

Towards a Phenomenology of Speed: Perception and Spatiality in an Accelerating World

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1. Drones and perception

Though initially shrouded in secrecy - and still obscured by claims to national security and executive privilege - in the last few years the US government's targeted killing programs in Pakistan and Yemen have been heavily discussed, in both popular journalism, and academic circles. Although some of this attention has been prompted by debates over the legality and morality of extrajudicial killing, such issues are not unique to US actions in Pakistan and Yemen. Rather, what seems to have prompted the lion's share of the attention has been the specific use of Unmanned Aerial Vehicles (UAVs) or Drones to conduct the killing. In principle the use of drones are not wildly different than the use of traditional piloted bombing runs, or even special forces units (such as, for example, the unit which killed Osama Bin Laden). However, the claim is that the use of drone technology constitutes a fundamental shift in the nature of warfare. Critics argue that by physically removing humans from the battlefield, it makes killing more likely, both by decreasing the potential loss of lives (on the side deploying the drones) and, more importantly for our analysis, by fundamentally mediating the relationship between killer and victim.

The New Yorker ably describes the structure and technology of CIA's drone program:

The Predators in the C.I.A. program are “flown” by civilians, both intelligence officers and private contractors.... Within the C.I.A., control of the unmanned vehicles is split among several teams. One set of pilots and operators works abroad, near hidden airfields in Afghanistan and Pakistan, handling takeoffs and landings. Once the drones are aloft, the former counterterrorism official said, the controls are electronically “slewed over” to a set of “reachback operators,” in Langley. Using joysticks that resemble video-game controls, the reachback operators—who don’t need conventional flight training—sit next to intelligence officers and watch, on large flat-screen monitors, a live video feed from the drone’s camera. From their suburban redoubt, they can turn the plane, zoom in on the landscape below, and decide whether to lock onto a target. ¹

The concern is that this mediated relationship to the battlefield, in which 'reach back operators' relate to their potential victims only via computer screens and 'video-game controls', will result in a derealization of the horrors of warfare. Critics assert that drone operators will fail to treat the battlefield as a real space, and their potential victims as real human beings, as opposed to just flickering images on

¹ Jane Mayer "The Predator War" *The New Yorker* Oct. 26, 2009

a screen. As Caroline Holmqvist puts it

An intuitive response to news about the increased reliance on technologies that allow for 'killing at distance' is that it renders war 'virtual' for one side of the conflict...The drone operator, sitting in the safety and comfort of his control room in Nevada, no longer experiences war, goes the argument, and killing as a result becomes casual.²

A repeated theme in critiques of drones is the concern that it turns war "into a video-game", and thus that the interface itself produces an effect (and an affect) of virtuality and unreality. Fitzsimmons and Sangha do a good job of summing up this criticism

Reflecting the sentiments of a number of scholars who are critical of the USAF's use of [Remote Piloted Aircraft (RPA)], Laurie Calhoun assumes that, because operators tend to be located far from the battlefield, they remain psychologically detached and unaffected when they kill human targets during their missions. Framed in this manner, operators appear to be little more than "adept videogame players," who are entirely removed from the horrors of war.³

They go on to say

Referring to operators as people who, "kill in the manner of sociopaths with no feelings whatsoever for their victims," Calhoun argued that, "When soldiers do not directly risk death through wielding deadly weapons and come in contact with the consequences of their homicidal actions only through surreal video images, it is much easier for them to kill." Calhoun went on to argue that, for RPA operators, "the visceral quality of warfare has been altogether removed from the experience of killing. The emotions associated with the activity of killing and risking death have been progressively muted with distance and now eliminated from the act altogether in summary executions effected by RPAs and managed by desktop warriors." Linda Johansson argued, similarly, that RPA, "enable, more than any other weapon, a form of 'numbed killing'.... due to the fact that combatants are able to maintain an emotional distance by using this more or less autonomous technology."⁴

Here we repeatedly see the implication that images translated through the video screen of the drone controls are inherently unreal, virtual, and disembodied, resulting in a experience that is 'detached', 'unaffected', 'surreal', 'muted with distance', and 'numbed'.

At the centre of this debate is a concern about speed. Without the dramatic acceleration of information flows this kind of 'reach-back' operation of drones would be impossible. It is not just the video interface that leads critics to worry about the surreality of the experience, but also the physical

²Caroline Holmqvist "Undoing War: War Ontologies and the Materiality of Drone Warfare" *Millennium: Journal of International Studies* 41(3) p. 541

³Scott Fitzsimmons and Karina Sangha "Killing in High Definition: Combat Stress among Operators of Remotely Piloted Aircraft" Paper presented at the 2013 CPSA Annual Conference p 1-2

⁴ Fitzsimmons and Sangha p. 4

separation between the space of the operator and the space of the victim. A repeated theme of critiques is the extent to which the drone operators are physical distant from the field. Part of the concern here is the asymmetry of danger between the killer and the victim, but I believe that the larger part is the idea that insofar as the drone operator is fundamentally distant from the killing, he is *distanced* from that killing. We might, for example, readily acknowledge that a fully equipped and supported US soldier is already vastly more powerful than guerilla fighters - not to mention innocent civilians - and thus that there is already a profound asymmetry of danger between the two, and yet still believe that there is something important in the soldier physically *being there*, whatever the distribution of relative danger.

This privileging of *being there* over technologically mediated perception and action - and thus an anxiety over the potential unreality of distanced perception - is part of a longer tradition which views perceptions experienced via mediating technologies as inherently 'less than' 'unmediated' ones - where 'less' can mean less embodied, less material, less real, or less authentic. We might here look to the way in which the Hubert Dreyfus carries forward a concern over the inauthenticity of mediated experiences in his critique of 'telepresence' technologies. Contrary to accounts which view telepresence technologies as (at least potentially) capable of producing a genuine, embodied experience, Dreyfus asserts that

Telepresence...call[s] our attention to the way that things and people are normally *directly* present to us and we...sense that this direct form of presence [is] basic and that *mediated* telepresence [is] at best a poor imitation. If people experienced "presence" on the screen as a kind of privation of direct contact, the kind of washed out telepresence tele-technologies provide might well lead to an appreciation of our everyday robust relation to things and people.⁵

This sort of dismissal of technologically mediated perception is unsurprising, given Dreyfus' deep commitment to Heideggerian phenomenology, which, as Catherine Wilson nicely sums up "[tries] to posit a rupture between an original mode of awareness and interaction, and the artificial one of technology."⁶ Heidegger's work is marked by a profound anxiety over the way that acceleration of both

⁵Hubert L. Dreyfus "Telepistemology: Descartes' Last Stand" *The Robot in the Garden: Telerobotics and Telepistemology in the Age of the Internet* Ed. Ken Goldberg (Cambridge: MIT Press, 2001) p. 56

⁶Catherine Wilson "Vicariousness and Authenticity" *The Robot in the Garden: Telerobotics and Telepistemology in the Age of the Internet* Ed. Ken Goldberg (Cambridge: MIT Press, 2001) p. 67-68

bodies and perceptions serve to alienate and dislocate human existence. In his essay "The Thing", Heidegger explains how "All distances in time and space are shrinking", and yet goes on to argue that "the frantic abolition of all distances brings no nearness."⁷ For Heidegger, 'nearness' is something that can only be equated with the immediate. As a result, mediated perception (or even distance mediated by accelerated transportation) produces spaces which are neither near, nor distant. As he says "The failure of nearness to materialize in consequence of the abolition of all distances has brought the distanceless to dominance"⁸. The acceleration of bodies and perception thus serves to *dislocate* human existence, placing it in a distanceless and inauthentic no-place.

This skepticism about mediated perception is not solely a philosophical concern, as popular discourse is full of anxieties over the unreality of mediated experiences. In this regards then, concerns that the drone pilots would experience their controls and videoscreens as nothing other than a very realistic videogame, would seem to be quite natural. There is something disturbing about the idea of killing through a videoscreen, in a way that seemingly other forms of killing - even when done from 30,000 feet via a traditional piloted aircraft - are not.

This is why it was so startling for those observing the drone program when reports first emerged noting that drone operators were showing signs of significant combat stress, indeed, stress in greater numbers than those who were deployed in traditional warzones. As Fitzsimmons and Sangha report

data collected by USAF mental health specialists during the past decade have revealed that RPA operators actually experience considerable stress from performing their duties. For example, a recent survey of Predator and Reaper operators in the USAF revealed that 46 percent of pilots, 41 percent of SOs, and 39 percent of MICs reported experiencing high levels of stress, at least some of which was due to their participation in combat operations.⁹

The reason for this is that, contrary to the narrative which views drone operator interfaces as 'distancing' and 'detached', such interfaces actually provide vivid and up-close images of the deaths the drone operators cause.

⁷Martin Heidegger (1971) *Poetry, Language, Thought*, New York: Harper Perennial. p. 163

⁸ Heidegger *Poetry, Language, Thought* p. 179

⁹ Fitzsimmons and Sangha p. 3

Operators may be located far from the battlefields that their aircraft fly over, but they can see the consequences of their actions, including their victims being thrown about and torn apart by explosions, in real time high definition through the monitors that make up their virtual cockpits. As one operator put it, "You are 18 inches away from 32-inch, high-definition combat... You are there. You are there.... It's not detached. It's not a video game. And it's certainly not 8,000 miles away." An operator described the experience of watching his missiles slam into human targets as "very vivid and went on to state that the video feeds he and his fellow operators saw made the trauma unfolding before their eyes seem, "right there and personal."¹⁰

As Holmqvist puts it

Contrary to common perception, drone warfare is 'real' also for those staring at a screen and, as such, the reference to video games is often simplistic. It is the immersive quality of video games, their power to draw players into their virtual worlds, that make them potent – this is precisely why they are used in pre-deployment training. The video streams from the UAV are shown to have the same immersive quality on the drone operator – they produce the same 'reality-effect'.¹¹

This is not to say that operating drones is identical to being in combat. Unlike most soldiers, drone operators can return home to their families at the end of the day's 'combat'. However, this radical disjunct between the parts of their day spent 'in combat', and the parts of their day spent in civilian life actually exacerbates the combat stress the drone operators experience. As Fitzsimmons and Sangha put it

...the fact that most USAF RPA units are based in the United States means that most operators commute between their family homes and operating stations each day, forcing them to undergo traumatic, rapid shifts between war fighter and civilian mentalities. Returning home at the end of each work day, these operators also typically lack a supportive social environment where they can discuss and alleviate their pent up feelings of combat stress during off-duty hours.¹²

Thus, ironically, for the drone operators themselves, the problem is not that their experiences are numbed or unreal, but rather that they are too real, and that the reality of these experiences doesn't match up with the reality of the rest of their lives. They are, in essence, split in two, straddling two radically different lives, and spaces, without any effective means to integrate them. The problem for the operators is therefore not one of too little reality (the feared 'less than') but rather of too much.

This case study of drones shows how we can be misled when we take as our starting assumption

10 Fitzsimmons and Sangha 4-5

11 Holmqvist p. 541-542

12 Fitzsimmons and Sangha p. 2

the disembodied and dematerializing effects of so-called 'virtual' mediating technologies. Instead, we must recognize that virtual perceptions are always already embodied and material, because perceptions are, by their nature, *always already embodied and material*. N. Katherine Hayles points out that "our interactions with digital media are embodied, and they have bodily effects at the physical level."¹³ The assumption that 'virtual' perceptions are immaterial, transcendent, and disembodied, are based on a cartesian account which takes perception itself as a disembodied process, connecting up a non-material mind with the phenomenon of the world. The ability to present digital perceptions as disembodied is to already assume that *it is possible* to sheer off perception from body, mind from materiality. To properly understand the nature of digitally mediated perception we need philosophy which starts from the essentially embodied nature of that perception. This is why, in this paper, I turn to the work of Maurice Merleau-Ponty.

Merleau-Ponty's phenomenology of perception starts by rejecting an image of perception in which "mind soars over" a "pure object."¹⁴ Instead Merleau-Ponty conceives of a perception as an inherently bodily process, in which the perceptual field is organized in relation to a body schema. In the body schema, space is constituted with relation to the orientation, posture, and virtual capabilities of the body. This kind of phenomenological approach is helpful in avoiding the kinds of mistakes which frequently accompany attempts to understand contemporary communication and information technologies. It helps us to understand the inherently embodied nature of perception, even when mediated through technologies. This, in turn, allows us to avoid a knee-jerk tendency to assume that 'mediated' perceptions are somehow less authentic, real, or important than 'immediate' perceptions.

What is more, Merleau-Ponty's phenomenology doesn't just help us understand the nature of technologically mediated perception. It is also crucial in helping us to understand the contemporary spatiality of speed. For Merleau-Ponty space is never to be properly understood as the objective

13N. Katherine Hayles *How We think: Digital Media and Contemporary Technogenesis* (Chicago: University of Chicago Press, 2012) p. 3

14Maurice Merleau-Ponty *The Visible and the Invisible* trans. Alphonso Lingis (Chicago: Northwestern University, 1968) p. 114

spatiality of cartesian coordinates. This sort of geometric view of space only ever arrives secondarily, overlaid on top of the more supple world of human perception. Rather, the embodied nature of human perception warps and bends the absolute Euclidian lines of space, organizing it in relation to the orientations of the body, and constituting its material in line with the virtual space of the body's potential actions.

It is of the essence of space to be always 'already constituted', and we shall never come to understand it by withdrawing into a worldless perception. We must not wonder why being is orientated, why existence is spatial, why...our body is not geared to the world in all its positions, and why its co-existence with the world magnetizes experiences and induces a direction in it. The question could be asked only if the facts were fortuitous happenings to a subject and an object indifferent to space, whereas perceptual experience shows that they are presupposed in our primordial encounter with being, and that being is synonymous with being situated.¹⁵

Such an approach, which is attentive to the embodied situation of perception, views spatiality with a human eye, noting the way in which the space of the world - the space of *our* world - warps and bends in response to human thought, perception and action. This is especially important in the context of accelerating perception via global information and communication technologies. As humans increasingly interact with accelerating information and communication technologies, the 'situation' of our bodily perceptions change in ways which serve to 'constitute' space in new and unexpected ways, 'inducing' new directions which produce spatial wormholes and lines of flight. Thus for example, an approach which starts from the presumption of objective, static space would take the drone operator as situated physically in Arizona, distant - and thus distanced - from the killing fields of Pakistan. Such an approach would miss the way in which the two spaces are sutured together via the perception of the drone operator. As Linda Holmqvist says in her own Merleau-Pontian investigation of drones

What is of interest to us in examining the interaction of the virtual, material and human here, however, is that this occurs not through the experience (on the part of the drone operator) of distance, remoteness or detachment, but rather through the 'sense of proximity' to ground troops inculcated by the video feeds from the aerial platforms.¹⁶

In a world of increasingly proliferating and accelerating information and communication technologies

15 Maurice Merleau-Ponty *Phenomenology of Perception* Trans. Colin Smith (Abingdon: Routledge, 1962) p. 293-294

16 Holmqvist "Undoing War" p. 542

which allow us to communicate, view, and in some cases, effect, places all around the globe, a philosopher such as Merleau-Ponty is crucial. Merleau-Ponty, although writing before most such technologies came into play, provides us with a platform for understanding the way in which distant spaces can be linked together by a 'sense of proximity', and the way in which the human body can incorporate technological artifacts, and streams of perception, in ways which challenge the human/nonhuman, natural/technological, authentic/inauthentic, bodied/disembodied binaries which reign in so many other philosophies of technology.

This paper will proceed in two phases then. First, we will engage with Merleau-Ponty's philosophy, teasing out the way in which embodied perception constitutes the spatiality of the world, with special attention paid to the role that technology and media play in shaping both this spatiality and embodiment. Having developed this framework of analysis, we will then turn to a discussion of contemporary information and communication technologies, looking at the way in which mobile phones, computers, telepresence suites, telerobotics, and 24 hour satellite news have shape and mold body and world simultaneously. This section will focus on two trends of accelerating media. First, the increasing incorporation of media into body schemas and cognition - looking at the way in which computers and mobile phones are increasingly being brought into the body producing an intimate experience of accelerating information flows. Second, will be the extent to which these information are global, dislocating perception, suturing together diverse places, producing lives lived in multiple spaces simultaneously. In short, this chapter seeks to understand the ways in which speed allows us to bring the world into ourselves, and to send ourselves out into the world.

2. Merleau-Ponty and Speed

Merleau-Ponty begins by specifically rejecting an account of perception in which an objective eye apprehends and synthesizes sense-data which is taken in from the world. Rather, he says, when we actually study our own perceptions, what we find is that the world presented to us has already undergone a profound act of organization, and thus that the perceived world is always already a world

bursting with meaning. Sense data never comes to us as meaningless; raw perceptual material for intellectual investigation and analysis. Rather, objects, sensations, sense-data, always find themselves embedded in a perceptual field, ordered and given meaning. Such an approach rejects the idea that perception is passively receptive. Rather, as Merleau-Ponty puts it

normal functioning must be understood as a process of integration in which the text of the external world is not so much copied, as composed. And if we try to seize 'sensation' within the perspective of the bodily phenomena which pave the way to it, we find not a psychic individual, a function of certain known variables, but a formation already bound up with a larger whole, already endowed with a meaning...¹⁷

Merleau-Ponty investigates this constitutive function of perception via multiple different examples, from the way in which our perception parcels out sense data into figures and backgrounds; the way in which it attributes relative distance to different objects; or, the way in which it modifies colours on the basis of lighting. In all of these examples, perception acts to accord meaning to sense data according to the broader context in which they are found (or rather, perception *constructs* a broader context which imbues objects with meaning). In this regard, says Merleau-Ponty, "perception is just that act which creates at a stroke, along with the cluster of data, the meaning which unites them - indeed which not only discovers the meaning *which they have*, but moreover sees to it *that they have a meaning*."¹⁸ It does not do so infallibly (otherwise, we would never be confused by what we see, or tricked by optical illusions), but this is exactly the point. This process of constitution does not occur arbitrarily, but neither is it eternal, unchanging or transcendent. Rather, the process by which perception organizes the matter of the world is the result of both nature and nurture, a combination of the physical aspects of the body, the human artifacts and practices which shape and mold that body, and the culture, history, and education in which that body is situated.

From this starting point, in the first part of our discussion of Merleau-Ponty, we will turn to the question of embodiment, of the central role of the body in shaping perception, and perception's shaping of the world. We will also look at the role of technology, and especially media, in shaping the body and

¹⁷ Merleau-Ponty *Phenomenology of Perception* p. 10

¹⁸ Merleau-Ponty *Phenomenology of Perception* p. 42

the body schema. Having developed a theory of the embodied nature of perception, we will then go on to discuss how Merleau-Ponty's phenomenology helps us understand the perception of space, and the complex spatiality of the phenomenal body. Both of these topics are crucial to our understanding of accelerating media, as the question of embodiment shows how we can incorporate these technologies, and flows into our body and perception, and the other how such perceptions shape our experience of the topologies of an accelerated world.

2.1 Merleau-Ponty and Embodiment

Embodiment

As discussed, Merleau-Ponty's account of perception is fundamentally centred around the body. It is insofar as we are embodied that we perceive and thus it is the body that plays the primary role in shaping our perception, and thus in constituting the phenomenal world.

This question of the embodiment of perception is directly linked up to our previous discussion of the always already constituted nature of the phenomenal world. As mentioned above, our body is one of the elements that 'magnetizes' the world, 'inducing a direction' which constructs a perceptual field in a way that is meaningful *for our body*.

The pure *quale* would be given to us only if the world were a spectacle and one's own body a mechanism with which some impartial mind made itself acquainted. Sense experience, on the other hand, invests the quality with vital value, grasping it first in its meaning for us, for that heavy mass which is our body, whence it comes about that it always involves a reference to our body¹⁹

Thus, by way of example, Merleau-Ponty discusses how "A body at rest because no force is being exerted upon it is again for sight not the same things a body in which opposing forces are in equilibrium. The light of the candle changes its appearance for a child when, after a burn, it stops attracting the child's hand and becomes literally repulsive."²⁰ These, in principle identical, pieces of sense data take on different meanings given the specific character, and histories, of the body experiencing them.

¹⁹ Merleau-Ponty *Phenomenology of Perception* p. 60-61

²⁰ Merleau-Ponty *Phenomenology of Perception* p. 60

Part of this constitution of meaning in the phenomenal world relates simply to the bare facts of physiology. The organization of the body - the placement of eyes, ears, head, torso, legs - serves to provide the world with meaningful spatial orientations ('in front of/behind', 'on top of/under', 'up/down', etc). However, of greater importance is the way in which the world is constituted by perception in relationship to the body as a mobile object. This is to say that, once again to counteract the image of perception as a passive faculty, it is exactly insofar as the body is active that the world acquires meaning. The *qualia* of the world are organized by perception in relation to the body as a source of potential and actual action in that world. "The body is the vehicle of being in the world, and having a body is, for a living creature, to be interinvolved in a definite environment, to identify oneself with certain projects and be continually committed to them."²¹ This interinvolvement of body and world mean that perception constitutes the world according to the potential actions of the human body.

In principle all my changes of place figure in a corner of my landscape; they are recorded on the map of the visible. Everything I see is in principle within my reach, at least within reach of my sight, and is marked upon the map of the "I can." Each of the two maps is complete. The visible world and the world of my motor projects are each total parts of the same Being.²²

In this twin map of both the visible world and the body's motor projects, objects take on meaning (which is to say emerge from, or fade into, the background) in relation to what role they serve as potential objects of human action. The perceptual field thus becomes a field of virtual bodily action, and objects become objects *for* bodily action. To understand how this happens, we need to understand Merleau-Ponty's concept of the body schema.

Body Schema

The body schema is a concept developed by Merleau-Ponty which speaks to the special knowledge that we have of our body, its position and its capabilities. In this regard, the body schema is related to the sense of proprioception, the internal, or interoceptive, sense of where the different parts of our body are. As Elizabeth Grosz puts it

²¹ Merleau-Ponty *Phenomenology of Perception* p. 94

²² Merleau-Ponty, Maurice "The Primacy of Perception" Trans. James M. Edie *The Primacy of Perception* (Chicago: Northwestern University Press, 1964) p.

For Merleau-Ponty, the mediating term necessary to explain [the] interaction [between body and world] is the "corporeal schema,".... He asks us to reflect on how we move our bodies and do things: the body "knows" what its muscular and skeletal actions and posture are in any movement or action, quite independent of any knowledge of physiology or how the body functions.²³

The body schema, however, goes beyond proprioception insofar it is not just a collection of individual interoceptive sensations, but is rather a drawing together of the body as a unity. As Merleau-Ponty says in *Phenomenology of Perception* "my whole body for me is not an assemblage of organs juxtaposed in space. I am in undivided possession of it and I know where each of my limbs is through a *body schema* in which all are included."²⁴ Elsewhere he states that

my body is no agglomeration of sensations (visual, tactile, "tenesthetic," or "cenesthetic"). It is first and foremost a *system* whose different interoceptive and exteroceptive aspects express each other reciprocally, including even the roughest of relations with surrounding space and its principle directions. The consciousness I have of my body is not the consciousness of an isolated mass; it is a *postural schema*. It is the perception of my body's position in relation to the vertical, the horizontal, and certain other axes of important coordinates of its environment.

What is more, the body schema refers not just to the current or immediate position of the body, but rather constitutes a schematic encompassing all of the possible positions, and thus actions, of the body. "The body is able to move, to initiate and undertake action, because the body schema is a series, or rather a field, of possible actions, plans for action, maps of possible movements the body 'knows' how to perform."²⁵

It is crucial, at this point, to distinguish between the body schema, and another concept in Merleau-Ponty with which it is sometimes confused, the body image. The body image constitutes, unsurprisingly, that image we have of our body as it is given to us through visual perception, whether directly or via mirrors or other media. The body image is thus the body insofar as it is an object of perception, the sensed body. This has to be distinguished from the body schema as that which grounds perception. As we discussed, perception constitutes the phenomenal world in relation to the field of possible bodily actions, and it is the body schema that provides (or rather is) that field of bodily actions.

23 Grosz *Volatile Bodies* p. 91

24 Merleau-Ponty *Phenomenology of Perception* p. 112-113

25 Grosz p. 95

Discussing this distinction between the body schema and the body image, Hansen states that

According to Gallagher, the distinction correlates with the task of thinking "the human body on both sides of the intentional relations"; thus, the body image designates the body as the object or content of intentional (or noetic) consciousness, whereas the body schema characterizes the body as a "pre-noetic" function, a kind of infraempirical or sensible-transcendental basis for intentional operation. "In contrast to the intentional (and sometimes conscious) nature of the body image, a *body schema* involves an extraintentional operation carried out prior to or outside of intentional awareness."²⁶

What this means is that the body schema precedes and conditions the perceptual field, and thus the content of perception, or, as Hansen put it "the motile or 'phenomenal' body, the body as body schema, precedes and informs the constitution of the objective domain (including the body as object, or the body image)".²⁷ For Hansen, then, interestingly, this puts the body schema, necessarily out of the reach of phenomenological analysis, since it does not enter into, but constitutes, perception.

One crucial consequence of Merleau-Ponty's principled and philosophical distinction between body image and body schema is, as Gallagher points out, a methodological limitation on the phenomenological method: "The pre-noetic role of the body schema is impenetrable to phenomenological reflection" (233). If this limitation requires a (nonreductive) appeal to the empirical sciences, as Gallagher suggests, it also, more consequentially, marks the operation of a "transcendental sensibility" at the heart of Merleau-Ponty's phenomenology of embodiment and, specifically, of his concept of the "phenomenal body."²⁸

This is why, in developing his concept of the body schema, Merleau-Ponty frequently draws on empirical cases studies of psychological and neurological disorders in which something has disturbed the patients body schema (such as phantom limb syndrome, in which despite the obvious visual lack of a missing limb, a patient continues to possess a body schema which includes the missing limb, or in apraxia, in which a limb which is visual present is absent from a body schema.) These case studies show us the important work that body schemas do in organizing perception, and aiding us in navigating the world by showing us what happens when they fail to match up with the outside world.

This reference to phantom limbs and cases of apraxia, by showing us that body schemas can change and mutate in relation to physical, psychological and neurological contexts, also helps to clarify

²⁶Mark B. N. Hansen *Bodies in Code: Interfaces with Digital Media* (Oxford: Routledge, 2006) p. 39

²⁷ Hansen *Bodies in Code* p. 40

²⁸ Hansen *Bodies in Code* p. 40

a crucial fact about body schemas. We should not think of this body schema as a transcendental schema in the style of Kant, or Husserl, or even Sartre, wherein the schema exists absolutely *a priori*. Rather, the body schema functions much more like what Deleuze refers to as a "transcendental empiricism", in which a schema shapes perception, but is not, therefore, prior to, or untouched by experience. Rather, the body schema has a history, and is shaped by a diverse set of factors, such as education, culture, habit, trauma (physical and psychological), environment and, most importantly for our purposes, technology.

For, just as in the case of apraxia in which the body schema can shed things which are physically part of the body, the body schema can also appropriate things which are not. In his lecture notes, Merleau-Ponty describes how the body schema "can be extended to the things (clothing and the corporeal schema). It can expel a part of the body. It is thus not made of determined parts, but it is a lacunary being (the corporal schema is hollow on the inside) - includes accentuated, precise regions, and other vague regions. (the hollow and vague regions are the point of insertion of imaginary bodies.)"²⁹ The somewhat cryptic comment about 'clothing and the corporeal schema' refers to a point raised elsewhere, that we frequently incorporate our clothing into our bodily schema since it alternately enables or restricts our bodily field of movement. As he states

If I did not take off my clothes I could never see the inside of them, and it will in fact be seen that my clothes may become appendages of my body. But this fact does not prove that the presence of my body is to be compared to the *de facto* permanence of certain objects, or the organ compared to a tool which is always available. It shows that conversely those action in which I habitually engage incorporate their instruments into themselves and make them play a part in the original structure of my body.³⁰

Nor does Merleau-Ponty stop here, as he identifies several other examples of non-human artifacts which are incorporated into body schemas. These include his famous example of the blind man's cane, which he states "cease[s] to be an object for him, and is no longer perceived for itself' its point has become an area of sensitivity, extending the scope and active radius of touch, and providing a parallel

²⁹Maurice Merleau-Ponty *Nature: Course Notes from the College de France* Trans. Robert Vallier (Chicago: Northwestern University Press, 1995) p. 278-279

³⁰ Maurice Merleau-Ponty *Phenomenology of Perception* p.104

to sight."³¹ He also describes how the feather on a woman's hat, and even a car, can be absorbed into the body schema, providing a new 'field of action', and thus reorganizing the field of perception accordingly. This account of the absorption of non-human artifacts into the human body schema provides the jumping off point for a discussion of Merleau-Ponty's engagement with the question of technology.

Merleau-Ponty, Media and Technology

In Merleau-Ponty's *Primacy of Perception*, he states that "Our organs are no longer instruments; on the contrary, our instruments are detachable organs."³² This line (which could well serve as the motto of our investigation into Merleau-Ponty's thinking on technology and media) nicely sums up both the way in which the perceptual field is constituted and unified by the preobjective, presubjective body schema, and the way in which this body schema does not constitute a solid line separating out self from world.

Merleau-Ponty provides multiple examples where the body schema incorporates non-human artifacts as conduits for the transmission of perceptual information (and, more importantly, for the constitution of the perceptual field). We can here return to his iconic interpretation of the blind person's cane. For Merleau-Ponty, the cane is not to be understood as strictly a medium for information, something separate from the body which is used to discover information about the world. Rather, as he says "The pressures on the hand by the stick are no longer given; the stick is no longer an object perceived by a blind man, but an instrument *with* which he perceives."³³

The blind man's stick has ceased to be an object for him, and is no longer perceived for itself its point has become an area of sensitivity, extending the scope and active radius of touch, and providing a parallel to sight. In the exploration of things, the length of the stick does not enter expressly as a middle term: the blind man is rather aware of it through the position of objects than of the position of objects through it. The position of things is immediately given through the extent of the reach which carries him to it, which comprises besides the arm's own reach the

31 Merleau-Ponty *Phenomenology of Perception* p. 165

32 Maurice Merleau-Ponty "Eye and Mind" Trans. Carelton Dallery Merleau-Ponty, Maurice "The Primacy of Perception" Trans. James M. Edie *The Primacy of Perception* (Chicago: Northwestern University Press, 1964) p. 178

33 *Phenomenology of Perception* p. 175

stick's range of action.³⁴

What Merleau-Ponty is here describing is the way in which the cane, for the user, stops being an object of perception, and rather becomes a conduit through which we perceive. This is to say that the cane ceases to be one object amongst many, which we might use to measure distance (as say with a ruler or yard stick) and instead becomes part of the body.

If I want to get used to a stick, I try it by touching a few things with it, and eventually I have it 'well in hand', I can see what things are 'within reach' or out of reach of my stick. There is not question here of any quick estimate or any comparison between the objective length of the stick and the objective distance away of the goal to be reached. The points in space do not stand out as objective positions in relation to the objective position occupied by our body; they mark, in our vicinity, the varying range of our aims and our gestures.³⁵

The cane in this context constitutes what Andy Clark calls a 'transparent technology' "Transparent technologies are those tools that become so well fitted to, and integrated with, our own lives and projects that they are...pretty much invisible-in-use."³⁶ Such transparent technologies are not, however, solely restricted to 'passive' media which transmit information. Active technologies can also be incorporated into the body schema. There is, of course, Heidegger's famous hammer, and Merleau-Ponty's example of the car. Andy Clark describes a study in which the brains of monkeys which used rakes to gain access to food were shown to begin incorporating the rakes into their body schema, even after only a short period of use.³⁷ In all of these contexts "...technologies work to expand the body's motile, tactile, and visual interface with the environment; to do so, they call upon - and ultimately, refunctionalize - the body's role as an 'invariant,' a fundamental access onto the world, what psychologists and phenomenologists have called the 'body schema'."³⁸

What is important here is that, where these technologies are not 'media' *per se* (which is to say technologies whose primary goal is the transmission of information but taking action) they still have an

34 Maurice Merleau-Ponty *Phenomenology of Perception* p. 165-166

35 Merleau-Ponty *Phenomenology of Perception* p. 166

36 Andy Clark *Natural-Born Cyborgs: Minds, Technologies and the Future Of Human Intelligence* (Oxford: Oxford University Press, 2003) p. 28

37 Andy Clark *Supersizing the Mind: Embodiment, Action, and Cognitive Extension* (Oxford: Oxford University Press, 2011) p. 38

38 Hansen 26

effect on human perception. This is because insofar as these technologies are introduced into a bodily schema, they shape the virtual field of bodily action, which in turn serves to shape the perceptual field. This is important for our discussion of speed and perception, because the increasing speed and scope of technologies of both communication and action serves to reshape the virtual scope of human perception and action, at times on a global scale. Thus it is not just insofar that the drone operator can see the other side of the world, but that he can take (horrific, violent) action there, that produces a reorganization of the space of virtual action, and thus a reorganization of the perceptual field, a reorganization which serves to suture the distant space of Afghanistan to the local space of Arizona, making the horror and violence that is wrought there 'real' and 'present' to the operator. It is to this expansion of human action and perception that we will turn in the final part of this chapter. Before we do that, there is one more aspect of Merleau-Ponty's philosophy which we must investigate: his account of spatiality.

Merleau-Ponty and Spatiality

For Merleau-Ponty, space as a phenomenon cannot be understood as abstract, objective, euclidian space, in which objects exist in consistent opposition to one another. Rather, space is a malleable medium which organizes itself around the gravitational pull of embodied perception. As he describes it

In psychology, as in geometry, the notion of a single unified space entirely open to a disembodied intellect has been replaced by the idea of a space which consists of different regions and has a certain privileged directions; these are closely related to our distinctive bodily features and our situation as beings thrown into the world.³⁹

What this means is that the world borrows from, and is organized according to, the privileged spatial dynamics and orientations of the human body. Though in terms of an abstract euclidian spatiality, objects are organized according to simple relative positions, none of which has primacy, our bodies have a specific relationship to space which privileges certain spatial orientations. Thus we have up and down (or what is more, above and below) as organized by the relationship between our head and our feet (and, as we will see, between our body and the ground). Upside down is a particular value for the

³⁹Merleau-Ponty, Maurice *The World of Perception* Tran. Oliver Davis (London: Routledge, 2004) p. 43

human body which has powerful effects on vision. Human beings have extreme difficulty perceiving and identifying human faces when they are presented upside down. This shouldn't be a problem if we were simply objectively and passively absorbing sense information in an abstract relative space. But because we assume that the world, and objects within it, possess a certain orientation (premised on our body), images which deviate from this orientation confuse and disrupt our visual field. This is, of course, different from saying that they cannot, with effort, be comprehended by perception. However, doing so usual involve a kind of mental contortion or reorientation of our bodily schema (think here of the way when you might try to 'put yourself inside the map' when navigating an unfamiliar city, rejecting the abstract cardinal points of the physical map, and reconstructing its abstract space with a corporeal orientation of right and left, above and below). This need to grasp complex spatial information and environments corporeally directs our attention to the way in which the perceptual field is organized and oriented in relation to the body schema, and its privileged spatial orientations of the body.

Thus, since every conceivable being is related either directly or indirectly to the perceived world, and since the perceived world is grasped only in terms of direction, we cannot dissociate being from orientated being, and there is no occasion to 'find a basis for space or to ask what is the level of all levels'.⁴⁰

By a 'level of all levels', he is referring to some sort of abstract space which could organize all objects in absolute terms. However, this kind of objective account of space can only ever be secondary to a primary embodied perception, overlaid on top of perception via the act of reflection. Perception always presumes a 'level' which relates to the specific orientation of the human body, which therefore necessarily shifts according to location and nature.

The primordial level is on the horizon of all our perceptions, but it is a horizon which cannot in principle ever be reached and thematized in our express perception. Each of the levels in which we successively live makes its appearance when we cast anchor in some 'setting' which is offered to us. This setting itself is spatially particularized only for a previously given level. Thus each of the whole succession of our experiences, including the first passes on an already acquired spatiality.⁴¹

40 Merleau-Ponty *Phenomenology of Perception* p. 295

41 Merleau-Ponty *Phenomenology of Perception* p. 295

This process of 'casting anchor' in a 'setting' is to posit, corporeally, a 'ground' according to which space will be organized, investing that space with meaningful spatial orientations, such as up and down, left and right, in front of and behind. This level will, of course, be temporary, as we are capable of 'anchoring' in diverse ways, such as when I invert my bodily schema to make sense of an upside down picture (though even then I will usually tilt my head at least partially, suggesting that the body schema cannot be fully detached from the physical body) or when I place myself 'within' a map to navigate it.

As discussed, however, this spatial orientation doesn't just rely on the body schema in terms of its brute physical location. The body schema isn't just a collection of proprioceptive data of the body's current condition, but is also a virtual space of corporeal action. This serves to present to perception those objects which are potential subjects for human action, helping us to organize space into figure and background. All of this is to say that perception works to invest space with a *human* meaning.

What is more, this process of the constitution of space via human perception doesn't just effect those things which we can directly perceive. Merleau-Ponty describes how perception serves even to 'fill in' those areas of space which are blocked to human perception. Thus he gives the example of how, when faced with only one side of a lamp (as, of course, all things only present one side to us) we do not therefore assume that the back is absent. Indeed, what is more, it is not so much that we presume the presence of an absent side through a reflective intellectual action. Rather, even in 'immediate' perception, we grasp the object as whole, though we are presented with 'incomplete' sense data. As he says

I grasp the unseen sides as present, and I do not affirm that the back of the lamp exists in the same sense that I say the solution of a problem exists. The hidden side is present in its own way. It is in my vicinity. Thus I should not say that the unseen sides of objects are simply possible perceptions, nor that they are the necessary conclusion of a kind of analysis or geometrical reasoning. It is not through an intellectual synthesis which would freely posit the total object that I am led from what is given to what is not actually given; that I am given, together with the visible sides of the object, the nonvisible sides as well. It is, rather, a kind of practical synthesis: I can touch the lamp, and not only the side turned toward me but also the other side; I have only to

extend my hand to hold it.⁴²

It is this fact, that 'I have only to extend my hand to hold it' that is at the heart of this constitution of the 'incomplete' object as whole. Because it attests to the fact that the lamp is not (*is not* in a very real sense of that phrase) a collection of sense data, of impressions and perspectives, but is rather a thing in the world, present to my body for possible action. My body schema has learned through a lifetime of grasping things how three dimensional objects - how lamps - *work*, and thus this knowledge is applied in the constitution of a perceptual field. (This is also why my perception grasps, and presumes, the continuity of objects even if they are partially blocked.) This is not, of course, to say that this act of constitution might not turn out to be wrong. The lamp might turn out to be a cardboard cut out, a *trompe l'oeuil* painting or some other such thing. This merely speaks to the extent to which this body schema is not an *a priori* or transcendental schema, but is rather an *a posteriori* one, constructed out of physiological fact, individual history and cultural context, and thus can be wrong in its grasp of the world. Indeed, it is exactly the fact that it can be mistaken which supports the idea that perception is not simply the passive reception of sense data, but an active orientation that can be 'wrong' (for certain values of wrong). This is why, no matter what facts we know about astronomy, it doesn't change the fact that we perceive the sun a changing size depending on how close it is to the horizon (because, of course, the analysis of relative size and distance in terms of bodily perspective usual works in the constitution of a spatial and perceptual field, when applied to non astronomical bodies). The entire existence of optical illusions attests to the active, bodily constitution of perception.

Thus the perceptual field serves not just to organize and orient present sense data, but also to fill in absent sense data in order to 'complete' the perceptual field. What is more, this process is not just limited to 'completing' partial objects 'within' the visual field. Rather, it extends beyond the visual field by presuming - and presenting to perception - the continuity of the perceptual field.

When we reach the limits of the visual field, we do not pass from vision to non-vision: the

42 Merleau-Ponty *Primacy of Perception* p. 14

gramophone playing in the next room, and not expressly seen by me, still counts in my visual field. Conversely what we see is always in certain respects not seen: there must be hidden sides of things, and things 'behind us', if there is to be a 'front' of things, and things 'in front of us', in short, perception.⁴³

This introduces a crucial point, that the perceptual field expands beyond the perceptual field, or rather that because we assume the continuity of space, the perceptual field immediately apparent to us presumes, and is situated within, a wider horizon of space which is also shaped by our bodily schema, and expectations about how space and objects with it works. This factor is especially important to our discussion of space and speed, as it begins to describe how we relate to spaces which are not immediately present to us.

Thinking Distance

The necessarily non-objective nature of space (which is, of course, not exactly to say the *subjective* nature of space) means that even when we relate to much longer distances, they too are organized as part of our perceptual field, if not in such a straight forward manner. There are not two different spaces - the embodied space present to us immediately in the perceptual field, and the abstract geometrico-geographical space of distance beyond us. Or rather, there are two spaces, the embodied space of the perceptual field, and the objective space of secondary reflection, but they are not separated by some dividing line between the present and absent, or the near and the far. Rather, as we've seen, even what is absent is included in the perceptual field, and what is distant is continuous with - and bound up in - what is near (even if, and this is crucial, it is continuous exactly insofar as it is viewed as separate from what is near). This is to say that the wider space of the world too play a role in our spatial situation, and our perceptual field. Consider this passage in which Merleau-Ponty provides an account of how our relationship even to the furthest reaches of the world take on a human meaning.

Whatever be the validity of our universal concepts, the antipodes will never exist for us like the things we perceive around us. They will never be simultaneous with the world that I perceive; I cannot believe in it in the same way that I believe in the things that surround me. Between the antipodes and us there is only a linkage of motivations; I know that others have been there, that I

43 Merleau-Ponty *Phenomenology of Perception* p. 323

in principle can go there, but that I would take time to go there and that when I will be there I will not be at the antipodes. This ubiquity of thought that makes me believe that the antipodes exist rests on a transmutation of here to there ... In this sense the world of idealization encloses a certain relativity. It is only true as limited and reincorporated into a more concrete given.⁴⁴

Two crucial points are made here. 1) Despite the existence of universal concepts of space and time, the question of space is always a question of how things 'exist for us'. We can happily look at a map and understand the objective relations of all space, but in relationship to my embodied perception, the antipodes take on an orientation of 'farness' which is relatively to my bodily situation. This leads to point 2) This is what I mean when I said that in the perceptual field what is distant is continuous with what is near, even if this is insofar as it is viewed as separate from what is near. As this passage makes clear, the antipodes are defined exactly insofar as they are distant from me. They take on an orientation, a *meaning* in relation to my bodily location, a meaning which would necessarily be lacking when we treat the antipode merely as a point on a map. When we look at a map, we take in space (and therefore time) as simultaneous, as co-present with itself. In terms of embodied perception however, this is impossible. The antipodes "will never be simultaneous with the world that I perceive" exactly because it is given meaning in terms of its distance.

At the same time as our embodied perception can create a separation between near and far, parcelling out space according to its relation to our bodily location, it can also suture together spaces which are widely disparate, even on a planetary scale.

We have forgotten the notion of *Boden* ("ground"), because we have generalized it, situating the Earth among the planets. But, Husserl says, imaging a bird capable of flying to another planet: it would not have a double ground. From the sole fact that it is the same bird, it unites the two planets into one single ground. Where I go, I make a ground there and attach the new ground to the old where I lived. To think two Earths is to think one same Earth. For man, there can be only men. Animals, Husserl's says, are only variants of humanity. We think that which is the most universal in us starting from the most singular. Our soil or ground expands, but it is not doubled, and we cannot think without reference to one soil of experience of this type. The Earth is the root of our history. Just as Noah's ark carried all that could remain living and possible, so too can the Earth be considered as a carrier of all the possible.⁴⁵

We, of course, do not need to imagine a bird, but rather can bring to mind the history of space flight in

⁴⁴ Merleau-Ponty *Nature* p. 78

⁴⁵ Merleau-Ponty *Nature* p. 77

the 20th and 21st centuries, and the way that they changed human relationships to space, and to the earth. This is not to say that most people think that they can or will go into space. It is rather that space, and the moon, have now been incorporate into the virtual space of human bodily action in a way that it was previously impossible.

There is a seeming contradiction here between the embodied perception which separates off the antipodes as 'distant', yet can incorporate the moon into the 'ground'. However, this speaks to the relative mutability of the perceptual field in terms of the ways in which it orients us to the world. We can, Merleau-Ponty says, anchor our perception in different ways in the world to reorganize the perceptual field (think here of my discussion of 'putting oneself into the map' as a way of investing its space with an embodied orientation of left and right rather than objective cardinal points of north and south to aid in navigation). By taking on a kind of virtual posture in the world, we can produce a virtual action space (a space which was always already virtual to being with) which then serves to reorganize the perceptual field, at least temporarily.

What is especially important is that this ability to anchor perception in diverse locations isn't just confined to immediate space. Rather, just as we said that distant spaces are linked to nearer ones via the perceptual field, so to can we anchor our perception to distant spaces, splitting ourselves in two.

I arrive in a village for my holidays, happy to leave my work and my everyday surroundings. I settle in in the village, and it becomes the centre of my life. The low level of the river, gather in the maize crop or nutting are events for me. But if a friend comes to see me bringing news from Paris, or if the press and radio tell me that war threatens, I feel an exile in the village, shut off from real life, pushed far away from everything. Our body and our perception always summon us to take as the centre of the world that environment with which they present us. But this environment is not necessarily that of our own life. I can 'be somewhere else' while staying here, and if I am kept far away from what I love, I feel out of touch with real life.⁴⁶

In this case, anchoring on a distant space reinforces this sense of distance as 'non-simultaneity' discussed above. This account is important for understanding the way in which the speed and scope of contemporary information technologies can make us feel alienated from where we are, keeping us 'far

46 Merleau-Ponty *Phenomenology of Perception* p. 333

away from what we love', and trapping us where our body physically is. Note here that exactly what is important is the fact that though one has information about Paris, one is unable to act there. The anchor of one's perceptual field, and the location of one's space of bodily action are opposed to one another, resulting in a situation where one feels 'out of touch with real life'.

This is not, however, the only possible relation of the near and far. Via various technological innovations, there are increasingly ways in which information flows do not just anchor our perception in distant locations, but allow us to actually have effects there as well. In this regards, much like the bird which is able to fly between the earth and the moon, technology can suture together diverse grounds, creating new spaces. Thus Merleau-Ponty describes how "A friend's speech over the telephone brings us the friend himself, as if he were wholly present in that manner of calling and saying goodbye to us, of beginning and ending his sentences, and of carrying on the conversation through things left unsaid."⁴⁷ By noting the way in which this total movement of speech can happen via communication technologies, by acknowledging the way in which the telephone can 'bring the friend himself', Merleau-Ponty is noting the way in which reciprocal embodied action can suture space together. The distance of space is annihilated not just in the instantaneity of the data transfer across phone lines, but in my perceptual field which parcels out spaces of 'nearness' and 'distance'. Nearness and distance become not matters of objective space (as, of course, they never were), but instead questions of bodily capability, of a virtual space of action, and thus of a technical apparatus which can transmit flows of information and action fast enough, and densely enough, to shape our perceptual field reliable in favour of suturing distant spaces together. It is to this phenomenological topology of an accelerating world that we will turn next.

3. Technology, Space and Speed

In terms of tracing out the phenomenological topology of an accelerating world, our goal is to develop a more nuanced understanding of that most cliched statement about life in accelerating world "the

⁴⁷Maurice Merleau-Ponty *Signs* Trans. Richard C. McCleary (Chicago: Northwestern University Press, 1964) p. 43

feeling one has that the world is at one's fingertips" as N. Katherine Hayles puts it. She goes on to describe this feeling in better detail saying

The ability to access and retrieve information on a global scale has a significant impact on how one thinks about one's place in the world. I live in a small town in North Carolina, but thanks to the web, I do not feel in the least isolated. I can access national news, compare it to international coverage, find arcane sources, look up information to fact-check a claim, and a host of other activities that would have taken days in the pre-internet era instead of minutes, if indeed they could be done at all. Conversely, when my computer goes down or my Internet connection fails, I feel lost, disoriented, unable to work - in fact, I feel as if my hands have been amputated Such feelings, which are widespread, constitute nothing less than a change in worldview.⁴⁸

In this passage, Hayles invokes multiple themes from our investigation of Merleau-Ponty - the way that technologies can come to be incorporated so fully into our body schema that their removal can feel like the loss of a limb; the way that technologically mediated changes in the space of information, communication, and action can serve to change my perception of spatial characteristics such as nearness, distance and isolation; and finally, that together these tendencies "constitute nothing less than a change in worldview". In this section, we will focus on two themes, which organized our discussion of Merleau-Ponty: first, how technologies are increasingly absorbed into the body schema, and second, how these technologies shape and expand the field of perception and virtual action, and in doing so re-constitute our sense of the spatiality of the world. At stake here is a rejection of accounts which view contemporary information and communication technologies as having a fundamentally dislocating effect on human existence; in its place, I wish to argue for a better understanding of the way in which these technologies produce an experience of translocalization, the suturing together of diverse spaces, producing a unique and shifting topology in which values of near and far, present and absent still exist, but in ways which don't directly map onto 'objective' space, and which manifest in novel ways.

Incorporating Media

The idea that the human body is marked by an originary technicity, is in no way restricted to Merleau-Ponty. There are numerous authors who have viewed the history of the human body and mind

48N. Katherine Hayles *How We think: Digital Media and Contemporary Technogenesis* (Chicago: University of Chicago Press, 2012) p. 2

as the ongoing process of supplementation by technological artifacts, what Bernard Stiegler calls our 'technogenesis'. It is why cognitive scientist Andy Clark says that human beings are "Natural Born Cyborgs."⁴⁹ For Clark, like many contemporary commentators on the figure of the Cyborg (from Donna Haraway on down), the Cyborg is not just a science-fictional figure, embodied in such futural characters as the Terminator. Rather, says Clark, insofar as human beings have always relied on technological artifacts to extend our bodies we have always been cyborgs, and always already been an admixture of technology and nature. Indeed, Clarke adheres to a particularly strong version of the cyborg metaphor, arguing that it is not just the case the human body is extended via tools, but that the human mind as well. He argues that human cognition has always functioned not just via internal processes taking place in the brain, but through external artifacts and practices, such as language, gestures, recording devices and information media. In the contemporary era these artifacts and processes encompass digital technologies, but this is just the more recent phase of an ancient process.

Certainly I don't think this tendency toward cognitive hybridization is a modern development. Rather it is an aspect of our humanity, which is as basic and ancient as the use of speech and which has been extending its territory ever since. We see some of the cognitive fossil trail of the cyborg trait in the historical procession of potent cognitive technologies that begins with speech and counting, morphs first into written text and numerals, then into early printing (without movable typefaces), on to the revolutions of movable typefaces and the printing press, and most recently to the digital encodings that bring text, sound, and image into a uniform and widely transmissible format. Such technologies, once up and running in the various appliances and institutions that surround us, do far more than merely allow for the external storage and transmission of ideas. They constitute, I want to say, a cascade of "mindware upgrades": cognitive upheavals in which the effective architecture of the human mind is altered and transformed.⁵⁰

While not all of these 'mindware upgrades' relate explicitly to questions of perception, or questions of speed, in our era of accelerating information flows, and proliferating access to tele-technologies contemporary technogenesis frequently takes the form of the acceleration and expansion of human perception.

⁴⁹Andy Clark *Natural-Born Cyborgs: Minds, Technologies and the Future Of Human Intelligence* (Oxford: Oxford University Press, 2003)

⁵⁰Andy Clark *Natural-Born Cyborgs: Minds, Technologies and the Future Of Human Intelligence* (Oxford: Oxford University Press, 2003) p. 3-4

What we're specifically interested in is how a technology can be so thoroughly integrated into the body as to radically affect the shape and scope of the subject's perceptual field. Just as the blind person's cane can extend the radius of human touch, so too can digital technologies extend the space of other aspects of the human sensorium over a much wider distance. At its absolute limit, this translates into what is terms 'telepresence', the ability to fully transport the human sensorium to a wildly different local. Clark describes what this would look like in its most extreme forms, saying

True telepresence, insofar as it is achievable, would seem to require a high bandwidth multisensory bath of information with local sensory stimulation: in effect, the full virtual reality body suit, with feedout and feedback connections for sight, sound, hearing, touch, and smell, as well as heat and resistance sensing. Also - perhaps crucially - the user needs the ability not just to passively perceive but to *act upon* the distance environment and to command the distant sensors to scan intelligently around the scene.⁵¹

Though work continues on 'virtual reality' platforms which might someday develop these kinds of technical capabilities, thus far this kind of telepresence experience is still science-fictional. However, we shouldn't imagine that this is the only way to produce the experience of telepresence. We do not necessarily need access to high bandwidth sensory information to give the experience of robust embodied perception. Rather, as Clark points out in an overtly Merleau-Pontian moment "Our sense of personal location has more to do with this sense of an *action-space* than with anything else."⁵² It is our ability to take action in the world which grounds perception, and thus shapes our sense of spatiality and location. This is why even when they have high-definition screens and high bandwidth connections, teleconferencing suites rarely give us the feeling of tele-presence. It is not just that we cannot physically affect the space on the other side of the screen. This could easily be surmounted. It is that the camera angle is essentially unmoving. Since the perspective is unconnected with our bodily movements, the camera cannot be effectively integrated into our body schema, and thus produce an experience of bodily perception and location. As Clark puts it "What seems to matter in these cases is the presence of some kind of local, circular process in which neural commands, motor actions, and

⁵¹Andy Clark *Natural-Born Cyborgs: Minds, Technologies and the Future Of Human Intelligence* (Oxford: Oxford University Press, 2003) p. 93

⁵² Clark *Natural-Born Cyborgs* p.94

sensory feedback are *closely and continuously correlated*.⁵³ In other words, that the vector of perception incorporates itself the body schema in a natural and continuous enough way to produce the transparency of the sensing medium (whether it be cane or video camera), and its constitution as embodied human perception. This is why very low resolution, but very quick feedback technologies provide a much greater sense of trans-location than a teleconferencing suite.⁵⁴

The fact that the most effective telepresence media are not necessarily those with the highest bandwidth, or that most faithfully recreate the experience of immediate vision brings us to another point. That to the extent that media are incorporated into the body and body schema, the goal is not necessarily just to extend perception in a linear fashion. Technological extensions of the body need not just replicate perfectly perception in its 'natural' form. The cane doesn't just reproduce vision (or touch for that matter) in a non-biological form. To think of it this way is to adhere to what Clark calls the 'crutch' image of technology, which is to view technological artifacts as simply recreating the 'natural' capabilities and functions of the human body. Instead, insofar as new technologies become part of the body schema, they *change* the body schema, and in doing so *change* the perceptual field, and therefore *change* cognition. In many ways, this shouldn't be surprising. Merleau-Ponty describes to us regularly how matters of history, biology, culture, personal experience, shape bodily perception, both within the same subject, and between subjects in different historical and cultural locations. Again, we need to remember that Merleau-Ponty's account of how the perceptual field is shaped by a pre-perceptual schema, does not posit an *a priori* schema. Rather, here the schema is developed *a posteriori* in a feedback loop with the world in which it exists. This is why Hansen invokes Deleuze's language of "transcendental sensibility" to describe it.⁵⁵ And this is also why, when attempting to investigate technologies which translocate embodied perception, we should not just be searching for the

53 Clark *Natural-Born Cyborgs* p. 104

54 Clark provides the example of the 'Datamitt', linked hand prostheses which transmit the sensation of squeezing hands between physically separated users, which despite the very small amount of information being transmitted, produces a strong sense of connection between users.

55Mark B. N. Hansen *Bodies in Code: Interfaces with Digital Media* (Oxford: Routledge, 2006) p. 8

technologies that most faithfully replicate the experience of 'immediate', 'natural' bodily experience and presence, in the style of the 'gold standard' telepresence platform discussed above. What is more, this should also factor into how we think about translocation. Frequently we see a distinction made between a complete, 'natural', immediate location, and an uncanny, unnatural 'dislocation'. Such a dichotomy ignores the way in which technologies might produce, indeed, might *seek* to produce a *different kind of location*, a different kind of spatiality, which carries some of the characteristics of what we think of as 'immediate' location, but not all. Clark quotes technologists Jim Hollan and Scott Stormetta who state

[much] telecommunications research seems to work under the implicitly assumption that there is a natural and perfect state - *being there* - and that our state is in some sense broken when we are not physically proximate...in our view, there are a number of problems with this approach. Not only does it orient us towards the construction of crutch-like telecommunications tools but is also implicitly commits us to a general research direction of attempting to imitate one medium of communication with another.⁵⁶

The example Clark provides is E-mail, saying that contrary to a 'crutch' view of e-mail in which it is just a degraded way of having a face-to-face conversation,

e-mail is *nothing like* face-to-face interaction, and therein lies its virtue. It provides *complementary functionality*, allowing people informally and rapidly to interact, while preserving an inspectable and revisitable trace. It does this without requiring us both to be free at the same time... The tools that really take off, Hollan and Stormetta thus argue, are those that "people prefer to use [for certain purposes] even when they have the option of interacting in physical proximity...tools that go *beyond being there*."⁵⁷

For example, we might want to think about the ways in which embodied perception and our sense of spatiality are shaped by an increasingly ubiquitous communication technology, cell phone texting.

Although in principle a much slower, intermittent and less information dense form of communication than talking on the phone, it has become immensely popular. A survey shows that between March 2006 and May 2011, the number of US adults who sent or received text messages climbed from 31% to 61%.

What is more, this statistic skews heavily according to age, with only 48% of those age 50-64 using text messages, compared to 89% of those aged 18-29.⁵⁸ Indeed, the numbers go up even more than that

⁵⁶ Clark *Natural Born Cyborgs* p. 109

⁵⁷ Clark *Natural Born Cyborgs* p. 110

⁵⁸Rainie, Lee and Wellman, Barry *Networked: The New Social Operating System* (Cambridge, Mass: The MIT Press, 2012) p. 90

when we look at teenagers, for whom texting is a far more common form of communication than actually talking on the phone. According to Barry Wellman and Lee Rainie

Teens prefer mobile texting...because they can do it privately from their personal phones, and because texting is unobtrusive - it can be done silently while in a class, out with friends, or even at home with parents. Unlike phone chats, texting can be asynchronous: Busy teens can leave messages for each other.⁵⁹

Here we see exactly what Clark was discussing above; the reasons that individuals have taken to texting as a medium for communication are exactly the reasons that make it different than 'immediate' 'face-to-face' communication and perception. It's asynchronous, low-bandwidth (and therefore silent), and can be done parallel with other activities.

Texting allows for a kind of constant, low-level contact with absent others regardless of their distance from you (the experience of texting is the same whether the recipient is in the next room or in another country). The result of this is that the integration of texting into one's daily life shapes one's sense of spatiality in several key ways.

First, is the constant virtual presence of absent others (and your virtual presence to those absent others). As Rainie and Wellman put it "The small size of mobile phones also gives users a sense that their social networks are easily accessible where they are : the diminutive device potently symbolizes a network in their pocket." No longer do we assume that people are only accessible at certain specific locations we have a phone number for, and only at specific times when they are not otherwise occupied. Now the presumption is that the inaccessibility of individuals will be a rare and temporary phenomenon.

This easy and constant accessibility changes how people relate. For networked individuals, this switch to perpetual access that is untethered from places gives them more control of their outreach to others and their available to others. This also affects people's sense of time, place presence and social connectedness. This, in turn, leads to new notions about when it is possible - and permissible - to be in touch with others. People's expectations about the availability and findability of others have sharply expanded since the Mobile Revolutions.⁶⁰

⁵⁹Rainie, Lee and Wellman, Barry *Networked: The New Social Operating System* (Cambridge, Mass: The MIT Press, 2012) p. 90-91

⁶⁰Rainie, Lee and Wellman, Barry *Networked: The New Social Operating System* (Cambridge, Mass: The MIT Press, 2012) p. 95

This has, of course, been extensively commented on, and debates over the desirability of this kind of ubiquitous connectivity are on-going. On the one hand, the expectation of constant availability which many workers feel in relation to their jobs is a profoundly stressful experience. On the other hand, those in long-distance relationships, for example, describe the important role that this kind of ubiquitous, low-level communication plays in maintaining a sense of intimacy and connection. My goal here is not, at least at this point, to decisively evaluate the benefits or dangers of this kind of technology, but to seek to understand the way in which this shift in expectations of findability constitutes a mutation in our sense of spatiality. While the individuals which are part of our social and electronic network are clearly not present in an immediate, corporeal way, they are clearly present in a virtual, but still effective and affective way (otherwise the virtual presence of our bosses would not provoke stress, nor the virtual presence of our lovers affection). We might not be able to go so far as Merleau-Ponty when he said "A friend's speech over the telephone brings us the friend himself", but texting definitely produces a sense of what Rainie and Wellman call the "present absent."⁶¹ The present absent necessarily occupies a space which is neither near or far, which sutures together distant space, but in a less robust way than a 'gold-standard' telepresent suite might, resulting in a virtually present space of connection which fades in and out of focus, depending on our current activity.

This experience, it should be noted, is not just informational or imaginary, but embodied. Mobile phones are very much integrated into our body schema. As Merleau-Ponty conveniently pointed out, the habit of typing serves to integrate the perception and knowledge of the keyboard into our bodies. Indeed, the keyboard exists alongside the cane, the feather, and the car, as a key example of our body's ability to "appropriate fresh instruments" for ourselves.

Habit expresses our power of dilating our being-in-the-world, or changing our existence by appropriating fresh instruments. It is possible to know how to type without being able to say where the letters which make the words are to be found on the banks of the keys... If habit is neither a form of knowledge nor an involuntary action, what then is it? It is knowledge in the

⁶¹Rainie, Lee and Wellman, Barry *Networked: The New Social Operating System* (Cambridge, Mass: The MIT Press, 2012) p. 103

hands, which is forthcoming only when bodily effort is made, and cannot be formulated in detachment from that effort.⁶²

This is crucial because it points out the way in which, when texting with someone, we are not focusing on the keyboard or the act of typing, so much as we are *communicating*, enacting language's ability to produce a sense of connection with the other. This serves to materialize the connection with the other, shaping your perception of spatiality. This incorporation of the materiality of the cell phone extends beyond the keyboard interface to the whole of the object itself. Anyone who has extensively communicated via cell-phone can describe how the vibration which accompanies a text notification can have profound physiological and psychological effects - excitement for the individual expecting a text back from a lover, dread for the individual expecting a work text. Indeed, even the weaknesses of the mobile phone can direct our attention to the ways in which it shapes our sense of spatiality (as a broken hammer makes us more attentive to its nature). When for example, poor reception, or dropped texts interrupt a text conversation, we find that someone who was near has suddenly become distant. Additionally, we feel like a power we once had is now absent (think of Katherine Hayles' confession that when her internet link is broken 'I feel as if my hands have been amputated').

This ability for our cellular connection to be severed - and thus for our virtualized conception of spatiality to be disrupted - brings our attention to another way in which texting and mobile phones shape our relationship to space; the way that they change even our experience of immediate space.

For example, the ubiquitous presence of mobile phones (frequently enabled with the capability of connecting to wifi networks) makes us attentive to the materiality of our surroundings. Being behind thick concrete, being underground, being in a space with lots of other network data - all of these take on additional meaning for us. Our acquisition of a wireless mobile phone/PDA develops what Gilbert Simondon call a "technogeographic milieu."⁶³ Once again, we see here a Merleau-Pontian echo, in the way in which changes in the field of action serve to change the way in which perception is constituted,

62 Merleau-Ponty *Phenomenology of Perception* p. 166

63 Mackenzie, Adrian *Wirelessness: Radical Empiricism in Network Culture* (Cambridge, Mass: MIT Press, 2010) p. 126

and the way in which space, and objects, are accorded meaning. In the same way that the incorporation of the car into our body schema gives a new meaning to the space of the entry gate ('too small'/'just big enough'), the incorporation of the mobile phone give a new meaning to architecture and location ("Proximity to wifi routers and cellular antennae?", "Opacity to radio waves?"). In a tenuous, but also very real way, we can say that the space of wireless frequencies becomes tangible too us. We watch people navigate this space as they get up and move about the room, hunching over or standing on tip toes in an attempt to get a connection.

This point, about the way in which we navigate a physical space overlaid with the space of wireless flows (and in many ways also overlaid with the absent presences of those other in our social and electronic networks) brings us to the final way in which texting and mobile phones shape our sense of spatiality. As we discussed, the increasing ubiquity of mobile phones has resulted in increased expectations of findability. Thus, you don't assume that you are only able to contact individuals at specific locations at specific times. What this means is that the values of "specific times" and 'specific locations' begins to wane. As Rainie and Wellman point out, the constant low-level contact which texting and mobile phones provide has resulted in changes in the way in which some people relate to planning meetings in physical space.

Rather than people stating precisely where they will be and when, people use their mobile phones as they draw near a gathering, repeatedly reporting their whereabouts and approximate arrival time, and often point out landmarks so that those meeting them will be able to place them and even see them as they approach. They understand from the beginning that the initial time and place for the meeting are approximate and changeable. They are more careless about arriving at the proper time and they fuss less about knowing the proper place ahead of time. Sociologist Bernie Hogan calls this "soft time" and "soft location". It is part of networked individuals' shift from place-based connections to person-based connections, with "a flexible lifestyle of instant exchange and constant updates"⁶⁴

In this changing practice of planning meetings, we see a changing image of spatiality. Rather than a map marked by specific, stable locations, space becomes marked by vectors, velocities and tendencies, as groups spiral into, and out of physical proximity. This softening of location and time isn't just a

⁶⁴Rainie, Lee and Wellman, Barry *Networked: The New Social Operating System* (Cambridge, Mass: The MIT Press, 2012) p. 99

matter of convenience, or busyness, but rather marks a genuine change in perception of spatiality.

What we find in this brief engagement with texting are multiple ways in which the embodied practices of perception and communication afforded by the mobile phone as technical apparatus serves to shape our perception of space, both in terms of 'physical' immediate space, as well as a virtual space of 'absent presences'. Not all of these hew exactly to Merleau-Ponty's account. But again, the entire point of Merleau-Ponty's analysis is to understand the way in which changing conditions of biology, culture, history and personal experience shape the schema which in turn shape perception. We must therefore be attentive to the ways in which new technologies might shape our sense of perception and spatiality in unexpected ways.

Reshaping Space

Our engagement with the case study of texting above provided an example of both the ways in which technologies can be incorporated into our body/body schema, and how this can shape our sense of spatiality. What's important to note, in the context of a discussion of speed and perception, is the way in which these technologies which accelerate flows of information and action do not serve to despatialize experience. While these technologies certainly *change* our sense of spatiality, producing a novel phenomenological topology of space, they never succeed in genuinely taking us out of space (whatever that might mean). This is contrary to the dislocating image of accelerative technologies developed by, for example, Borgmann, based off of his reading of Heidegger.

To overcome the extension of time and space has been a powerful tendency since the beginning of modern technology. As Heidegger pointed out in 1905- already, we have been annihilating space and time in earnest through planes, radio, film, and television. Information technology in particular does not so much bring near which is far as it cancels the metric of time and space. Heidegger...consider[ed] the role technology has had in providing for "communication over vast distances," and concluded, correctly, I believe, that technology does not make present what is distant. "Everything," he says, "gets lumped together into uniform distancelessness."⁶⁵

As we have been arguing, our experience of space in an accelerating world is not one of 'uniform

distancelessness', though it might not be the spatiality of previous historical epochs. Our

⁶⁵Albert Borgmann "Information, Nearness, and Farness" *The Robot in the Garden: Telerobotics and Telepistemology in the Age of the Internet* Ed. Ken Goldberg (Cambridge: MIT Press, 2001) p. 98-99

phenomenological account of texting showed exactly how the incorporation of a new technology shaped our sense of spatiality across multiple vectors. Moving on from this specific case study, I would like to end this paper by engaging with the question of how accelerative technologies are more generally shaping our sense of spatiality. I will do this by looking at two key spatial oppositions which are challenged by an accelerating perception - public and private, and near and far.

Public and Private

Many people have remarked upon the way in which ubiquitous telecommunications devices have begun to break down the line between public and private. As previously discussed, this is most obvious in the case of the 'work-life' divide. E-mail, mobile phones, and teleconferencing mean that work is increasingly capable of expanding to all hours of the day. Usually this story is told in terms of the steady erosion of the private by the public, the personal by the economic. Rainie and Wellman, however, point out that this breaking down of the line between public and private is less a homogenization under the sign of a constant public, but an increasing interpenetration of the two, decoupled from location.

The interpenetration of home and work goes in both directions. In one direction, workers bring work home from the office to finish off jobs or they may stay home full or part time...For others, the new media tethers them to their jobs - they cannot leave work behind when they head out the office door. On the one hand, many feel so burdened by time pressures and the constant threat of demands that they respond and complete tasks even when they are away from their place of work. On the other hand, many feel liberated by being able to avoid long, tedious, and tense commuting. They enjoy the prospect of being able to do "home" activities such as personal browsing of the web, sharing facebook updates, shopping, and emailing family and friends while they are at work. In short, "home" activities have invaded work while "work" activities have invaded homes.⁶⁶

It should be noted that, these effects of accelerative technologies can't be read in isolation from the broader social and economic contexts in which they exist. The invasion of 'home life' by work is an extension of the usual capitalist process of real subsumption, enhanced by communication technologies. But, as Rainie and Wellman point out, these same technologies provide opportunities for

⁶⁶Rainie, Lee and Wellman, Barry *Networked: The New Social Operating System* (Cambridge, Mass: The MIT Press, 2012) p. 16

workers to fight back, clawing back some of their own time during work hours, setting up temporary private spaces, while in the archetypal public space of work.

The important thing is that we recognize that these communication technologies do not simply produce one homogenous public space. Indeed, these technologies frequently provide new opportunities for privacy, and even for creating private spaces in formerly public spaces. As Rainie and Wellman say, "Mobile phones have made conversations more private than they were in the era when the household phone sat in the middle of the house so that everyone at home could hear at least one end of a phone conversation. Texting has brought another dimension to person-to-person contact by helping it become more private, even in close quarters."⁶⁷ This is especially important for those individuals who might not have access to private space over which they have control. Think here of a queer teenager, attempting to maintain a relationship in the context of a disapproving parent, or a victim of domestic abuse seeking help or information under the surveillance of their abuser. This is not to suggest that such effects are universally good. The point, however, is to understand that challenging the line between public and private, does not inherently mean the subsumption of the latter by the former. This interpenetration of public and private space greatly changes our experience and sense of spatiality, making us feel more exposed and 'findable' in our 'private time', but also allowing us to carve out bubbles of private time in seemingly public space. The point, as it always is in our Merleau-Pontian frame of analysis, is how and where we are able to take action, and thus how that shapes our perceptual field and sense of spatiality. As Andy Clark describes

Next time you are on a crowded train or in a subway station, look at all the people around you talking on their cell phones. Where are they? Well, clearly, they are with you in the station or on the train, but often, they are not much engaged with these local surroundings. They are, temporarily at least, jacked into a web of personal and business communications, which deliberately disrespects current physical location. Draw the lines of proximity and distance according to the criterion of effective action, and a virtual neighborhood emerges; one in which the speakers are more proximal to their colleagues or loved ones than to the strangers on the platform.⁶⁸

⁶⁷Rainie, Lee and Wellman, Barry *Networked: The New Social Operating System* (Cambridge, Mass: The MIT Press, 2012) p. 17

⁶⁸Andy Clark *Natural-Born Cyborgs: Minds, Technologies and the Future Of Human Intelligence* (Oxford: Oxford

Note how Clark is very careful not to describe this phenomenon as one of dislocation, or virtualization, or subsumption into some distanceless non-space. Though these technologies certainly allows us to 'disrespect current physical location', this is to draw new lines of proximity and distance 'according to the criterion of effective action'. Sometimes this will serve to transform a private space into a public space. Sometimes it will carve a private space out of a public space. Sometimes it will even serve to shift expectations about what public and private space (and public and private behaviour) are. We might find some, or all of these development undesirable (although I would choose to recognize that understandings and practices of privacy have shifted greatly over time, and thus to be chastened before judging any particular development). But the crucial point to understand is that all of them involve an evolving, but always embodied, sense of concrete spatiality.

Near and Far

In the quote above, when Clark asks the question "Where are they?" of cell-phone users, he notes that the question of space is not just one of type (public or private), but also location (near or far). In previous times, the apportionment of 'near' and 'far' was entirely at the mercy of physical location. The development of new communication technologies allowed the ability to perceive and act to sheer off from physical location, mediated by tele-technologies. This is crucial because, as we've discussed "Our sense of personal location has more to do with this sense of an *action-space* than with anything else."⁶⁹ This perception of action space serves to parcel out space and mark it with the qualities of 'near' and 'far'. As Clark says "Distance...is what there is not action at."⁷⁰ This follows from our account of Merleau-Ponty, insofar as a sense of spatiality emerges from the virtual space of action contained within our body schema. The antipodes are distant exactly because we cannot take action there. However, as tele-technologies alter our action space, they also alter our perception of spatiality.

What is crucial to note here is that, once again, the extension of perception does not result in the

University Press, 2003) p. 89

69 Clark *Natural-Born Cyborgs* 94

70 Clark *Natural-Born Cyborgs* p. 89

collapse of space into homogeneous 'distancelessness', nor does it allow us to transcend into a virtual non-place of cyberspace. This is for two reasons. First, not all distant spaces can be made near. Differences in technical infrastructure; social, cultural, and political conditions; the status of the subject in terms of location, class, race, gender; and many other variables will dramatically effect which spaces are flexible, and which are still firmly captured by objective space. This means that the phenomenological topology of an accelerating world is not, itself, a static, objective space (as, of course, how could it be?), but will differ quite wildly depending on the subject and their particular location and status. Furthermore, to the extent to which distant spaces can be brought near and sutured into our action space, there will be a wide variety of different ways in which we will be able to act at a distance. The datamitt, for example, discussed above makes me feel that I am present in a distant space, connecting with a distant person. However, it is obviously quite different than my experience if that person were objectively present (at the very least, I would have a much wider repertoire of actions I could undertake). The same goes for the telephone, or the text, which, as Merleau-Ponty states "brings us the friend himself", but certainly not in a way which would allow me to hug them (although it may certainly allow me to console them). Different media will produce the opportunity of different types of actions, and will therefore produce a different sense of presence - thinner, more diffuse, more focused, more intense. For some commentators, this means that these forms of presence will always be 'less than' - less authentic, less human, less real. As Hubert Dreyfus says in his discussion of tele-technology

Nor is it just a question of giving robots surface sensors so that, through them as prostheses, we can touch other people without knocking them over. Even the most gentle person/robot interaction would never be a caress, nor could one successfully use a delicately controlled and touch-sensitive robot arm to give one's kid a hug. Whatever hugs do for people, I'm quite sure tele-hugs won't do it. And any act of intimacy mediated by any sort of prosthesis would surely be equally grotesque if not obscene. By why am I so sure tele-intimacy is an oxymoron? I suspect it is because any sense of intimacy must draw on the sense of security and well-being each of us presumably experienced as babies in our caretaker's arms. If so, even the most sophisticated forms of telepresence may well seem remote and abstract if they are not in some way connected with our sense of the warm, embodied nearness of a flesh-and-blood human being.⁷¹

⁷¹Hubert L. Dreyfus "Telepistemology: Descartes' Last Stand" *The Robot in the Garden: Telerobotics and Telepistemology in the Age of the Internet* Ed. Ken Goldberg (Cambridge: MIT Press, 2001) p. 52

This is, of course, deeply tautological as Dreyfus argues that telerobotics cannot produce real intimacy, because intimacy isn't the kind of thing that can be produced by telerobotics. But more than being logical incoherent, this also ignores the empirical evidence. Dreyfus' certainty aside, we have seen how even for very narrow bandwidth telerobotic interfaces, such as the datamitt, users describe experiences of connection and intimacy. This is because Dreyfus (and, it should be said, Heidegger) are starting from the assumption that only perceptions and actions which mimic those of the 'naturally occurring human body' can be authentic, and insofar as perceptual technologies will always fall short of this standard, they will always be degraded, inauthentic forms of human experience. Implicit in this is the assumption of some kind of authentic human perceptual schema. For Merleau-Ponty, however, the human body schema and perceptual field are profoundly mutable. Our perception field, and our body schema, are the kinds of things that can incorporate all sorts of things that bear no resemblance to the human body, and allows for experiences quite wildly different from what a 'natural' human body can (whatever that might mean). Our human body can, according to Merleau-Ponty, incorporate clothes, and feathers, and canes, and cars, and keyboards, and language, and telephone wires. Why would datamitts or mobile phones or vr suits be any different? Or rather, because they are all different in their own unique ways, they will all shape human perception and action in their own unique ways. We might debate whether we like the kinds of spatiality they give birth too. We might wish to forego certain technologies, or shape our encounters with technology (or our technologies themselves) in certain key ways to maintain out of political and ethical concern. What we cannot do is reject such as spatiality as unnatural, inhuman, or inauthentic *a priori*. To do is, at the very least to limit our ability to understand this new accelerating world, and at most to miss out on some potentially useful possibilities. More than anything, it is to invoke a mistaken understanding of the human, and its place in an always shifting spatiality, and an always mutating technogenesis.