

The Phenomenology of Slowly-Loading Webpages

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For those of us who cannot afford a high-speed internet connection, the frustrating experience of waiting for a webpage to slowly open is all too common. As technology advances and our capacity to surf the web at greater speeds increases, the amount of information we are able to post upon pages also increases. So even when I have the opportunity to access the web from a high-speed connection while at work or on campus, I find myself still sometimes waiting for webpages to open. In this paper, I offer a description of this experience from the perspective of a tradition of philosophy called phenomenology. Through this everyday example, I will introduce a series of concepts articulated by contemporary philosophers which provide a context for understanding our experience of relating to the world through technological mediation. With these concepts introduced, I will continue with a review of current efforts by thinkers in this philosophical tradition to employ these ideas in the analysis of complex technologies.

The Slowly-Loading Webpage: From Embodiment to Breakdown

When sitting in front of our monitors and keyboards, we can at times become quite engrossed in the experience of computer use. Our computers can “multi-task,” and so can we; together with a computer, one can do many things at the same time, such as work on a paper, conduct research online, check email, update programs, watch for postings on favorite blogs, and lots of other things. And while engaging in these actions, sometimes our awareness of our own bodily interactions with the computer will fade into the background of our experience. It can be like the experience of driving a car; when one has become accustomed to driving, he or she no longer directs conscious attention to his or her hands and feet. One instead focuses on traffic lights, signs, the movements of other cars on the road, and such. With enough driving experience, one does not need to think openly to oneself, “okay, I would like to turn left. It is time to move the wheel with my hands, and apply some pressure to the break pedal.” Instead, these bodily motions occur in flow with one’s intentions, and without an abundance of conscious thought. Operating a computer can be similar in terms of mouse and keyboard use. One becomes engrossed in the context of what is on the computer screen, less aware of each individual mouse click and keystroke, even as one jumps between multiple windows, media, and applications. And more, one’s awareness of the fact that he or she is sitting in front of a computer at all also fades into this experiential background.

The type of experience that I would like to analyze here in this essay concerns moments where we suddenly become conscious again of our presence in front of the computer screen, mouse, and keyboard. I suppose many things can jar a person out of the experience of being engrossed within computer use, but the specific type of jarring experience I wish to reflect upon here is when the computer unexpectedly ceases to function as it had been, and suddenly calls our attention to the fact that we are dealing with a computer. For example, when opening and closing websites and busily following hyperlinks, this jarring experience can occur when a single webpage among the others opens much more slowly. Sitting in front of the slowly-opening webpage, we suddenly

become aware of our place in front of the computer, and the specific ways in which we can and cannot interact with the device.

In the field of philosophy of technology, a touchstone for thought on this sort of malfunction in our experience of technology is the work of Martin Heidegger. He belongs to a tradition in philosophy called phenomenology. This tradition of thought, whose canon includes figures such as Edmund Husserl, Maurice Merleau-Ponty, and Iris Young, conducts philosophical investigations from the starting point of human experience. One of Heidegger's most influential studies of our experience of technology, and its potential to breakdown, is his analysis of tool use in his work *Being and Time* (1953). There he intricately describes our experience of using a hammer.

Heidegger observes that while using a hammer, certain qualities of the hammer and our grip on it are fore-fronted in our experience, and some qualities sink into the background. If one is accustomed to hammer use, the hammer appears to that person in terms of what it allows us to do. He says, "The less we just stare at the thing called hammer, the more actively we use it, the more original our relation to it becomes and the more undisguisedly it is encountered as what it is, a useful thing" (1953, 65). While hammering, we experience the hammer as an extension of the body, part of what allows us to accomplish our objectives. Heidegger explains, "What everyday association is initially busy with is not tools themselves, but the work" (1953, 65). We relate to the hammer not as an object that we work upon, but as an object that we do our work through.¹

Heidegger also describes the change in our experience that occurs when a hammer breaks and can no longer be used to hit things with. Suddenly, he explains, we encounter the hammer in a different way; a broken hammer appears to us not as something which makes possible certain kinds of action, but as an object that is useless. He says, "we discover the unusability not by looking and ascertaining properties, but rather by paying attention to the associations in which we use it. When we discover its unusability, the thing becomes conspicuous" (1953, 68). When the hammer had functioned well, we experienced it as a means to our ends. The hammer itself faded into the background of our experience as we did our work (our hammering). But as a broken object, the hammer no longer fades into that background, but appears as quite present to us as an object.

Heidegger's description of technological breakdown, I suggest, is a useful starting point for analyzing our experience of the frustrating moment of the slowly-opening webpage. But rather than continue with Heidegger's philosophy, I will next introduce some of the concepts that American phenomenologist Don Ihde has offered for examining our bodily relations to technology.²

In his work *Technology and the Lifeworld*, Ihde considers the different sorts of ways that we interact with the world through technologies (1990). Like Heidegger, he considers our use of technologies to be a fundamental, immediate, pervasive character of our existence. Ihde gives the term *existential technological relations* to his categorization of the kinds of ways that we relate to the world through technology (1990, 72). He identifies three categories of such technological relations: "embodiment relations," "hermeneutic relations," and "alterity relations."

The first category he calls *embodiment relations*. With this sort of relation to technology, as was the case with Heidegger's hammer, the technology which we use to act upon the world itself fades into the background of our awareness (1990, 72). Ihde

gives an example, “My glasses become part of the way I ordinarily experience my surroundings; they “withdraw” and are barely noticed, if at all” (1990, 73). In Ihde’s language, through our everyday use we come to *embody* technologies like the hammer or pair of glasses.

In a more complicated way, the same could be said for the example of driving a car. In this case, certain features of driving, such as pedal pushing or wheel turning, withdraw in our experience compared to the focus which we actively place upon watching the traffic light as we wait for it to change to green. The degree of this withdraw, or *transparency* as Ihde says, is of course different for different cases (1990, 76). Glasses wearers may have a deeply transparent embodiment relation to their glasses at most times. But a driver may instead experience the transparency of steering wheel use and pedal use in a way that fluctuates with changing conditions.

An interesting aspect of technologies to which we share an embodiment relation, Ihde notes, is that they are often designed with two different purposes (often at once) (1990, 76). On the one hand, such technologies are designed and used in order to change, and often amplify, our experience. Glasses enable us to see farther or more clearly. Hammers enable us to hit harder. Cars enable us to move faster and with far less exertion. And at the same time, on the other hand, such technologies are designed and used to achieve maximum transparency. Despite the way we desire for our experience to be altered or enhanced, we also concomitantly desire for the alteration process and equipment themselves to withdraw from our experience; that is, we desire to embody the technology.

The second existential technological relation Ihde identifies is what he calls a *hermeneutic relation*. The term hermeneutics refers to a tradition in philosophy that analyzes practices of interpretation, especially the interpretation of text. With the term hermeneutic relation, Ihde points to the way that (separate from an embodying relation to technology) we can as well share a “reading” or “interpreting” relation. In this case, we relate to the world via the technology by focusing our attention *upon* the technology, rather than experiencing the world *through* it.

Like examples of technologies which we can embody, technologies with which we can share a hermeneutic relation also require a sort of training in order for the relation to occur smoothly. As one learns how to drive a car or use a hammer, one can embody certain aspects of these relations with greater and greater transparency. Something similar is true for the example of reading a text (written language itself here taken to be an example of a technology). For one to be able to read a particular written language, a considerable amount of training is required. But once trained, one may be able to read quite easily. In fact, the meaning of words appears in perceptual Gestalts. That is, when one is able to read, he or she no longer needs to sound out each letter and assemble them together into a word; the meaning of words comes all at once, and the transparency of the technology of text is achieved.

But language itself is not the only example of a technology that we read; we can share a hermeneutic relation to devices as well, such as thermometers, odometers, wind socks, Geiger counters, Richter scale readings, or calendars. We also relate in deeply hermeneutic ways to image-producing technologies, such as dental x-rays or pictures of other galaxies. A clock is another example of a technology which we read rather than embody. We look down at our wristwatch and gain access to the time of day. With

training, we need not spend conscious time interpreting the hands of an analogue watch; instead the time appears to us in a Gestalt. And in the case of analogue watches, we also receive a readout of the proportion of the hour which has passed (and how much remains) in the form of hands upon a circular chart.

The third existential technological relation that Ihde identifies he calls an *alterity relation*. When we relate to a technology in this way, we experience it as something which stands out to us, something that calls our attention to it as a technology, and something that calls our attention to our own status as a person interacting with the technology. The analogy being drawn is to our experience of the presence of another human being; when another human being is in the room, we relate to that person differently than the way we relate to objects. The other person conspicuously appears to us not as an object, but as a person, and as such makes us aware of our own status as a person.³ Ihde suggests that, in a reduced way, we can share an alterity relation to technologies. He explains that with alterity relations, “the technology becomes quasi-other, or technology “as” other to which I relate” (Ihde, 1990, 107). Contemporary examples may include the rapidly advancing technology of automated customer service representatives that interact with us over the phone. Such representatives speak over the phone in pre-recorded sentences, offer options, and allow us to verbalize our selections. While approximating human interaction with sometimes eerie precision, such interactions do not completely fool us into entering a mode where we feel as if we are talking to a person. Still the experience is similar to talking to a person in some salient ways. Other examples may include ATM machines or automated checkouts.

A question for us here in this essay is how our experience of the slowly-loading webpage can be helpfully conceptualized through the use of Ihde’s (and Heidegger’s) notions. It seems immediately clear that an experience as complex as computer use will certainly entail all three of the relations to technology which Ihde has identified. In certain ways, an alterity relation is present for us as we read an instruction manual while attempting to install new hardware. Indeed these days the manual appears on the screen, asking us questions in first-person language (may I help you?), and offering options. As well, we share hermeneutic relations with the computer as we read things on the screen, and also as we use symbols on the screen to perform functions. We click on the different symbols which open programs, drop down tool bars, shrink or enlarge windows, and we watch as the cursor itself takes on different forms on the screen (arrow, pointing finger, blinking line cursor in a writing program, etc.). Our hermeneutic relations to the computer in terms of these icons and symbols can be more or less transparent depending upon the level of our training and everyday use.

But the technological relation that I suggest is most relevant to the specific experience of the slowly-loading webpage is that of our embodiment relation to the computer. In a significant way, we can be understood to embody our computers as we use them. Certainly the skill of typing is one in which a highly transparent embodiment relation can develop; one experienced with typing is much more consciously aware of the words and ideas he or she types than aware of the individual keystrokes his or her fingers make. One also can come to point and click with a mouse or even sign in to email accounts and open and close windows with a high degree of transparent action. In these cases we are focusing more upon what we are attempting to get done *with* the computer than what we are doing *to* the computer. I suggest that it is the *transparency* of our

embodiment relation that significantly changes when we experience the jarring sensation of suddenly encountering a slowly-loading webpage.

Engrossed in what we are doing, multi-tasking with several windows open, transparently embodying our computers, suddenly we encounter a webpage which is not ready for our usage in the moment we expect it to be. As it slowly loads, we immediately shift into a new mode of waiting-for-the-computer, and the transparency of our embodiment significantly and instantly drops. It is much like the broken hammer which Heidegger describes. We suddenly see ourselves and our computer in a new way. For the time being, we no longer experience the computer as a tool which we act through, but as an object just sitting in front of us. And more, we become aware again of our own place sitting there in front of the computer.

This new relationship to the computer, one which has us waiting and doing what small things we can as the website loads (perhaps clicking the reload button), is an experience more like what Ihde has described as an alterity relation than Heidegger's description of the broken hammer which is now appears only as useless junk. In a way, the computer becomes for us in this moment not junk, but a complex machine. A machine with a capricious internet connection, and one which will deliver our webpage eventually (we hope).

Let us give a name to this phenomenon. I offer the term *transparency break* to refer to a sudden loss of transparency while experiencing the world through a mediating technology. With such a break, our transparent relation to a technology shifts to a non-transparent relation in a Gestalt shift. Of course a transparency break could occur in terms of an embodiment relation or a hermeneutic relation to technology (and perhaps even in terms of an alterity relation).

With the phenomenon of the experience of the slowly-loading webpage conceptualized in these terms, the next question becomes whether phenomenology has anything productive to offer to those who dislike this experience. To address this issue, let us next turn to Ihde's notion of multi-stability.

Multi-Stable Human/Computer Relations

I suggest that some insight into the ways that we may be able to decrease the severity of the experience of a transparency break may be found in Ihde's observation that we are able to embody technologies in multiple ways. As he says, our relations to technology are *multi-stable*. We can potentially use the same technology for different purposes. It can be used to mediate our experience in different ways. Both our embodiment relations and hermeneutic relations (and perhaps even our alterity relations) are multi-stable.

In terms of hermeneutic relations to technologies, Ihde explains that, depending upon one's interpretive framework, a readable technology can appear to us in different ways. The central technologies which Ihde has studied in this regard are imaging technologies (e.g. Ihde, 1998; Ihde, in preparation). Imaging technologies, he explains, pervade both our everyday existence and our scientific practice. A technology which creates images, such as an ultrasound, fMRI, or a satellite picture of one's own town, requires some instruction before one can use it well. And even with training, a person

can read an image in more than one way. Indeed, people (such as scientists or doctors) at times disagree about exactly what it is that an image shows.

An important aspect of the multi-stability of images is the fact that while open to multiple interpretations, an image is not infinitely interpretable; while one may be able to offer several stable interpretations of a single image, he or she cannot simply offer just *any* interpretation in a way that is coherent. The structures of the image's content make only a limited number of stable interpretations possible. And all such interpretations of an image may not be immediately obvious to everyone. Depending upon one's perspective, background assumptions, and interpretive framework, a person may clearly experience an image one way. But then another person may be able to open the first person's eyes to another possible interpretation by sharing their different perspective. For example, think of doctors arguing over how to diagnose a patient based upon their rival readings of an image from a PET scan, X-ray, or mammogram.

Our embodiment relations to technologies are multi-stable as well. A specific technology which we use for specific purposes, and have developed a deeply embodied relation to, can also be embodied differently for other purposes or situations. Like the way that a readable technology can be interpreted in many ways, one can reorient how he or she embodies a technology. Also, like the way that readable technologies are not open to simply any interpretation, an embody-able technology can only be embodied in terms of a limited set of configurations of purposes and practices in relation to the particular material constitution of the technology. For example, a pen can be used to write. It cannot be used to place a phone call. But it could be altered and used to perform a tracheotomy. Or shoot spitballs.

Important to highlight here is the way that for the technology to become deeply and transparently embodied in terms of a particular stability, the technology must become embedded in a set of familiar practices. As reviewed above, with the example of a car, the actions of pedal pressing and wheel turning become somewhat transparent to one that is accustomed to driving. A car is also an example of a multi-stable technology; it can be used for many things other than transportation, such as a storage unit, or (according to the law) a deadly weapon. For those of us who have taken long road trips, we know that a car can be parked at a rest stop and used as a place to sleep. As an undergraduate, often taking long drives from my college to my hometown and back, I had become accustomed to taking naps in the car while parked at highway rest stops. And I can imagine another person that one day decides to take a nap in a car, but, doing this for the first time, has a bit of trouble getting comfortable. This person may not be able to embody the car as place-to-sleep as well as my old college self could, since back then it was a common practice for me to take a nap in a car. While a technology can be embodied in several ways, the degree of the transparency of one's experience of each stability depends upon the familiarity and everydayness of one's use of the technology in this way.

Of course the different examples of stabilities one finds for our use of a technology do not need to be as different as the contrast between driving a car and sleeping in a car, or writing with a pen and using it to perform an emergency tracheotomy. The multi-stability of the embodiment relation between a person and a car can be seen with slighter changes in the way we experience driving, such as the difference between normal driving conditions, driving off-road, or driving on icy roads. One accustomed to normal driving may experience (what I referred to above as) a

transparency break if he or she suddenly and surprisingly finds him or herself driving off-road. However, someone else who happens to also be very experienced at off-road driving may not experience such as extreme a transparency break if the driving conditions were to suddenly switch in this way.

And this brings us back to the transparency break which occurs when we are using a computer and suddenly come across a slowly-opening webpage. I suggest that re-conceptualizing our use of the computer as multi-stable can help us to consider ways to temper the severity of the transparency break experience. If we consider the way our relation to a computer is constituted by a set of practices, we can determine whether a subtly different set of practices can be established which, while remaining stable, renders the experience of a slowly-loading webpage less jarring and annoying.

One way that many of us address this problem is by keeping a page or window open which we can shift to and engage while we wait for the slowly-opening page to finally load. For example, a news article or a document can be kept open and turned to whenever we come across a slow page. The important part of this advice is that the practice must become instantiated as a part of normal routine. Switching to the already open news article or document needs to become second nature. The working claim here is that the jarring experience of the slowly-loading webpage is due to a transparency break; we get taken out of the transparent embodied relation to our computer when our practices are interrupted by a stubborn website. By embodying the computer through a new set of everyday practices that includes switching to another productive activity when a slow page is encountered, the transparency of our experience of the computer may not drop so significantly.

Of course I assume that this suggestion is not too enlightening to anyone who has already put extensive thought into issues of computer use.⁴ The intention here has primarily been to introduce phenomenological concepts within the context of everyday examples. But it does seem to me that one with more knowledge of issues of computer interface could use these philosophical ideas as a springboard for further thought. And indeed these concepts have been used to think deeply about issues of technology. In the next and final section, I will review a few examples of contemporary efforts to use these ideas to think through current issues in politics and science.

Current Directions in Research on Multi-Stability

In order to demonstrate the ways that the philosophical ideas reviewed above can be used in concrete technical analyses, let us review some examples of current research projects. Issues of multi-stability, transparency, and both embodiment and hermeneutic relations, are raised in these studies.⁵

Dutch philosopher Peter-Paul Verbeek synthesizes the history of philosophy of technology in attempt to offer a program for analyzing the ethics and aesthetics engineering design (e.g. 2005; 2006a; 2006b). The objects of our world, he claims, constrain and inform the ways we act. So, important ethical decisions must be made at the moments when we are designing these objects. Verbeek uses the sorts of phenomenological concepts reviewed above to articulate how our relations to technology can be anticipated in ways that will help us to make decisions regarding design and ethics. One of his central case studies regards a design company that concentrates

specifically on constructing long-lasting products that customers will want to keep, intending ultimately to produce less total waste.

American phenomenologist Evan Selinger has used the notions of multi-stability and embodiment to discuss the topic of the transfer of technologies to developing nations (e.g. forthcoming a; forthcoming b; forthcoming c). He considers the ways that philosophers can contribute to the task of predicting and analyzing the repercussions of efforts to change the ways others live through the introduction of new technology. Selinger's core case study has been the analysis of the Village Phone program, a humanitarian/business venture which employs poor women in Bangladesh as "phone ladies" that provide cellular phone service to the townspeople. Through phenomenological analysis, Selinger identifies the ways that the structures of current debates over the ethics and politics of the program limit what can be discussed.

Danish anthropologist Cathrine Hasse uses phenomenological concepts to analyze training procedures in physics (e.g. 2006). Her work focuses upon the development of the hermeneutic relations to technology that develop as physicists learn how to interpret complex laboratory images. Through an examination of differences in the way that physicists with various degrees of training respond to questions about images created by older and newer techniques, she studies the specific ways that images appear differently to different researchers. An understanding of the ways that images are multi-stable in terms of levels of experience and specialization, Hasse claims, can help us to fine tune our training practices.

My own work in this area moves in a similar direction to that of Hasse's. But rather than focusing on the multi-stability of images in science in terms of training, I have focused upon the rival interpretations of images which arise in scientific debates (Rosenberger, forthcoming a; forthcoming b; forthcoming c). In this work I have offered a program for analyzing the practices of image interpretation in scientific debates. The sorts of concepts from phenomenology reviewed above, I suggest, can be used to draw out the specifics of the interpretive frameworks offered by each side of a debate. My case studies have included an analysis of an ongoing debate in neurobiology over the nature of neurotransmission, and a contemporary debate in space science over the implications of images of the surface of Mars.

These examples of current work in phenomenology of technology exhibit the way that the concepts reviewed in this essay can be productively used in the concrete analysis of human relations to technology. Perhaps the reflections on human-computer relations above, and the specific experience of transparency breaks in these relations, can provide a context for thinking further about how we interact with these machines.

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Robert Rosenberger is a Ph.D. candidate in the philosophy department at Stony Brook University, about to complete his dissertation on the topic of the conventions and structures of scientific debates. His published work includes a series of articles on the philosophy of image interpretation in science (as reviewed above).

As well, he has worked with his colleagues in The Group for Logic and Formal Semantics on projects which use computer simulations to examine problems in philosophy and social science. They have contributed to work on topics such as the issue of robustness in computer modeling, and also the philosophy of simulation more generally. Their main project has been the construction of a computer simulation of social psychological theories of prejudice reduction. For more on The Group for Logic and Formal Semantics, see www.computationalphilosophy.org
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Notes

1. The use of Heidegger's description of the hammer to elucidate our contemporary experience of computers is a bit problematic. Heidegger is generally considered "pessimist" or "dystopian" in terms of the way that he understood technology to affect our lives. That is, he saw technology's effects upon us to be largely negative, alienating us from our true essence, and leading us on a trajectory of further alienation. Heidegger's analysis of hammer use is typical of his choice of example, favoring simple tools to complex technologies. I will avoid these issues here by shifting focus from Heidegger's philosophy to the thought of Don Ihde. He holds a more non-essentialist view of technology; technology is not essentially good or bad and does not essentially lead us down good or bad roads, but is different in different situations.

A recent helpful critical contrast between Heidegger's dystopianism and Ihde's non-essentialism regarding technology has been offered by Robert C. Scharff (2006).

A contemporary place in the philosophy of technology where concerns like those of Heidegger's are considered is the work of Albert Borgmann (e.g. Borgmann, 1984; Borgmann, 1999; and for his recent contribution to *Ubiquity* see Borgmann, 2007).

2. Ihde's list of "existential technological relations" is meant as a critique of Heidegger's hammer example (as well as an expansion as portrayed here). Ihde claims that Heidegger's understanding of technology as either embodied or broken is too limiting. Thus Ihde describes hermeneutic and alterity relations to expand upon the ways that we can interact with our tools.

3. The study of the ethical and political implications of our phenomenological experience of other people as "other" is a major topic of research in many fields of philosophy. Ihde borrows the term "alterity" from Emmanuel Levinas's work on these issues (1969).

4. In his insightful and very readable little book *On the Internet*, Hubert Dreyfus uses phenomenology to discuss several contemporary issues regarding computer use, such as the effects of hyperlinks on research, the limits of distance learning, and the effects of the internet on political discourse (2001). As well, here in *Ubiquity*, Arun Kumar Tripathi has reflected extensively on the possibilities of phenomenology to inform discussions of human-computer interaction (e.g. 2005a; 2005b).

5. Recently, a specific school of thought has emerged called *postphenomenology*, which amalgamates ideas from phenomenology and the philosophical tradition of pragmatism. With Ihde as its chief proponent, postphenomenologists primarily focus on using philosophical understandings of human/technology relations to engage in concrete investigations of practice. All of the examples of contemporary research projects I

review here in this last section are examples of work in postphenomenology. For recent, in depth discussions of postphenomenology, see (Ihde 2003; Verbeek, 2005; Rosenberger, forthcoming c; Selinger forthcoming c).

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