relation between medium-reflexivity and perceptual-reflexivity is best understood through the lens of Annette Michelson's *phenomenological modernism*, which deliberately undermined a focus on medium-specificity while maintaining an interest in the modernist program of self-critique.⁸¹ Michelson began developing her theory of modernism in the 1960s, when the institution of modernist art was put into crisis by the challenges of pop art and American minimalism. Pushing beyond the limits of Greenbergian modernism—a matter of attaining self-critique by reflecting upon the essential materials of a medium—Michelson argued that art attains self-critique when it “takes the nature of reality, the nature of consciousness in and through

⁸⁰ Recall from a footnote in the introduction to this dissertation that “movement signatures” perceptual unities of bodily movement, such as the way somebody walks, that we use to recognize individuals.

⁸¹ *Critique* here should be understood in the Kantian sense: an examination of *limits* as the conditions for possibility.

perception, as its subject or domain.”⁸² In making such a claim, Michelson shifted the emphasis in art criticism from ontology to phenomenology (specifically a Merleau-Pontyan model of phenomenology), from art as an object to be experienced in itself to art as a tool for understanding ordinary embodied experience. Instead of becoming more self-contained and autonomous, on Michelson’s account art gets better at reproducing the usually-hidden processes of human consciousness. For Michelson, who wrote extensively about cinema as well as the other arts, the cinematic paradigm of this phenomenological modernism was Stanley Kubrick’s *2001: A Space Odyssey*, which “[forces] the spectator back, in a reflexive gesture, upon the analytic rehearsal of his experience.”⁸³ Michelson insisted that *2001*’s suspensions of spatio-temporal grounding, its breakdown of our perceptual anchors in verticality and horizontality, and its slow, meditative studies of operational movements make us cognizant of the complex perceptual processes at work in ordinary embodied movement. *2001* was a successful modernist work for Michelson not because it reflected upon the conditions of its medium, but because it *used* the conditions of its medium—in this case cinema’s simulation of spatiotemporal experience (as opposed to the ontological properties of celluloid)—to cause its spectators to reflect upon their conditions of embodied perception. In a similar way, Michelson read an even more ostensibly medium-reflexive film such as Michael Snow’s *Wavelength* as an experiential analogue for the phenomenological processes of temporal and spatial perception.⁸⁴ For Michelson, *experience* itself, not medium-specific materiality—technological or otherwise—becomes a kind of medium to be tested, investigated, and reflected upon.

⁸² Annette Michelson: “Bodies in Space: Film as ‘Carnal Knowledge’”. In: *Art Forum*, 7, No. 6, February 1969: 54-63, 58. For Clement Greenberg’s formative account of modernism, see Clement Greenberg, “Modernist Painting,” in John O’Brian, ed., *Clement Greenberg: The Collected Essays and Criticism, vol. 4* (Chicago: University of Chicago Press, 1993), 85-93.

⁸³ Michelson, “Carnal Knowledge,” 56.

⁸⁴ Annette Michelson, “Toward Snow” in P. Adams Sitney, ed., *The Avant-Garde Film: A Reader of Theory and Criticism* (New York: Anthology Film Archives, 1987), 172-83.

My purpose here is not to suggest that Michelson herself would evaluate datamoshing videos as modernist works by her account, nor is it my aim to evaluate them as such. I rather want to suggest that Michelson's phenomenological modernism provides a general heuristic framework that can both foreground the perceptual experiences afforded by datamoshing and provide a useful alternative to the kind of medium-centric thinking that has been revived by new media theory, new media art criticism, and theories of digital cinema. That is to say, the collective drive to isolate and identify the newness of digital cinema by seeking out medium-specific essences is not in fact *new*—it's a deeply modernist habit of mind. And as we've seen in the previous section, such a habit is not immune to theories of technology (i.e. codecs) any more than it is immune to theories of art (i.e. datamoshing). Michelson's writings here thus function not as a particular program to be anachronistically applied to contemporary debates but as a general strategy for thinking about medium-reflexive works beyond the constraints of medium-reflexive criticism.⁸⁵ Michelson responds to a crisis engendered by an oversaturation of media determinism by insisting on the centrality of embodied perception as the locus of artistic innovation and reflexivity.

On Michelson's model of modernism, the project of datamoshing need not be understood to *reveal* the technological conditions of digital video compression. After all, as I've said earlier, compression glitches are wont to revealing themselves. Recall that the very phenomenology of the compression glitch (as glitch) entails not a failure of the apparatus but a minor disruption, a perceptual *aspect* of the technological apparatus. Isolating compression glitches for aesthetic display does not so much have the effect of shock and revelation of an invisible materiality but an occasion for a sustained aesthetic encounter with that familiar but generally overlooked aspect of compressed

⁸⁵ In fact, as a testament to the general applicability of Michelson's account to the age of digital, we can find a contemporary iteration of Michelson's phenomenological modernism in Mark Hansen's *New Philosophy for New Media*, whose polemic aims to quell the media-ontological myth of digital media's immateriality and insist that "the body continues to be the active framer of the image even in the digital." As media "lose their material specificity," Hansen argues, "the body takes on a more prominent function as selective processor in the creation of images." Mark BN Hansen, *New Philosophy for New Media* (Cambridge, MA: MIT Press, 2004), xxi.

video. Inviting curiosity and wonder rather than shock and revelation, datamoshing encourages a mode of perceptual reflexivity (a reflection on my processes of motion perception) that is beyond a medium reflexivity (a reflection on the hidden processes of digital compression). Indeed, these two reflexivities are intimately related, but I argue that the latter should be put in service of the former. Put this way, the medium-specific possibilities of digital video compression—its extrication of movement data from pictorial representation—finds its fullest aesthetic manifestation in datamoshed works by engaging the spectator in a perceptual game of motion perception, not unlike *2001*'s myriad disorientation tasks that cause its viewers to reflect on the conditions of embodied perception. "Evident Utensil" is thus *about* the perception of movement just as *2001*, on Michelson's view, is *about* embodied perceptual orientation.

With this framework in place, I want to elaborate on datamoshing's perceptual testing of motion perception by looking at a more aggressively abstract work, Takeshi Murata's video installation *Monster Movie* (2005), which applies various datamoshing techniques to appropriated footage from the B-movie *Caveman* (1981).⁸⁶ *Monster Movie* achieves its radical abstractions largely by looping short segments over and over, a technique that allows the datamoshed layers to accumulate to the point where the contents of the initial image are all but unrecognizable.⁸⁷ When pushed to the limits of abstraction, however, forms of motion become newly visible, functioning as the sole perceptual anchors that guide our attention. In the second sequence of the piece, for example,

⁸⁶ Similar kinds of defamiliarization are equally apparent when datamoshing artists single out what in chapter one I termed "contingent motion forms" like fire and water. The opening of *Monster Movie*, for example, begins with a black frame that slowly becomes speckled with macroblocks triggered by the scattered shimmers of light from a disturbed surface of water. As the source of the disturbance reveals itself—the caveman slowly emerging from a lake—the ripples that emanate from the center fill out the remaining blank space in a radial pattern. When the caveman's emerging motion is looped and the initial referents become unrecognizable, the water's sense of liquidity and flow becomes translated into a colorful abstract image of watery movement that itself bears no pictorial resemblance to water. Similar effects are employed in Nabil Elderkin's datamosh-heavy music video for Kanye West's "Welcome to Heartbreak," which uses an abundance of contingent motion forms—screen-filling explosions of water, fog, and fire.

⁸⁷ As Gross explains, "Repetition of frames causes the modifications from one P frame to become input for the same P frame. In this way, the loops of the video become feedback loops—producing the smears and bright colors that emerge as the video progresses." Gross, "Glitch, Please," 180.

Murata loops a three-second segment in which the caveman takes two large steps toward the camera at the same time as the camera pushes in toward him. After only a few repetitions of the footage, the three-dimensional textures of the shot—the dark shaggy fur of the caveman and the shiny blue surfaces of the ice-cave walls—have been replaced by two-dimensional swirls of color that bear almost no relation to the source footage (Fig. 4.13). What remains perceptible upon each repetition of the loop, however, is the unmistakable sensation of moving forward, even though it's almost entirely unclear what kind of space we are moving through (if it indeed it counts as space at all). Because the loop is simply repeating the same *motion instructions* over and over, we feel the same characteristic pull forward despite the complete disappearance of representational visual cues. Pixels are simply being moved in an algorithmic configuration that results in the simulation of perspectival movement. What we experience here can best be described as an experience of ourselves moving—the perceptual hallmark of forward camera movement explored in the previous chapter—without the representational trappings of photographic referents or pictorial resemblances. Each frame resembles nothing more than a flat abstract painting, an image that denies a z-axis altogether, and yet the sensation of movement doggedly—indeed, mysteriously—persists.



Figure 4.13 Perspectival movement rendered unrecognizable in *Monster Movie* (Murata, 2005)

The wonder produced by this profound perceptual dissonance amounts to a kind of investigation of the experience of forward perspectival movement, encouraging us to reflect on what it means that we feel the immersive forward thrust without its identifiable spatial cues. The absolute pictorial abstraction defamiliarizes our perception of forward motion to the point of pedagogical self-discovery. The *form* of this camera movement itself—the qualities that distill it as a *movement* independent of its textural or spatial cues—become newly available to experience. What, then, should we make of the significance of this perceptual encounter? What kind of aesthetic experience is this and what does it afford us? In Michelson’s framework, such an experience emblemizes what she identifies as the “cognitive” purpose of modernist art, whose goal is not to express the interiority of the artist or to reflect on the material conditions of the medium, but rather to pose

...for us, after all, the conditions of experience, of perception and apperception, eliciting, within our culture, a response to those perceptions which is cognitive. Our perception of the work of art informs us of the nature of consciousness.⁸⁸

When Michelson's view is adopted, Murata's deliberate breaking of the technological apparatus—an "exposure" of its inner workings—should not be considered the end goal of our experience of his work but the means of attaining this mode of perceptual self-reflexivity.⁸⁹

Importantly, this doesn't mean that the medium is irrelevant.⁹⁰ Michelson explicitly privileged film as a medium precisely because it manipulates perceptual experience so directly. Given film's unique affordance as a simulacrum and manipulation of perception, the greatest modernist cinematic achievements are those films that, for Michelson, exercise those affordances in the pursuit of perceptual reflexivity. If we were to posit a parallel case with datamoshing, a key affordance of digitally compressed video is tied to its use of motion estimation algorithms, which have the distinct capacity not only to reproduce cinematic motion but also to extricate motion from its objects. Digitally compressed video can simply manipulate cinematic motion in ways that analog cinema and uncompressed video cannot. On this view, our perceptually reflexive experience of the looped forward movement in *Monster Movie* is indeed a product of its medium-specific affordances, but it is

⁸⁸ Qtd. in Malcolm Turvey, "Introduction," in Richard Allen and Malcolm Turvey, eds., *Camera Obscura, Camera Lucida: Essays in Honor of Annette Michelson* (Amsterdam: Amsterdam University Press, 2003), 16.

⁸⁹ Indeed, this methodological orientation toward reflexivity may seem to dampen the radical politics of datamoshing as a form of glitch art, that is, as a means of breaking the normative functioning of a dominant and ideologically suspect apparatus (i.e. a Brechtian line of argumentation). After all, it was part of the rhetoric of a prominent camp of political modernist filmmakers, perhaps exemplified by the films and writings of Peter Gidal, to foreground the material qualities of the apparatus through abstraction as a primary means of engaging in a leftist politics. For Michelson, however, the "cognitive" enterprise of modernism is inextricable from its political enterprise. More precisely, this cognitive enterprise defined art's potential for enacting and provoking radical politics. It simply gets at politics from another direction, first demanding a careful consideration of a work's engagement with the processes of consciousness and perception. See, for example, Annette Michelson, "From Magician to Epistemologist." *Maske und Kothurn* 42, no. 1 (1996): 54-74.

⁹⁰ In making this qualification, I mean to distinguish Michelson's model of criticism, and my own adoption of that model, from the more aggressively medium-agnostic work of her colleague and intellectual ally, Rosalind Krauss. See Rosalind E. Krauss and Marcel Broodthaers, *A Voyage on the North Sea: Art in the Age of the Post-medium Condition* (London: Thames & Hudson, 2000).

not simply an encounter with a representation or aesthetic translation of those affordances. It is an encounter with our perceptual resonance with cinema's illusion of bodily movement.⁹¹

So far, I've shown how datamoshing's pedagogy of motion perception is best understood in the terms of a phenomenological aesthetics rather than a medium-reflexive modernism, where its merits are measured not on the revelation of a hidden technological apparatus but on the technology's affordances for reflecting on perceptual experience. In each of my descriptions, I've been solely concerned with describing the phenomenological structures of motion forms that constitute the core aesthetic patterns of datamoshing. In other words, I've read each of my particular examples as emblems of the general possibilities for perceptual reflexivity afforded by datamoshing's manipulation of motion vectors.

As a final gesture, however, I want to show how datamoshing's project of testing and investigating motion perception can work to draw out formal resonances with our experience of particular films. If datamoshing's defamiliarization of motion transforms the visual properties that tend to organize our perception of cinematographic content—the movements of human figures, camera movements, etc.—how might it engender new ways of seeing familiar films and thus open up a range of cultural practices, techniques, and meanings to new discoveries? Pursuing this question will ultimately align datamoshing much more closely with the compression glitch's movement-

⁹¹ By "illusion of bodily movement," I mean to invoke Scott Richmond's *Cinema's Bodily Illusions*. In fact, my description of the forward movement in *Monster Movie* resonates with Scott Richmond's description of the Stargate sequence from *2001*: "We attune ourselves to a world unfolding before us onscreen that is neither representational nor populated by objects." My reading differs from Richmond's, however, for two reasons, one formal and the other methodological. First, the sequence in *Monster Movie* takes the removal of representation a radical step further than the Stargate sequence. While the Stargate sequence abandons earthbound referents, it retains a basic *pictorial* resemblance to a schematic drawing of a central view from inside a tunnel, where an array of lines converge on a single vanishing point. What this entails is that the "illusion" in *Monster Movie* is far less automatic, far less "thick" and "embodied" than the one in *2001*, thus encouraging a perceptual reflexivity (in contradistinction to one of Richmond's core arguments in his book, which rejects all traces of modernist reflexive distance from cinema's modulation of perception). Scott Richmond, *Cinema's Bodily Illusions*, 66.

sensitive spectatorship, which affords the spectator a heightened attunement to the magnitude of movement as a possible aesthetic enhancement of cinematic experience.

To begin this inquiry, I turn to Rebecca Baron and Douglas Goodwin's *Lossless* series (2008), a five-part video installation that applies datamoshing techniques to MPEG4 files derived from DVDs of canonical films. Given its almost encyclopedic catalogue of cinematic styles—from *The Wizard of Oz* (Fleming, 1939) to *Serene Velocity* (Gehr, 1970)—*Lossless* tests the aesthetic possibilities of exploring compression glitches' perceptual thematization of disparate motion forms in their aesthetic and historical contexts. What Baron and Goodwin add to the visual rhetoric of datamoshing, then, is a reflection on the history of cinematic experience as a function of the interaction between cinematic style and technological apparatus. In an era in which “the additions of clearly visible artifacts [are] now part of the viewing experience,” Baron and Goodwin ask “[do] we need to redescribe the phenomena of cinema?”⁹²

Attempting such a resdescription, each installment in the *Lossless* series explores how datamoshing's pedagogy of motion perception can illuminate aspects of motion central to the aesthetic enterprises of individual films. *Lossless #2*, for example, a three-minute compilation of datamoshed segments from Maya Deren's *Meshes of the Afternoon* (1943), illuminates aspects of Deren's dreamlike visual style through its digital degradation. The piece was created by interrupting the download process of a torrent file of the film, thus creating a broken compressed video file (i.e. a file with an incomplete balance of I-Frames and P-Frames) that exhibits datamoshing effects similar to those in the “Evident Utensil” video. Read through an aesthetics of failure or a medium-reflexive modernism, the piece would amount to a commentary on the precarity of cinema in the age of compression, as what we're seeing is a visibly *broken* copy of one of the masterpieces of the postwar

⁹² Rebecca Baron and Douglas Goodwin, “The Rest Is Noise” in *On Not Looking: The Paradox of Contemporary Visual Culture* (New York: Routledge, 2015), 64.

American avant-garde. Riddled with motion-blocking artifacts—immediately recognizable signifiers of compression’s instability—we might encounter a shock of incongruity, even violation, upon seeing this celebrated film subjected to such conditions.

Dwelling with the piece, however, we discover how a number of datamoshing effects create serendipitous resonances with the visual style and thematics of Deren’s formative psychodrama. The piece seems less a critique of video compression’s degradation of films such as *Mesbes*, and more so an exploration of the aesthetically productive contingencies that can occur when a film is so thoroughly doused with compression glitches. For example, some datamoshed shot transitions create multiple figures of Deren within the same shot, not unlike the film’s use of multiple exposures to accomplish a similar effect (Fig. 4.14); and fluidic melting effects that pervade the work resonate with a memorable shot from the original film in which Deren sees her distorted reflection liquify in the surface of a knife’s blade. More significantly, in the iconic early shot of Deren’s shadow walking against a stuccoed wall, the shot takes on new valences in its distorted form (Fig. 4.15). Because datamoshed shot transitions often emphasize the outline of a human figure in movement while obscuring the textural details that constitute their surfaces, the shadow here creates a meaningful perceptual ambiguity. We are at first encouraged to mistake the shadow for Deren herself, as all that is visible is the faint outline of the figure’s movement across the screen. Such a perceptual ambiguity creates a strong thematic resonance between one of the core formal elements of *Mesbes* and the techno-aesthetic properties of codecs. In this new context, then, *Mesbes*’ use of shadows becomes more than a loose metaphor for the medium of *film*, whose images are often said to be like “shadows” of their referents.⁹³ In both the dream world of *Mesbes* and in the visual logic of codecs, the boundaries between the material and the imaginary begin to dissolve.

⁹³ See, for example, John David Rhodes, *Mesbes of the Afternoon* (New York: Palgrave Macmillan, 2011), 11.



Figure 4.14 Glitched multiple exposures in *Lossless #2* (Baron and Goodwin, 2008)

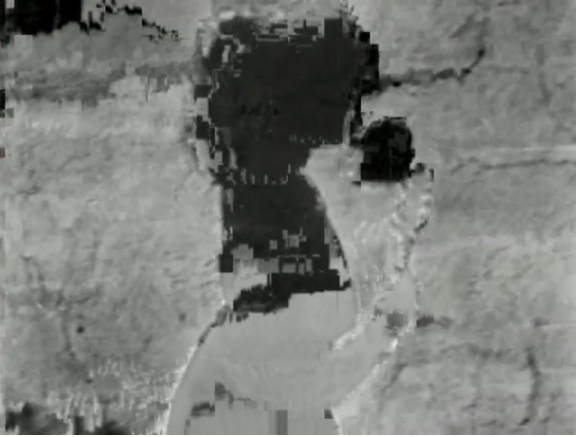


Figure 4.15 Shadow in *Lossless #2*

If *Meshes*' radical aesthetics of shadows, mirrors, and double exposures might seem destined for the visual transformations awaiting it in the era of digital compression, Hollywood films would seem to invite more of a dissonance under such transformations. In *Lossless #5*, for example, a three-minute datamoshed compilation of Busby Berkeley's geometric dance sequences from *42nd Street* (1933), the datamoshing techniques employed here effect a progressive blurring of detail such that the already geometric abstractions produced by Berkeley's overhead compositions become markedly *more* abstract and geometric. More than a simple loss of resolution, the distortions cause Berkeley's dancers to quite literally fuse into each other, producing fluidic streams that flow like eddies through intricate trajectories (Fig 4.16). What results is thus an intensification of Berkeley's desire for geometric form and a more literal rendering of Siegfried Kracauer's diagnosis of such images as "mass ornaments:" "no longer individual girls, but indissoluble girl clusters whose movements are demonstrations of mathematics."⁹⁴

⁹⁴ Siegfried Kracauer, *The Mass Ornament: Weimar Essays*, ed. and trans. Thomas Y. Levin (Cambridge: Harvard University Press, 1995), 76

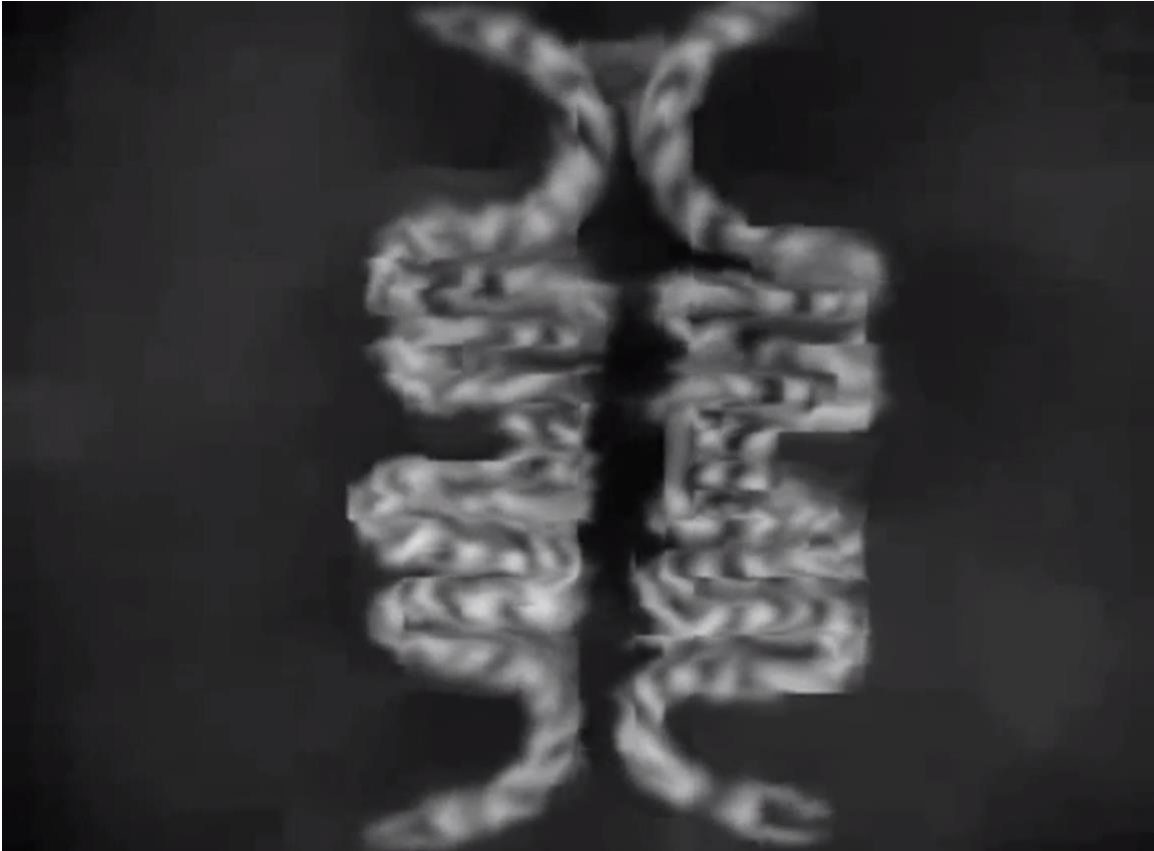


Figure 4.16 Snakelike Busby Berkeley configuration in *Lossless #5*

And in *Lossless #3*, a ten-minute compilation of datamoshed footage from John Ford's *The Searchers* (1956), the visual distortions bring out patterns of motion far more latent in the image. The aesthetic effects here are dominated by smooth blurs and chronophotographic microsegments that drag behind the trajectories of horses and bits of landscape displaced by panning camera movements. Such distortions draw out and heighten—that is, visually thematize—the pervasive *horizontality* of these movements: the lateral locomotion of men on horseback and the panning movement of the camera. As an array of horses gallop laterally across the screen, for example, they leave behind them trails of blurred sludge that seem to stick to the image, marking the trajectory of their locomotion. And when a panning movement uncovers new space, it produces a “pixel stretch,” an image that “stretches” a single column of color values across space to produce a variegated stack of pencil-thin stripes. (Figs. 4.17 and 4.18). Such abstractions emphasize horizontal motion's

centrality to the western genre, especially its role in the spectacle of location shooting in Monument Valley, the immersive qualities of CinemaScope, and the sense of discovery contained in the unveiling quality of panning. *Lossless #3* is thus as much about horizontal movement as a motion form central to the western genre as it is about a confrontation between analog and digital, or about the nostalgia for a sense of indexical realism fostered by location shooting. Applied to familiar cinematic texts, datamoshing's pedagogy of motion perception becomes a catalyst not only for perceptual *self*-discovery but for aesthetic discoveries within cinema.



Figure 4.17 Horizontal trails in *Lossless #3*



Figure 4.18 A pan's pixel stretch in *Lossless #3*

Used as a tool both for a reflection on motion itself and for the aesthetic discovery of a film's aesthetics of motion, datamoshing's glitchy distortions are always more than medium-reflexive revelations. Digital video compression's motion estimation algorithms—the means of its extraction of motion from its representational contexts—is the agent of a pedagogy of motion perception that indeed wouldn't be possible without digital technology, but which is itself more than an emblem of, reflection upon, or window to that digital technology. Instead of simply giving visual form to the process that makes it possible, the processes of digital compression afford the aesthetic possibilities of their programmed malfunctions.

To be sure, this way of seeing datamoshing, and perhaps glitch art in general, may not jibe with the ideology of glitch artists. In 2009, glitch artist and pioneer of datamoshing David O'Reilly declared datamoshing "dead" after Kanye West's "Welcome to Heartbreak" music video had

secured the technique's appropriation by mainstream media.⁹⁵ Embedded in such a proclamation about datamoshing's defunct political efficacy is a political modernist ideology that locates the value of abstraction in its potential to reveal the apparatus and shock visual habits. But by the model of modernism I've proposed, which locates aesthetic experience outside the logic of breakage and revelation, our experience of datamoshing is not contingent upon its protection from the hands of mainstream commercialism. More than an exposure of an apparatus, datamoshing appropriates that apparatus to unlock its potential. In doing so, it gives us an entirely new logic of motion production based not on the succession of still images but on motion estimation algorithms. In giving visual forms to the algorithm's methods for seeking and predicting motion, datamoshing exposes us to new visual logics of movement that allow us to think cinematic motion differently.

Conclusion: Seeing Movement Move

In a 1978 interview, experimental filmmaker Peter Kubelka was asked about his thoughts on the "essence of cinema." Pointing our attention away from the screen and toward the mechanism of motion behind our backs, he answered "Cinema is not movement:"

Cinema is a projection of stills—which means images which do not move—in a very quick rhythm. And you can give the illusion of movement, of course, but this is a special case, and the film was invented originally for this special case. But, as often happens, people invent something, and, then, they create quite a different thing. They have created something else. Cinema is not movement.⁹⁶

Kubelka's response about the essence of cinema articulates a program for reading his 1960 film

Arnulf Rainer, a "flicker" film that consists entirely of oscillating black and white frames. It is a film

⁹⁵ Kevin Holmes, "Creativity Bites: A Brief Guide to Datamoshing," *Vice.com*, May 25 2011, Last Accessed July 27 2017. https://creators.vice.com/en_us/article/z4y8g5/creativity-bytes-a-brief-guide-to-datamoshing. Compare O'Reilly's reaction to a similar one by fellow glitch artist Paul B. Davis: "Seconds later I saw Kanye West strutting around in a field of digital glitches that looked exactly like my work. It fucked my show up... the very language I was using to critique pop content from the outside was now itself a mainstream cultural reference." Qtd. in Rosa Menckman, *The glitch moment (um)* (Amsterdam: Institute of Network Cultures, 2011), 46.

⁹⁶ Jonas Mekas, "Interview with Peter Kubelka," in ed. P. Adams Sitney, *Film Culture Reader* (New York: Cooper Square Press, 2000), 291.

designed to produce an experience commensurate with his description of the cinematographic apparatus: a projection of stills—images that themselves do not move, but appear one after another in a quick succession. Making visible the material discontinuity of cinematic motion, Kubelka’s film—and a host of other “flicker” films that would soon follow—neatly lent themselves to a modernist rhetoric of *exposing* the apparatus, *baring* the device, *revealing* the structures hidden behind cinematic illusion. Long looked upon with suspicion as an emblem of deceptive illusion, the invisible, material *fact* of cinema’s succession of individual images was given visual form, providing a phenomenological encounter with the way cinematic movement moves.

An appealing analogy with datamoshing and compression glitches immediately presents itself: just as such flicker films gave visual form to cinematic motion’s material discontinuity by breaking its normative functioning, compression glitches and their aesthetic manifestation in datamoshing give visual form to a uniquely digital technology of cinematic motion. As Mackenzie succinctly puts it, “Whereas film flickers, digital video ‘motion-blocks.’”⁹⁷ Each potential malfunction provides a glimpse of its respective technical production of motion.⁹⁸

Throughout this chapter, I’ve been suggesting that this medium-reflexive model of thinking about the relation between the technological and the phenomenological, the materiality of the medium and our experience of the screen, does a disservice to the aesthetic experience of compression glitches. But it also does a disservice to the role of experience more generally—and the experience of motion in particular—in films that bear a distinctly modernist concern with cinematic technology. Flicker films, for example, certainly “broke” the normative functioning of cinematic

⁹⁷ Mackenzie, “Every Thing Thinks,” 151.

⁹⁸ Indeed, a number of scholars have drawn a similar comparison between datamoshing and Structural film. Vladimir Lukin calls datamoshing “Structural Film 2.0,” Thomas Levin describes datamoshing as analogous to the work of Martin Arnold (but for digital moving images), and Jihoon Kim examines datamoshing through the lens of a host of other materially reflexive modernisms. Lukin, “Movement Behind Your Back,” 57; Levin, “Datamoshing as Syntactic Form;” Jihoon Kim, *Between Film, Video, and the Digital: Hybrid Moving Images in the Post-Media Age* (New York: Bloomsbury Publishing USA, 2016).

motion, and in doing so “revealed” something only previously intelligible as fact. But they also created cinematic *experiences* beyond the distant intellectualism of modernist reflexivity.⁹⁹ They were not simply thought experiments, wholly intellectualized reflections on the cinematographic apparatus and its ideological effects. Flicker films also *flickered* as rhythmic pulsations of light that provoked hallucinations of color and shape. They created new forms of motion—visual rhythm and pulsation are indeed temporal wholes, perceptual structures—just as those forms came to stand for cinema’s material stillness, its mechanical discontinuity.¹⁰⁰ Such experiences are not simply visual translations of cinema’s mechanism of motion; they are unique experiences always embedded in the apparatus as aesthetic possibilities.

My phenomenology of compression glitches in their everyday and aesthetic manifestations aims to model a similar kind of approach. A consideration of the technological process of codecs guides rather than determines the aesthetics of compression glitches. It is indeed because codecs work harder at processing intense movements that glitches are often symptoms of a magnitude of movement on screen. And it is indeed because codecs seek out movement in their ordinary operation that their glitches produce “bleeding” effects in which movement itself seems to spill beyond the contours of its objects. But what I’ve named movement-sensitive spectatorship and datamoshing’s pedagogy of motion perception cannot be inferred or deduced from these technological structures. They emerge from sustained phenomenological encounters with them.

The study of new media has encouraged a return to modes of thinking that privilege depths over surfaces, material knowledge over phenomenological experience. The very structural relation

⁹⁹ My line of reasoning here resonates with Noel Carroll’s essay “Avant-Garde Film and Film Theory,” in which he argues against the logic of the adage that avant-garde films are themselves theoretical. Noel Carroll, “Avant-Garde Film and Film Theory,” in *Theorizing the Moving Image* (Cambridge: Cambridge University Press, 1996).

¹⁰⁰ It’s important to note here that the flicker effect is highlighted in Rosalind Krauss and Yve-Alain Bois’s *Formless: a user’s guide*. In an entry on James Coleman’s film *Box* (1977), Krauss argues that the flicker effect—in Coleman’s installation and in general—breaks down “form” through the shock effects of rhythmic pulsation. Yve-Alain Bois and Rosalind E. Krauss. *Formless: a user’s guide* (New York: Zone Books, 1997), 161-165.

between GUI and code invites a familiar hermeneutics of suspicion: digital surfaces—the GUIs of our touchscreens and personal computers and even digitally produced movies—are said to *hide* the code underneath. In Alexander Galloway’s words, software is built on the principle of “what you see is not what you get.”¹⁰¹ But as this way of thinking has influenced theories of digital cinema, our ever-increasing understanding of the technological depths of digital substrates has begun to shape and determine our accounts of their surfaces. Our accounts of “what we see” have become determined, influenced, or colored, however imperceptibly, by “what we get.” Compressed video thus *appears* degraded because it *is* degraded. Our *experience* of digital cinema thus loses a sense of duration because the *technology* of digital cameras must convert light into code, inserting a wedge of temporal mediation between the profilmic world and the world on screen.

The solution to this problem need not require turning away from technology altogether in order to inoculate our experience from our own false attributions of technological artifacts. Instead, it requires that we more carefully select what it is in our experience of “digital cinema” that *counts* as an apparition of a technological process. My account of compression glitches in their everyday and aesthetic manifestations provides one such attempt at this kind of phenomenological selection. As such, it supplies neither a complete phenomenology of “digital cinema” nor of “digitally compressed video.” Compression glitches are an admittedly *small* part of cinema spectatorship, even of home viewing; they are both phenomenologically marginal and quite literally brief and sporadic. But what matters is that this small aspect of spectatorship derives from the precise convergence of the technological and the phenomenological. It neither extrapolates a logic from the technology itself nor heeds the call to “forget the medium, watch the movement,” but instead requires that we watch the movement *unique to the medium*.

¹⁰¹ Alexander R. Galloway, “Language Wants to Be Overlooked: On Software and Ideology,” *Journal of Visual Culture* 5, no. 3 (2006): 324, 325.

As a motion form that expresses rather than conceals its own technological production, the “bleeding pixels” of compression glitches is an anomaly in the history of cinema’s technical production of motion, an aspect of cinema whose opacity to perception has traditionally encouraged philosophical (Bergson) and political (Baudry) allegories of its technological structure. The illusion of movement from the succession of still images supplied an irresistible metaphor to those thinkers with foregone conclusions about cinema—in Baudry’s case, conclusions about the cinema’s pernicious ideological power, and in Bergson’s case, conclusions about our false intuitions of time and motion. But the *visibility* of compression glitches as expressions of a digital production of motion provides a unique opportunity for a different kind of phenomenological analysis of cinematic technology, one that resists allegorical analyses of technologies that are abstracted from our uses of them. (Put differently, the technologies we use to watch films are *not themselves films*; they are not texts to be mined for hidden meanings.¹⁰²) With compression glitches, for the first time, the forms of motion on screen have a direct relation to the apparatuses’ production of motion. The gulf between surface and depth, “appearance” and “reality,” a gap too often exploited by hermeneutic flights of fancy, has here begun to close on its own. The apparatus has begun to *bare itself*. With this gap momentarily closed, perhaps we can offer a different sort of analysis less concerned with discovering things as they “truly” are, hidden beneath deceptive surfaces. Faced with the glitch—strange, colorful, otherworldly, ungraspable, indescribable—we must begin by simply describing the way it moves. Only then will it start to become intelligible, not as material fact but as *form*.

¹⁰² This is, of course, not to say that the structure and design of machines do not bear meanings—ideological and otherwise—but that the way in which machines bear meaning is not analogous to the way that works of art bear meaning.

Conclusion

Opening Cinephilia; or, Movement as Excess

I will never find the way to say how much I love American close-ups [...] The décor of the fifth act is this corner of a cheek torn by a smile. Waiting for the moment when 1,000 meters of intrigue converge in a muscular denouement satisfies me more than the rest of the film. Muscular preambles ripple beneath the skin. Shadows shift, tremble, hesitate. Something is being decided. A breeze of emotion underlines the mouth with clouds. The orography of the face vacillates. Seismic shocks begin. Capillary wrinkles try to split the fault. A wave carries them away. Crescendo. A muscle bridles. The lip is laced with tics like a theater curtain. Everything is movement, imbalance, crisis. Crack. The mouth gives way, like a ripe fruit splitting open. As if slit by a scalpel, a keyboard-like mile cuts laterally into the corner of the lips.

—Jean Epstein¹

Is there a *theory* that can make use of the *concept* of contingency?

—Niklas Luhmann²

The passage above begins Jean Epstein’s essay “Magnification,” one of the central texts of French Impressionist film theory and an exemplary first-hand account of the mysterious allure of cinematic motion. Beginning with a declaration of love for the close-up and a concession about the inadequacies of language to express that love, Epstein expresses it nevertheless. His lyrical evocation of a single flutter of facial movement is devoted not to what the face expresses or what it signifies within its narrative context, but to the movement of an undulating surface torn asunder by the eruption of a smile.³ Only one short sentence, in fact—“Something is being decided”—attempts a

¹ Jean Epstein, “Magnification,” *French Film Theory and Criticism: A History/Anthology: 1907-1939*. Ed. Richard Abel (Princeton: Princeton University Press, 1988), 235-236.

² Niklas Luhmann, *Observations on Modernity*, trans., William Whobrey (Stanford: Stanford University Press, 1998), 46.

³ To understand Epstein’s unusual attention to the materiality of movement within the close-up, we only need to compare this passage to Bela Balazs’s *hermeneutics* of facial movement. In a well-known passage describing a look of horror on Asta Nielsen’s face in *Visible Man*, Balazs narrates the dynamism of facial movement almost exclusively through named interior states—anxious hope, cautious joy, exultant happiness. What Balazs sees is not a chaotic surface of material eruptions, but an “organic development of...feelings. Béla Balázs and Erica Carter, *Early Film Theory: Visible Man and the Spirit of Film*, ed., Erica Carter, trans., Rodney Livingstone (New York: Berghahn Books, 2010), 34.

meager translation of representational content. The remainder of the description is dominated by fluidic metaphors—a breeze, clouds, seismic shocks, a wave—and temporal similes—“like a ripe fruit splitting open,” “as if slit by a scalpel”—which attempt to capture a sense of total imbalance in the face’s irreducible restlessness. Epstein’s every utterance conjures an emblem of temporal unfolding, conveying a pleasurable attention to a brief flicker of movement on screen. Homing in on a mobile fragment that exceeds linguistic translation or narrative signification, Epstein seizes upon movement itself rather than the actions and events those movements come together to represent. Singularly devoted to the absolute particularity of cinema’s inscription of movement, Epstein’s description augments the temporality of a brief cinematic experience, making an ephemeral moment *momentous*.

My methodology throughout this dissertation owes a special debt to Epstein’s inimitable critical practice of describing the wonders and pleasures of brief moments of cinematic movement. Though I’ve argued that the motion forms I’ve examined make interventions primarily into the guiding logics and underlying assumptions of film *theory*, the motion form as a concept originates from a distinctly *critical* impulse, a desire to articulate and make sense of the pleasures of brief moments of onscreen movement. Indeed, each of my case studies began with a pleasurable, idiosyncratic obsession with such moments of movement, the stuff of film fetishism rather than rational theoretical or critical discourse. My examination of compression glitches, for example, themselves momentary visual hiccups that tend to go overlooked, was driven by a fascination with their unexplainable beauty and a longing for their seemingly unpredictable eruptions. My account of spatial unfurling coincided with the realization that my childhood habit of staring mesmerized out of the passenger car window was in fact not so distinct from my enthusiasm for certain lateral tracking shots, both of which produced abstract patterns of movement bursting forth from the edge of a frame. My interest in habitual gestures in postwar realist cinema was sparked by a delight in

seemingly insignificant bodily movements—a flick of the wrist in striking a match, a sweep of the arm in pouring coffee—that compelled a nearly unexplainable conviction of their significance. And what I've called contingent motion, which names the unpredictable movements of dust particles, water droplets, and flickering leaves, began with a feeling of kinship with early spectators, whose astonishment at such granular movements on screen never seemed to be quite as mysterious and historically determined as film historians had attested. Each of the motion forms that emerged from these moments—general, abstract, conceptual structures—began with a pleasurable encounter with the particular, and a persistent conviction that a lot was contained within the very little.

This obsessive encounter with ephemeral moments in cinematic experience has come to be identified as a fundamental aspect of a “cinephilic” mode of viewing and criticism. As Christian Keathley explains, “Whether it is the gesture of a hand, the odd rhythm of a horse’s gait, or the sudden change in expression on a face,” what are referred to as “cinephiliac moments” involve “the fetishizing of fragments of a film, either individual shots or marginal (often unintentional) details...that appear only for a moment.”⁴ As Keathley’s brief catalogue of examples suggests, the cinephiliac moment is an irreducibly temporal and, quite often, *mobile* phenomenon. As if drawing directly from the spirit of Epstein’s way of seeing the moving image, the cinephiliac moment encourages an attention to movement itself, to what lies between actions and events. My devotion to the part over the whole, the detail over the totality, and the materiality of movement over the signification of narrative meaning shares a great deal with the cinephilic mode of viewing the moving image. In this way, if phenomenology provides the framework and the concepts for this dissertation, cinephilia works as the engine of my inquiry; it provides the spark. And just as cinephilia has

⁴ Christian Keathley, *Cinephilia and History, or, The Wind in the Trees* (Bloomington: Indiana University Press, 2006), 7.

provided the fuel for much of film theory and criticism while only recently becoming a topic of interest itself, I too have left my own cinephilia largely unacknowledged.

This relegation of cinephilia is deliberate. Throughout this dissertation, I've implicitly maintained a considerable distance from the rhetoric of cinephilia, which is first and foremost built on a willful resistance to theorization, an insistence on seizing moments in films that "evoke a sense of [their] own 'beyond.'"⁵ In fact, many accounts trace cinephilia directly to Epstein's notion of *photogenicie*, which is often loosely defined as an affective, pleasurable sensitivity to moments on screen inspiring locutions that, paradoxically, declare their ineffability.⁶ Against intellectual paradigms that attempt to organize film experience into semantic units and large-scale systems of meaning, the cinephile seizes upon those fragments or details that remain unaccounted for in these systems, brief and often "unintentional" moments that resist systematization by dint of their apparent singularity, not unlike Roland Barthes's *punctum* and "third meaning," Walter Benjamin's "optical unconscious," and Siegfried Kracauer's arguments about the non-signifying materiality of photography and film.⁷ As Keathley elaborates, the cinephiliac moment "resists co-optation by meaning," seeming to "draw its intensity partly from the fact that it cannot be reduced or tamed by interpretation."⁸ Cinephiliac moments privilege the fragment at the expense of the whole, materiality at the expense of meaning, the contingent at the expense of the planned, excess at the expense of signification.

⁵ Paul Willeman, "Through the Glass Darkly: Cinephilia Reconsidered," in *Looks and Frictions: Essays in Cultural Studies and Film Theory* (London: British Film Institute, 1994), 230.

⁶ See Keathley, *Cinephilia and History*, 97; Willeman, "Glass Darkly," 231; Rashna Wadia Richards, *Cinematic Flashes: Cinephilia and Classical Hollywood* (Bloomington: Indiana University Press, 2013), 2.

⁷ See Roland Barthes, *Camera Lucida: Reflections on Photography*, 1st American ed. (New York: Hill and Wang, 1981); Roland Barthes, "The Third Meaning," in *Image/Music/Text* (Glasgow: Fontana Press, 1993): 52-68; Walter Benjamin, *The Work of Art in the Age of Its Technological Reproducibility, and Other Writings on Media*, eds., Michael W. Jennings, Brigid Doherty, and Thomas Y. Levin, trans. Edmund Jephcott, Rodney Livingstone, Howard Eiland, et al. (Cambridge, MA: Belknap Press, 2008), 37; Siegfried Kracauer, "Photography," in *The Mass Ornament: Weimar Essays* (Cambridge, MA: Harvard University Press, 1994).

⁸ Keathley, *Cinephilia and History*, 7, 9.

To these divisions we might add another: motion at the expense of form. The cinephile's objects of fascination, such as brief gestures, facial movements, or natural phenomena like the wind in the trees, are often elements of movement that seemingly exceed "formal" choices. If the central aim of this dissertation is to think form and movement together, then what I'd like to consider, by way of a conclusion, are the stakes of placing a cinephilic mode of viewing in service of an unfamiliar mode of "formal" analysis. What is gained and perhaps what is lost by shaping the non-signifying details and excessive fleeting moments of cinematic movement into perceptual wholes and structures, naming that which is celebrated as unnameable, and attempting to share cinematic experiences of motion that, according to cinephilic discourse, are private and idiosyncratic? Put differently, when does an impressionistic fetishism of a single cinematic moment become a phenomenology of cinematic experience?⁹

To begin to answer such questions, we need to return to the concept of cinematic contingency with which the body of this dissertation began, and consider how the cinephile's proclaimed interest in "contingent" moments might be reconsidered in light of the phenomenologies of cinematic motion I've delineated. Though the discourses of cinephilia that have proliferated since the 1990s invoke a wide range of intellectual frameworks, a familiar logic of cinematic contingency persists across them. For example, when Paul Willemsen writes that cinephilic moments are "not choreographed for you to see," that for the cinephile "What is seen is in excess of what is being shown," he reproduces the realist logic of cinematic contingency I

⁹ In positioning cinephilia and phenomenology against each other, I do not mean to ignore Keathley's claim that his account of cinephilic moments "privileges a phenomenological framework," and indeed the philosophical discipline of phenomenology plays a significant role in many of the thinkers Keathley examines as forebears of cinephilic criticism, such as Andre Bazin. Keathley, *Cinephilia and History*, 40. However, much of the subjectivist rhetoric of cinephilic viewing and criticism—an emphasis on the privacy of experience and personal memory—is directly opposed to the aims of both phenomenology and most phenomenological film theory. The cinephile's stated alliance with phenomenology may arise from a misidentification of the goals of phenomenology as simply an impressionistic relaying of "subjective" experience.

discussed in chapter one.¹⁰ According to this logic, the contingent moment testifies to the camera's ability to capture innumerable events that unfold independently of authorial control, a feature that is a function of the *photographic* properties of cinema as understood within C.S. Peirce's account of indexical signs. It should come as no surprise, then, that many theories of cinephilia explain the cinephile's fetishization of moments as a kind of affective engagement with the photographic index. Rashna Richards makes this explicit: "That 'something beyond' is the cinephile's belief that, *because of cinema's indexicality*, even in the most controlled circumstances, something of the real can appear on the screen inadvertently."¹¹ It seems to be for this reason that two of the leading studies on the discourse of cinephilia, Keathley's *Cinephilia and History* and Richards' *Cinematic Flashes* both examine cinephilic viewing practices as a methodology for doing film *history*: tied to the moment in the past, the photographic index leaps out at the cinephile, revealing a singular detail that provides access to a kind of historical knowledge.¹²

This tendency, however, leaves open a central question. Can the manifold pleasures of cinephilia—an obsession with moments, fragments, excesses, details—be traced back to a belief about the truth-claims inherent to the photographic process? Put differently, if cinephilia is by definition tied to the specificity of cinema, have we too quickly located that specificity in a theory of photography without giving commensurate attention to the uniqueness of cinematic motion? Tom

¹⁰ Willemsen, "Glass Darkly," 237, 235.

¹¹ Richards, *Cinematic Flashes*, 12, emphasis mine.

¹² In both cases, such arguments about the film historical potential of cinephilic moments derive from Siegfried Kracauer and Walter Benjamin's claims about how film and photography, in their automatic registration of contingent details, offered a particular challenge to dominant historiographical practice. In this context, Kracauer wrote that film's plenitude of details were "indexes of history in the making." Similar lines of thought can be found in Miriam Hansen's writings on Siegfried Kracauer and Doane's arguments about the relation between cinematic contingency, cinephilia, and the archive. See, for example, Miriam Bratu Hansen, *Cinema and Experience: Siegfried Kracauer, Walter Benjamin, and Theodor W. Adorno* (Berkeley: University of California Press, 2012), 35-36; Miriam Hansen, "'With Skin and Hair': Kracauer's Theory of Film, Marseille 1940." *Critical Inquiry* 19, no. 3 (1993): 437-469; Mary Ann Doane, "The Object of Theory," in *Rites of Realism: Essays on Corporeal Cinema*, ed., Ivone Marguiles (Durham, NC: Duke University Press, 2003); and Mary Ann Doane, *The Emergence of Cinematic Time* (Cambridge, MA: Harvard University Press, 2002), 206-234.

Gunning has suggested that photography's "overwhelming detail," its "resistance to significance, its excessive 'noise,'" "its sense of uniqueness and contingency [...] do not necessarily relate to indexicality, but they certainly make up a considerable part of the desire for total illusion that Bazin described in the "Myth of Total Cinema."¹³ Following a similar intuition, I believe that the perceptual richness and detail of the photographic *moving* image, which adds a significant dimension to the photograph's sense of total illusion, may provide a better explanation for the cinephile's fetishization of momentary movements than the one provided by theories of the index.

As I argued in chapter one, early spectators' attraction to the "contingency" of the wind in the trees was not determined by the awareness of an ontological property of photographic image-making—that is, the "index" of a past event—but is better described as an aesthetic experience activated by cinema's *mimetic* capacity for reproducing the infinitely minute details of moving phenomena with stunning accuracy. Although it goes unexpressed, a similar phenomenological structure undergirds the experience of cinephiliac moments. Recall Keathley's catalogue of cinephiliac moments ("the gesture of a hand, the odd rhythm of a horse's gait, or the sudden change in expression on a face"), Epstein's description of the momentary flicker of a face in close-up, or, to take another paragon of the cinephiliac moment, Epstein's description of Sessue Hayakawa entering a room: "[his] body at a certain angle, in a particular position, opening the door, entering with a particular body language."¹⁴ In contradistinction to a flubbed line or a visible shadow of a crew member, cinephiliac moments such as these are not *accidents* that bespeak their own past profilmic reality shining through a fictional world.¹⁵ Such moments do not rely on the truth-claim of their

¹³ Tom Gunning, "What's the Point of an Index? or, Faking Photographs." *Nordicom Review* 25, no. 1-2 (2004): 39-50, 47.

¹⁴ Qtd. in Willemsen, "Glass Darkly," 233.

¹⁵ In a late passage from *The World Viewed*, Stanley Cavell elucidates this very distinction by comparing cinematic contingency to contingency in the theater: "In a theater, the actors appear in person; it is part of the latent anxiety of theater that anything can happen to break the spell—a cue missed, a line blown, a technical hitch. The abyss between actor and audience is not bottomless, unless convention is bottomless. In a movie house, the actors are not present in

profilmic referents nor on the spectator's knowledge of the camera's indexical relation to what it captured. Rather, such moments highlight the perceptual materiality of cinematic movement itself, specifically the *thisness* and particularity of movement as it unfolds with a sense of perceptual plenitude and detail.¹⁶

If these cinephiliac moments are indeed contingencies that fall outside of authorial control, they are better understood as *unplannable* movements rather than *unplanned* events. In chapter one, I argued that the “unplanned” names the kind of phenomena that exceed authorial control but that nevertheless *could have been* controlled (e.g. a dog that walks in front of the camera, the shadow of a crew member) while the “unplannable” names that which, on a deeper level, is seemingly impossible to design or reproduce (e.g. the myriad of unpredictable trajectories of dust particles).¹⁷ Thus, the “unplanned” dog that walks in front of the camera—an event that tells us *that dog was there at that* historical moment—can also be seen to move in “unplannable” ways—it wags its tail just so, its

person and the screen is metaphysically unbreachable; the abyss between actor and audience is as bottomless as time. This does not mean that accidents are out of the question. One can say, as I have implied, that everything caught by film is accident, contingency. Then one must equally say that every accident on film becomes permanent (like the existence of the one world, in the midst of all possible worlds).” Stanley Cavell, *The World Viewed: Reflections on the Ontology of Film, Enlarged Edition* (Cambridge, MA: Harvard University Press, 1979), 229.

¹⁶ To my knowledge, the best concept to describe this sense of absolute particularity is *haecceity*, a word that emerged in the philosophy of Duns Scotus and which figures prominently in the work of Gilles Deleuze. Haecceity denotes the discrete qualities and properties that make an entity a *particular* entity as opposed to the kind or type of entity that it is. In short, haecceity names an entity's *thisness*. Part of the reason why cinematic contingency and indexicality are so often yoked together, I suspect, derives from a conflation of what might be called the haecceity-effect of the photographic (*and* non-photographic but photorealistic) moving image and the indexical nature of photographic production, for both bear a special relation to “thisness.” The key difference, however, is that the thisness of the haecceity-effect, as I describe it here, derives solely from an aesthetic encounter, while the thisness of the index derives from a belief about a production process. For an account on the relation between photography, indexicality, and thisness, see Mary Ann Doane, “The Indexical and the Concept of Medium Specificity.” *differences* 18, no. 1 (2007): 128-152.

¹⁷ A distinction between the unplanned and the unplannable also helps explain some of the confusion about the role of the index. *Unplanned* moments, such as visible shadows of crew members or visible contrails in an outdoor shot of a western, can indeed be accurately described as encounters with the *indexical* real shining through aestheticization. The shadow of a crew member, for instance, testifies to the profilmic reality of that crew member at a particular place and time just as the contrail testifies to the profilmic reality of the jet at a particular place and time. The unplanned thus necessitates a belief about the photographic index as a condition of the accident's truth-claims. The encounter with the unplanned is not unlike engaging with a film like a detective or a historian, mining its vast visual archive for clues of what took place at a certain moment in history.

upper lip curls up as if to smile in just this way, its fur ruffles in the wind at just this moment. *These* are the kinds of moments that cinephilia is made of: moments that find their most significant examples in early spectators' fascination with the wind in the trees, Epstein's love for the particularity of Hayakawa's way of moving, or in Manny Farber's enthusiasm for the moment when Humphrey Bogart pauses while crossing a street in *The Big Sleep*. When the movement of the world is *imaged*—pinned down and pictured, made perfectly repeatable—every tiny movement can be seen to happen *just this way*: an errant trajectory of a single water droplet, the flicker of a face as it erupts into a smile, a way of moving the hand, the cadence of a dog's wagging tail. Neither logically necessary nor constitutively impossible, such unplannable movements bespeak their singularity and cinema's capacity to contain or *frame* that singularity in an image.¹⁸ In this context, cinephilia can be understood as a spectatorial inclination not simply to see "reality" shining through aestheticization, but more precisely to see the singularity of motion when it is pictured and framed, spatially bounded and temporally inscribed, aesthetically contained and separated from lived experience. In other words, cinephilia names a sensitivity to the imaged motion of the cinematic image.

This reconsideration of the "contingency" of cinephiliac moments entails an important consequence. If *any* flicker of movement—the micromovements of a face, a body's gestural idiosyncrasies, the fluttering of leaves—can take on aspects of unplannable contingency, then we need not conceive of our appreciation of such moments as necessarily resisting a film's structures of signification, even if those moments are beyond authorial control. Unplannable moments simply constitute the stuff that cinematic motion is made of. They comprise every bit of cinematic motion, from the meaningless "accidents" of crew members to the unnoticeable details that may populate

¹⁸ I'm borrowing this definition of contingency from Niklas Luhmann's definition cited by Mary Ann Doane in her essay "The Object of Theory:" "Anything is contingent that is neither necessary nor impossible." Qtd. in Doane, "The Object of Theory," 88.

the background to the strikingly affecting and meaningful facial twitches embedded beneath an actor's "choices" and between his scripted words. In taking on the irreducible unplannability of a world in motion, moving images—to borrow a phrase from Merleau-Ponty—are “condemned to meaning,” much like moving bodies.¹⁹ And as with moving bodies, whose irreducibly improvisatory gestures may exceed conscious choices but may nevertheless embody meanings, the unplannable movements of the moving image may exceed the choices of directors, screenwriters, and actors, but are nevertheless available to signification or significance.²⁰ In this sense, seizing upon the detail or the moment need not be figured as a “resistance” to narrative analysis or the machine-like control of the classical Hollywood system, but as part of the very fabric of the moving image.

Unplannable details of movement on screen, then, can simultaneously bespeak the uniqueness of cinematic motion—its sense of excess and particularity and *thisness*—and yet can matter crucially to the organic wholeness of a film's narrative world. Put differently, contingent movements can harbor meaningful *forms* despite our inability to attribute those forms to authorial agents. Consider a well-known passage by François Truffaut on a moment in Howard Hawks's *Scarface* (1932), often cited as an exemplum of the *Cahiers* critics' trademark cinephilic criticism:²¹

The most striking scene in the movie is unquestionably Boris Karloff's death. He squats down to throw a ball in a game of ninepins and doesn't get up; a rifle shot prostrates him. The camera follows the ball he's thrown as it knocks down all the pins except one that keeps spinning until it finally falls over, the exact symbol of Karloff himself, the last survivor of a rival gang that's been wiped out by [Paul] Muni. This isn't literature. It may be dance or poetry. It is certainly cinema.²²

¹⁹ Merleau-Ponty, *Phenomenology of Perception*, trans. Colin Smith (New York: Routledge, 2005), xxii.

²⁰ To be clear, I'm not making an argument about *intention* or *authorship*. By claiming that cinephilic moments should be available to signification, I'm not making a strong claim that all cinephilic moments are *authored* or *intended*. In some sense, the question of contingency and authored meaning divides the experience of “contingent motion” from the *aesthetics* of “habitual gestures,” both of which involve unplannable movement but only the latter of which I take to be inextricable from the experience of (authored) meaning in the postwar realist films I explore.

²¹ In fact, the passage is cited in both Keathley's *Cinephilia and History* and Richards's *Cinematic Flashes* as an example of cinephilic criticism. See Keathley, *Cinephilia and History*, 84 and Richards, *Cinematic Flashes*, 7.

²² François Truffaut, *The Films in My Life*, trans. Leonard Mayhew (New York: Simon and Schuster, 1975), 70.

What most scholars identify as distinctly cinephilic about this passage is Truffaut's emphasis on the singular moment of the pin's fall, his judgment that such a moment is "cinematic," and his refusal to explain or rationalize that judgment. But if we examine this moment in *Scarface*, and read it carefully in light of its place within the film, Truffaut's judgment takes on a distinct critical logic. Upon examination, what becomes particularly clear in this moment is the remarkable *form* of the pin's fall, the precise way that it moves. The form of a movement simply names a visual unity stitched together across time. Always more than the event or action that has taken place—that is, the stuff of "literature" rather than "dance" or "cinema"—the form of a movement can be a character or quality of a movement that strikes us, not unlike the perceptual aspect of an image. In this case, because the pin's fall is charged with an anthropomorphized pathos as it spins, exhibiting an almost histrionic suspension of its fatal plummet, the pin's form of movement is remarkably apt as an objective correlative of Karloff's death. But more importantly, this movement is remarkably singular, that is, *contingent*, in its aptness: no human agent could have *planned* this perfect movement in just this way. What I take to be Truffaut's cinephilic pleasure in this movement, then, derives from its contingent singularity, but that contingency does not wrest it from its role in the film's narrative world. The opposite is in fact the case; the singularity of the fall is *perfectly placed*. Truffaut's fascination—and indeed my own fascination—with this unplannable movement is constitutive of rather than opposed to the film's structures of narrative signification.²³

²³ We can see this yoking of contingency and form more explicitly in a passage from Stanley Cavell on gestural specificity in *The Lady Eve*: "The poetry of the final appeals of forgiveness in *The Lady Eve* is accordingly a function of the way *just this* man and this woman half walk, half run down a path of gangways, catching themselves in an embrace on each landing, and how *just this* sequence of framings and attractions of the camera follow these bodies as they inflect themselves to a halt before a closed door [...] These moments are no more repeatable than a lifetime is." Stanley Cavell, *Pursuits of Happiness: The Hollywood Comedy of Remarriage* (Cambridge, MA: Harvard University Press, 1981), 52, emphasis mine.

Each of the motion forms I investigate in this dissertation similarly emerges from an aesthetic conviction about a singular moment of cinematic motion. But rather than simply dwelling on the beauty or “cinematic” quality of those individual moments, I collect and group those singular moments according to the forms of movement they take, thereby yielding new theories of cinematic experience in addition to new insights about individual films. In chapter one, my astonishment at flurries of snow particles and bursts of water droplets in *Frozen* could be explained as a simple fetishization of technology, but by foregrounding the form of motion shared across such phenomena, I am able to identify a phenomenological sympathy with early spectators and thus reconsider the role of the photographic index in explanations of early cinematic experience. In chapter two, my fixation on Mouchette’s way of pouring coffee in a single continuous swoop is surely the stuff of cinephilia, but by locating that gesture within a network of other gestures—Fontaine’s dexterity in *A Man Escaped*, Maria’s chores in *Umberto D*, Homer’s ordinary tasks in *Best Years of Our Lives*—I develop an account of the distinct reality effects of postwar realist cinema. In chapter three, the exuberant sequence of Denis Levant dancing along the street in *Mauvais Sang* can be identified as an excessive spectacle, an instance of what Kristin Thompson might call a “pattern of visual interest,”²⁴ but by identifying similar patterns across a range of films—from Michael Snow’s *La région centrale* to Bruce Baillie’s *All My Life* to Gus Van Sant’s *Gerry*—I devise a new phenomenology of the perception of camera movement oriented around its possibility for thwarting perspective depth effects. And in chapter four, compression glitches may indeed be written off as meaningless visual noise whose only value lies in its glimpse of the technological “real,” but by analyzing and cataloging the patterns of motion that these seemingly formless glitches in fact produce, I show how they instantiate a new visual language of movement modeled on the technical

²⁴ Kristin Thompson, “The Concept of Cinematic Excess,” *Ciné-Tracts* 1.2 (1977):54-64, 60.

processes of digitally compressed motion. In each case, cinephilia—an attunement to particulars, an investment in subjective visual pleasure—funnels into phenomenology—a commitment to perceptual structures, an ambition for theoretical rigor. Navigating between the two, I’ve tried to show how perceptual forms and their logics of pleasure dwell deep within the vast reservoirs of “cinematic excess.”

By shaping the excesses of cinematic motion into forms, I am able to harness the cinephile’s way of seeing the moving image to the phenomenologist’s orientation toward structures of experience. While both cinephilia and phenomenological film theory are explicitly concerned with aspects of cinematic experience not traditionally subsumed under narrative comprehension or signification (including the pleasures of cinematic motion), these two accounts of spectatorship are rarely put into conversation. Part of the reason for this, I suspect, has to do with their fundamentally opposed accounts of spectatorial attention. The film-phenomenologist tends to explore the ways in which viewing a narrative film is like being in a world and moving in that world, that is, how cinematic perception resonates with natural perception. The theorist of cinephilia, by contrast, explores what happens in those moments when that world collapses, when the viewer is confronted with the materiality of movement on screen, finding themselves *looking at* a movie instead of *watching* it. Each of the motion forms I’ve examined—contingent motion, habitual gestures, spatial unfurling, bleeding pixels—becomes visible *as form* only in those moments of collapse, when one sees themselves seeing the moving image, when the flow of signification momentarily ceases. Posed against (spatiotemporal) immersion and (narrative) absorption, such forms only fully come into view within this underside of cinematic experience, an aspect of spectatorship largely untouched by phenomenological film theory and which occupies the discourse of cinephilia but goes largely

untheorized.²⁵ What the phenomenologist can offer the theorist of cinephilia are ways to understand those moments of collapse as more than mystical glimpses of an ineffable “beyond,” resistance to narrative structure, or fetishism. Instead of operating *against* structuralist film theory and the primacy of narrative signification, the phenomenologist begins from the ground up, attempting to strip away perceptual prejudices to isolate the forms that are shared across subjective perceptions of the world.

A phenomenological way of thinking, then, puts pressure on the cinephile’s insistence on the privacy and idiosyncrasy of his experience. Cinephiliac moments tend to inspire a mode of criticism that is less descriptive than impressionistic, often launching into personal memories and associative leaps of logic.²⁶ But when we give cinephiliac moments the weight of aesthetic convictions, they become not just spaces for subjective reverie but objects of phenomenological—that is, not merely subjective but *intersubjective*—description.²⁷ After all, it is essential to the very uniqueness of cinema’s brief moments of unplannable movement that despite their evocation of private perception—the sense that this moment is just for me, too small and fleeting to share—cinematic

²⁵ One account of this “underside” of spectatorial attention, which I explored in chapter three, can be understood through Richard Wollheim’s theory of the “twofoldness” of picture perception. While Wollheim develops his theory explicitly for the aesthetic experience of paintings, and I adapted his theory for the perception of camera movement, I believe the twofoldness theory can help explain an attention to unplannable moments in cinema. If twofoldness names a simultaneous attention to the surface qualities and depictive content of a painting, we might include the materiality of movement on screen as part of a film’s surface qualities, thereby clarifying the phenomenology of a non-indexical cinematic contingency.

²⁶ This is perhaps most thoroughly theorized and exemplified in Keathley’s account of what he calls “cinephiliac anecdotes.” Keathley, *Cinephilia and History*, 140-177. Similar modes of criticism can be seen in Murray Pomerance, *The Horse Who Drank the Sky: Film Experience Beyond Narrative and Theory* (Rutgers: Rutgers University Press, 2008) and Robert Ray, *The Avant-Garde Finds Andy Hardy* (Cambridge, MA: Harvard University Press, 1995).

²⁷ I use the word “intersubjective” to help distinguish phenomenological description’s first-person orientation from “merely subjective” impressions. Phenomenological approaches to film theory and criticism have historically garnered accusations of impressionism, especially in light of the dominance of structuralist/semiotic methods in the 1970s and 80s. But as Dudley Andrew reminds us, phenomenological inquiry is both “private and societal.” See Dudley Andrew, “The Neglected Tradition of Phenomenology in Film Theory.” *Wide Angle* 2, no. 2 (1978): 44-49, 49. What Andrew gets at here is the intensely intersubjective nature of phenomenological inquiry, which emphasizes the fact that *shared* cognition and agreement are essential to perceptual experience, meaning-making, and concept-building. This idea is both central to Edmund Husserl’s concept of “bracketing” as inherent to the phenomenological method, but it is also a central topic of phenomenological inquiry, such as in Husserl’s notion of “analogical apprehension” involved in the experience of empathy or Merleau-Ponty’s account of perception and the “other” in his *Phenomenology of Perception*.

details are nonetheless objectively available for all to see, and indeed to see in the same *exact* way. This dichotomy, in fact, is constitutive of cinephilic experience. Watching Boris Karloff's death scene in *Scarface*, we don't simply see the bowling pin fall as we would in the world, limited to our own singular points of view; instead, we *see the seeing* of that bowling pin as if through the same set of eyes. When such a compellingly precise form of movement is imaged on screen—when we can share it, point to it, relive it again and again, almost *hold* it with our eyes—the shareability of cinema's spatiotemporally framed perception becomes a thing of wonder. As Rei Terada reminds us, locating the photographic moving image within the philosophical crisis of intersubjective perception, cinema might be seen as a “splendidly staged fantasy of exceptional illusion *for everybody*.”²⁸ Seeing the bowling pin's fall not simply as an ephemeral moment consigned to subjective memory but as a form of motion etched in a shareable image, we can begin to bring cinephilia into the neighboring realms of phenomenological description and aesthetic criticism. It is here that the cinephile can make use of the phenomenologist's attempt to *bracket* his idiosyncrasies and proclivities or of the critic's recourse to giving *reasons* for his aesthetic judgments. These means of striving to share the subjective pleasures of cinephilic experience, in fact, do more than acknowledge the perceptual shareability of the moving image.²⁹ They also acknowledge the possibility that an instance of cinephilic pleasure may bear the weight of an aesthetic judgment, a pleasure constitutive of the conviction that others ought to find the same moment, and the same movement, beautiful or

²⁸ Rei Terada, *Looking Awry: Phenomenality and Dissatisfaction, Kant to Adorno* (Cambridge, MA: Harvard University Press, 2009), 65. Cavell's *The World Viewed* takes up this claim about the photographic moving image as an acknowledgment of the problem of skepticism in the history of philosophy.

²⁹ I'm drawing on a relation between the “subjective universality” of (Kantian) aesthetic judgments and the implied subjective universality of phenomenological description. For more on the intersection between aesthetics and phenomenology, see Gunter Figal, *Aesthetics as Phenomenology: The Appearance of Things* (Bloomington: Indiana University Press, 2015).

significant.³⁰ At their core, aesthetic judgments and phenomenological descriptions both aim to make one's experiences shareable, to make what is most ephemeral and private a thing to be comprehended and grasped.

It is indeed the nature of motion to be always slipping out of that grasp, always eluding our desire to capture it with the right words, always making us doubt the intersubjectivity of our perceptual judgments. But it is conversely the nature of *cinematic* motion—by pinning down and picturing the minutia of movement in the world—to assuage these challenges even while seeming to exacerbate them. Locating the cinematic image not only in the history of images, but also in the history of beholding the world in motion, cinematic motion becomes less an unsolvable conundrum for aesthetic criticism—a challenge for analysis and description—and more so an opportunity to *seize* motion without stopping it, to *formalize* motion without breaking it into static pieces. Cinema's imaged motion provides a simulacrum of the world whose plenitude of fleeting, hidden movements are also, potentially, forms to be shared. To think form and movement together—that is, to limit, constrain, and bind the flow of movement on screen by grouping movements into structures, patterns, wholes—is to develop a way of seeing cinematic motion that acknowledges its fundamental distinction from motion in the world. Cinematic motion is motion stripped of its irrevocable slipperiness; it is ephemerality contained, impermanence made permanent. To borrow a phrase

³⁰ Traces of a Kantian logic of subjective universality can be found in some writing on cinephilia despite Keathley's claim that cinephiliac moments are not "aesthetic experiences." Keathley, *Cinephilia and History*, 60, 187. Willemen, for example, explains how the subjective revelation of the cinephiliac moment "may be different from the person sitting next to you, in which case you may have to dig him or her in the ribs with your elbow to alert them." Willemen, "Glass Darkly," 237. Furthermore, Willemen writes that cinephiliac moments "spark something which then produces the energy and the desire to write, to find formulations to convey something about the intensity of that spark." Willemen, "Glass Darkly," 235. Such formulations, which emphasize the desire to share aesthetic experience, seem to suggest something more than a mere "subjective" or "idiosyncratic" pleasure.

uttered by one early spectator astonished by the sheer fact of the moving image, cinema's imaged movement, like cinema's motion forms, gives us motion *caught in the act*.³¹

³¹ Georges Sadoul, *Histoire générale du cinéma, vol. 1: L'Invention du cinéma 1832–1897* (Paris: Denoël, 1948), 291, emphasis mine; my translation.

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