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Designed by Chance: Form and Recorded Motion

> A new jargon was heard around the [Disney] 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." . . . As each of these processes *acquired a name*, it was analyzed and perfected and talked about.[1]

At first glance, not much is remarkable about this anecdote from Disney animators Frank Thomas and Ollie Johnston. A specialized vocabulary is a necessary feature of any craft, and phrases such as "squash and stretch" and "rubber hose" are ubiquitous terms for categorizing stylistic differences within the history of animation. But when viewed from the vantage of the history of film theory and criticism, a striking set of distinctions emerges. Whereas film scholars have devised a formal vocabulary to describe variations in shot scale and angle, editing patterns, and approaches to mise-en-scène, animators and animation scholars have developed terms to describe forms of *onscreen movement*. To identify a "squash and stretch" within a character's leap or to compare a flailing limb to a "rubber hose" is to identify a sense of unity—a form—perceived across a succession of visual sensations. In what follows, I'll show how film studies stands to gain from thinking of movement in this particular way and how an attention to forms of movement can change the way we think about film form more generally.[2]

1 Frank Thomas and Ollie Johnston, *The Illusion of Life: Disney Animation* (1981; New York: Hyperion, 1995), 15 (emphasis mine).

2 I investigate this question in more depth in *The Shape of Motion: Cinema and the Aesthetics of Movement*, forthcoming from Oxford University Press.

Jordan Schonig, "Designed by Chance: Form and Recorded Motion," *JCMS* 61, no. 1 (Fall 2021): 173–178.

By *forms of movement*, I do not simply mean types of movement, where such types might be divided into the movement of human subjects, the camera's movement, or the movement that results from editing.[3] Rather, I mean perceptual wholes or shapes of motion mentally stitched together through time. Think of forms of movement as temporal *gestalts*, except instead of perceiving the aural unity of a melody across the succession of individual notes, we perceive a visual unity: a shape or pattern of motion. In everyday life, forms of motion enable us to identify things in the world, such as when we recognize a friend from behind by their gait.[4] Our friend's way of walking—as distinct from, say, the contours of their body—has a motion signature that we are able to identify across time.

For animators, this ordinary cognitive faculty of stitching together forms from fields of motion is indispensable. Animators don't simply see characters who move; they see forms and styles within and across those movements. This way of seeing undergirds Norman McLaren's oft-cited definition of animation as "not the art of drawings-that-move, but the art of movements-that-are-drawn."[5] For animators, forms of movement such as squash and stretch or rubber hose often take perceptual priority over the design of the object or character that is moving.[6]

This faculty is as well documented in animation scholarship as it is in animation practice. We can see it in Sergei Eisenstein's notion of the "plasmatic," a way of moving marked by the metamorphic flexibility of a figure's contours, or in Thomas Lamarre's distinction between cinematism and animetism, two opposing aesthetic tendencies for representing mobile views of animated space.[7] We can see it in Vivian Sobchack's phenomenological analysis of the computer-animated "morph"—itself a form of motion subsumed within the broader form of the metamorphic—and Aylish Wood's study of the "spatial transformations" in Caroline Leaf's sand animations.[8] In each of these cases, forms of movement are identified and named as a means of expanding the reader's ability to *see* those forms.[9]

While forms of movement abound in live-action film—such as the onrush of space typical of forward camera movement or Charlie Chaplin's

3 Vivian Sobchack offers such a taxonomy in "The Active Eye: A Phenomenology of Cinematic Vision," *Quarterly Review of Film and Video* 12, no. 3 (1990): 21–36.

4 Perceptual psychologists often refer to this phenomenon as a "motion signature." See, for example, Fani Loula, 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.

5 Quoted in Maureen Furniss, *Art in Motion: Animation Aesthetics*, rev. ed. (Eastleigh, UK: John Libbey, 2007), 5.

6 In Alla Gadassik's words, studio animators "[privilege] movement and energy over an outlined shape." Alla Gadassik, "Assembling Movement: Scientific Motion Analysis and Studio Animation Practice," *Discourse* 37, no. 3 (2015): 288.

7 Sergei Eisenstein, *Eisenstein on Disney*, ed. Jay Leyda and trans. Alan Upchurch (London: Methuen, 1988), 101; and Thomas Lamarre, *The Anime Machine: A Media Theory of Animation* (Minneapolis: University of Minnesota Press, 2009), 27.

8 Vivian Sobchack, introduction to *Meta-Morphing: Visual Transformation and the Culture of Quick-Change* (Minneapolis: University of Minnesota Press, 2000), 136; and Aylish Wood, "Re-animating Space," *Animation* 1, no. 2 (2006): 133–152.

9 For a reflexive investigation and application of this kind of analysis in animation studies, see Ryan Pierson, *Figure and Force in Animation Aesthetics* (Oxford: Oxford University Press, 2020).

tramp walk—they are rarely presented as objects of analysis. Part of the reason for this is that form has been understood in film studies as the product of artistic choices. Moreover, in live-action film, movement is recorded rather than designed frame by frame. In painting, sculpture, music, and literature, the work of form—the spatiotemporal arrangement of the artwork—is generally attributed to the hand of the artist (or the group of artists and craftspeople) that does the arranging. But what authorial hand is responsible for the movement of the wind in the trees or the unconsciously produced micromovements of a facial expression? It's conceptually difficult to locate form in the tiny intervals of successive frames that seem to happen *between* the discernible choices made by artistic agents. Film scholars thus tend to seek out form at scales that seem consistent with artistic decision-making—say, in the ordering of shots, the sequencing of narrative events, and the spatial composition of the frame.

This way of thinking is not just a mainstay of undergraduate-level film studies textbooks; it also pervades the history of film theory. A case in point is Gilles Deleuze's exclusion of the cinematic movement "of characters and things" from his concept of the "movement-image."[10] Identifying the birth of cinema proper with the emergence of editing and camera movement, Deleuze adheres to the intuition that cinematic form exists where artistic agency is discernible. Perhaps the most extreme example of this type of thinking comes from the formalist film theory of Rudolf Arnheim, who wrote that the medium of film will reach its artistic apotheosis only "when it frees itself from the bonds of photographic reproduction and becomes a pure work of man, namely, as animated cartoon or painting."[11] It should come as no surprise that Arnheim's idealization of animation as a purely manual mode of cinematic construction has been reinforced by a number of animation theorists, many of whom have celebrated the medium's complete control over and against the contingencies of photographic recording.[12] On this view, animated movement is *formed* by hand, whereas live-action movement is *transposed* from the material world.[13]

But what might it look like to see the contingent micromovements of actors and objects as formed rather than transposed, akin to the movements designed by the hands of animators? To put pressure on the dichotomy of contingency and control, I want to examine a well-known moment from a live-action narrative film whose movement seems at once designed and

10 Gilles Deleuze, *Cinema 1: The Movement-Image*, trans. Hugh Tomlinson and Barbara Habberjam (London: Athlone Press, 1986), 24. See also Tom Gunning, "Animation and Alienation: Bergson's Critique of the Cinématographe and the Paradox of Mechanical Motion," *Moving Image* 14, no. 1 (2014): 1–9.

11 Rudolf Arnheim, *Film as Art* (Berkeley: University of California Press, 1957), 213.

12 For an account of this theoretical trend, see Andrew Darley, "Bones of Contention: Thoughts on the Study of Animation," *Animation* 2, no. 1 (2007): 63–76; and Mihaela Mihailova, "The Mastery Machine: Digital Animation and Fantasies of Control," *Animation* 8, no. 2 (2013): 131–148.

13 Such a dichotomy has been interrogated from a number of angles. For example, Hannah Frank has examined the indexical traces of manual labor in cel animated cartoons to challenge the presumption that the photographic process is only incidental to the production of cel animation. Hannah Frank, *Frame by Frame: A Materialist Aesthetics of Animated Cartoons*, ed. Daniel Morgan (Oakland: University of California Press, 2019).

contingent, precisely choreographed and purely accidental. The moment comes from a pivotal scene in Howard Hawks's *Scarface* (1932) in which crime boss Tom Gaffney (Boris Karloff) is shot dead in a bowling alley by rival Tony Camonte (Paul Muni) and his gangsters. Just after Gaffney is shot at the peak of his bowling stroke, the camera closely follows the ball gliding down the lane. When the ball lands a would-be strike, the camera lingers upon the only remaining pin as it stubbornly twirls, pauses, and then falls as if to its death, a clear visual metaphor for Gaffney's death.[14]

François Truffaut famously singled out this moment in a brief review of *Scarface* for *Cahiers du cinéma*: "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."[15] Both Christian Keathley and Rashna Richards have cited this passage as a key example of what they term a *cinephiliac moment*, a brief fragment from a film that compels rapturous description and that resists systematic analysis by dint of its apparent contingency.[16] As Richards explains, cinephiliac moments like this one are derived from "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."[17] On such a reading, then, the pin's fall is appealing because the contingency of its spin and bounce resists the controlled circumstances—that is, the formal choices—that surround it.

But this explanation misses something crucial, for Truffaut's enthusiasm seems to rest precisely on his sensitivity to the form of the pin's fall. What makes the pin's fall "certainly cinema" is not simply that the pin becomes a symbol for Karloff through clever juxtaposition but that the particularity of the pin's movement so overwhelmingly creates this impression. Upon close inspection, the form of the pin's movement takes on an anthropomorphized pathos, exhibiting an almost histrionic suspension of its fatal plummet.

To perceive this sense of form, we need to describe the pin's movement (a mere four seconds of screen time) with an attention commensurate with descriptions of animated motion, even if the "hand of the artist" that crafted such movement is nowhere to be found. The pin's first sign of anthropomorphism emerges from a sudden and unexpected change of trajectory: just after the violent collision that sets it into motion, launching it into a leftward slide, the pin surprisingly spins back in the other direction. Seemingly independent of the laws of physics, this movement gives the

14 For an earlier version of this reading, see Jordan Schonig, "The Haecceity Effect: On the Aesthetics of Cinephiliac Moments," *Screen* 61, no. 2 (2020): 266–267.

15 François Truffaut, *The Films in My Life*, trans. Leonard Mayhew (New York: Simon and Schuster, 1975), 70.

16 See Christian Keathley, *Cinephilia and History, or The Wind in the Trees* (Bloomington: Indiana University Press, 2005), 84; and Rashna Wadia Richards, *Cinematic Flashes*: *Cinephilia and Classical Hollywood* (Bloomington: Indiana University Press, 2013), 7.

17 Richards, *Cinematic Flashes*, 12 (emphasis mine).

pin a flickering semblance of life. Crucially, it is at this very moment that we hear off screen gunshots, which we know to be aimed at Gaffney's men but here seem to riddle the pin's body. As if that momentary liveliness were halted by the bullets, the pin immediately decelerates. Each of its rotations begins to widen in circumference and slows down until the pin finally loses its momentum, displacing its center of gravity just enough that it loses its balance and teeters into a prolonged fall. The aggregate impression created by these formal details is unmistakable: the pin's movement resembles the dramatically suspended deaths throughout *Scarface*, in which a gunshot victim suddenly stops, slowly sinks or teeters or drops to their knees, and then falls with a thud.

If such a moment *feels* designed, what do we do with the fact of its contingency?[18] It is not enough to say that the pin's style of movement sufficiently resembles a human fall in order to stand in for Karloff's death; more precisely, this movement is remarkably singular, that is, serendipitous, in achieving this resemblance. No human agent, it seems, could have planned this perfect movement in just this way. While its particularity is clearly a function of contingency (as theories of cinephilia suggest), this contingency does not wrest it from its form. The opposite is in fact the case: the form of the pin's fall is so perfectly apt that it strikes us as designed, not by hand but by chance itself; in sum, it's a glimpse of fate.

Where does this leave the status of the form of recorded movement? In many ways, our assumption that form must be the product of artistic agency has rested on the conflation of *art* with the *aesthetic*. This conflation hasn't always been assumed, nor need it be. In Immanuel Kant's *Critique of Judgment*, aesthetic judgment applies equally to nature as to art, and *form* simply refers to the sense of unity—component parts arranged into relations—that our minds intuitively put together from our sensuous apprehension of the world.[19] Whether the configuration we intuit is of a painting or a tree, we cannot help but organize what we sense. Similarly, for Maurice Merleau-Ponty, the phenomena of the world are themselves "pregnant" with form, even in the ways they move.[20] "In the jerk of the twig from which a bird has just flown," Merleau-Ponty writes, "we read its flexibility or elasticity, and it is thus that a branch of an apple-tree or a birch are immediately distinguishable."[21] Like the falling bowling pin whose very movement embodies an image of death, or the flailing limb compared to a "rubber hose," the precise jerk of

18 In presuming the "contingency" of the pin's fall, I do not mean to foreclose the possibility that this remarkable trick shot was achieved without multiple takes or even special effects. In fact, a frame-by-frame examination of the bowling ball's initial collision invites the hypothesis that special effects—such as double exposure—or profilmic manipulation—such as a non-standard pin setup—may have been used to achieve the desired result (I am indebted to Oliver Gaycken for this observation). My ascription of "contingency," however, is confined to the final pin's fall, whose movement appears to be a result of actual physics rather than stop-motion animation.

19 For an account of the primacy of nature in Kant's aesthetics, see Immanuel Kant, *Critique of Judgment*, trans. Werner S. Pluhar (Indianapolis: Hackett Publishing, 1987), 26–28; for Kant's understanding of form as spatiotemporal arrangement, see *Critique of Judgment*, 71–72.

20 Maurice Merleau-Ponty, *Phenomenology of Perception*, trans. Colin Smith (1962; London: Routledge, 2005), 340.

21 Merleau-Ponty, 267.

the branch contains a unified shape or character that comes together and is seized upon in a matter of seconds.

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. "The perception of forms," Merleau-Ponty writes, "understood very broadly as structure, grouping, or configuration should be considered our spontaneous way of seeing."[22] Constantly emerging and dissipating, coming together and breaking apart, forms organize our experience of movement across our world, animated worlds, and recorded worlds alike. While animated movement and filmed movement have long remained methodologically divided—one a product of deliberate design and the other marked by irreducible contingency—changing our idea of form across both disciplines can help erode such a division. Seeing recorded movement with the eyes of an animator, we can learn to see what's always been onscreen but rarely, if ever, articulated: cinema's innumerable forms of motion.

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22 Maurice Merleau-Ponty, "The Film and the New Psychology," in *Sense and Non-Sense*, trans. Hubert L. Dreyfus and Patricia Allen Dreyfus (1964; Evanston, IL: Northwestern University Press, 1992), 49.