Part III
Temporalities

8

"Just Time" and the Relativity of Speed

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Speed is relative.[1] Obvious enough, history matters: what was once fast is now slow. Speed is also relative to the nature of the medium: what is fast by boat is slow by plane. Pleasures and punishments also count. A two-hour dinner with an interesting friend goes by "too fast," while a one-hour meal with a bore is a drag. And there is national context that shapes what is right to happen: we would forgive a slow Internet in Myanmar compared to the same experience in Korea. Not only do people become accustomed to one pace or another, they come to demand the one that fits and think things amiss if time doesn't proceed as expected. It becomes a moral matter as well as an issue of efficiency.

Baselines

Some things don't vary as much as others in terms of their speed. Certain attainments are limited by human biology, like the speed of running. Yes, more and more people do the four-minute mile, but nobody runs the mile in three minutes and it is probably safe to say nobody ever will. There is no Moore's Law in regard to human self-propulsion; its speed will not double every two years. Walking also has a range of speeds, but within limits and those limits set up possibilities for synchronization. People commonly attain close-ordered walking together. They quicken and slow to stay "in tune" as they move (Antin 1984)—an aspect of the urban "choreography" so prized by Jane Jacobs (1961). Getting it synchronic, again with the right person in the right condition, is a life pleasure rather than lost time. I doubt much has

[1] Thanks to Jonathan Gershuny for suggesting "Just Time" as the title.

changed over many centuries in speeds of walking or techniques of walking together (Minister of Funny Walks aside).

A still more profoundly crucial site of human sociality is ordinary talk which also has a range of velocities, but has biologically given limits and potentials. Overwhelmingly, the norm is to take turns, to speak one at a time; it is almost impossible for two people to speak simultaneously (try it). By the nature of circumstance, individuals must adjust overlaps, silences, and pauses so as to minimize gap and overlap. They massively manage to do just this, as meticulously documented by a generation of scholars in the field of conversation analysis (CA). Speakers are—regardless of language group or cultural milieu—"hypersensitive to perturbations in timing (Stivers et al. 2009: 10591). Three-tenths of a second is detectable and actionable as delay. "There is thus a universal semiotics undergirding all social life" (2009: 10591) likely with "ethological foundation," writes a group of global investigators (Stivers et al. 2009: 10587; see also Boden 1983). However "rushed" things may appear, participants actually *wait* for an appropriate entry point before jumping in. Yes, they also interrupt but even these are attuned and systemic accomplishments, happening at just the right "beat" in another speaker's turn. As with other aspects of conversation, they come through intimate attentiveness to the given tempo—a "mutual entrainment" (Campos-Castillo and Hitlin 2013: 169). Whether in a dominant role (as interrupter for example) or on the short end of the interaction stick (e.g. as interruptee) all must pay sharp attention and adjust in situ and in real time as things move along (see e.g. West and Zimmerman 1983).

Ordinary conversation, conjoined with other basic pacing systems like walks and runs, plausibly sets the metronome by which still other speeds get measured. Some activities are set up to be very fast, to equal or exceed the norms of the conversational metronome. Jazz musicians can riff "wildly" with their instruments—at least as fast as any fast-talking dyad. Their system of mutual cues, response, initiation is like conversation, itself often playful, aesthetic, and poetic (Jefferson 1996; Becker and Faulkner 2009). Players, as with precise, articulate, charming and/or fast-talking conversationalists, exult in the feeling and display. When things go well, an audience may join in with well-timed applause. People become conjoined, even with anonymity among them. They can achieve, through timing and in interaction with one another and with performers, the high of a good crowd in ensemble (Atkinson 1984).

Getting Around

We enter into a travel trip—around the block or around the world—based on the acceptability of a given speed, a kind of bargain of the opportunity cost of

time spent against the rewards that might come. Things should be neither too fast nor too slow, but just right given the purpose at hand, as per Goldilocks. Critical in our judging of any given experience is the full gamut of the rewards delivered. If I like the destination enough, I'll bear the boredom of a seven-hour flight to reach it. On the other hand, sometimes slow is what you want: a cruise ship is not supposed to be as fast as a jet plane. The "slow" clock-time performance does not disappoint on account of the meager distance covered and the feeling of hardly moving. Similarly, a leisurely drive of many hours through the changing autumn leaves of New England bears no comparative disadvantage against a freeway trip through a similar territorial expanse. As always, what counts is the specificity of the activity and its granular context.

Whatever the means of movement and associated utilities and pleasures, things can go wrong, and unpredictably so. Here's the crucial rub: expectations may not be met. There may be a highway detour. The car may run out of gas. Traffic may be horrific. The plane may take off late. So unexpected impediments intrude, even some we didn't even know could exist. A downpour in the Arizona desert holds us up. Breach of expectation—expectation based on specific ensemble of technology, purpose, and social context—shifts perception and frustrates. Anticipated velocity is thwarted. The feature of rapid speed, through the lack of it, is made noticeable. Time does not fly.

This takes us to still another speed paradox, one noted in other contributions to this volume. Speed becomes manifest through its failure to occur. It happens with a noticing of bodily aging; "don't get around much anymore" can come somewhat as a surprise. Most radically, there can be full-on interruption, as with paralysis. Interruptions consist not of a dead stop in clock time, but of a dead life stop where it is not supposed to be. Every machine and every body, no matter how fast, lends itself to such unexpected slowing down. The faster things can go, the more remarkable it is when they fall short of their customary velocity.

Organizational Speed

People have varied speed expectations of particular types of organizations, just as organizations come to constitute themselves, at least in part, through their temporal ordering. Pacing differs in terms of how workers relate to one another and with their machines, as well as in their external relations with others.[2] In some cases the organization owes its origin and continuation to being able to beat the norm; or alternatively, its demise comes from being

[2] To the writing of Schwartz on this point, we can also add Zerubavel 1979, Young 1988, and Thompson 2002.

laggard. Henry Ford's assembly lines made cars very quickly. MacDonald's unleashed fast food—under the slogan "Speedy Service"—at first jolting and then altering expectations of how fast a meal could materialize. But all organizations vary in what their managers, providers, workers, and customers take to be a proper pace. Again the specifics: what is slow at MacDonald's is fast at a French bistro. A MacDonald's pace is objectionable at a Zen retreat. What is slow at Starbucks is meteoric at the doctor's waiting room. In any case, temporal pattern is a defining aspect of not just how "good" an organization is, but—in a reciprocal sense—the type of place it is.

In terms of internal speed, organizations—like jazz groups—have a norm of appropriate timings. So academic journal approval systems are based on a series of very slow reaction times, compared, for example, to the approval apparatus for a new industrial product or, more radically, the preparation of a line of high-fashion clothing. Up close, as colleagues and co-workers, organizational members get into the "swing" of things as they co-produce their enterprise. As again with Goldilocks and people walking together, coordination requires going not too fast and not too slow. Whether in a restaurant kitchen, architectural studio, or among electric vehicle engineers (Noren 2014), failure to speed-conform generates trouble and rebuke, including from frustrated co-workers. And because the right organizational pace is an embodied skill rooted in experience, those with limited access to such experience similarly lose access to jobs. They are "out of it."

Whatever the pace internal to organizations (and internal variation of who waits for whom), those on the outside—as customers, clients, or patients—experience waiting advantage and disadvantage along the usual patterns of class, race, and gender biases. As a rule of thumb, the more affluent a type of clientele, the lesser the wait imposed by organizational routine. Airports that service only private aircraft impose no waits whatever for passengers; there is no check-in and seldom even any security inspection. Luxury retail shops have more sales people at the ready than what obtains at Ikea. Welfare agencies, armies, and prisons keep people waiting as a matter of course, often in an environment kept socially and aesthetically mean (see Auyero 2012).

Within a given type of organizational setting—not just between them—the pattern persists. At commercial airports, those of premium status have shorter lines, including at security. On board, those in first class can often receive food whenever they ask for it. They also have a more favorable passenger : toilet ratio so they enjoy shorter waits to relieve themselves. On landing, premium passengers are first off, with their baggage marked as "priority." Such pacing helps define the nature of the venue and classifies the people who make it up, both to themselves and to others. The powerful have "relative immunity from waiting," says Barry Schwartz (1974: 849), so much so that they come to take

for granted the fast pace of those who serve them. Schwartz offers as maxim: "Far from being a coincidental byproduct of power, then, control of time comes into view as one of its essential properties" (1974: 869). As he still more generally elaborates, "every social system must 'decide' not only how much different members are to be given from a collective supply of goods and services; there must also be a decision as to the priority in which their needs are to be satisfied . . . Queuing for resources is in this sense a fundamental process of social organization" (1974: 842).

Queues thus not only make stratification systems evident, they construct them. Historically and geographically speaking, black people in the US South always went to the back of the bus and, under Jim Crow, the back of the (separate) lines for any public service. At the extreme, say of an earlier India, those of low caste await members of the higher class to pass, standing aside until they do. People of higher standing hire others to do their waiting: secretaries, flunkies, agents of one sort or another. Chivalry may dictate "ladies first" but class (or caste) weighs in to at least an equal (usually much greater) degree (Elinder and Erixson 2012). When it comes to public restrooms, even in caste-free societies, women wait in long lines to use them while men, at glaringly obvious advantage, move rapidly into and out of the relevant facility. Women's longer wait times arise in the first place through hyper gender segregation; they can't go where men go. Separate is not equal. Inequalities are in part built in through physical layouts, which, by failing to assign sufficient square footage to meet their collective needs, systemically put individual women at a disadvantage compared to individual men (Molotch 1988). Hardware also plays a role: urinals (placed closely together) make it faster for men to come and go compared to women who receive no compensating hardware resource. Thanks to the general acceptance of this particular socio-technic regime of peeing, men typically encounter no line at all. We see again that whatever form of classification and however the ensemble arises, waiting—how long the wait and who waits for whom—displays and constitutes hierarchical position.

More generally, and without a regard for some sort of political injustice, sometimes people have anticipation of rightness and wrongness widely held to apply for all. If I'm having a heart attack, no queue should exist at all when I get to the emergency room. I expect the post office line to take longer to get through than the one to get on the bus. The queue to pay for my food at the cafeteria should not be so long that my food goes cold by the time I reach the cashier. Elevator rides are timed to be more or less constant no matter how tall the building; slower technologies are put in shorter buildings and faster ones in higher ones.

Occasionally women complain or even go into the men's room because they, like Southern US blacks who go to the *front* of the bus, have had enough.

For those who ardently support the Cuban revolution (or the Soviet regime at a prior moment), what otherwise would be slow service at bureaucracies, food counters, and visa offices may be accepted with equanimity. For others, it is a cause for redress and counter-revolution. There is always a moral loading: when norms are not met, the organization is considered specifically deficient which is why some of them, even nation-states, cease to be. Besides the low quality of goods, the long queues to get to them likely contributed to the collapse of the Soviet Union—and the contemporary clamor in Cuba for change.

Those who set up and maintain security apparatuses, like at airports and national borders, routinely impose waiting. Indeed, some might regard the presence of lines as actively signaling that authorities are indeed "on the job" (Molotch 2012). Beyond their functional need to intercept contraband or miscreants, they are performatives in a similar sense to how waiting establishes status in other contexts. As further iconographic features, security apparatuses are typically accompanied by arbitrary rules and procedures. Rather than protest, people may readily proclaim a willingness to "do their part" and actively forgive, even celebrate, what would otherwise be irritating interruption. Others acquiesce only through necessity. For them, the imposed waits are mechanisms of intimidation. As has been well argued, they are meant to further docility, a docility that the regime can generalize into other realms.

Mundane Adaptation and Agency

Part of ordinary life practice is to logistically avoid situations, like the kind of confrontations at security that render us helpless. We actively pick and choose our restaurants, shops, airlines, and petrol stations based on how fast they should be given the task at hand. We may seek local lore on how to avoid lines, traffic, or slow offices and ask those who have gone before for tips and information. We also—and here is the socio-technical complementarity again—might use technology for good work-arounds. If we know the right app we can discover road delays in real time on various routes. With our mobile, we can restore some purposiveness to our time in the queue by taking up messages, texting and conniving with those off-site. There is music and video. New artifacts and systems come as a helper during what otherwise might be a rough patch. Still around of course to occupy us is the oldest of technologies, things to read on paper—"books."

Some organizations construct themselves to mitigate the wait. At Disneyland cartoon creatures entertain on the sidelines to break the monotony of the yellow brick road. Some market research analysts (see e.g. Taylor 1995) have looked for variations in dissatisfaction that come with different conditions of

Wajcman J, Dodd N, editors. The Sociology of Speed : Digital, Organizational, and Social Temporalities. Oxford: Oxford University Press USA - OSO; 2016.

waiting. Not surprisingly, customer dissatisfaction does correlate with wait time. Managers respond by interjecting what are termed "time fillers" to ameliorate the effect which, at least in experimental settings, do work (Katz, Larson, and Larson 1991). It can be, for example, music or announcements. One less obvious example of filler occurs in doctors' waiting rooms, where patients are asked to list symptoms and prior conditions on forms. Sometimes these forms are clinically relevant. But sometimes nobody will ever look at them. Being made busy makes it seem the "appointment" has already begun, instead of an extension of the wait.

Also of relevance is the degree clients think organizational actors are in control over unfolding conditions and hence can properly be held responsible for delays. Airlines, for example, are less likely to be blamed when bad weather is happening versus pilots not showing up. Agencies, with or without benefit of social research, know to try and blame "conditions beyond our control." They also interject fillers like announcements that provide information relevant to conditions of the trip (weather ahead, arrival time, meal options, etc.). Such announcements will backfire—the research also suggests—if people deem them mere blather, not related to the task at hand (Taylor 1995). Amenity-value of the wait always counts. We may complain or never go back to those who offend through the quantity–quality of the wait.

One of the resources that people can draw on to fill time is other people. So we can strive to have the company of people we know (the right people, of course) while doing things that otherwise would force us to be alone. This helps overcome one of the costs of queues—a lack of sociality. So people arrange to wait together. When I lived in Vienna as a young student, a group of us regularly joined forces to line up for cheap standing-room tickets at the opera. Such tickets could only be had by a long wait, which was all part of the ritual of being young together; we bantered about sopranos, pastries, Vienna, and other favored topics of the milieu. The pricing system, the absence of being able to pay the cost of seats, the "technology" of the line-up—all joined in convivial ensemble. The queue was both an excuse to come together as well as a mechanism for social order and marking of our status—low in the economic hierarchy, high in aspirations (at least) for cultural capital.

While in the presence of the line, we can also do some time and motion ethnography, folk or professional. If we're in a queue we can look to see if "first come–first served" is actually being practiced or if some kind of preference (illegitimately perhaps) is being given. We can try to judge the best line to stand in—with retrospective regret or strategies for shifting, as when driving in heavy traffic as well as while at the end of the supermarket queue. We can think about which cashier or official is the most or least efficient, and whether or not there is sufficient staffing—and again, perhaps, take immediate action

and switch queues. And we can size people up—as athletes, as intellectuals, or as partners for sex, sex, sex.

We may ruminate if there are aspects of national cultures on view; essentialist critique be damned. We need the material. So I can observe: British people wait their turn at bus stops. Italian people not so much. In his stream of consciousness offerings of what goes on at train stations, the British scholar/novelist/travel writer Tim Parks humorously conveys the cunning maneuvers that Italians use to get to the head of the line (Parks 2014). With various degrees of amusement, we all do such social theorizing on the spot. We may also share it with others when we arrive home or (for some of us) at the classroom ("A funny thing happened on the way to . . . "). This work of retroactive accounting is done without much by way of hard evidence or test of truth-value; it is part of the give and take of life to report observations and give analyses. It is part of minding in the line.

At Walden or wherever, we always have as default our own all-alone compulsion for sense-making and entertainment. To ease the emptiness, we may fantasize future events and encounters, richer in possibilities of projects and social interaction. Or we may daydream of happenings gone by, maybe retroactively reconstructing the decisions we took to get into a present waiting predicament—and who we told it wouldn't work or who assured us it would. But as indicated by the dire consequences of solitary confinement, creative adjustment can carry us only so far.

Technologies Strikes Back

Our repertoires for anti-wait utilize the nice appliances to which I have already alluded, mobile phones and the like. At least at the outset, the telephone hugely enhanced capacities for sustaining—not interrupting or eliminating—human interaction (Fischer 1994). Indeed, the very first utterance on a landline was to prompt a face-to-face meet up. Alexander Graham Bell spoke them to his assistant "Watson" (actual name): "Mr. Watson—come here—I want to see you." By mid-twentieth century, mechanical interruption could interfere with such smooth hooking up. People can be put on hold, before even speaking to a person at all. The experts were able to delegate to machines the task of dealing with a caller by, in effect, not dealing with them (see Wajcman 2015). Instrumentation came to intrude between what otherwise would have been humans talking to humans. The machine, in Akrich's (1992) term, "prescribes" what we are to do including, in the case of "hold," nothing at all. All along, there is no conscious actor keeping track of just who and for how long an interference is occurring. In its plethora of expanding

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procedures, protocols, and orderings, the artifact and infrastructure make up its own runaway world.

With machines substituting for direct human delay, we have few clues of how long an interference will last. Nobody is there to advise or to suggest, even by innuendo. While a respite can be a good thing—a chance to gather thoughts or sip some coffee—it gets old fast. We often do not know how long "hold" will be. It is an indeterminate sentence of solitary confinement. This is *long* time. Assurance that "your call is important to us" or a crackly "Rhapsody in Blue" filler may not ameliorate. This kind of queue is devoid of sociality. One has no sense of context: Who else is waiting? How is the line proceeding? What else are "they" doing while I wait? In terms of awareness and dignity, it is terrible because it has no life within it—not even the minimal interpersonal gaze of strangers who happen to be standing together. Almost pathetically, some may invent social scenarios, like the way brokers are said to read human traits as lying behind machine-executed commodity trades (Zaloom 2010) or gamblers come to see certain tables or machines as offering better luck advantages than others (Goffman 1969; Schull 2012). Technology invites animism.

For their part, organizations deliberately attempt to imbue machines with human-like qualities, laughably and irritatingly deliberate. A first series of simulated human instruction offers options/instructions: "press one" or "press two" and so on up to as many as seven choices—to cite a recent call to my bank. It then can branch off into additional menus taking us farther away from what used to be an initial human "hello." We hear options without benefit of seeing the hand movements, posture shifts, and facial expressions that are ordinarily intrinsic aspects of sense-making. The non-person at the other end of the line similarly has no appreciation of our own physical movements, tone of voice, or rolling of eyes. Interactants cannot, as they ordinarily do, adjust pronunciation, voice volume, or speaking pace to deal with specifics of the conversation partner (language accents, age, confusion).

One clear breach of ordinary talk is in the way machines voice digits in a series—like a phone or account number. Machines (at least at this writing and in the US) sound each digit exactly the same way, something we do not do in real talk. In real talk, the ending digit comes with a downward pitch which serves notice the list is complete. It is a "list completer" in Jefferson's term (Jefferson 1991). Among other functions, it serves notice that the listener can put down their pencil, go on to another topic, or begin speaking with a new turn of their own. There are other tactics, such as adhering to speech conventions like speaking in "chunks," pronouncing—for example—three digits in a single chunk when giving out a list with a split-second pause at appropriate intervals. Such "recipient-designed" intonations and timings serve notice of a series coming and a series coming to an end. Along with many other tacit

resources we deploy in conversation[3] (see Sacks, Schegloff, and Jefferson 1974), these resources help keep things moving—misunderstandings are kept at bay, requests for repeats can be minimized, and speed is enhanced. Inability to shift pitch is one example of the ways machines, at least for now, fail at mimicking the radical contextuality of ordinary interaction—the fulsome resources that come with co-presence (Boden and Molotch 1994).

In a still more flagrant way, technological communication—oblivious to context—issues insensitive requests. In no particular order, without transition or hesitations, demands come at us: for a pin number, case number, account number, product serial number, or alternative phone number. There may be a prompt for a password (almost at any point in the series), a paternal grandmother's first name, or indication of whether or not we have ever lived at a series of listed geographic addresses. The questioning resembles a kind of authoritarian nonsense. It seems akin to aggressive police interrogation, where as a matter of technique, questions are sprung without apparent rhyme or reason. The machine lacks civility; it does not hold back until, as happens in ordinary talk, there is perceptible evidence that it is OK to continue.

Meanwhile, the human has imperfections of their own that breed still other failures and lost time. Pressing an incorrect key through misunderstanding or physical clumsiness can lead into a trajectory from which there is no easy return. By way of contrast, a restaurant waiter says "no problem" when you drop your napkin or spill a drink. The machine is not programmed for such niceties. The whole sequence can abruptly end—no matter how arduous the route to get there has been—as the instrument, without grimace, complaint, or warning, just goes dead. We often blame ourselves for causing such mishaps, a blaming of the victim by the victim, something Wajcman suspects is encouraged by corporate strategists to be the outcome (Wajcman 2015).

The Internet comes with its special traps and foibles. Without password or pin number at hand or consciousness, there is no access. Each of us has been forced to cumulate different passwords across our sites and to keep inventing new ones with newly imposed criteria. Punishment follows for failing more than twice. Three tries and you're out. Password request can also happen deep within a sequence. One solution is to resort to post-it (a truly breakthrough technology) and write down passwords and stick them on the computer housing. This common practice of course undermines much of the security arsenal of the whole apparatus but is a human-made adjustment to a dumb machine system of controls.

[3] A founding document is Sacks, Schegloff, and Jefferson 1974. See also, e.g., Boden and Zimmerman 1993.

The Internet and the web bring on other pesky delays. As we move through successive screens, we can stumble into missing URLs, broken connections, or similar e-troubles. Analogous to the evil of robo phone calls, advertisements, pop-ups, and software notifications can further frustrate. And, of course, a file on which we are working can inexplicably disappear. The laptop battery can go dead or at least seem to do so. Seeking redress in FAQs requires user-empathy with how site designers have worded others' troubles rather than being able to articulate a trouble through one's own logic and experience. Failure to find the right formulation of one's own troubles in someone's translation of someone else's question is a time-sink. One has to judge at the outset the probability of hitting an answer via FAQ versus the lost time in seeking it.

As a general matter, digital menus, including those now offered by the phone, take the form of forced-choice questions—which have always aimed to simulate the digital even before digital was known as digital. Digital allows little wiggle room for instances of grey, of betweenness, of "it all depends" on what you mean by "pet" or even by maternal grandfather (my adopted one? The one who actually took care of me? The legal one? Legal in which country?). They rely on the ability to prefigure all possible meanings of questions and their possible answers. Ethnomethodologists have offered trenchant critiques of these types of forced-choice methods in terms of validity and reliability (see e.g. Cicourel 1964) as well as the ways they differ from competent social interaction. Depending on how well one can psyche out the survey researcher, or the exam, or the organizational technology, one can end up at a loss and attendant downward spirals.

As corporations and agencies decrease payrolls by substituting machines for labor, they erode human interface. Within organizations' accounting schemes, the substitutions show up as productivity gain. Some of it, no doubt, is also genuinely appreciated by users and eliminates tedium at both ends. People may find their chores simplified—no need to travel to an office, a shop, or a travel agent or deal with a phone operator. Genuine miracles are in the offing as Uber-logics increasingly replace not only interactions but also wait times and discomforts of not knowing who is coming and when. But the prospect of such gains is not the key criterion by which substitution occurs. Instead, organizational managers are self-seeking. In meeting proximate productivity and profit goals, they irresponsibly shift troubles and opportunity costs to clients, users, and applicants without regard to *their* preferences and efficiencies. While the advantages may be loudly proclaimed and also enjoyed by users and investors, the downside is largely invisible and hence irrelevant to those inside.

As per usual, some categories of people find almost any machine-led interaction a challenge. The distribution of digital acumen is uneven in any

population. The digital divide exists not just in access to technology but also the capacity to cope with day-to-day encounters with it. For those left behind, the fallback of human contact recedes as a possibility. It gets harder to reach a proper person who is actually on the job. Those managers and officials who remain may no longer have the titles that could indicate what they actually can do for the "outsider." Their offices and titles have switched to be more relevant for intra-agency dealings and linkages with other businesses and organizations. Ordinary clients can be presumed "taken care of" through phone and website. To the degree they exist, the remedial personnel are typically not in geographic locations that are easy to reach, installed instead on a hinterland campus or in a country offshore where there is a different "native knowledge" in play. Call centers have procedures but empathy is more problematic.

Digital troubles make for the most boring stories that there are. This is still another cost. Part of the benefit of an experience, including the bad times of interruption and non-normative slow down, is the anticipation of telling others. Even during the involvements themselves, maybe especially during the involvements, our experiences come alive with our reflections of the telling. Adding insult to injury, there is little prospect of constructing a narrative of one's bad time in the thickets of technology delay. So this is time doubly dead. Nobody wants the blow-by-blow account and the experiences are hard to reconstruct even for oneself. There are no big moments, no build-up to emotional pinnacles, and no souvenirs, electronic or otherwise. Our blood may boil, we may let out expletives, but they are into the digital wilderness. If nobody hears our "oh fuck" (usually a dependable performative), has there been one? We are, like Jack Katz's drivers who are "pissed off in LA" (Katz 1999), alone in our fester. It was no good in real time, no good in retrospect, and no good in the telling.[4]

The makers and inventors race toward ever-new apps and gizmos, more powerful and speedy than the ones before, also sometimes striving for better simulations of real interaction. Some consumers race to adapt, keep up, and adopt. But as new imperfections and unanticipated glitches arise, all users must face them. There are also non-bug advances that just require new ways of engagement that only the technical cognoscenti can easily absorb. Sometimes the limits are so great that the product flunks, or at least is much delayed. We have the grand examples from the champions of user-friendly design, Apple Corporation. Its Newton was way too ahead of its time, its "Yosemite"

[4] Thanks to John Urry for raising the issue of "daydreams" and also for complaining about "three strikes."

operating system was judged "pesky."[5] Apple Maps remain a failure. That's Apple, not the many fly-by-night operations that tempt our in-box. Solutions do often get worked out, although not always—Jobs' NEXT could not be made to work.

Often, of course—albeit at varying rates and degrees—users achieve competence. Even when still with bugs, early adopters make a new technology plausible for eventual widespread acceptance. Especially for the early and adept, life-speed increases. As Wajcman notes (2015: 171), a rapid technology shift "requires an ongoing investment in skill acquisition" and this involves unpaid user time. Those who don't or can't make the investment may be slowed down. Because of sunk costs in a prior system or due to age or other circumstance, some individuals and types of organizations go backward. In effect, advance in the technology translates into obsolescence for certain humans. Those digitally challenged may be forced out of the game altogether. They may be the last ones who have to actually walk into the store to pay for a product or go into a bank to get money. An otherwise sophisticated colleague of mine would not switch to Microsoft Word for years because he did not want to disrupt a decade of writing and storing text through WordStar. Eventually he was so out of step, so beyond the tipping point of Word, that he had to join the MSW pact. Individuals, agencies, and businesses in poor countries, including those frozen out by political embargo, may not be able to upgrade the software they originally acquired. Without the upgrades, their existing apparatus de-grades. Their equipment can't do what it once could do; new bugs appear because systems can't be updated.

Speed Thrills

For dealing with machines of any kind, high-tech or low—including the human body—there are people who are especially given to push against the barriers: cognitive, material, and biological. Ironically, while the impediments make their appearance as troubles, it is their presence that provides the conditions for triumph. Exceeding the usual pace of dealing with them brings satisfaction, potentially even *thrill*. As the high-wire performer Karl Wallenda is quoted as saying, "To be on the wire is life; the rest is waiting."[6] For Wallenda on the wire, those mundane constraints melt away. The opportunity of beating the norms is a recurrent source of challenge and reward. People do not live merely to enhance ease. When needed, they even create artificial

[5] <http://www.networkworld.com/article/2927497/software/apple-finally-fixes-pesky-os-x-yosemite-wifi-bug.html> (accessed June 2016).

[6] Quote is from Erving Goffman 1969.

impediments. Those with access to cars and planes take up mountain climbing. Some who could otherwise be assured warmth and relaxation bundle up to ski down hillsides, black diamond or otherwise. Such thrill-seeking involves rejecting some technologies—e.g. central heating or cars—it means embracing others. Players search for racket strings that are tenser, balls that bounce higher, boxing gloves that crush harder. What is acceptable or not is specific to a given activity or sport but technology and material manipulation is always part of the match.

It is, once again, not just clock-time but the experience and its display that also figures in. A tennis volley has it as potential; we don't know what will actually come our way; we don't know exactly from where the ball will come across the net, at what speed, or with what kind of bounce. Unbelievably and, if possible, with real elegance—and not a whisk of wasted motion—one returns a serve that comes with force of remarkable power. Physical impediments "melt away"—the famous phrase from Marshall Berman (1982). The outside stimuli come so fast they can't be cognitively handled but they somehow are. They are somehow enfolded into the material–human matrix.

When not ourselves involved in reaching for the high, we may be vicarious spectators to others' accomplishments. In his effort to develop an "anthropology of art," Alfred Gell (1988, 1998) proposes that art is experience of the *uncanny*. We have no sense of just how this thing—this painting, this carved prow of a boat, this volley (back to my example) could have come into being just as it did—with its force, elegance, and exceptionality. It is so masterful that it is mystery; the mundane is gone—or at least put under challenge. We are lost in time and have no experience of its moment-by-moment passage. The opposite of being on hold or queuing at airport security, it is friction-free. "Time stands still"; the experience is so full, it seems empty. The paradox compounds. The faster it goes, the less there is of it. Let's call it a "radical presentism."[7]

Again, convention sets in and what may have been breakthrough can become routine. But it is the technology component that is given to decay. What was once a racecar or just a speedy conventional automobile (my Mother's hot "rocket engine" Oldsmobile 88)—becomes banal. The car, once a source of general thrills regardless of make or model, becomes mere linkage "with a system of necessity" (Tomlinson 2007: 52). That ends the mystique. Ballet, Shakespeare, and running the mile do not degrade—if at all—in the same way. So in the making of life, the making of meanings, and the purpose of it all, technology can never properly hold sway. However exciting they appear on first entry, the Macs, the Ubers, and the microchips will crumble. Only the social is here to stay.

[7] I Googled this term and found it as a concept in science fiction; my use is different.

9

Speed Traps and the Temporal

Of Taxis, Truck Stops, and TaskRabbits

Sarah Sharma

I begin with a story about the temporal; a story about time and social difference.

A friend and I were waiting for a southbound train during a weekday morning commute at St. Clair station in Toronto when the announcer informed riders that the line was experiencing a twenty-minute delay. People expressed their frustration with eye-rolls and exasperated groans. But just as quickly as the disrupted service was announced a series of plan Bs went into effect across the subway platform. Some were going to wait it out and took to leaning against the walls. A few people hurried out of the exits informing others "I guess I'm going to walk." Mothers with strollers headed toward the elevators.

As I contemplated my own plan B, my girlfriend had already jumped into action. She had done a quick scan of the crowd and honed in on a young man in a pressed dark suit walking quite fast while staring down at his phone. He did so with such practiced agility that she knew exactly where he was headed: to the financial district. She also knew he was "Ubering" rather than calling a cab because of the way he was typing and holding his phone up to look at the screen under the dim light of the subway station. My friend was in a rush herself and didn't have the twenty minutes to wait for a train. Waiting at the hospital for her was her new baby born twelve weeks premature. He was in need of the expressed breast milk she had in her transportable cooler bag hanging from her right shoulder. She sped up beside the smartly dressed young man and started to walk in step, "You getting an Uber? Going south, past Wellesley? I'm going to the hospital. Can I come with you?" He happily agreed but he also never lost his pacing, never stopped walking or typing until the brief moment that they stood together at the corner of St. Clair and Yonge when their Uber pulled up.

My dear friend was in survival mode trying to keep her early baby alive and well. Her already acute awareness of what she needed to do in a given moment was even more heightened. She was activating the necessary survival skills that come along with becoming responsible for the life of another. But what is most remarkable about this scene is that she knew exactly where this young man was headed and how he was going to get there. He had all the signifiers of the iconic and privileged protagonist of fast living in a culture that is dominated by the discourse that the world is speeding up. He had on a suit, a quick step, and was tapping madly away into his smartphone. He was plugged in and on the go, using network time to navigate the space of flows so he could bypass the public transportation system that had ground to a temporary halt. He could maintain control over his time by ordering up a driver with his Uber app and get to work without losing a minute. He was in charge of his mobility and his time but also the time and mobility of others.

Enter the driver: the Uber driver's labor is oriented entirely around navigating the rhythm of the streets while maintaining the time demands of their fares. They speed up, slow down, and are made to wait depending on the needs of whoever gets into the back seat. Relationships of synchronization permeate the entire social fabric. There is an expectation that certain bodies recalibrate to the time of others as a significant condition of their labor. As a result, specific temporal regimes and strategic dispositions are cultivated in order simply to survive within the normalizing temporal ordering of everyday life. Cab drivers limit fluid intake so they don't have to stop for bathroom breaks. Nighttime security guards sleep during the day. Back-strained desk workers do yoga stretches at their desk (Sharma 2014). While my girlfriend was also employing strategies to maintain control over her time she bore none of the recognizable accouterments of time management in this so-called culture of speed. No sense of her current relationship to time could be accurately gleaned or conceived of by an outside observer. When she hitched a ride on this young man's vector she was immensely fatigued with tired eyes and a still protruding but empty belly. Her arms were full of bags stocked with time-sensitive materials for the reproduction of the social order. These three figures, or what I refer to as temporalities, at the corner of Yonge and St. Clair are an example of the interdependent and relational nature of time. They exist together on a grid of temporal power relations. It is in this way that time is culturally collective.

The term "temporal" does not imply a transcendent sense of time or the time of history. I mean for the temporal to denote *lived* time. The temporal is not a general sense of time particular to an epoch of history but a specific experience of time that is structured in specific political and economic contexts. The temporal operates as a form of social power and a type of social difference. Temporalities do not experience a uniform time tied to a particular

technology but rather a time particular to the labor and other forms of social difference that produce them. Individual experiences of time depend upon where people are positioned within a larger economy of temporal worth. The temporal subject's day includes technologies of the self that are cultivated through synchronizing to the time of others and also having others synchronize to them. In this way the meaning of one's time is in large part structured and controlled by both the institutional arrangements inhabited and the time of others—other temporalities. Not all such temporal entanglements are this fleeting, as my story indicates. Moreover, I would suggest it is only on the surface that temporal entanglements appear as such. Instead, these temporal crossings are endemic of deeper, more enduring forms of structural difference experienced at the level of time. But this view into the temporal I want to forefront is too often obscured by a more dominant cultural conversation about time; the now common one about speed.

That the world is speeding up is as much a popular cultural concern as it is a matter of contemporary theoretical importance. It is an observation about the contemporary moment shared by Marxists and marketers alike. The critique of speedup is not so much an accurate description of the contemporary world as it is a limiting discourse that actually perpetuates structural inequalities at the level of time (Sharma 2014). What most populations encounter is not the fast pace of life but the structural demand that they must *recalibrate* in order to fit into the temporal expectations demanded by various institutions, social relationships, and labor arrangements. To recalibrate is to learn how to deal with time, be on top of one's time, to learn when to be fast and when to be slow. Recalibration accounts for the multiple ways in which individuals and social groups synchronize their body clocks, their sense of the future or the present, to an exterior relation; be it another person, pace, technology, chronometer, institution, or ideology. Invitations and expectations to recalibrate permeate the social fabric differently for different populations. What is shared, however, is the looming expectation that everyone must become an entrepreneur of time-control.

When discussing the politics of temporal difference in a range of settings that has included academics but also designers, activists, marketers, and even occupational therapists, the conversation quickly digresses into guesses about what is faster, what is slower, and what takes more time or less. I get asked to comment on Fitbits and other productivity apps and what the emergence of such programs for living means for the politics of time-management. I am consistently asked publicly during Q and A for my own tips and secrets for managing the time pressures of academia with having two children. This departure into narratives of productivity and new technology, as well as personal time-management advice, suggests to me that temporal difference is even more political than I first imagined. The critique of speedup parades as

a time politics while it ignores larger structural political issues related to labor and social difference. To discuss gender, institutional time, and the potential of a politics of refusal is one thing, but to ask how one can "do it all" re-entrenches the gendered institutional control of time. To point to new technologies as altering temporal experiences is a fine observation but it says nothing of the politics of time without understanding that time is itself technological. Time is not a technological measurement of what is real; it is not a phenomenon caused by technological measurement—rather it is a structuring relation of power. It is an intoxicating concern: how to have a better relationship to time and technology. But this cultural fixation on time control and one's ability to modulate time, to manage it better, slow it down and speed it up, is antithetical to the collective sense of time necessary for a political understanding of time. Moreover, ascribing new temporal milieus and environments to new technologies without also considering the differential politics of time that is altered in the advent of this or that technology misses the opportunity to engage with the social experience of time.

How can individual time-management anxieties be set aside so that the relational and collective social experience of time might be acknowledged? I argue that the cultural understanding of time-control needs to be complicated and denormalized, delinked from new technology. Taking a cue from Judy Wajcman in her book *Pressed For Time: The Acceleration of Life in Digital Capitalism* (2015), what is most pressing is not resisting speedup or creating new technologies to better control time, but instead cultivating new social realities related to time. In this chapter I extend my work on temporal difference to account for the broader range of media technologies people orchestrate as part of the struggle to stay in time. The accouterments of time control are too often conceived of as consisting of Fitbits, productivity apps, VIP airport lounge passes, standing desks, and the privilege of being able to command and depend upon the labor of others. But recourse to these normalizing instruments of time control is not a universal experience. In fact most of the ways in which individuals attempt to exert the control and management of time barely registers under the rubric of time-management in this so-called culture of speed. As Wajcman argues: "We live our lives surrounded by things but we seem to think of only some of them as being technologies" (2015: 29). I am guided by the notion that we must continue to broaden our conception of technology as it relates to time management, a theory of media that has its roots in the medium theory of Harold Adams Innis (1951) and Marshall McLuhan (1964), but also recognize that the time-management strategies of so much of the population recedes from view because of the overmediatized and limiting notion of time that circulates culturally. Before complicating the category of time control, the first step is to shift the register from speedup to the temporal.

Speedup and All of Its Trappings

At the turn of the twenty-first century, a set of questions that focused on the impact of technologies built for acceleration and faster-moving capital on the democratic fate of a sped-up globe emerged across the disciplines. I refer to this line of critical inquiry as "speed theory." Paul Virilio was one of the first to write of speed in this vein, in 1970s France, and he remains its most prominent figure. But the critiques of the culture of speed continue to accelerate (1986). Speed culture goes by many epitaphs: "the 24/7 world" (Hassan 2003b; Crary 2013) "liquid times" (Bauman 2000), "hypermodern times" (Lipovetsky 2005), "the culture of acceleration" (Tomlinson 2007), "the coming of immediacy" (Tomlinson 2007), "dromocratic society" (Armitage 2000), "the new temporalities of biopolitical production" (Hardt and Negri 2000), "the chronoscopic society" (Hassan 2003b), and "chronodystopia" (Armitage and Roberts 2003). Of course, the advent of the new millennium isn't the first time speed has been the object of critical inquiry. Such work fits within an important trajectory of thought that includes histories of capital as it became coterminous with different technologies and their temporal and spatial effects. Such critical histories describe clocks, trains, telegraphs, and other global metronomes with their attendant temporal dictates of ticks, tocks, nanoseconds, and light years (Marx 1867/2002; Thompson 1967; Kern 1983; Schivelbusch 1987; Carey 1989; Postone 1993; Abram 1997; Griffiths 1999; Galison 2003; Glennie and Thrift 2009).

While critical theorists of speed examine different elements of speed culture, there is a shared sentiment: new technologies and faster moving capital herald grave political and social consequences. "Speed" is the commanding by-product of a mutually reinforcing complex that includes global capital, real-time communication technologies, military technologies, and scientific research on human bodies. Democratic deliberation gives over to instant communication, or what Virilio refers to as "live contemplation." Political interaction is replaced by monetary transaction. Space, the apparent *real* ground of politics, is subsumed by speed. "Real-time is not very different from classical tyranny, because it tends to destroy the reflection of the citizen in favor of a reflex action" (1986: 87). Speed theorists argue that geopolitics (a politics based in space) is supplanted by chronopolitics (a politics based in time). The yielding of space to time not only dissolves the grounding of politics but it gives rise to a way of being in time that is antithetical to the political public sphere.

Speed theory is without a doubt indebted to Marx's formulation of the clock's quantification of work and the production of value and socially necessary time. Part of this analysis includes attention to the new social formations that arise because of accelerated capital and technologies including the changing quantity of labor time versus leisure time. They align with Marx's

formulation of socially necessary time (1867/2002). Speed theory is also largely sympathetic to E. P. Thompson's thesis in "Time, Work, Discipline and Industrial Capitalism" (1967) concerned with how the new chronometers imposed by governmental, military, and capitalist interests have replaced earlier, collective perceptions of time that he believed flowed from the collective wisdom of human societies. Marx and Thompson are both necessary to thinking about how capital robs the worker of time, whether by diminishing personal time, controlling the bounds of a working day, stalling clocks, or establishing the age limits of child labor. Yet the protagonist in the theoretical critiques of speed is no longer the worker or any specific subjugated population for that matter. Instead, it is a generalized individual who feels suddenly out of time. The subject of value and the subject of most attention in the critique of speed is the same subject who confirms speedup most readily as *the* new reality—whether the jetsetter, the financial worker, public man, or the theorist. While pointing out the indentured conditions of contemporary labor and living brought on by ubiquitous technologies is an important analysis of contemporary life, it does not deal with the uneven cultural politics of time. The theory of social difference that emerges out of speed theory revolves around a simplistic binary. Zygmunt Bauman, in *Globalization: The Human Consequences*, maintains that "the inhabitants of the first world live in a perpetual present, going through a succession of episodes hygienically insulated from their past as well as future. These people are constantly busy and perpetually short of time, since each moment in time is non-extensive" (1998: 88). He goes on to say, as for the slow class:

> People marooned in the opposite world are crushed under the burden of the abundant, redundant and useless time they have nothing to fill with. In their time nothing ever happens. They do not "control time"—but neither are they controlled by it, unlike the clocking in, clocking out ancestors subject to the faceless rhythm of factory time. (1998: 88)

In the end there are only two temporal poles of chronopolitical life that are dealt with: fast classes and slow classes (Virilio 1986), tourists and vagabonds (Bauman 1998), inhabitants of chronotopia and chronodystopia (Armitage and Roberts 2003), and the time rich and the time poor (Rifkin 1987). These two temporal classes are imagined to be much like ships that never pass. And, neither seems to meet the temporal requirement of civic life; where one should be contemplative and deliberative as a form of political temporal composure.

Theories of liberal democracy assume a way of being in time, but the assumption itself is not a time politics; it is one single, and albeit very powerful, discursive mobilization of time.[1] What continues to animate public sphere

[1] See for example Scheuerman 2004.

theorizing is an expectation that political civic life is only political insofar as it *takes place in a space and time separate from state and market*. The right practice of time, a democratic one, must be free of institutional restraints, whether economic or cultural. It is a time that must be unfettered in order to be contemplative. While I do not have the space to elaborate here, in terms of theorizing publics, at every level from the local to the global, oppositional to the bourgeois public sphere, temporality is an invisible and unremarked relation of power. "Publics" figure almost exclusively within the theoretical imaginary as spatial constructs. Delineations are made between ideal publics and the "other" space: the public sphere and the private sphere (Habermas 1999), public space and oppositional space (Fraser 1992), the agora and the *oikos*, anthropological public space and non-place (Augé 1995), and public space and speed-spaces (Virilio 1986). The spatial logic of liberal democracy is also evident in the constant questioning of "where" publics might be—are they local, global, subaltern, national, or regional. Are they here or are they there? Is the television talk show a new public space (Livingstone and Lunt 1994) and what about the Internet today (Poster 2006)? The newest technologies looming on the horizon are often met with questions of how they might change social space and they ways individuals interact with each other in space. The *agora*, for example, the venerated space of antiquity that continues to animate contemporary theorizing of the public sphere, was not merely a space. If the temporal is acknowledged, then the public sphere is also a time. It was a space of free time for political thinking for the minority of free citizens. It was an experience of time and social space produced by the *time* of women and slaves who worked in the *oikos*. Speed theory espouses a conception of the public conditioned upon a politics of time that is about the *pace* of one's time rather than how its citizens or denizens are *constituted in* time. The democratic expectation, to be free and have time, is a liberal bourgeois demand that lends itself better to arguments for lifestyle choices like "how do you do it all" rather than recognition of the politics of time.

The theoretical calls to *slow down* function in a very similar vein.[2] Within this slow-living imaginary, time is treated as something to which we all have equal access (Sharma 2014). Slowness is not outside of the normalizing temporal order. It encompasses its own particular ideological time claims and beholds its own exclusive temporal practices. There is a dominating sensibility within this discourse on slowness that being a "good" political citizen requires transcendence. Transcendence pervades in both taking the necessary time out and abstracting oneself from the energy and traffic of everyday life. But this traffic conditions the very possibility for some to transcend. Slowness, as a

[2] See Parkins and Craig 2006.

form of managing or resisting speed, is in and of itself not a time politics. Slowing down does not necessarily change (and certainly does not ameliorate) the ways in which individuals and social groups are tangled together in time.

Focusing on the issue of fast or slow "pace" without a nuanced and complex conception of the temporal does an injustice to the multitude of time-based experiences and strategies of survival specific to different populations that live, labor, and sleep under the auspices of global capital. The social fabric is composed of individuals' and social groups' sense of time, and possibility is shaped by a differential economy, limited or expanded by the ways and means they find themselves in and out of time. Thus what characterizes life are the differential and inequitable ways in which time is made to matter and is experienced. What matters is how time is worked upon and experienced at the intersections of inequity, and how, in any particular technological moment, there are multiple temporalities to be considered.

Speedup as a descriptor of the moment is hard to shake. I suggest it is compelling for a few mutually reinforcing reasons: it justifies a culture of overwork and overconsumption and the unnecessary exhaustion that comes with it. Speedup justifies the need for the labor of others to help maintain and reproduce the conditions and quality of one's own life, including one's exhaustion. But speedup might be less an accurate description of the world than it is a universalizing polemic promulgated by those threatened for the first time by the possibility of not being in control of time. One doesn't have to venture far to offer up the observation that theories of the world speeding up and out of control are written almost solely by men in the Western academy. But this is hardly an adequate intellectual conclusion on my part: to suggest that time is far more multiple and differential than this masculinist discourse of speedup has assumed and leave it at that. I offer a cautionary tale regarding the discourse of speed and its circulatory power; it is not speed per se but the explanatory power of speed that is responsible for perpetuating inequalities at the level of time. The temporal is a corrective to the discourse of speedup. I suggest the temporal complicates the narratives of speedup that permeate culture and theory, but also that a temporal perspective into speed is necessary in order to account for how time is actually lived across the social.

Enter the Temporal

The fixation on speed and the problem of tempo leaves individuals and social groups more vulnerable to biopolitical control. When better time management is imagined to be the solution to speed, what is occurring is greater institutional control over the time of one's life; not just one's lifetime but the immediate minutes, how the days pass, and what time is supposed to mean for

Wajcman J, Dodd N, editors. The Sociology of Speed : Digital, Organizational, and Social Temporalities. Oxford: Oxford University Press USA - OSO; 2016.

the modern subject. Foucault uses the term *biopower* to describe how the various institutions and disciplines arising in the eighteenth century monitored, intervened, and controlled the productive capacities of individuals and populations at large. Through different techniques and practices these institutions of the state, as well as other institutions of modern power such as the army, family, police, schools, and medical professions, would administer life through the optimization and intensification of the life force. When Foucault argues that biopower is the power to "live or let it die," the temporal is explicit (1977). Life is not taken. It is "let to live" through investment or "let to die" through disinvestment, slowly. One of the core features of neoliberalism is widespread disinvestment; the rolling back of the state's regulation of health, welfare, and other public services. But all bodies do not experience such disinvestment in the same way. One of the central paradoxes of neoliberalism is that while the state has disinvested in most bodies, some are reinvested in by more exclusive means through the market. The bodies that are invested in are the ones most vital to contemporary capitalism, precisely because they don't need to work in order to survive. One of the growing sights of investment I would argue is cultivating meaningful experiences of time, working upon one's time-sense. It depends upon belief in the speed of life to gain entry into subjects' lives in the first place.

Across the landscape of everyday life, interventions into time are presented as invitations to experience a novel temporal experience—to slow down, take a breather, nap, meditate, and rest at work on-site and on demand. We are witnessing the emergence of infrastructure of temporal care built around maintaining the time needs of particular subjects. By "time needs" I mean the discursive construction of one's lifetime and time of life being of particular importance to the contemporary moment. Temporal architectures are composed of built environments, commodities and services, and technologies directed to the management and enhancement of a certain kind of subject's time—a privileged temporality. For someone like the contemporary business traveler an immersive environment oriented around their time maintenance combines technologies and human labor that allow them to recalibrate and get resituated within the particular time demands of global capital. The airport's temporal infrastructure attends to accidents and risks within a biopolitical economy of time. It does the reproductive work to enhance, activate, and effectively transform the body's capacity to produce as well as alter the subject's experience of time to the rhythm of a capitalist work ethic. This temporal infrastructure maintains highly structured temporal experiences and normalizes a set of mutually reinforcing conceptions of time. While capital develops at the expense of bodies, it makes clear which bodies will be taken care of. Take for instance Minute Suites, appearing across American airports (see Figure 9.1). These WIFI-powered napping suites replete with desks, beds,

Figure 9.1. Minute Suites Traveler's Retreats offer in-transit travelers a place to "nap, relax, work" in private

workstations, and a on-site service staff offer the paying airport guest the chance to recharge and work or nap in private.

The rise of a temporal architecture elevates the cultural significance of waiting from the dead time of doing nothing to a time of self-improvement and a privileged moment of reprieve. Everyone manages time in one way or the other, for better or for worse. But for most populations, the management of time is more or less private and invisible—hidden from the view of others. And even for subjects of value at the airport, for example, waiting has not always taken on such a public character. It was done in exclusive lounges with other temporally compatible subjects. Today, the emerging architecture of time maintenance designed for the business traveler offers a public display of busy-ness where they can retreat privately in public view. People exercising good time management are visible everywhere and culturally applauded for doing it so well. There they are managing their time like pros and making good use of the architecture of time maintenance erected for their labors. These technologies of time maintenance reinforce the idea that subjects of value cannot be easily replaced, but the secondary labor they depend upon can.

The speed theorist also reinforces this value when they focus solely on new technologies and a singular experience of time. If this business traveler and their Minute Suites and all the gadgets and productivity apps that adorn them were generalizable across the social fabric then perhaps the argument could be

Wajcman J, Dodd N, editors. The Sociology of Speed : Digital, Organizational, and Social Temporalities. Oxford: Oxford University Press USA - OSO; 2016.
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Figure 9.2. Interior view of a Minute Suite

made that this is a culture of speed and the politics of time needs to be directed toward dismantling this tempo. But the continued focus on this population and this tempo, in theory and in the consumer market, obscures attention away from the other temporalities that labor in order to maintain this time. One need not even have to look past the Minute Suite concierge to see the differential temporalities that compose the architecture of time maintenance. Thinking politically about time requires attention to these temporal entanglements and how time is experienced as a form of social difference.

Architectures of Time Maintenance Beyond the Jet-Set

Late summer 2015 I am at a truck stop in Sarnia, a town between Ontario and Michigan before the border crossing between the US and Canada, the restrooms for gas station patrons are out of order and women are redirected to the truck stop facilities (see Figures 9.3 to 9.6). The sparkling condition of the facilities for women reveals not just excellent maintenance staff but the fact that female truckers are far and few between. The truckers' lounge has TV screens, an on-site hairdresser, and showers for the truck drivers. There are also coin-automated massage chairs, a free magazine collection, and unlimited

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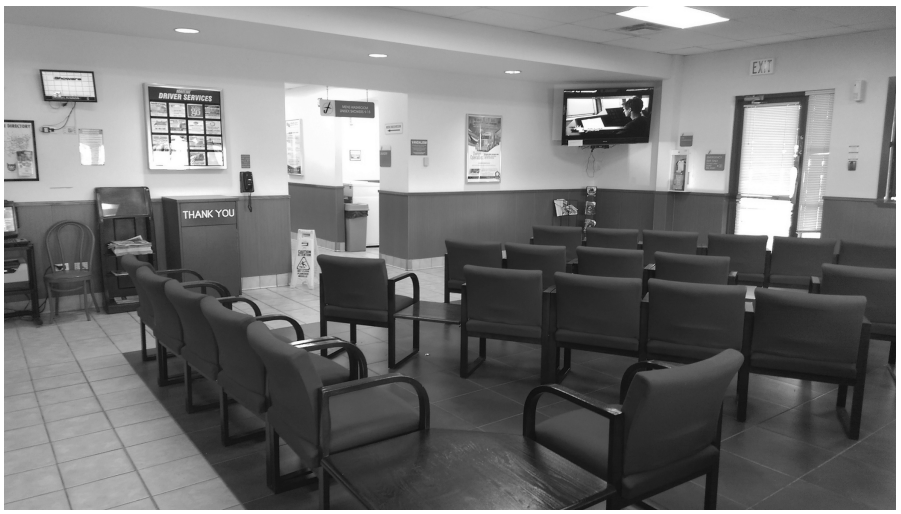

Figure 9.3. A slow day at the lounge at the Sarnia Truck stop. The space is designed to allow drivers to sit and watch TV while waiting for their number to be electronically displayed letting them know when a shower is free

Figure 9.4. The "Relax and Enjoy" toilet/shower at the Sarnia Truck Stop. The Denny's ad to the right promises fast food as fuel for the body

brewing coffee. Showers are controlled by an electronic waiting system displayed on the television screen—numbers are called when the facilities become free. There are pamphlets and posters that advertise a website directing would-be truckers to lifeasatrucker.com. The website promises that the biggest advantage of a career in driving is the solitary time it provides to

Figure 9.5. Coin and credit card automated massage chairs at the Sarnia Truck Stop. Before sitting down one can also place a food order at the adjacent Denny's via the electronic kiosk. Ads overhead refer to job opportunities in trucking and mechanics

Figure 9.6. A hair salon for driver's grooming needs while waiting for truck maintenance and repair

contemplate and reflect on one's life. The available services are not so much about enhancing the truck driver's quality of time or level of productivity but instead making their stop enjoyable while meeting the most basic of needs. The truck driver's meaning of time, their temporal outlook or sense of the moment, is not highly invested in. There are no signs indicating how tired,

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busy, or high-tech their lives are in this apparent world of speed. Instead their architecture of time maintenance is about hygiene, grooming, and sustenance, in a timely and orderly fashion. They are there to refuel the body and the tank while not wasting too much time. Oil changes and haircuts take about the same amount of time. The food options are fast.

The Desk of a University Department Manager

The office manager of my outgoing department at the University of North Carolina at Chapel Hill is the frontline of a department that is comprised of thirty faculty members, forty active graduate students, and 800 undergraduates. She has her desk set up in a very deliberate way (see Figure 9.7). If you look closely enough you can see that is ordered in such a way to help her maintain an oasis of calm in an environment that she has little control over. At any given moment one of these 875 people might need something via email or in person. UPS comes flying in and out, the mail person appears twice a day, there are jammed photocopiers and printing problems, disgruntled students and people lost in the hallways. None of these are actually part of her main job description. I get a brief sense of what her day is like a few times a week when my own office on the second floor loses its Internet connection and my defunct computer is

Figure 9.7. The desk of an office manager at a university reveals an invisible system of time control/management. Her post-it note attached to her screen reminds her to breathe and for how long

not going to be replaced. It is my last semester at the university before I move to the University of Toronto in January and my own temporal architecture is slowly being dismantled. I start using the desk behind her, the one usually reserved for the work-study students. Succulents and aloe plants, motivating mantras from American feminists, and inspirational posters pepper her desk. Most striking is the yellow post-it note stuck to her computer screen with the reminder: "Inhale 5, Hold 2, Exhale 6." I ask her how often she uses her post-it note message and she smiles coyly and says, "Whenever it catches my eye when I'm feeling stressed out. No one knows what I'm looking at. I just have all this stuff coming at me all the time, you never know what it will be." She stretches at her desk and makes sure she stands up and walks around every hour. In discussing the possibility of a standing desk for her she responds, "they aren't for staff I don't think."

Taxi Cab Interiors

The front seat of a taxicab offers a rare glimpse into the taxi driver's relationship to time (see Figure 9.8(a) and (b)). The taxi driver in most major metropolitan cities in North America is almost always newly immigrated and waiting for accreditation papers. Many are seeking asylum. The taxi driver straddles multiple temporalities, both personally (the offset clocks of time zones that dictate phone calls home, the slow progress of work visa applications, the movement of their children through the US school system) and professionally (the tempos of those they must transport, the slow traffic, night and day, the ticking of the clock, and the running meter). The front seat is a private space for the taxi driver. Rarely are fares invited to sit in the front when there is room in the back. It is where drivers keep their personal belongings that help them get through the day. There are coffee mugs, packages of quat, cigarettes, pillows, eye masks, blankets, cellphone consoles, water, hand sanitizer, and half-eaten meals. Overhead on the visor, there are pictures of family members, CDs, business cards, and picture postcards of elsewhere. Hailing a cab with a large group of people, when everyone won't fit in the back seat, often results in frenetic scurrying. Drivers quickly push their belongings on to the floor, stuff things into glove compartments and the sides of the doors, or collect it all in a pile to dump in the trunk.

But these scattered front-seat objects are hardly just things. Together, they compose the taxi driver's daily rituals of time management. As the expendable bodies of a labor force that can easily be replenished, there is no need for the structures of capital to endow the taxi driver's time with importance. Much like the desks of office managers, the cab interiors reflect rituals of

Figure 9.8(a).

Figure 9.8(b). Interiors of taxi-cabs reveal deliberate and strategic time management rituals that fall under the radar of how time control is culturally conceived: thermoses, extra cups, visors, paper calendars, religious iconography, worry beads, toys of sleeping offspring at home. Many of these objects serve as reminders of the passing of time and why the drivers drive

time-maintenance devised strategically and creatively—in relation to the other temporalities that the driver must navigate around and between.

In one of the cab interiors (Figure 9.9), the visor, the coffee, a post-it-note calendar is clearly visible. What is harder to make out but perhaps most interesting is the range of religious iconography, including a rosary and the photos of Jesus that are on his driving wheel and on the meter. He also has family memorabilia assembled in the front seat. When discussing his cab interior and his choices, his answers all reflect the temporal. The birds remind him of the two types of people in the world and help balance him so he can stay calm and keep his business mindset and keep going. There is a figuring of Minnie-mouse that is his 5-year-old daughter's; it reminds him why he works late at night. The religious pieces are reminders of the temporality of life and death, the passing of time, and a greater power over his minute, day, life, and afterlife.

All of these rituals to stay in time at the truck stop, the department office and the taxicab, are also technologies of the self by those whose labor is oriented to the maintenance of life/reproduction of time for others. These

are also forms of labor who fall outside of the common picture of fast urban life in the discursive world of speed. The taxi driver, truck driver, and office assistant are the human infrastructure for more privileged tempos. This is a quality of labor central to gigs, wage labor, and other forms of devalued care labor required to reproduce the productive requirements of others. And in all of these spaces there are even more layers of temporal interdependence that could be detangled with more layers of complexity. There are even more service staff securing, cleaning, and maintaining the university office, the places the taxi drivers stop and rest at, and the truck lounge. And each of these subjects will also devise and strategically attempt to control their own time without recourse to an elaborate architecture of time maintenance created to keep them in time.

One's relationship to the temporal order of things, the value of their time, can be rendered visible by how time is strategically managed and controlled. This is where the politics of time intersects with time control. The control of time is never individual; it is always collective. To achieve time control, to work toward it constantly, could be an empty political goal. The ultimate desire to control one's time is not a sufficient endpoint or starting point for politicizing time.

"I control my own time, I control my own time, I control my own time"

Mohammed is a London Uber driver. He provides bottled water, crisps, and biscuits in the back of his Uber. He has a mini-vacuum he keeps in the front seat so he can quickly clean up the crumbs. It is Saturday in Central London around midnight. The pub patrons are home already and the clubbers still clubbing. Midnight is quiet in this part of London. The next rush is hours away. Mohammed tells me he had started a career in computer engineering but after a year of uninspiring days working at a desk under a strict management team he felt like he was wasting time. Becoming an Uber driver felt like the "ultimate freedom." He tells me that he really enjoys the work because it lets him be in control of his time. He makes this proclamation right after relaying he has spent the last thirty minutes quite bored and waiting in his car for a fare. Mohammed doesn't really take entire days off either. He sometimes decides in the moment if he is going to drive or not. If he's out and feeling bored or not having fun or just sitting around at home and feels guilty about not working he turns his phone on. This sentiment echoes other workers in the gig economy made up of menial outsourced labor.

TaskRabbit is an online outsourcing company that helps busy people "live smarter" by connecting them to people within the vicinity who can take care of a range of domestic errands like furniture assembly, grocery shopping, and cleaning. Their tagline reads: "We'll do what you don't want to do, so you can do what you love." The *New York Times* recently ran an exposé on workers in the sharing economy at Fiverr, TaskRabbit, Uber, and Lyft (August 2014). One of the taskers profiled was a single mother who had spent almost sixteen hours doing menial work for others that included assembling Ikea furniture, gardening, and taking someone to the airport before the crack of dawn. At the end of the day she has worked well beyond an acceptable workday. She also has a backache and a tension headache to show for it, along with 200 dollars. She recognizes that it was a good day in terms of cash but not a sustainable livelihood. She expresses that the ultimate pay-off for this type of precarious work is that at least she can control her own time.

The invoking of time control in these two examples is set against another temporal condition of generalized precarity—the unguaranteed future. In fact, the mention of the control of time actually refers to a tiny slice of time: control over one's immediate working conditions, sometimes the hour, in the absence of security. Even if the boss is decentralized and diffuse, incarnate in every transaction, the relationship is fleeting and more palatable than other types of workplace domination and exploitation. Likewise, those who need task rabbits suggest that the technology "greases an otherwise awkward exchange" (Singer 2014). Taskers and Uber drivers plug in and plug out when they want to. They determine the length of their working day as well as their own geography. As a type of labor that is downloaded on demand, they might not know the exact contours of their day or even what they will be doing the next hour but their labor gets to feel like a choice even if there is so clearly no choice but to work. Having control over one's time in the absence of security and with the promise of laboring under temporal parameters of the day one chooses seems like an acceptable trade-off.

But it is not just that time control here operates like an ideological precept, a Zen meditation one can repeat as a justification for tenuous and precarious working conditions that is concerning. Instead, it is because the mantra "I control my own time" is said while entirely recalibrating to the time of others and while doing tasks others have devalued as useless pursuits of their own time. "I control my own time" is also a statement espoused by those controlling the time of others by outsourcing all of their tasks. Both promulgate time control as an unquestioned good. What is entirely obscured is the fact that one's productive life and sense of time well spent runs on the energy of other more expendable bodies—other temporalities.

Conclusion

Time-management is signified by a world of clocks, spreadsheets, smartphones, Fitbits, stations for charging electronic devices and questions like, "how does she do it all." Increasingly it looks like Minute Suites and on-site massages, yoga at the desktop, and the ability to outsource life to a rabbit. All of these techniques for staying in time actually foster a deeper cultural fixation on the management of time—leaving one in a state of constant marginal dissatisfaction. Time cannot actually be entirely managed and controlled on one's own, after all. But time management also comes by way of breast pumps and post-it notes with reminders to breathe, by way of a coffee pot at a truck stop and a picture of Jesus next to a figurine of Minnie mouse on the dashboard of a taxicab. These techniques reveal the differential social experience of time; one entirely ignored in the discursive construction of speed as the universal experience of time today.

I have had a tendency to leave the critical questions of new technology aside out of principle to show that having a political approach to time does not necessarily hinge upon the digital or digital speeds. But there are increasingly good reasons to sharpen up here and address the digital in relation to my suggestion of a temporal approach to speed and time. To return to the sentiment from Judy Wajcman that I began with, it is not a question of new technologies but of constructing new temporal social realities that can be harnessed and cultivated by and through technology. I wonder if the multiple temporalities that compose the social fabric, and their various uneven entanglements could be rendered more visible by new technological means. Is there a way to provoke or capture the collective rationality of time via new technological means? And by this I do not mean the global village or the beauty of connectedness but rather to conceive of apps freed from productivity and individual time control, ones that provoke recognition of the rhythm of material interdependencies. For example, how could technologies actively promote work/life imbalance in order to reveal the problem of this dominating construct in the first place. Perhaps there are programs that could reveal one's temporal privilege and will tally up the performance of busyness versus the interdependent labor involved in one's performance of busyness. I pose this playfully in closing in part to change the conversation that occurs between theorizing time and technology from the all-too-common digression of determining if something is faster or slower, if there is a good way to save or make more time, or how one manages to balance it all. The change I am envisioning is one toward provoking recognition of temporal privilege, one that might forefront who has time to even think about time (says the

academic obsessed with the cultural politics of time). Surely there are deeper, more structural problems to attend to with regard to the politics of time than determining if privileged individuals have enough of it. A temporal perspective might relieve us from the trappings of speed and speed theory and push those interested in time politics to begin from the points of time's collective entanglement.

10

Bending Time to a New End

Investigating the Idea of Temporal Entrepreneurship

Ingrid Erickson and Melissa Mazmanian

For the growing hordes of knowledge workers who populate the offices, co-working spaces, and coffee shops of the twenty-first century, the speed of the world feels fast, yet time is scarce (Tomlinson 2007; Wajcman 2008; Golden 2009; Wajcman 2015). For this group of individuals—those professionals who trade in information and whose jobs are often characterized by flexible hours, mobile work, and a high degree of identification between individual and profession (Alvesson 2001; Robertson et al. 2003; Alvesson 2004)—individual autonomy is expected, yet control over everyday life feels increasingly impossible (Schulte 2015). Whereas the rhetoric of technological progressivism would have us believe that our advanced state is one of optimal efficiency, seamless connectivity, and satisfying sociality, the everyday experiences of workers suggest something different: a constant struggle between time, autonomy, and obligations that force people, often inequitably, into ongoing (and often exhausted) situations of negotiation and compromise (Prasopoulou et al. 2006; Gregg 2011; Sharma 2014).

According to many scholars and pundits, such working (and living) conditions are enabled and perpetuated by capacities embedded in ever more ubiquitous, wearable, networked, and multifunctional information and communication technologies (ICTs) (Hörning et al. 1999; Hassan 2003a; Lee and Sawyer 2010; Agger 2011; Starwarz et al. 2013). The desktop computer of yore is now an exponentially more powerful machine in our pocket; the respites from networked connection on flights and faraway places are falling away as infrastructures reach higher and further. This group of workers were some of the earliest adopters of mobile technologies and also some of the first to feel their sociotechnical effects (Davis 2002). Early research on BlackBerry use, for

instance, showed that when mobile technologies are highly embedded in a professional context, they not only enable new technological possibilities, but also engender new social expectations that qualitatively shift what it is to "be" and experience oneself as a competent professional (Mazmanian et al. 2013). In one study, after the introduction of the BlackBerry into the legal team in a manufacturing company, new expectations of competency took hold swiftly. Despite the legal team's adamancy that mobile devices would not affect their working habits or relationships, the cultural shift was fast and definitive—no longer was it enough to do your job knowledgeably, but now the expectation was to do it in a mobile-timely (i.e. nearly instantaneous) fashion as well (Mazmanian 2013). Today, nearly a decade after this initial research, we rarely question the connection between professionalism and timely communication (Mazmanian and Erickson 2014). We expect that people will have a device in their hand (or nearby) at all times and that they will be actively using it.

With these professional expectations firmly in place, knowledge workers have their work cut out for them. Despite, or perhaps because of, their assumed agency they generally strive to be prompt, responsive, and ever-present in their communications and expect their colleagues be similarly engaged (Towers et al. 2006; Mazmanian et al. 2013). Situated within a universe of smartphones, tablets, and an array of applications for every potential task or need, many willfully take on the burden of managing their time in ways seen to promote ideals of efficiency and effectiveness. Such individuals are ever-looking to squeeze in opportunities for multitasking, distributed collaboration, or other perceived forms of modern professional competency (Keisler and Hinds 2002; Reinsch et al. 2008). We do not question the state of this reality. The hundreds of knowledge workers that we have interviewed over the years have fleshed out its contours in great detail, confirming both the truth of the tight coupling between timeliness and contemporary work as well as its effects. Instead, in this chapter we reassert how much this reality is a product of shifting social values and sociotechnical expectations. We then go one step further to suggest that, just as this reality has been architected by the interweaving of technology and society, any attempts to move away from current expectations, taken-for-granted ways of working, and the bludgeon of constant availability lie in this same arena.

Employing a critical perspective informed by institutional theory (Scott 2014), we begin by asserting that that the temporal experience described here is informed by a collectively shared, and often unquestioned, orientation to time that is rigidly institutionalized in Western cultures (Nowotny 1996; Snyder 2013). This orientation begets a dominant temporal logic,[1] which

[1] We adapt this concept from institutional theory and its theorization of "institutional logics." As defined by Scott (2014), an institutional logic comprises "the belief systems and related practices that predominate in an organizational field." By *temporal logic* we mean the socially legitimated,

we designate as *circumscribed time*. Like an institutional logic, this dominant temporal logic informs and animates the values and norms that comprise modern forms of work (as well as the broader engagements of social life as a whole); it manifests itself in the most micro and implicit time-related practices, moral judgments, and rhetorical discourses. More than just setting the stage, however, circumscribed time has also pervaded how people experience and engage with ICTs. It is embedded in the designs of technologies and applications.[2] Open the app store on any mobile device and one can find hundreds of productivity applications built according to the logic of efficiency and the idealized practices of time management.[3] Less directly, circumscribed time also pervades the design assumptions of collaborative, point-of-sale, and financial technologies, imbuing much of modern technology with its value-laden core.

We assert that this dominant temporal logic has too often been overlooked (largely due to its institutionalized normalcy) when trying to understand the prevailing modes of temporal paucity, undermined autonomy, and constant connectivity that characterize the lives of today's many knowledge workers. In the remainder of this chapter we first delineate what we mean by *circumscribed time*, we then draw out the notion of *temporal entrepreneurship*—the set of activities that individuals and groups engage in that (intentional or otherwise) lead to questioning, manipulating, reworking, and occasionally shifting the dominant temporal logic. This is distinct from practices we call *temporal rebellion*, or acts of resistance that are a reaction to circumscribed time, and, at least at first glance, appear to undermine dominant logics. Rather, we argue that because such forms of resistance essentially uphold a strict bifurcation between use/non-use (i.e. engaging with time via ICTs or "detoxing" from these engagements) they paradoxically serve to reaffirm the power of dominant temporal logics. Such rebellion is thus paradoxical because "temporal rebels" do little to question the underlying expectations around how people can and should orient to time via their communication patterns, physical locations of work, and work practices. By contrast, *temporal entrepreneurs*, as we hope to show, are reorienting to time in a way that better fits their individual

shared assumptions about time that are embedded in institutional and societal norms, discourses, material and technological processes, and shared ideologies. A temporal logic defines what is rational, normal, and expected, and imbues a society with a definition of *what time is* that directs individuals in *how they should operate in and through time*. It provides an understanding of time that becomes so embedded that it seems to define reality.

[2] In a related publication with co-author Ellie Harmon (Mazmanian et al. 2015b), we detail how the software application Microsoft Outlook incorporates the logic of efficient time use in an advertisement focused on an imaginary female user continuously adjusting her schedule to find time for her yoga practice.

[3] For a history of productivity norms and time management in the workplace, see Chapter 7 by Melissa Gregg in this volume.

and collective needs and experiences. In proffering a set of new ideas about time and coupling them with mechanisms for larger social dissemination, such individuals are moving from resistance or idealism to entrepreneurial action. This new set of temporal norms begins to outline a refashioned, collective orientation to time that showcases its unexplored facets.

Studying Knowledge Workers

Before unfolding this argument any further, we want to make note of the data upon which our ideas rest. Collectively, we draw on a decade of inductive research on the use and experience of communication technologies by professionals in the United States. Combined, our data comprise upwards of 250 interviews from five separate research projects that over the course of several years investigated: investment bankers; venture capitalists; corporate lawyers; in-house counsel; footwear sales representatives; management consultants; hotel managers; hotel sales representatives; architects; designers; and freelancers. In addition to interviewing—which was our primary method of choice—we also engaged in other qualitative ethnographic methods to document the experiences of our subjects, including direct observation, shadowing, and the use of diary studies. The focus of each research project was to understand daily work practices, use of communication technologies, and social norms that surrounded each of these occupations and their respective organizational cultures. All data were analyzed through methods aligned with grounded theory, including multiple rounds of inductive coding and iterative cycles between coding and theorizing (Strauss and Corbin 1998; Charmaz 2006). Details about data collection and analysis can be found in prior publications (Mazmanian et al. 2013; Mazmanian 2013; Mazmanian et al. 2015a). As we argue elsewhere, looking across and within a set of distinct qualitative studies can engender rich forms of theorizing. We find that such "empirical reassembling" is a productive way to engage reflectively with qualitative data across studies and across time (Mazmanian and Erickson 2016).

The Logic of Circumscribed Time

Moving from data to discussion we begin with some additional words on the dominant temporal logic we've named *circumscribed time*. The way that we in Western, developed contexts view the nature of time today is based on a set of embedded assumptions. Through our experiences, our technologies, and our norms we iteratively articulate a common idea that time is *chunkable*, *single-purpose*, *linear*, and *ownable* (Mazmanian et al. 2015b). In other words, we

orient to time by breaking it apart into units—days, weeks, hours, minutes. In contemporary society, we tend to imbue those units with a single purpose: "I am going to work on this book chapter for the next 25 minutes"; "I am going to do yoga for a half an hour"; "I will be gone from work for the day," etc. We understand these units to be in a linear relation to one another—they progress forward inexorably into the future, one piece followed by the next and so on. Additionally, we typically claim time to be our own—even at work. This statement, of course, suggests that we are commissioned with responsibilities for which we have to figure out the best and most efficient method of execution. Time is our resource in this sense, but such a fragile one that we shoulder the onus to invest well. These ideas are echoed in the words of Egger and Wagner, who suggest that "time is homogeneous, objective, measurable, and infinitely divisible" (1992: 249). Finally, and for our argument most importantly, these conceptions of time's reality engender a set of values about how time is best used, best designed for, or best expressed. When taken together, these values articulate a logic about what is good or ideal, which, in turn, generates a set of norms and common practices. Next, we explicate this logic.

Time is Chunkable

The expectation that time is chunkable is conditioned by an understanding that time exists in units (a second, a minute, a year) and that temporal units are equal. Understanding time as chunkable is the basis for what has been referred to elsewhere as "gridded" or "clock" time. This temporal orientation emerged in the seventeent–nineteenth centuries alongside the adoption of clocks, watches, and railroads (Thompson 1967; Zerubavel 1982, 1980). We see this expectation embedded in current calendaring systems that default to thirty- or sixty-minute chunks that can be dragged across various slots with ease. The "dragging" of activities across time implicitly suggests that temporal chunks are "equal" in the sense that an activity performed in one chunk of time is equivalent to that same activity performed in another chunk of time. By rendering time into apparently equal measurable units, such systems encourage an assumption that activities form according to the shape of temporal units rather than vice versa. In addition, such applications suggest that chunks of time are malleable, responsive, and exist in relative isolation; a single swipe of a finger can transform a 2.00 p.m. appointment to a 3.00 p.m. appointment with no regard for the possible domino effect of such a move. Time chunks thus set the stage for future-oriented temporal manipulation and valuation; they assume that we are able to know, in advance, the duration of tasks and experiences and slot them into our gridded schedules accordingly, and without heed for unanticipated activities, delay, or miscommunication.

Wajcman J, Dodd N, editors. The Sociology of Speed : Digital, Organizational, and Social Temporalities. Oxford: Oxford University Press USA - OSO; 2016.
Created from anu on 2019-05-12 22:31:57.

Time is Allocated for a Single Purpose

Aligned with chunkable time is the assumption that each chunk is allocated to a single purpose. The common rhetoric of "family time," "work time," and "me time" suggests that certain activities are appropriate only in certain social spheres. Even "dead time" denotes a very specific relationship between time and "productive" activity (or lack thereof). The assumed purity of the relationship between time and activity becomes all the more noticeable in a culture both fascinated and fearful of the promise of multi-tasking (Gonzalez and Mark 2004). While the possibilities of doing multiple things at once are seductive, many norms and organizational policies continue to reinforce a "single purpose" understanding of time, often one that occurs in a fixed place. Thus, even as we herald the possibilities of technology-enabled interaction layering, people maintain a taken-for-granted correspondence between certain "types" of time and the tasks, ways of being, and social roles that (rationally and normatively) inhabit certain temporal and spatial spaces. Dinner tables at 6.00 p.m. are for "parents" not "professionals" while boardrooms in the middle of the day are clearly the stronghold of "professionals" rather than "parents."

Time is Linear

The dominant temporal logic also conceptualizes time as linear. In other words, one chunk of time leads to another in a straight progression. While chunks of time can be manipulated and reordered in the course of a day (or week, or month), each chunk of time has a limited duration and each activity has a beginning and an end. An hour is an hour is an hour. In the course of a day (or a lifetime) hours stack up like a vector, moving one forward in a straightforward progression. The various ways in which we account for historical evolution in terms of timelines or display visions of the future as straight trajectories perpetuate a notion of linear progress. Timelines, calendars, course syllabi, ten-day forecasts, etc., all underscore the temporal logic that time moves forward at a standard rate.

Time is Owned (Ownable) by the Individual

Finally, time is understood as a resource that is owned by an individual. Individual ownership of time is often conceived of as integral to personal autonomy and professional freedom (Zerubavel 1979). Paradoxically, the assumption that time is owned by the individual invites others to ask for temporal commitments—the host of which must be effectively processed without hesitation or guilt. In today's society it is up to the individual to manage his or her time effectively, and with the injunction to manage one's

time well comes an abdication of responsibility for how others manage their time. If time is owned by the individual then it is up to the individual to manage competing demands—others need not worry about making claims on that time.

In short, the logic articulated by a notion of circumscribed time infers that time should be harnessed into "productive" capacity by approaching it as something that can be chunked, allocated to a single use, experienced linearly, and owned. In turn, the norms of society place the burden on individuals to manage and "balance" time as a steward, optimizing this precious resource by way of strategic control and management. Time is a resource that can, and should, be mastered. As related to knowledge work, circumscribed time has become the taken-for-granted context upon which workplace tasks and relationships play out.

Opting Out as Temporal Rebellion

There are several ways to address the phenomenon of circumscribed time. As stated in the previous section, many attempt to master its norms and follow its edicts. It is, after all, the logic upon which much of modern capitalism is based (Mazmanian and Erickson 2014; Mazmanian and Erickson 2016). There are others, in contrast, that rebel against the strictures of circumscribed time by denying its hold. Throughout our fieldwork and lately in societal discourse at large—particularly in the United States—people speak often about "reclaiming their time," of "opting out," and other forms of what we term *temporal rebellion*. An example of temporal rebellion might be limiting the time in which you are available to others via digital networking, such as not reading or replying to emails on the weekends or in the evenings. Another example might be choosing to reinforce certain spatial locales for certain types of interactions, such as not doing anything work-related when you are at home, or vice versa. These small acts of defiance are finding root in wider social venues as the recent weeklong project called "Bored and Brilliant"[4] sponsored by the local public radio station in New York City, WNYC. This social experiment was dubbed as "a week of challenges to help you detach from your phone and spend more time thinking creatively." To participate, people signed up for daily challenges that were meant to force them to disengage from their devices, supposedly engendering awareness and possibly reform of their own practices with regard to technology.

[4] <http://www.wnyc.org/series/bored-and-brilliant/> (accessed June 2016).

The ethos of this and the many similar directives[5] like it are that one must develop social, temporal, and cognitive muscles in order to resist (or withstand) the inevitable and all-consuming draw of technology (and the people, expectations, obligations, and activities that said technology mediates). Those that are able to do so, who can muster the agency to step out of the commonly perceived temporal norms of modern life, are donned as heroes in the same way that a tightly toned athlete or a saintly ascetic might be—as one whose abilities reflect their exceptionalism. Able to resist the tantalizing technical baubles that tempt at every turn, temporal rebels revel in the reward of a slowed-down existence where time is no longer something that humbles, but is something that one need not attend to at all—if only for a brief while.

Unlike those individuals and organizations that celebrate the controlled management of time, temporal rebels seek to step out of time (as it is socially or professionally contrived) and act according to their own inner tempo. This naturalistic orientation to time belies the primary rhetoric that surrounds many of the new applications and services that support temporal rebellion, namely that time as it is socially enacted today impedes individual autonomy and creative possibility. Stepping away from these social mandates allows one to get in touch with personal rhythms, often linked closely to one's biology (instead of one's society). Recently, a number of mobile applications have been developed to support this urge for temporal rebellion. One popular application is called Moment,[6] whose tagline reads: "Put down your phone and get back to life." (Its logo, not coincidentally, is a flower, which seemingly attempts to evoke its technologically contrived relationship to time as "natural.") Reinforcing the determinist feeling that the speed and temporal norms of modern society are exemplified—and indeed controlled—by the mobile phone, this application has just announced a new addition to accompany its first, Moment Family, which takes a slightly more dictatorial approach to temporal rebellion by forcing users (various members of a family) off their respective devices when a certain temporal set point is reached.

Alternately, applications like OFFTIME[7] promise a solution for temporal rebels that "enable[s] people to customize their connectivity and create bespoke bubbles of space and time, where they can be at ease and in control.... [OFFTIME] isn't just downtime. It's is a gift to yourself and the people you care about. It might just be the most valuable gift there is: your time and attention." There is the connotation with these applications that people can be "off the temporal grid" or leave the social expectations of availability or

[5] This is only one example, but there are many others including Camp Grounded, Digital Detox, and articles such as this: <http://www.fastcompany.com/3012521/unplug/baratunde-thurston-leaves-the-internet> (accessed June 2016).

[6] <https://inthemoment.io/> (accessed June 2016).

[7] <http://offtime.co/bigpicture> (accessed June 2016).

rapid response behind simply by flicking a switch. Indeed, it is ironic that each of these applications call on technology to control time spent with technology—though none admit the incongruousness of this claim. Similarly, both are aptly named as tools that refocus their users on what are assumed to be valued (but non-normative) temporal states—being off the clock and in the moment. In this way they reflect an older tool in this arsenal developed by graduate student Fred Stutzman when he was trying to write his dissertation. The tool that he created allows a user to define a block of time in which they will be irrevocably disconnected from the Internet. Notably it is named "Freedom."[8]

While temporal rebellion feels agentic, especially for Americans who tend toward individualistic problem-solving to address social ills, this form of activity does nothing to destabilize or redress the predominating temporal logic that we describe as circumscribed time. In many ways, it implicitly reifies the current social construction even more by suggesting that there is little to be done other than opt out (if only for an hour or a weekend). And, of course, it does little to question *who* can opt out and the position of relative power that such moves imply (Sharma 2014). Unlike other socially contested topics of the day that highlight the power of social construction, such as the politics of gender or the manifestation of civil society, time, even by temporal rebels, appears to be a naturally contrived reality, something to be accepted, adjusted to, or rebelled against, rather than reconsidered or amended.

Bending Time as a Temporal Entrepreneur

Yet, there is another set of individuals in our dataset that interact with time's perceived restraints differently. We call these people *temporal entrepreneurs* in order to highlight that they are, intentionally or otherwise, introducing new actions and orientations into the predominate temporal discourse. They are innovating in a way that can shift the current understanding of time, both at an individual and collective level. Our concept of temporal entrepreneurship is inspired by the theory of institutional entrepreneurship (Garud et al. 2002; Prasad et al. 2014; Quattrone 2015). In this framework of organizational and field-level change, institutional entrepreneurs employ their social skills and agency (Fligstein 1997; Fligstein 2013; Fligstein and McAdam 2012) successfully to insert an alternate conception of reality into the extant social framework of an organization and/or organizational field. Institutional entrepreneurs of this ilk often exploit a fissure in the way(s) that reality is perpetually re-enacted in

[8] <https://freedom.to> (accessed June 2016).

an everyday social system (Giddens 1984; Lounsbury et al. 2003), revealing areas where the extant institutional logic is weak. As a result, existing norms can be called into question, opening up an opportunity for reflection that can lead to larger social change. Often institutional entrepreneurs are considered at the macro level only, as they tend to be agents of change who primarily help to induce new fields or industries at the sector level. However, more recent work by Battilana, Boxenbaum, and colleagues (Battilana et al. 2009) and Kellogg (2009) highlights how institutions can also change from the bottom up. It is in the spirit of this strand of institutional theory that we graft on our notion of time.

Institutional entrepreneurship requires not only the introduction of new ideas. Just as critical is the reception of said ideas. Tactics, strategies, and new temporal engagements need to become recognized and legitimated slowly by a larger collective. This mixture of both creative actions and spreading adoption is included in our development of the notion of temporal entrepreneurship. As such, we seek to showcase specific examples that illustrate inklings of new, risky engagements with time that we have seen in our data, as well as some of the ways we see our respondents beginning to gain traction to support these ideas.[9] As in classic stories of innovation, our temporal entrepreneurs and their entrepreneurial ideas are primarily on the periphery of most social activity; we are not unveiling anything herein that we expect to see reshaping society anytime soon. Rather, our emphasis is, first, on developing the notion of temporal entrepreneurship in contrast to temporal rebellion, and to begin a conversation in which new conceptions of time might be understood in relationship to shifting logics rather than as something entirely anti-social. In the quotidian practices of certain individuals, collaborative teams, or small communities, we see actors fashioning prototypes for new temporal possibilities that are more compatible with lived experience than alignment with the norms of circumscribed time (O'Carroll 2008). These new temporal possibilities are the small acts of entrepreneurial change we detail in this section.

Entrepreneurial Notions of Time

The defining characteristic of an entrepreneur is that he or she dabbles in "risky ideas," seeking to get them adopted by customers (or members of society) as welcome improvements or new additions. In temporal entrepreneurship the same is true. In particular, we observe three ways in which participants in our

[9] In much of our fieldwork to date, these actors—coincidentally or not—are women. This point bears much further analysis than we can undertake here, but suffice to say that this not only raises the question of whether or not our standard understanding of time is gendered, it also prompts further inquiry regarding why women may be in this position in the first place.

study engage with time in new, entrepreneurial ways. To put these ideas in their proper context, it is important to be mindful of the fact that proffering temporal alternatives is not necessarily a neutral proposition in many professional circles. Suggesting that there is a better way of understanding time—particularly in business contexts, but beyond this as well—reveals that there is a misalignment with the predominant practices of time management. Calling this out as an individual risks appearing weak or lacking, like a modern-day worker unable to keep up with the demands of the job or an individual who lacks contemporary multitasking or planning skills. Thus, while the three alternate notions of time we identify in our data were not practiced or articulated as forms of protest, they hint at a potential undermining of dominant temporal norms, and in so doing create risk for those who engage with time differently.

Spectral Time

Our data reveal that not every temporal experience is easily articulated, planned for, measurable, or able to be rendered into a schedule. We call this "spectral time" (Mazmanian et al. 2015b). This term references moments that do not lend themselves to scheduling (i.e. chunking), either because the act seems too mundane to justify articulation (i.e. getting dressed), because it is difficult to assess (i.e. travel time), or simply because it cannot be anticipated (i.e. creative phases). In alignment with Reddy and Dourish's concept of temporal trajectory (Reddy and Dourish 2002), spectral time suggests that temporal experience is more than a grid of accountable blocks; multiple temporalities create flows that often defy both logical rendering and seamless manipulation.

In our data we saw spectral time exemplified in the case of Morgan, a trained architect who now runs her own design firm. A new business owner, Morgan regularly needs to traverse New York City, and occasionally places further afield, to develop business for her small firm, make presentations, collect data at client sites, or attend professional functions that reinforce her strong ties to the city's architectural community. She has two permanent employees, a set of close collaborators, and a plethora of other contacts at any one time that she's trying to impress and satisfy—similar to many of the knowledge workers we spoke to across our studies. Morgan's method for achieving temporal equanimity leverages the fact that a majority of her clients and colleagues depend on less-than-dependable infrastructures like trains and subways throughout their day; as such, it is rare for time to stay within its grid here, even in the best of circumstances. Taking advantage of this common experience of temporal imprecision, Morgan has developed a hybrid system in which she uses her mobile device to microcoordinate (Ling and Yttri 2002) each meeting or event, emailing ahead at each juncture to acknowledge her

physical presence and her expected arrival. Morgan uses technology to loosen rather than tighten time, and her skill in so doing is helping to legitimate a new professional definition of timeliness that is relative, not absolute.

Cohabited Time

Our subjects also express the view that, while it may be on their calendar and in their minds as something that must be managed, time is never wholly owned, but rather shared or interlinked. These synchronous linkages to multiple social worlds—professional, personal, family, etc.—are often experienced as stressors in people's lives; individuals seek to delineate the social roles that they are engaging at any one moment as each role ties them to a hierarchical web of personal and professional expectations. Yet stories from our data suggest that for certain workers, those from younger generations in particular, the need to attend to multiple fronts and (potentially) appease conflicting demands is less problematic, if not less present in their lives at all. This lack of stress seems to suggest a shift in the way that we attend to one another. Instead of drawing on the norms of co-present interaction, which tend to reinforce a point of singular, shared attention, there appears to be a new norm emerging that expects that any one moment in time may be subject to multiple interactions. We call this "cohabited time." Take the case of Adam, a marketing manager at a food and beverage company. He understands that he sits at the center of a social ecosystem, which is a very important asset to him professionally. To take advantage of this position, he must move adroitly among these varying personas at a moment's notice. When he is present on location at a remote event, for example, he communicates with distant colleagues, calls his absent girlfriend, and is physically present for his onsite team. This strategic engagement is not so much multitasking as it is a form sociotechnical code switching, where one can (or must) fashion a rudimentary coexistence with multiple faces and voices as close to synchronously as possible. Adam shares his time the way that we share our presence on the planet—it is used individually but always with the recognition that it is cohabited by multiple others at the same time. And, perhaps most significantly, his peers and colleagues now expect this.

Porous Time

These two alternative notions of time forecast the third and perhaps most destabilizing conception of time articulated by our interviewees. This is the notion that time now encompasses multiple contexts simultaneously. Before the intrusion of technology, the rhythms or tempo of a specific moment were related to the situated location in which it took place. Now, these anchoring

mechanisms no longer apply. Further, when multiple locations are involved all at once a different kind of moment emerges—one that sits above the particularities of any one place with the exception of occasional intrusions such as the sound of a police car's siren passing by or a crying child in another room, or jarring reminders of a temporal/physical coupling when the power goes out or the network goes down. To say that these moments are porous means that they let through (both in and out) various pieces of all the contexts assembled via technology in that moment.

In previous work (Mazmanian et al. 2015b), we speak of this type of time as a mosaic. In reiterating this allusion here, we stress two important aspects of thinking: first, that the dimensions of many mediated encounters today are akin to a tapestry that has been woven from partial fragments into a recognizable whole. This amalgamated nature of time showcases how it is actively constructed, not simply path-dependent in an ever-unfolding line. Moreover, naming time to be a mosaic highlights the invisible work (Star and Strauss 1999) that is required to fashion it into something that has social coherence—that is meaningful, comprehensible, and actionable—or as something that has currency to others as well as oneself. As workers are increasingly small pieces in ever larger, globalized enterprises, they must put in more and more effort to make whole what would otherwise be seen as independent parts.

Porous time acknowledges the merging of multiple social spheres into a layered or fitted set of simultaneous interactions. Sometimes this is fine-meshed porosity—screen-like, as it were (i.e. stand close and you see one apparent reality, step back and you see another)—where tasks, worlds, and identities seem tightly integrated. One of our subjects, Chad, appears to merge worlds and identities rather holistically, moving in and out of his role as father of two and the demands of being a corporate executive with apparent ease. We saw this in action when one of his daughters suggested playing the board game *Clue* on a Sunday afternoon. We all (mother, father, older daughter, younger daughter, and ethnographer) gathered around the board, moving our pawns, bantering, and deducting the details of the murder. Between each round of the game, when others were clearing the pieces and rearranging the cards, Chad typed on his iPhone until it became clear that it was time to begin the next game. Chad was able to keep track of the progress of the game and merge his work into this scene harmoniously. No one around him appeared to be frustrated and Chad was actively engaged with his family. When asked later what he was doing, Chad listed various substantive emails that he wrote during this time. In his words, it was "real work."

What these three alternate pictures of time bring to mind is not the struggle of temporal rebellion already described. No one has stepped away from their obligations nor taken a temporal time out. Neither, however, do these vignettes showcase actors bent on optimal time management and efficiency.

Rather, these actors all showcase, some more than others, an acceptance of time as something more than the ownable, linear, gridded reality we typically understand it to be. These individuals are, in their own ways, rejecting the prevailing norms for a set of new proto-practices that acknowledge that time also has spectral, obligated, and porous aspects. In so doing, we suggest, as external researchers, that they are beginning to act as temporal entrepreneurs.[10]

Finding Temporal Traction

Earlier we noted the need for entrepreneurs not only to adhere to their risky, unproven ideas, but also to find engagement in ways that enable them to bring these ideas to a wider audience. The interviewees mentioned earlier are each introducing and slowly normalizing a new aspect of time into their social lives—some more intentionally than others. Chad, the board game-playing executive, for instance, might be seen by some as an example of technological utopianism or cultural demise, but our point in showcasing him here is that he has figured out how to incorporate and even embrace several new dimensions of time into his life with equanimity. Notably, the rhythm of his interaction(s) is not dictated by a pre-ordered grid, but instead rather sloppily flows across shared contexts, both immediate and distant. He seeks not to manage any of this, as would a commander, but rather to be in an attuned and ready position to ride time's wave, as would a surfer. Moreover, he succeeds in maintaining a connection to all parties involved (i.e. family, clients) and does not falter in meeting their respective needs. The strength of this image has nothing to do with Chad's technology use, but rather his ability to accept time as something fluid and dynamically contextual that he must embrace with agility and internal direction rather than rigidity and extreme foresight. Importantly, he successfully enacts this fluid idea of time with all of his interlocutors and, in so doing, begins to legitimate it as a new type of temporal normalcy.

Yet, even entrepreneurs like Steve Jobs need a means to publicize their great ideas. In closing out this chapter we note two ways that we see temporal entrepreneurs extending their new ideas outward for larger circulation beyond their own personal preferences or ecosystems.

Recall the way that Morgan, the architect, acknowledges spectral time in her daily rhythms. She is not trying to achieve temporal mastery to better stay within the gridded lines of her calendar—this is in no way her prerogative.

[10] Again, we remind the reader that these actors did not call themselves temporal entrepreneurs; this is our analytical moniker to highlight certain practices as having potential to shift institutional logics. Indeed, not all subjects in our set of studies have the same agency to introduce these alternatives into their practices for a variety of reasons.

Rather, she has ingeniously figured out how to exploit the vagaries of a local infrastructure (and which infrastructures do not have eccentricities?) to fold spectral, obligated, and porous time together by purposely extending the social space of interaction beyond its physical boundaries. This is a highly strategic act on her part, which allows her to maintain both professional face and her own situated temporal rhythm with apparent seamlessness.

More importantly for her rendering as a temporal entrepreneur, Morgan has also successfully established this communication norm within her firm and her larger set of collaborators. She is not perceived as late or lazy, but as highly competent. Primarily exploiting several features of existing technologies, but also upholding all of the semiotic references to professionalism in their field, Morgan is slowly institutionalizing a sociotechnical practice of hybridized professional encounters that embrace a version of "networked spectrality." This is slowly leading to incidents of isomorphism, as Morgan is a very public face within New York's architectural community. Morgan is innovatively rewriting the temporal script, which, in its own small, revolutionary way, is shifting the temporal expectations of her field.

The last example of entrepreneurial traction we showcase involves an organizational change effort aimed at providing elite consultants predictable time in which they were disconnected from work. Perlow and colleagues outline how a collective strategy of managing temporal work conditions can enable teams to maintain the client expectation of 24/7 availability while carving out individual time off for each individual (Perlow and Porter 2009; Mazmanian 2012; Perlow et al. 2015). Conducting "predictable time off" (PTO) experiments, Perlow shows how collective strategies that enabled each team member to take one night "off" a week unintentionally inspired teams to reorient to time as a collective, rather than individual, resource. In tracing the effects of a work intervention premised on the collective goal of enabling team members to take modest amounts of predictable time off, Perlow's work suggests how explicit activities designed to change communication and work practices can challenge core beliefs about competence and commitment, specifically in terms of how "successful" consultants should orient to time. Notably, such a goal may not be seen as collective in many environments, but in high-intensity team-based work individuals cannot simply plan for a predictable night off without collective engagement from the group. The concept of collective temporal resources illustrates how shared beliefs around the nature of time can have profound effects on the way time is structured and negotiated in collectives.

The organization of this company's time as a collective asset first and foremost highlights an adoption of the idea that time is a shared entity—in this case a resource that can be divvied up among teammates and managed to support the needs of all. This flies in the face of conventional wisdom that

tends to address issues of work addiction, and the individual and social costs of temporal intensity suggest that it us up to individuals to take charge and manage increasing temporal demands (Fassel 1990; Porter and Kakabadse 2006; McMillan and O'Driscoll 2008). Moreover, neither is it a clear case of obligated time until you look at things quite closely. This company has created a new internal system that at its core acknowledges that shared time belongs to no one individual to control, manage, or squander. Like the reference to the climate made earlier, time here is a resource that is understood to be individually consumed, but never without regard or consequences for others. Time management then is about social coherence and the sustainability of professional relations when not everyone is present at all times. In setting this new norm for modern professionalism, this company is providing a platform that gives peripheral ideas like obligated and spectral time important entrepreneurial traction and ballast. More importantly, it is well poised to shift temporal norms away from those dictated by circumscribed time through its interactions with collaborating partners at both the individual and organizational level.

Conclusion

There is little argument that technology is helping to shape modern forms of work. What there should be argument about, however, as we aver in this chapter, is how those sociotechnical forms of work are shaped by time. As a society, we tend to pose few questions about the nature of time or its associated norms; rather, it seems natural to strive toward efficiency by adjusting schedules, attempting to multitask, and putting pressure on ourselves to manage our time expertly. We have lost sight of the fact that this is but one version of time, socially constructed just as any alternate could be. By naming this predominant version—*circumscribed time*—and identifying how it sets up social expectations, values, and norms in the way that any other social institution would do, we take a first step toward temporal entrepreneurship.

The second, and hopefully more sustaining, contribution of this chapter is our idea of temporal entrepreneurship, born of the many conversations with knowledge workers over the years from various fields. While many of these workers express feelings of stress and pressure brought on by the dominant temporal logic in society today, we see in their responses and related actions the seeds of a new way of conceiving time. These ideas are at a germinal state, to be sure, but importantly they are not conceptions of time that attempt to stop or freeze it, as would be the path of the temporal rebel, or ideations of efficiency that subscribe to a traditional path of time management. In lighting out for new territory, these unwitting temporal entrepreneurs are incubating

small, alternative temporal moves and slowing normalizing them in their immediate interactions. We celebrate these moves not only for their innovative natures, but also for the new ideas of professionalism they are simultaneously gestating. Like these innovative individuals, we suggest that instead of opting for the path of temporal rebellion, the more sustainable path forward may be in bending time to include a more encompassing reality—one that includes spectral, obligated, and porous temporal elements both in professional environments as well as society at large.

11

Speed, Time, Infrastructure

Temporalities of Breakdown, Maintenance, and Repair

Steven J. Jackson

> Life is in the transitions as much as in the terms connected.
>
> William James, "A World of Pure Experience," 1904

This chapter concerns the importance of *breakdown, maintenance and repair* to human and material stability and change—and whether new ways of thinking about such phenomena might also help us to rethink relationships between technology and time. While Part II of this volume has examined other dimensions of the material shaping of technology, I want to call particular attention to processes of failure and restoration as core and widely neglected dimensions of infrastructure, even—perhaps especially—within the core transport, communication, and computing infrastructures commonly held responsible for contemporary experiences of speed and acceleration. As I'll argue, such processes are complex, omnipresent, deeply skilled, and rooted in our relationships to and with material things—and for all of these reasons widely neglected in our theorizing. They are also sites from which a different temporal sensibility in and around technology might begin to emerge.

The chapter that follows opens by questioning a classic line on the relationship between emerging technologies and the social experience of time. It then turns to alternatives to this line, and argues that reimagining modern infrastructures from the standpoint of breakdown, maintenance, and repair (rather than design, invention, or adoption) may lead us toward different outcomes in our thinking around time and technology. It takes up a small but growing body of work in infrastructure and repair studies that has begun to rebalance the story of technology by restoring attention to the myriad acts and moments, large and small, mundane and creative, conservative and

transformational—by which systems and infrastructures are fixed, maintained, and extended. And it concludes with speculation on the temporal and ethical possibilities that emerge when breakdown, maintenance, and repair—the "slow underbelly" of modernist stories of speed and technology—are taken more centrally into account.

Speed, Time, and Infrastructure: The Classic Line

Earlier contributors to this volume have explored the deep and intimate relationship between technology and time that has occupied and challenged work in the social sciences since their inception. From "the annihilation of space and time" (Marx 1973) and the accelerated forms of "exposure" reworking urban life (Simmel 1950), to contemporary experiences of "chronopolitics" (Virilio 1986) and "time-space compression" (Harvey 1989), technologies of transport, communication, and computing have long been central to arguments for the growing speed and acceleration of contemporary life. Such theoretical contributions find their counterpart in the less nuanced stories around time and technology offered in popular writing around technology, media reports, and the self-accounts of the technology industries themselves. In their simplest *Wired* magazine form, these stories posit a simple causal arrow: technology accelerates, and life adjusts.

But as attested to by a growing body of theoretical and empirical work (including many of the contributions to this volume), the relationship between technology and time is more varied, complex, and uncertain than all that. My own entrée into these questions is through the varied forms of time and timeliness organized and structured through *infrastructure*: and conversely, the myriad forms of maintenance and repair required to sustain it. Growing from work in the history of technology and pragmatist, interactionist, and feminist traditions in sociology, science studies, and information science, recent work in infrastructure and repair studies offers numerous resources for reimagining the story of technology and speed. Against global pretensions of acceleration, for example, historian of technology David Edgerton (2011) has argued for the long, slow, and highly partial integration of what we usually celebrate as "cutting edge" technologies into social life, in contrast to the slow and enduring impact of older and frequently mundane technologies as these are taken up and creatively repurposed through ordinary use around the world; or as Paul Edwards (2004) has observed, "the most salient characteristic of technology in the modern (industrial and post-industrial) world is the degree to which most technology is *not* salient for most people, most of the time" (2004: 185). This work has emphasized the role of infrastructure in shaping human experiences of time

(including our notions of temporal scale and "modernity" itself) but also the role of time and temporal passage (e.g. through moments of growth, stabilization failure, or decline) in shaping the physical forms and dynamics inherent to infrastructure. This situates infrastructure firmly *in* and *of* time, rather than as an agent or force impinging on it from the outside.

A second resource for reimagining relationships between time and technology may be found in an influential notion of infrastructure first advanced by Star and Ruhleder (1996). In their account, infrastructure provides the framework or scaffolding for social and technical activities of all sorts, and exemplifies a number of key features or properties: its embedding in other structures; its frequent transparency (or invisibility) in use; its reach or scope beyond single sites of practice; its connections to norms and conventions grounded in wider communities of practice; its embodiment in standards; its dependence on an installed base of practices and material objects; and its tendency to "reappear" (or return to conscious reflection) under conditions of failure or breakdown. If this definition calls out the relational quality of infrastructure—exemplified elsewhere in the dictum, "one person's infrastructure is another person's barrier" (Star 1999)—it also underscores its timeliness: its positioning, sometimes delicate, within wider flows and relations through which its meaning and viability *qua* infrastructure (as opposed to disparate and unmoored grouping of objects) is assigned. This exposes infrastructure to the vagaries of time and change in the world, and makes questions of "*when* is an infrastructure?" (Star 1999) no less central than questions of what, where, or for whom.

From this starting point, other propositions around the relationship between time, speed, and infrastructure become possible: for example, that our stories of time and infrastructure are always stories of *multiple* times, and the challenging and power-laden processes by which these are brought into workable and temporary alignment; that the cast of actors involved in these stories may be larger and more varied than technology-centered accounts may suggest; and that infrastructure itself is subject to all the same processes and pressures: a *creature*, and not just agent, of time. Such insights underscore the need to set the story of speed against other temporalities which must also be accounted for in any balanced discussion of technology, time, and social life: temporalities of breakdown, ruin, and decay for example; and of maintenance and repair. The sections that follow explore each of these in turn.

Temporalities of Breakdown, Ruin, and Decay

A small but growing body of recent work across the social sciences has (re)turned to problems of breakdown, ruin, and decay, both as ever-present

realities in the social life of things and people, and as sites of generativity from which the new is being perpetually (re)produced. DeSilvey (2006) for example has explored the residual material culture of a derelict homestead in Montana to argue for the live and fertile processes unleashed through ruination, showing how the "disarticulation" of objects—for example, a book box slowly giving way to mice and rot—may complicate both assumptions around the "timeless" nature of objects and a series of ontological distinctions (e.g. artifact vs. environment, nature vs. culture) that have long framed and limited the imagination of social scientists. Edensor (2011) has shown the complex and multiple temporalities that shape and sustain heritage buildings (here, St. Ann's Church in central Manchester) as dynamic and ongoing *assemblages*, subject to processes of transformation over time through their interactions with weather, pollution, salts, living agents ranging from bats, birds, and rodents to moss, bacteria, and people. Scholars of architecture, urban planning, and information science have begun to question their fields' predominant emphases on design, reimagining buildings, devices, and other material artifacts instead as unruly *events* unfolding across time and space, and upheld by ongoing acts of ordering and stabilization, in the absence of which "buildings must die" (Cairns and Jacobs 2014). In some instances, renewed attention to breakdown has become a tool for unsettling received academic and political categories: for example, the turn to notions of "ruin" and "debris" in recent postcolonial scholarship (Stoler 2008); or growing attention to processes of "abjection" and other forms of infrastructural violence in anthropology (Anand 2012; Ferguson 2012). In others, attending to waste and ruination has given rise to whole new genres and subfields of work: for example, the emerging fields of waste or discard studies (Lepawsky 2014; Liboiron 2014) and the associated project of "garbology" (Humes 2013).

But if these principles hold for building and empires, they are no less true of other kinds of infrastructures, including those commonly credited with producing the experiences of speed and compression at the heart of accelerationist narratives. In many parts of the world, railways are in physical decline, as lines fall into disuse, rail beds erode, and plant life (previously held at bay through aggressive programs of spraying and weed control) creeps in. Decay shows up in the cracks that mark and degrade American highways, in a collective state of physical decline since their heyday of national expansion in the 1950s. Normally shy of publicity, infrastructure is most likely to make the news in the West these days in the form of spectacular bridge collapses, as chronically underfunded infrastructure—the victim of tax resentments and funding cuts that follow in turn from a kind of political decay—breaks and fails. Histories of telecommunications development around the world are replete with ruin, as undersea cables break, computing stock (for example, as introduced by

Wajcman J, Dodd N, editors. The Sociology of Speed : Digital, Organizational, and Social Temporalities. Oxford: Oxford University Press USA - OSO; 2016.
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international donor investments ranging from rural telecenters to One Laptop Per Child) fails and degrades, and wires are stripped and resold for copper (Rosner and Ames 2014; Chan 2014). The presumed weightlessness of "the digital" itself may be subject to complex processes of decay, as storage erodes, firmware fails, files corrupt, and the voltages marking binaries of 1 and 0 grow fuzzy and indistinct (Cantwell-Smith 1998; Blanchette 2011).

What can broken objects and the processes that produce them give to the sociology of speed? To begin, such instances remind us that key instrumentalities of speed—the core and "cutting edge" infrastructures from which contemporary experiences of speed and acceleration are held to flow—are for all that no less subject to the processes of reversal, ruin, and decline that characterize other forms of social and material existence in the world. For all their vaunted power and reach, transport, communication, and other infrastructures central to the acceleration of temporal experience from Marx's time to our own remain in many ways light and fragile creatures, prone to the constant threat of failure and decay. Attending to breakdown points us toward the active and ontologically productive nature of ruin, and the irreducible presence of embedded materialities with rhythms and propensities all their own, which can only ever be sometimes, and for a while, slowed, arrested, and aligned. These possibilities are contained and made invisible by any number of categorical distinctions (artifact vs. waste, order vs. dirt (Douglas 1978), etc.) and too often by presumptions of agency and value in the stories we tell about the material world around us. But when allowed to "speak," breakdown and ruin can complicate these settled categories, calling to light new forms of order and ordering and (re)directing attention to the innumerable transformations always already underway in the object worlds around us. Through such mechanisms,

> processes of decay and the obscure agencies of intrusive humans and non-humans transform the familiar material world, changing the form and texture of objects, eroding their assigned functions and meanings, and blurring the boundaries between things. (Edensor 2005: 318)

If such processes give rise to new things, they also give rise to new lines and principles of order: contrary to frequent assumption, sites of ruin and decay may be marked less by the absence of form than by its multiplication and diversification: a profusion, rather than attenuation, of order.

In sum, temporalities of breakdown upend linear and teleological histories by reminding us that time flows at many different paces and in many different directions at once, not all of them fast or—as conventionally understood—

forward. They remind us of the enduring materiality of time, and of the fact that things remain live and active, even (perhaps especially!) after their moments of design, general use, and cultural glory have passed. They challenge easy stories of origin and end point, showing instead the endless processes of emergence and transformation from and ultimately to which objects arise and eventually go. Such processes themselves may be generative and productive, giving rise to processes of learning, invention, and discovery that are graced under other circumstances with the name "innovation." This may help us to extend and broaden the forms and scales against which human-centered understandings of time operate, from the quantum (Barad 2007) to the geological (Parikka 2015). The much-celebrated instrumentalities of speed are no less subject to these forces, showing all the same variances, multiplicities, and fragilities. The evidence for decline and decay is all around us. In the words of the great Nigerian novelist Chinua Achebe (1958), "things fall apart."

Temporalities of Maintenance and Repair

Except that, much of the time, they *don't*. If the world is replete with instances of breakdown, ruin, and decay and certain groups encounter breakdown more frequently and forcefully than others, the more common experience is that the systems and infrastructures around us *mostly* work, for *most* people, *most* of the time. Because of this, we have tended to regard enduring function as a natural and more or less permanent feature of systems, rather than as the ongoing, frequently artful, and often fraught accomplishment that it is. Indeed, if we are to think to the longevity of systems at all (which we generally don't) we are most likely to attribute it backwards to moments of origin and the virtues of good design.

Such perceptions neglect, however, the centrality of maintenance and repair to working infrastructures of all kinds—and the complex and sometimes ambivalent temporalities built and expressed through such action. Support for this position can be found once again through recent work in architecture. Following from their argument for the necessary mortality of buildings, Cairns and Jacobs (2014) attach enormous importance to the role of maintenance and building staff as ongoing shapers and transformers of buildings' living identities. As this work attests, notions of static form and imaginations of timeless design that have long preoccupied the field are both inaccurate and a disservice to the real-world processes and labors by which buildings are sustained and made to evolve or "learn" (Brand 1995) through time. Strebel's (2011) study of concierge workers in a Glasgow housing estate

documents the routine inspections, maintenance activities, and minor repairs by which the "momentum" of the building—its unique temporal trajectory and unfolding into the future—is sustained. Neither purely backward-looking nor restorative in nature, and lost under the field's normal fixation on architectural form and intention, such activities shape and reshape buildings as dynamic entities through time, ensuring their status as live and timely objects.

More recent work by Graham and Thrift (2007) has extended this line to consider the various forms of maintenance and repair through which such futures are forestalled. Drawing on the classic Heideggerian distinction between things "ready-to-hand" vs. "present-at-hand," along with recent work in infrastructure and urban studies, they trace the myriad forms of maintenance and repair by which modern cities are constituted and sustained (as opposed to the broken, chaotic, and impossible places they would quickly become if maintenance and repair work were withdrawn). Cities are in many ways no more (and no less!) than a complex assemblage of infrastructural systems, held in partial states of function and connection through large (and largely neglected) collections of maintenance and repair work. Under ordinary circumstances, such work remains "invisible," subsumed within the flow and function of urban life; it is only when massive and catastrophic failure threatens that maintenance and repair is restored to widespread attention (giving our public discourses around infrastructure a flair for the dramatic). This fact, and the general failure to extend urban theory by accounting for conditions in cities of the "global South" (where experiences and responses of failure and repair may be simply too prominent to ignore), helps to:

> sustain widespread assumptions that urban "infrastructure" is somehow a material and utterly fixed assemblage of hard technologies embedded stably in place, which is characterized by perfect order, completeness, immanence and internal homogeneity rather than leaky, partial and heterogeneous entities. (Graham and Thrift 2007: 10)

The error of this assumption is made clear in any even-handed consideration of electricity, computing, and automobility: key infrastructures in shaping and defining life in contemporary cities. As Graham and Thrift enumerate, such infrastructures are both prone to widespread vulnerability and breakdown (ranging from or brown-outs and security glitches, to potholes, vehicle failure, and congestion) and sustained only at the cost of enormous private and public investments in maintenance and repair—investments increasingly undermined by neoliberal policies that further marginalize repair work and workers and heighten the vulnerability of core urban infrastructures. (for more on this point, see also Graham 2001).

The centrality of maintenance and repair work to urban infrastructure and experience has been further elaborated in a striking series of studies by Denis and Pontille (2014, 2015) around maintenance and repair work among sign crews in the Paris subway. As the authors show, such work is central to the "material ordering" by which the subway's wayfaring systems and urban flow more generally are sustained. They trace first the stabilization of representation through an ambitious program of standardization launched in the 1990s that sought to unify and prescribe (to a remarkable level of detail) all activities pertaining to the design, production, and placement of signs across all components of the greater Paris transport network. But this work, they argue, provides an as-yet insufficient account of the objects in question, for it fails to track the numerous threats and vulnerabilities that threaten the continued existence and intelligibility of the signage system. From mold to graffiti, discoloration to vandalism and theft, the crews charged with maintaining the integrity of the system work to uphold vulnerable and fragile objects against a heterogeneous and sometimes hostile environment. In contrast to the initial design work, maintenance is necessarily vigilant, reactive, and improvisational, attentive to emerging conditions that threaten the ongoing viability of signs across time and context. These two projects—standardization and design and maintenance and repair work as separate but aligned responses that together uphold the effective and timely performance of signs as objects.

My own work with colleagues and students has explored the work of computing and mobile phone repair across a range of sites, from mobile phone repair operations in Namibia and Bangladesh to amateur fixing movements in the global North. Such projects have underscored both the constant (if neglected) processes of breakdown and decay that characterize the real-world existence of computational infrastructures, and the varying regimes of maintenance and repair that nevertheless sustain them as working (under most circumstances, for most people, most of the time). This has included work on the widespread neglect of maintenance and repair in formal development programs (for example, computing for education programs in rural Namibia, see Jackson et al. 2011, 2012), and the role that this neglect plays in undermining various "information and communication technology for development" (ICTD) initiatives. It has also begun to explore the varied "repair worlds" by which Southern computational infrastructures are sustained, arguing for these as sites of difference, innovation, and power which, if properly considered, can begin to correct the extreme geographic tilt in global understandings of innovation (whereby computational skill and innovation is held to be the property of a narrow caste of designers and engineers in rarefied locales like Silicon Valley, rather than the diverse,

Wajcman J, Dodd N, editors. The Sociology of Speed : Digital, Organizational, and Social Temporalities. Oxford: Oxford University Press USA - OSO; 2016.

widely distributed, and heterogeneous phenomenon that it in fact is (Jackson et al. 2011, 2012)).

This work has documented how repair work is organized and sustained in such settings, including at the nexus of local social and professional networks and global flows of objects and knowledge, including vast and complex material circulations in everything from parts and tools to the detritus ("waste") flowing in and out of repair shops (Jackson et al. 2011; Ahmed et al. 2015; see also Houston 2014). It has also documented the particular forms of skill, learning, and innovation embedded in repair work, as expressed across a range of common and not-so-common operations (e.g. "flashing," "servicing," "jumpering," "reballing") and shared through extended and complex networks of apprenticeship and collaboration (Ahmed et al. 2015) (see Figure 11.1). Our more recent work has explored the nature and problem of "values in repair," arguing for the importance of maintenance and repair as sites for the extension and reworking of values and valuation in and around technology, and a necessary counterpart to the better-studied problem of "values in design" (Houston et al. 2016).

Taken collectively, these and other examples from the emerging field of repair studies help to cast light on both the ubiquity and diversity of repair work, and its role within wider systems of material and social order. Here two additional observations may be in order. First, while often routine and mundane in character, maintenance and repair work may also embed crucial elements of skill, innovation, and creativity. A beautiful instance of this can be found in Klemp et al.'s (2008) analysis of the repair of a single wrong note struck during a solo by jazz pianist Thelonious Monk during a 1953 performance of jazz standard "In Walked Bud." Working with recordings and session notes from this and two other performances, the authors show how Monk's initial error is "saved" through the complex reworking of subsequent phrases that weave the erroneous note into a new musical fabric distinct from the original. The repair is performed in real time, and worked out in collaboration with the other members of Monk's group, who hear Monk's "error" and join him in constructing a path through which the initial dissonance of the mistake is gathered, extended, and recouped giving the performance its own novel identity and coherence. This underscores the emergent and relational quality of repair, and its location within ongoing streams of action that are themselves temporally and situationally organized. As Klemp et al. (2008) note:

> when we listen to music, we hear neither plans, nor mistakes, but *takes* in which expectations and difficulties get worked on in the medium of notes, tones and rhythms. Notes live in connection with each other. They make demands on each other, and, if one note sticks out, the logic of their connections demands that they be reset and realigned.

Figure 11.1. Repair worker in Gulistan underground market, Dhaka, Bangladesh; photo courtesy of Syed Ishtiaque Ahmed

While not all instances of repair will achieve this lofty level of achievement (nor is every repair worker Thelonious Monk!), improvisation remains central to the work of maintenance and repair writ large. This point is made clear in groundbreaking early work by Orr (1996) and Henke (2000), whose photocopier repair technicians and building mechanics work with available tools, resources, knowledges, and collectively held experience (stored in the form of "war stories") to restore function and order in the wake of local and contextually framed breakdowns. Variety in the nature of these breakdowns however—in complex sociotechnical systems, no two failures are alike—demands the adaptive and creative rather than rote application of repair skill and knowledge. This makes repair work resistant to the codifying tendencies that structure work under more controlled and settled environments, including sites of industrial design and production. This situated and improvisational quality has led scholars to language and metaphors that will at first blush seem at odds with the often mundane and ordinary nature of maintenance and repair work: Graham and Thrift (2007) have talked about it as a form of ingenuity, for example; Denis and Pontille (2015) have described it as a kind of dance.

Second, while in some instances the temporal identity of repair as restorative or transformative will be clear, in others the line will be fuzzy at best. Take the example of "looping" or "jumpering," widely practiced by mobile phone

repair technicians in the informal markets of Dhaka and Kampala (and discussed in greater detail in Houston 2014; and Ahmed et al. 2015). Under this technique, faulty subcomponents (sound cards, accelerometers, etc.) are neither fixed nor replaced but bypassed, as repair technicians solder new pathways on to faulty motherboards, rerouting connections so that compromised components are removed from the general flow, thus preserving and restoring overall device integrity. This work is deeply knowledgeable and skillful, demanding both practical understanding of motherboard geographies (which vary significantly by model and manufacturer), and fine-grained motor skills capable of laying thin lines of solder that establish the desired connections but not others. But while this work restores global function, it does not reproduce an original per se: the phone that emerges at the end is demonstrably *not* the same device, nor is it a copy or return to an earlier form At the level of function, the phone now works differently, containing some but not all of its earlier possibilities. Internally and externally, it bears the marks of its labor as well as the breakdown that occasioned it (broken circuits, scratched casings, etc.). The phone has become in effect a different object: new but not radically new, separated from and connected to its past by the forms of breakdown, maintenance, and repair through which it has passed.

Understood as mechanisms of ordering and modes of temporal practice, maintenance and repair offer distinct and valuable contributions to ongoing debates in the sociology of speed. At the broadest level, such instances suggest a different kind of temporal sensibility, one grounded not in linear or teleological faith, but in honest recognition of the fragility of things, and a respect (even wonder!) for the ongoing work by which stability and order (such as they are) are sustained: what I've elsewhere described as a form of "broken world thinking" (Jackson 2014). Temporalities of maintenance and repair, as deployed in the expansive sense here, gather and blend the unruly timelines of things. In their absence, objects are left to go their own ways, becoming in turn homes for *other* things: rust, mice, and plants for example; or in the case of a growing number of subways and train stations around the world, overflow housing for poor and marginalized groups displaced, in part, by speed. Such instances point to sites, moments, and experiences too often obscured by global stories of speed and acceleration. They also suggest other forms and kinds of timeliness—some of them mundane and slow—by which the effect of speed and acceleration is produced and sustained.

Our frequent blindness to such facts has any number of intellectual and practical consequences. In the venture capital and scientific funding worlds, it is much easier to attract support for new and "transformative" programs of work than the maintenance and continuation of old ones (even where the

worth of such programs has been established beyond dispute). In worlds of technology, the neglect of maintenance and repair (and the primacy of design it produces) helps to maintain a narrow and provincial geography of innovation in which the people and processes that matter are constrained to a few square miles of northern California (and a small handful of analogue sites around the world). A similar provincialism may characterize the geography of speed, which may turn out on closer inspection to apply most dramatically to what turns out to be a rather narrow and rarefied class of places, actors, and moments. Taking maintenance and repair seriously invites us to broaden these stories, and to rethink our timelines. To neglect such moments is to collude in the forms of invisibility that such stories help to produce: both around the nature and status of repair work and workers themselves, and the vast range of efforts which in fact characterize and produce temporal experience today.

Discussion: Repair, Time, and Ethics

Taken collectively, these varied observations around breakdown, maintenance, and repair offer a different possible starting point for our discussions around technology and social life, including the questions of speed explored in this volume. I have argued elsewhere for the contributions such thinking might make to other areas of concern. Some of these tie to immediate and highly practical issues: for example, the design of devices and infrastructures that might better enable and support (rather than frustrate and lock out) possibilities of repair; or the construction of more repair-friendly policies (for example, the reform of intellectual property and liability law to embed rights to repair as concomitant rights of ownership and use). Others are more speculative, and speak to alternative ways of knowing and engaging the social and material worlds that take seriously the notion of breakdown, maintenance, and repair as facts, rather than exceptions, to ordinary life.

As a contribution to the sociology of speed, three additional observations may be in order. The first concerns the distributional consequences of breakdown and repair—both as experience unevenly distributed in the world, and as form of necessary work that nevertheless goes routinely overlooked and undercompensated: a type of blindness that costless or teleological accounts of technology and speed help to exacerbate. Like other global accounts, undifferentiated discussions of speed and acceleration risk missing the vast differences that mark and separate the temporal experiences of variously placed social actors. If "fast" is an affordance of our new technically mediated orders, it is not one available to all. If some revel and reel in the heady experience of speed, others see their lives slowed down (or engage in slow

and patient work to produce it). Where some are made to move faster, others are forced to wait. While such distributional consequences have periodically attracted the attention of scholars of speed (see Chapters 9 and 10 in this volume) the core of the point remains perhaps best expressed in classic work by Doreen Massey written in response to an earlier round of debates around the nature of global acceleration and "time-space compression." As Massey insists:

> different social groups and different individuals are placed in very distinct ways in relation to these flows and interconnections. This point concerns not merely the issue of who moves and who doesn't, although that is an important element of it; it is also about power in relation to the flows and the movement. Different social groups have different relationships to this anyway-differentiated mobility: some are more in charge of it than others; some initiate flows and movement, others don't; some are more on the receiving end of it than others; some are effectively imprisoned by it. (1994: 61)

Attending to breakdown, maintenance, and repair may help deepen and extend the distributional analysis of speed, suggesting once again categories of temporal experience neglected under prevailing accounts of acceleration, as well as key forms of labor (themselves neither mobile nor speedy) by which *others*' experiences of speed are supported and maintained. It may also help counter the myths of unity and self-efficacy that emerge when systems and infrastructures are presented with their fragilities and labors stripped away.

The second point concerns the rich and suggestive relations between breakdown, maintenance, and repair, and the ethical and political possibilities suggested under a growing body of work around fragility, precariousness, and care. This work has emphasized shared experiences of fragility as both description of the contemporary moment and starting point for a common ethics and politics in the wake of the various "posts" and "neos" we inhabit: "-colonialism," "-modernism," "-liberalism," etc. Andrew Sayer (2011), for example, has argued for shared vulnerability to suffering as grounds for a more robust consideration of ethics within the social sciences, restoring questions of value and values to the center of the field. William Connolly (2013) has pointed to the "fragility" of our geological, biological, and climate systems, along with growing instabilities in economie unmoored by neoliberal reform, as necessary starting points for new and pluralistic democratic projects. In the absence of these, the consequences of fragility are passed "down" to those least equipped to bear them, following a circuit first described by Simmel:

> Every new pressure and imposition moves along the line of least resistance which, though not in its first stage, usually and eventually runs in a descending direction. This is the tragedy of whomever is lowest . . . He not only has to suffer from the deprivations, efforts, and discriminations, which, taken together, characterize his

> position; in addition every new pressure on any point whatever in the superordinate layers is, if technically possible at all, transmitted downward and stops only at him. (Simmel 1950: 236–7, cited in Connolly 2013: 23)

Writing in the wake of 9/11 and the devastations of the Iraq War, Judith Butler pursues the consequences of what she terms "a primary vulnerability to others" (2006: xiv), a recognition "that there are others out there on whom my life depends, people I do not know and may never know" (2006: xii). The shared nature of such vulnerabilities are exposed through violence, but also marked and honored through mourning: an act that affirms and upholds relations of mutual vulnerability, a way of staying with others through grief that acknowledges our shared exposure to the vicissitudes of pain, loss, and destruction.

The most direct and suggestive link of all, however, may be to a growing body of work in feminist ethics and technoscience underscoring the presence and centrality of *care*: as affective state, as ethical relation, and as mundane form of practical work. As developed by scholars from Tronto (1993) and Star (1991) to Mol (2008) and de la Bellacasa (2012), care provides an alternate entry point to many contemporary concerns, including but not limited to the problems of time, speed, and repair foregrounded here. In an influential definition offered by Tronto, care includes:

> everything that we do to maintain, continue and repair "our world" so that we can live in it as well as possible. That world includes our bodies, our selves, and our environment, all of which we seek to interweave in a complex, life sustaining web. (1993: 103)

Care builds from and expresses a commitment to interdependence and (mutual) vulnerability, a recognition that human endurance and flourishing in the world are never autonomous and self-sustaining accomplishments, but rather arise at the intersection of innumerable relationships, webs of dependencies in which life and experience is suspended and sustained. This entails (deep!) ethical commitments and attachments: those with whom we find ourselves immediately entangled, but also more distant others whose existence is subject to the same vulnerabilities and dependencies as our own. But if care speaks to the ethical and the affective, it also speaks to and is expressed in *action*: "vital ethico-affective everyday doings that engage with the inescapable troubles of interdependent existences" (de la Bellacasa 2012: 199).

Such work has made many and important contributions in extending and reshaping work in science and technology studies and the broader social sciences. Here I wish to emphasize the *material* implications of care, and the deep and suggestive connections between care and the processes of breakdown, maintenance, and repair described earlier—a connection that

scholars have only begun to unfold (see, inter alia, Jackson 2014; Denis and Pontille 2015; de la Bellacasa 2015; Houston and Jackson 2016). As core feminist scholarship asserts, care in its inter-human dimension extends beyond affective disposition or "structure of feeling" to encompass the rich and ongoing forms of work, labor, and interaction by which the status and well-being of others is acknowledged and upheld. This can include work both physical and bodily in nature: for example the sense of care intended when we speak of caring for a sick child, a hospital patient, or an aging parent. But the same kind of attending to physical need and frailty may characterize our interactions with the non-human worlds around us, perhaps especially when such actions begin to express and take on affective and normative weight. Like forms of care directed toward humans, maintenance and repair work starts from a basic recognition of vulnerability and decline, a feel for "the fleshiness and fragility of life" (Mol 2008: 11). Like human-directed care, it involves forms of work and labor designed to forestall such outcomes, upholding and sustaining objects in viable or working order. Like human care, maintenance and repair builds on and extends commitments to connection and interdependency, sustaining individual entities within wider networks of value and relationality. And like human care, maintenance and repair involve acts of perceptual and affective attention, a "listening forth" organized around a fundamental openness to the state and status of others. If this implies a normative relation, it also specifies a *temporal* one: from soil, to subway signs, to mobile phones, the care of things may involve a *staying with* in time and place, a subjecting and reorienting of one's own time to other temporal flows and processes, including the temporalities of breakdown and decay (long and slow, sudden and protracted) that must be accommodated and adjusted to in the ongoing doing of repair work. To engage in repair-as-care is therefore to open and tie oneself to the rhythms, flows, and timeliness of another. Such rhythms of care (what de la Bellacasa 2015 calls "care time") may stand at odds with efforts at mastery and control. Uncertainties in the irruption of breakdown are one reason, for example, why maintenance and repair work, even more than production, is difficult to anticipate and account for under modern regimes of planning and management. For all these reasons, care—for people as for things—remains an inescapably timely, and relational act.

Taken together, temporalities of breakdown on one hand, and repair and care on the other, can help to correct holes and imbalances in current understandings of the relationship between technology, time, and social life. Temporalities of breakdown help to remind us that "speed," where it is to be found, is a hard-won and by no means automatic accomplishment. They point us toward sites and moments that challenge and contest the

orientations toward the simple linear narratives that characterize and mar many accounts of speed, both academic and popular. They point to the deep and multiple presences of *other* temporalities, including those grounded in the materiality of objects and things, which may support, undermine, or remain indifferent to more human-centered understandings and experiences of time (what is fast to a rock?). And they remind us that time, as a property of interactions, may flow in every which way at once, only sometimes summing to a unified pace and direction.

Temporalities of repair and care complete this picture, suggesting the real work by which order is held in place, and things made to persist in the conditions we have found them in (or *given* them, through processes of construction and design). They point to the real-world actions and relations, both effective and affective, by which we operate on time and the timeliness of human and non-human others, coaxing and inviting certain processes of change while forestalling or working against others. They underscore the deeply material character of this work, and the practical processes by which time, as a property of situated interactions, is made to take on shape and weight in the world.

Collectively, such perspectives help us to relocate understandings of time itself: from external backdrop or yardstick, to something emerging at the center of human and material experience in the world, reminding us that time happens in interactions, and not the other way around. This sense is central to a long line of pragmatist work, and is perhaps best expressed in the James quote that led this chapter, given here in its full context:

> Life is in the transitions as much as in the terms connected; often, indeed, it seems to be there more emphatically, as if our spurts and sallies forward were the real firing-line of the battle, were like the thin line of flame advancing across the dry autumnal field which the farmer proceeds to burn. It is "of" the past, inasmuch as it comes expressly as the past's continuation; is if "of" the future in so far as the future, when it comes, will have continued it. (1904: 212–13)

Appropriately pursued, this mode of thought moves time and transition to the very center of human and material trajectories through the world:

> a metaphysics of transiency, in which human life is seen as a wandering, a traveling, a bemusement which rocks side to side, comedy and tragedy, breakthrough and setback—yet, in all, a purposive, even progressive, trip. (McDermott 2007: 157, cited in Klemp et al. 2008: 5)

Conclusion

Breakdown, maintenance, and repair are central to the accomplishment of "speedy" infrastructures (as indeed all things with standing and duration in

the world). The material worlds around us embed rich and varied temporalities of their own, many of which run counter to general and undifferentiated stories of speed. The actual rhythms that shape and define human experience in the world are multiple and diverse, and while under the right circumstances they may "sum" to speed, they are never wholly constituted or defined as such. An important subset of these rhythms is grounded in the ongoing work of maintenance and repair by which the durability of such systems, together with their distinct processes of change and unfolding into the future, are produced, sustained, and transformed.

How might the sociology of speed change by taking such features into account? It would become more diverse and less confident, opening itself to a greater range of temporal experience, including slownesses, departures, and reversals obscured or neglected under more linear and teleological accounts. It would be more resolutely sociomaterial, cognizant of rhythms and tempos emerging from spheres of existence beyond the human—the temporality of objects, the timeliness of things. At the same time, it would pay wider heed to human work and labor, including the myriad forms of maintenance and repair through which experiences of speed are produced, sustained, and accommodated under the circumstances of individual and collective lives, making each of us in small and varied ways agents, and not just "dopes," of speed. And it would be more attentive to speed's distributional character and consequence, including for actors whose work and experiences are rendered invisible under present accounts. Abstract and undifferentiated stories of time, speed, and technology may be inclined to write such experiences off as marginal, limited, or residual—echoes or sidelines, perhaps regrettable ones, in the global story of speed. I believe they are constitutive, and will determine how true such stories turn out to be.