

Digital finger: beyond phenomenological figures of touch

Mika Elo*

Department of Media, Aalto University, Helsinki, Finland

Abstract

The article reflects on digitality and interface design in terms of the multiple senses of touch. Touching is presented as a “pathic” sense of being exposed, which implies that touching exceeds the tactile and even the phenomenal world. A particular focus is set on Aristotle’s and Husserl’s ways of thematizing the sense of touch. In this way, two extremes of the phenomenological thinking of touching are articulated: touching as an indistinct and heterogeneous constituent of sensitivity and touching as the guarantor of immediacy of the sense experience. Referring to Derrida’s critical notes concerning haptocentrism, the article attempts to problematize the hand and the finger as phenomenological figures of touch and as holds of haptic realism. The article concludes that insofar as digital interface design aims at haptic realism it conceives of the sense of touch in terms of narcissistic feedback and thus tends to conceal the pathic moment of touching.



Mika Elo is a postdoctoral researcher and lecturer in visual culture at Aalto University School of Arts, Design and Architecture (Aalto-ARTS), Helsinki. His research interests include theory of photographic media, philosophical media theory, and artistic research. He is participating in discussions in these areas in the capacity of curator, visual artist and researcher. He has published articles in Finnish, German, and English among others on Benjamin, Nancy, artistic research and photography theory. His doctoral thesis *Valokuvan medium* [The Medium of Photography] was published in Finnish in 2005 (Tutkijaliitto, Helsinki). In 2009–2011 he worked in the *Figures of Touch* research project (figuresoftouch.com), and since 2011 he is the director of *Media Aesthetics* research group at Aalto-ARTS, Department of Media.

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Our modern technological environment is largely built on finger-friendly touch points. From day to day, we finger various devices, and today their switches, buttons, levers and adjusters are more and more often digitalised. They are icons on some type of display and all we need to control them is a light tap or sweep of our finger. Thus, the finger can take care of a multiplicity of tasks that earlier required the whole hand or some other part of the body. At the same time, these tasks increasingly begin to resemble each other, at least as far as the skills required of the finger are concerned. Therefore we might say that the technology of our time is characterised by

digitality even in the etymological sense of the word “digital”, since the term used for discrete units derives from the Latin word for finger, *digitus*, that itself is now becoming something like a discrete unit. At the same time, digital technology brings different media contents to our fingertips by discreetly covering its code.

It is customary to speak of the digitalisation of different media. It seems, however, that along with digital technology, even the finger has become “digitalised”. It has become an increasingly autonomous unit in relation to the skills of hand and body and its functions can be modelled and transferred to new contexts. Small movements of

*Correspondence to: Mika Elo, Department of Media, Aalto University, Helsinki, Hämeentie 135 C, 00560 Helsinki, Finland. Email: mika.elo@aalto.fi

the finger have as good as limitless possibilities of creating a multitude of things—even “in real time”, i.e. from a distance beyond the bodily horizon without any significant delay. These taps, pushes and sweeps challenge in many ways the familiar *concretia* of the world and invite us to develop ever more comprehensive or, more exactly put, more multiform user interfaces: rather than immersive systems, recent development has moved in the direction of sensory enhancement and mixed reality.¹ In the last few years, accustomed graphic interfaces have been accompanied by multimodal and tangible user interfaces.²

The finger has been handed the status of a switch. But the finger now seems to be dragging the whole body along. The recent popularity of various so-called wearables and computer games requiring bodily participation, such as *Nintendo Wii*, seems to point towards this. Will the “digitalisation” of the finger lead to a “digitalisation” of the whole body and its becoming an incarnation of its own modellings?

With haptic user interfaces which enable bodily interaction with information technology, the body is opened a new type of touch to itself as well as to objects and other bodies. Virtually nothing seems to be beyond reach. With just a tap, we can connect to our friends or colleagues across the globe and share various activities in real time and thus keep ourselves in touch. We can manipulate physical objects across long distances; change, for example, the viewing angle of a web camera somewhere in the world. New media applications may also build into virtual social networks where touch is used—either personalised or anonymously—from problem solving to affective aims, such as stress therapy.³ In short, digital technology involves touch in multiple senses and configurations. How are these figures of touch constituted? Do they share a common denominator?

THE COMPLEXITY OF TOUCH

To approach these questions we will need to discuss touch and sensation in a field that is broader than the physical sense of touching. The nature of touching has been a moot point in western thinking of touch. Different conceptual articulations and arguments, however, almost invariably share the idea that touching is a way of locating and guaranteeing the contact between

different elements of experience. Thus reality has been understood as being in touch with something real. The matter is further complicated by the fact that the different parties to this contact have many names in our tradition: soul, mind, psyche, reason versus body, flesh, sensuality, etc. Correspondingly, the contact itself has been studied from the point of view of religion, intuition, reflection and synapses.

In the experiential horizon of digital technology, the status of touch as a guarantor of tangible reality would appear unstable, as a great deal of what we consider real is anything but tangible, even when we find it touching. The question arises, how to relate tangibility to the conceptual, affective and mental dimensions of touch or feel.

As we embark on a study of the multidimensional role of the reality of touch, we find good reason to return to Aristotle’s treatise on the soul, *De Anima*. It is, after all, considered a central work where the heterogeneity of touch is made into a far-reaching philosophical problem.⁴ Aristotle’s way of inquiring into touch helps us re-evaluate the questions of sensing which place themselves in the centre of media theoretical discussions.

Another apt reference point for assessing the relationship between touch and the media is provided by the phenomenological analysis of touch included in Husserl’s *Ideen II*.⁵ Husserl’s inquiries into the role of touch in the constitution of sensory certainty open up fecund perspectives into digital media technology. The way Husserl outlines the boundary conditions of the interplay of hand and eye is of particular interest in this respect.

With the help of Aristotle and Husserl we can pinpoint the two extremes in the phenomenological thinking of touch: touch as a heterogeneous field and touch as the guarantor of sensory certainty.

To Aristotle, the soul is the cause and essence of the living body.⁶ The question how life manifests itself in the body leads him to a discussion on embodiment. Thus his treatise *De Anima* ultimately deals with the mind-body relationship—the body as the scene of life.

Aristotle introduces his points of departure by stating that that which has a soul is distinguished from that which has not by sensation and movement.⁷ Life is characterised by sensing, but the only sense that is indispensable to all animals is

the sense of touch: “some classes of animals have all the senses, some only certain of them, others only one, the most indispensable, touch”.⁸ The vital role of touch is above all related to the ability to feel pleasure and pain and the ability to seek and find nutrition.⁹ As such sensitivity, touch plays its part not only in all sensing but also in thinking. In its diversity it constitutes a tough challenge for philosophy. Aristotle sees the sensory status of touch as highly problematic: “It is a problem whether touch is a single sense or a group of senses. It is also a problem, what is the organ of touch”.¹⁰ The ability of sensation, which even the simplest of animals possess, is itself anything but simple. Its structure is difficult to get hold of; it slips through our fingers.

The difficulty of defining the sense of touch discovered by Aristotle has accompanied western philosophy of touch up to our days. It is not clear how the heterogeneous elements of touch brought up by Aristotle should be related to each other. The problem does not lie in the way Aristotle poses the questions but in the fact that touch cannot be thematized as a sense in the same way as the exemplary sense of sight, for instance, can be. The objects of touch are many, and it has no clearly definable organ. Touch is in many ways more complex and comprehensive than the other sensory forms. As touch and feel it is indispensable to all animals and belongs inseparably to the living body without, however, being the faculty of any particular body part. Nor can touch be clearly defined as a sense modality. What can be felt as touch are not only certain sensual qualities but anything and everything that can be felt and sensed by the body. The difficulty of drawing lines between the different sensory modalities finds its culmination point here, as bright light, for example, may cause quite “palpable” pain. A similar challenge of distinction is posed by such inter-modal phenomena as the feeling of emptiness.¹¹

The Finnish verb *tuntea* used for touch-sensations combines the meanings of “touch”, “feeling” and “knowledge” and is thus an excellent example of how obscure the boundaries between the three are from the viewpoint of body as the scene of life. Touch, feeling and recognition are mixed and implicate a sentience that can be articulated as either cognitive apprehension or an affective tone.¹² The Finnish verb *tarttua* (“grasp”, “catch”, “apprehend”, “seize”) also

points towards the many aspects of touch. The verb is a combination of grabbing and holding firmly as well as being exposed to catching diseases or other people’s moods. A hand, dirt, disease, laughter and various fancies may be caught and catching in different ways. The theme of touch also locks together the biological, psychophysical and affective dimensions of attachment and rejection.

As a consequence of the difficulty of defining touch, with which Aristotle struggled, the relationship between the sense of touch and cognition has become ambivalent. As a sense touch has been considered too complex and obscure to be able to offer a clear model for cognitive classifications, which have traditionally been grounded on visual logic. On the other hand, we rely on Aristotle’s classifications even in the division into five senses where the sense of touch has its place like the thumb in the hand. This “full hand” of the five senses has been apt to tame the structural heterogeneity of touch that threatens cognitive discourse. It has made it possible to present touch as a sense that can serve cognitive interests by guaranteeing an immediate, hands-on touch with reality. This has led into the most primitive of the senses being regarded as the guarantor of optic intuition, promise of immediate experience and support of conscious thought.¹³

Aristotle’s attitude to the theme of touch is ambivalent, to be sure. On the one hand, because of its complexity and comprehensiveness, touch becomes in his discourse a factor that determines all sensing: “All the other organs of sense, no doubt, perceive by contact, only the contact is mediate”.¹⁴ On the other hand, Aristotle wants to hold on to the specificity of the sense of touch. He claims that Democritus and most of the natural philosophers when treating of sense perception proceed quite irrationally, for they “represent all objects of sense as objects of Touch. Yet, if this is really so, it clearly follows that each of the other senses is a mode of Touch”.¹⁵ Aristotle’s classification is not free from conflict, but it should be noted that, as far as natural philosophers are concerned, he mainly criticises the conception of touch based on *material contact*. As will later become obvious, touch is for Aristotle a factor that determines all sense perception specifically because of the structure of sentience.

What brings the heterogeneous elements of touch together has later been sought in different places. In the Husserlian tradition, the structures of experience and perception take the central stage. Modern neurophysiological research which focuses on vital functions rather than perceptual experience has, for its part, chopped the sense of touch into neurophysiological subsystems determined by different receptors (temperature, movement, pain, balance, etc.).¹⁶ The difficulties of defining touch are also repeated in neurophysiology: efforts to locate the subsystems as clearly defined representations in the cortex that would be comparable with the centres of sight and hearing, have so far failed.¹⁷ Touch has furthermore been studied as a psychological and social phenomenon, where it is taken in a broader sense than physical contact, though related to it. In this research, the central question is tact.¹⁸ Touch also has its place in western theology.¹⁹ It may even be said that the Christian religion is a religion of touch, because it is centred on the mystery of the touch of spirit and flesh. It is also noteworthy that the relationship with the sacred in general is defined by prohibitions and restrictions concerning touch. In short, we have a great number of possible approaches to touch at our disposal.

Considering our current experiential horizon of media technology where the relationship between physical and mental contact becomes an increasingly challenging question, it would seem to make sense to try to think of the heterogeneous elements of touch as a whole. However, the aporetic structure of touch defies definition, regardless of what we choose as the basis of explanation. Where to look for the common denominator for the various senses of touch? Perhaps what is to be studied is not a family of phenomena after all, but a *logic* that links together different—possibly even incommensurable—phenomena but itself only comes within the sphere of phenomena through its effects?

Even the way in which the heterogeneous elements of touch are articulated in language would seem to take us to the reverse side of phenomena. Sight upholds metaphors of light that outline the phenomenal world cognitively, thus creating the basis for a uniform discourse on truth. Touch, by contrast, does not similarly articulate discourse in a form manageable by means of metaphors. Rather, it dismantles, decomposes

and differentiates language. While metaphors of light produce continuity and uniformity, i.e. *homeostasis*, the effects of touch represent a *diastasis* of language.²⁰ We are literally dealing with a spatio-temporal dislocation of the processes of signification (*dia*—“separate”, *stasis*—“localisation”) in the structures, accents and rhythms of language. In this dislocation, touch is not reduced to a cognitive grasp. Instead of “catching” in the sense of apprehending it is characterised by “catching” in the sense of being exposed.

Considering the difficulty of classifying and analysing the different forms of touch, we ought to be prepared for the multiplicity of the affective aspects of touch. Touch exceeds the tactile world; touch is more than the sense of touch. It is not only a matter of contacting surfaces, it also has depth: something can be so touching that a human being or an animal is thoroughly moved. It is an exposure to something excessive and unexpected which may leave a painful mark. When we acknowledge that experience in all its forms is marked by such a rupture or *pathic moment*,²¹ the opportunity opens to think of touch at the level marked by Aristotle’s treatise. Touch turns out to be a complex field of sensing and feeling, in a word, *sentience*. But what logic does the pathic moment of touching follow?

SELF-SENSE AND SENSORY SENSITIVITY

To Aristotle, sense perception involves the measurement of the threats and possibilities related to the limits of self-preservation: life means taking risks.²² Developing this Aristotelian line of thought further Thomas Aquinas states that sense perception only takes place in the midst of bodies, under the threat of mixture.²³ As far as sensing is exposure to risk, it also always relies on others. Touch explores the borderline between what is experienced as one’s own and another’s.

In Stoic philosophy this borderline was conceptualised as the economy of the differentiation of life processes. One of the far-reaching implications of this Stoic standpoint is the insight that life is actualised and appropriated within the framework of corporeal possibilities. The sense of self the Stoics described by the terms *synaisthesis* (“joint sense”) and *constitutio* (“setting up together”), and the process of its development by

the word *oikeiosis*, which means appropriation, a process where a being attempts to attain its own proper nature. The underlying words are *oikos*, house, and *oikia*, belonging to a house (as distinct from *allogrios*, alien, not belonging to the house). *Oikos* is also the root word for economy. Self-sense, *oikeiosis*, is animal self-preservation, self-maintenance and the economy of the self. In the Stoic idea of life's economy, self-sense also characterises the perceptual world of animals. An animal does not know that it is of a certain kind, but it does possess some kind of pre-sapient sense of its own limits and constitution. In this sense its life is a "self-project".²⁴

The scene of life is differentiated into a body, which can feel pain and pleasure in many ways and find the nutrition it needs. Turning to one's self, the "self project", is appropriation of what is within reach, touching one's self through the other. This means that the self cannot establish itself, but is always preceded by another, both logically and historically. The beginning of selfhood is an enigma, as enigmatic as birth, which is a continuous emerging from nowhere. The self is therefore not a mere question of consciousness. Not only does its origin remain obscure and unattainable to consciousness, but self-concern, turning to oneself or the "self project" is also obscure as to its *telos*, and in this sense, unending.

On the risky stage of life touching also always means being touched, and therefore, exposure. This reciprocal structure of touch is not, however, symmetric but twisted out of joint by the pathic moment. The self is always preceded by something that touches or exposes the self. We could speak here of a horizon of encounterings.²⁵ It is only the pathic exposure that makes the self turn to itself as sentient. It is worth noticing that this is not merely a reflexive structure, as exposure always involves the transitive formation of the self. Jean-Luc Nancy has introduced the paradoxical idiom *se toucher toi* to describe this.²⁶ It implies that touch always singles out some point, and the point it will need to make from this is still left open. In this sense touch is not symmetrical and self-enclosed, it has something gestural about it.

Self-formation and the pleasure involved in it can also be articulated in terms of autoaffection. As distinct from an accidental or passing effect, which anyone may be subjected to, autoaffection,

in so far as it is self-formatting, gnaws at the self and gets delineated in the self as its relation to itself. Life is thus actualised in the body as a gesture, the gesture of turning towards the sensation outlined as that particular gesture—and staying in contact with it. Referring to both Nancy and Derrida we could say that life becomes a question of *survival*, not simply in terms of a project of self-preservation and immunisation, but furthermore as self-exposure that involves also autoimmune traits.²⁷

The self does not establish itself but is formed as gestures and exposure, in contact with others. As self-sense, touch is therefore an *alien sense* in two ways: as the ability to sense what is alien in oneself and the ability that relies on the other and is one's own only secondarily.²⁸ Although touch can mean appropriation in that it assumes something as proper to it, it is not primarily anyone's own or predictable. One might say that touch always arises between some and in the middle of everything.

Aristotle's analysis of sentience is illuminating from the point of view of the formation of self-sense and self-relationship. Sentience is to Aristotle tact that leads to the deepening of life. Touch plays a central role here. The characteristically human "practical reason" (*fronesis*), for example, derives from the fact that our sense of touch is more sensitive than other animals'.²⁹ Aristotle analyses the relationship between sensitivity and thought by suggesting that hard-skinned animals are weaker thinkers than those with a more sensitive skin. Man's skin is the most sensitive of all and consequently, so is his thinking.³⁰ A hard-skinned animal meets an external threat with an either/or attitude: it is either to be tolerated or avoided. Someone with a sensitive skin knows several different ways of reacting: it is possible to think and to give of oneself. Aristotle links touch and intelligence together even structurally: neither has a clearly definable object nor an organ of its own. It is also worth noting that Aristotle thinks of the self-relationship of reason in terms of touch: thought thinks on itself by "coming into contact with and thinking its objects".³¹ The pathic pattern of reliance on the other is repeated even here.

Touch also holds the key position in Aristotle's discussion on the structure of sensitivity:

[S]o touch has for its object both what is tangible and what is intangible. Here by "intangible" is meant (a) what like air

possesses some quality of tangible things in a very slight degree and (b) what possesses it in an excessive degree, as destructive things do.³²

Tangible and intangible are things that the sense of touch can relate to. Aristotle recognizes a similar structure in all sense perception. Sensing takes place in the suspense between “contrary opposites” (such as light-dark, hot-cold, wet-dry, etc.). Both excessive and insufficient intensity make it impossible to sense differences. The capacity of sensing can even be destroyed when borders are crossed. In other words, sensory sensitivity is structurally finite. It is the fragile sensitivity and capacity of exposure awakened by contraries that act as the enabling limits. This pathic structure gives sense perception its measures and enables the sensing of differences. For example, the body’s own temperature provides a reference point for the perception of hot and cold. This is how the causes of pleasure, limits of tolerance and thresholds of pain are determined.

THE ILLUSION OF IMMEDIACY

Besides taking place between contrary pairs, sensing itself is defined by an interspace that Aristotle describes with a word he borrows from Democritus, *metaxy*, “what is in between”.³³ Aristotle starts from that “Sensation depends, as we have said, on a process of movement or affection from without [*paskhein*]”.³⁴ As far as sensor and sensed are separate, there is also something between them. And what is between them must be something other than void, because it must mediate the sense effect in one way or another. Different from Democritus, Aristotle does not believe in the possibility of remote effect.³⁵

According to Wolfgang Hagen, Aristotle does not see the questions concerning sense impact as questions of the effect that the elements or mediating substances of some kind have on the sense organs. This is a retroactive approach of modern times to Aristotle’s inquiry and derives partly from Thomas of Aquinas’s translation where *metaxy* is rendered in Latin as *medium*. According to Hagen, Aquinas’s translation enabled the formation of an ontological notion of medium where *medium* has even been interpreted as “Being”. Thus *medium* could develop into a

power concept of onto-theology, which directs the attention from the in-between to the mediating factors or media that can be named. Yet Hagen also says that Aristotle specifically holds on to the “anonymity” of the in-between.³⁶

Thus Aristotle’s *metaxy*, “the in-between”, is not in fact an intermediary substance but the distance structurally required by sensing, the anonymous exteriority which does not appear as such but produces effects in the form of sensible differences. This interpretation is backed by Aristotle’s use of the writing tablet metaphor in the part concerning reason in *De Anima* where he states that the mind is potentially whatever is thinkable, though actually it is nothing until it has thought. What it thinks must be in it “just as characters may be said to be on a writing-tablet”.³⁷

Thinking is a process where potential substance is given an actual form. The transfer from substance to form is qualitative rather than substantial. In other words, the effect or “being affected” (*paskhein*) should be considered through the development of form rather than a material causal relationship. In the light of the writing tablet metaphor, thinking appears as form-giving where the objects stand out against their background just like letters do. In the parts concerning senses Aristotle outlines a similar structure for senses: “This [perception] is that part which is potentially such as its object is actually”.³⁸ Imagined and perceived differences appear as writing on a board, thanks to the space between the letters, the anonymous exteriority. Aristotle says that if an object lies immediately on the surface of a sense organ, it is not perceived at all.³⁹ Perception requires distance, a space between. Aristotle recognises such an in-between even in touch, which, too “must be affected by what comes between [...] The same, in spite of all appearances, applies also to touch and taste”.⁴⁰ In other words, not even touch, says Aristotle, is structurally immediate. The fact that the sense of touch is located inside the sensing body and not at a distance, as it is in seeing, for example, means, however, that the mediacy of touch escapes our notice in sense experience. Aristotle states that even if the surface of the body were covered with a membrane, a kind of artificial skin, perception would still be conveyed immediately by touch.⁴¹ This illusion of immediacy forms the

phenomenological basis for our belief in the immediacy of contact.

According to Jean-Louis Chrétien, Aristotle's approach to the space between even in the case of seemingly immediate touch can be regarded as phenomenological.⁴² What is involved in touch is not an actual contact of two separate objects, or the annulment of distance, but an experienced distance and proximity. The space between is not a measurable distance. Touch is where some singular "here" is formed and it is only in relation to it that distances begin to be articulated and suspended. This suspense also involves making sense of proximity and distance. In other words, the "in-between", *metaxy*, is not a mere space between, a void, but a *suspension span* or "background" as the possibility of a form.

It is noteworthy that according to Aristotle, the potentiality of touch, sentience, differs from that of the other senses. Sight is potentially all colours, as it itself is without colour. Correspondingly, hearing is potentially all sounds, as it itself is soundless. What is sentient, by contrast, cannot be without sensible characteristics, because it lies in the midst of sensible qualities.⁴³ As sentience, therefore, touch becomes its own background, the untouchable in the contact itself. It withdraws and enters into the realm of appearances only secondarily. The sense of touch can only sense what it itself is not, i.e. a difference. In relation to itself—or rather, in relation to the same—it is insentient. Also, if taken to the extremes, the sense of touch collapses and loses its discerning ability. On the other hand, the sense of touch can also be multiplied in pleasure or pain as their intensity or eroticisation. In other words, sensation by touch requires an appropriate suspension span, for the feeling to be able to sense that it is sensing, which means that it only feels itself through the other, pathically. When we consider the sensory distance, we cannot take the separateness of sensor and sensed as our point of departure, because to be exact, they are only articulated as such in touch—between themselves and in the middle of everything.

The question what should be invested in the positions of sensor and sensed is historical. To be able to study the suspension of sensory distance we must take into account "phenomenotechnics", i.e. the technical and technological conditions of each particular time. The experiences of distance

and proximity are also always articulated in relation to them. This, too, shows how the pathic structure of touch brings out the elemental role of technics in the construction of experience.⁴⁴

SENSORY SENSITIVITY AND THE HAND

In one way or another, the hand and the skills of the hand play a central role in as good as all human activity and thinking. It is therefore hardly surprising that the role of the hand has also been central in reflections on touch. In his book on Nancy that plumbs the theme of touch, Jacques Derrida mentions Maine de Biran, Kant, Husserl and Heidegger as examples of thinkers who assign the hand a key role in the thinking of touch.⁴⁵ Aristotle, who might be called a "protophenomenologist", is an interesting exception in this tradition. It is true that Aristotle calls the hand "a tool of tools" saying that it has a particular position in studies of the soul.⁴⁶ He does not, however, think of touch in terms of the figure of the hand, as has become clear in the above.

When touch is studied as a self-relation or constitutive moment of selfhood it is essential to take a look at how the primary position of the hand has been justified in each particular case. As far as the media-technological experiential horizon is concerned, it is particularly interesting to study the team play of hand and eye and discuss the reasons for its central role in a great variety of media-technological phenomena. I will not, however, attempt to present a historical review or even sketch the background of one; instead, I will focus on one reference point in the phenomenological tradition where the role of the hand in the philosophy of touch presents itself and acts as a catalyst to media-technological discourses. I refer to Husserl's analysis, which I mentioned at the beginning of this article, the one that discusses the significance of embodiment in the constitution of psychic reality.⁴⁷ Husserl's way of emphasising the status of the hand forms a clear contrast to Aristotle's tendency of universalising touch as sentience.

Husserl marks the starting points of his discourse by making a distinction between object (*Körper*) and body (*Leib*).⁴⁸ Lifeless objects may be related to each other spatially and, for example, stay in touch on the basis of mere contiguousness. Objects, however, do not sense—for that, a body

is required. On the other hand, the sensing body must also be an object in order to be able to sense. Husserl writes that what is essential in the constitution of the lived body is the co-constitution of the sensing body and the object. A “corporeal body” (*Leibkörper*) appears. It is both a sensing body and an object that can be sensed just like any other object. These two aspects are linked together by the sense of touch thanks to its two-sided structure. Husserl’s term for this is *Dobbelauffassung*, “double apprehension”.⁴⁹ As two-sided, touch is apprehended at the same time both as a sensation (*Empfindung*) of something sensible and as sensing (*Empfindnis*) of the sensing body. It is two-sided even as an experience: to touch is to become touched both as an object and a sensing body.

This double structure does not, according to Husserl, apply to the other senses that he discusses. He uses sight and hearing as points of comparison. Husserl argues for the special nature of the sense of touch on the basis of how it localizes sensations and sensings. In touch, the localisation is immediate, whereas it is mediated in the other senses. Even these organs act as “fields of localization” (*Lokalisationsfeld*), but only indirectly, via the sense of touch. Visual sensations are not localised in the eye any more than aural sensations are localised in the ear. Only pain, temperature, movement and other sensations of touch can be immediately localised as sensations in these sense organs. In their proper modalities, sensations and sensings differ spatially. It is only the sense of touch that can bring them together, because there both sensation and sensing are localised together on the spot.⁵⁰

The question of localisation leads Husserl into making a distinction between spread or distribution (*Ausbreitung*, *Hinbreitung*) and stretch or extension (*Ausdehnung*): the spread of sensations in the body is according to him different *in principle* from the extent of things surrounding the sensing body.⁵¹ The tactile sensings do not belong to the sensuous schema at all.⁵² The spread of sensations is not perceived as a spatial and temporal whole formed by various adumbrations. Consequently, the corporeal body cannot be outlined as a clearly delineated dimensional object on the basis of sensations alone. On the other hand, someone whose perception is limited to the faculty of sight would not be able to experience

her or his corporeality. He could have sensations of the bodily object as an object but no sensation of it as a sensing body. Husserl concludes by stating that the body becomes a lived body “only by incorporating tactile sensations”.⁵³ In the constitution of the lived body, the spreading body and extending object have to be congruently superimposed in order to form a *Leibkörper*, the localisation field of sense experience and the “zero point of orientation”.⁵⁴

The human hand is for Husserl a hold from which to best outline this superimposition or “double exposure”. It is a highly sensitive and also sufficiently “palpable” hold, because, differently from many other body parts, it is visible to the bodily subject itself. It is by virtue of these characteristics that the hand becomes for Husserl a privileged localisation field, the metonymy of the body. The apex of the metonymic figure is the finger. Husserl suggests that when I touch an object with “for example, the . . . finger”, I sense its texture, whereas when I shift my attention to either hand or finger, I apprehend touch-sensings that continue even after the actual contact. When my right hand touches the left one the duplicity of touch is doubled, as both the touching and touched hand feel and sense at the same moment.⁵⁵

Like Aristotle, Husserl gives the sense of touch a particular position in relation to self-sensing. As with Aristotle, the theme of corporeality is central. Differently from Aristotle, however, Husserl holds on to—in the light of the hold offered by the hand—the special nature and immediacy of the sense of touch.

Derrida has shown how the hand as the figure of touch and metonymic organ of touch *par excellence* manipulates, informs and formats the thematization of touch in Husserl’s phenomenology. According to Derrida, giving the hand an exemplary status turns out to be a “properly phenomenological gesture” where the hold offered by the hand is linked to the conscious self and the subject’s abilities. Key words here include freedom, spontaneity, immediacy and movement. As an example, the role of the hand is teleological: the hand organizes the discourse constructed on these concepts. In this sense, the hand is also a point of reference that imposes limitations on phenomenology: optic intuitionism, the human-centred perspective and the ruling out of the technical

extensions and surrogates of touch. The privilege of the hand through which Husserl argues for the privilege of touch is above all based on the visibility of the hand and the seamless interplay of hand and eye. It is on this that the idea of an immediate and perfect presence is built. As the metonymic figure of touch, the hand is linked to the service of optic intuitionism. Through this linkage, touch becomes the guarantor of sensory certainty. It appears as the factor that constitutes all the other senses and becomes the metonymy of sensing: to sense = to touch. This haptocentredness has been, according to Derrida, the endoskeleton of all philosophy of touch since Aristotle.⁵⁶

A closer look at Husserl's discourse puts up the challenge of articulating how both the sensitivity of the hand and the interplay between hand and eye might be considered as historical variables. By studying the media-technological conditions of digital touch and the ways in which the skills of the hand are articulated in and through various interfaces we become aware that the hand is unstable as a metonymic figure. The apprehension of the hand must be studied in relation to the potentialities of the hand. For this purpose, Derrida stresses that the possibility of a re-articulation of such exemplary holds as the hand is always open and follows the logic of the supplement. With reference to the themes presented above one might say that the skills incorporated in the hand are determined by what lies to hand at any given time. The apparently seamless interplay of hand and eye makes Husserl blind to what it is that enables the jointing of sight and touch: the outside and the reverse side, a detour which is needed for the seen to be recognised as seen and a point of view to be attached to the sensation. In other words, attribution of sensory experience (or rather: the very possibility of attribution) and the phenomenal difference between the inside and the outside implied by it presuppose an elusive exteriority foreign to the phenomenal spatiality.⁵⁷ This detour implies the possibility of replacements and mediations. Derrida edges the question of technology onto this level:

[W]e have always had to treat the question of touch within the ever-open possibility of some figurality, some figural substitute or supplement endlessly running toward its

'own proper' abyss: touching figures—and the technical partakes of the game.⁵⁸

The status of touch as sense modality and the whole scope of its other senses is outlined by means of the hand, finger or some other phenomenal figure. These points of reference relate touch to the other senses and the technological supplements of sensing. It would seem that in our digital culture, the exemplary status of the hand is gradually being overtaken by the digital finger, the hand's "own proper abyss". However, the heterogeneous nature of the field of touch makes it difficult to grasp the effects of the figural points of reference in the philosophy of touch, for they have to be considered from the perspective of both language and body. An analysis of the metaphoric exchange between discourses and bodies is inevitably insufficient, because the figures of touch are not built as metaphors. Consequently, the relationship between digitality and the finger cannot be reduced to a metaphoric one. The figural points of reference outlining and formatting the cultural status of touch are points of contact that involve technics, a methodical search for contact with the other, something external. The question how to weigh the relationship between the pathic moment of touch and the technologies of touch now constitutes the challenge to thinking.

INTERFACE DESIGN

The representative logic of interfaces making use of touch can be discerned on the basis of the pathic moment of touch and the possibility of technological supplementarity which is a structural part of it.

When we try to control and model the demarcation of boundaries within various contacts technologically, the key word that appears is feedback. In media-technological contexts the viewpoint of feedback is usually technological in the sense that the feedback is understood to take place between starting points and goals as a technological means. The fundamental prerequisite then turns out to be calibration, the adjustment of precision and matching the starting points with the goals. I might mention as an example the robot *da Vinci* which enables surgery by means of a three-dimensional image. Precision is sought here by providing the computer-aided robotic

hands a sense of touch that is comparable to and even intensifies the feeling of holding the instruments in one's hand.⁵⁹ Technological operations reduce everything within their reach to this target horizon where the interplay of touch and sight is constituted in a new way. The situation arises where the calibrated feedback begins to determine the anticipation of goals and at the same time take the points of departure for granted. New standards are set to the sensorium and its hierarchical organisation. Some neuroscientists even suggest that various technical devices, is so far as they involve some form of sensory substitution, can be considered at the same time as new sensory modalities and as new tools.⁶⁰

Today, as different sensations and faculties are combined in new ways with the aid of computers, some have even begun to talk about "a new language of haptic sensations" whose structure and tones interface designers polish by means of user studies exploiting virtual prototypes.⁶¹ It becomes evident in this context that touch is still understood as a promise of immediacy. This feeds the kind of haptic realism that attempts to fade out the part played by technology: virtual objects are expected to "feel real". As digitalisation spreads to involve the entire body, the abyss of the figure of the hand opening at the finger would seem to turn the metonymic structure inside out, as it were, so that the body becomes a metonymy of the digitalised finger. Realism-seeking interface design would thus not, in fact, only mean a simplification of the skills required from the finger but requires the body to be made to participate in the body's digital organisation. How to reflect on the heterogeneous field of touch on this reverse side of the body?

Systems that are self-steering or self-organising one way or the other may be identified in many different fields. Feedback may equally well be social, cognitive, affective, physical, chemical or mechanical. Touch adds to this heterogeneous field of couplings and contacts the dimension of exposure and the questioning of boundaries. Touch exposes the integrity of those who take part in it. That is why it cannot be regarded as merely something between starting points and goals even in so-called "technical" contexts. Touching involves a "testing" of the limits with multifaceted modalities: contesting, detesting, attesting, etc.

What is at stake is the experience of a limit which is at the same time the limit of experience.⁶² Technics handles not only the question of what it is to be human but also the boundaries of touch itself. It is a question of how technology responds to adversities and coincidences, pathic exposures. According to Waldenfels, contemporary "hyper-modern technology" which has been built into a self-organising system, attempts to control even randomness, become "pathic technology" and "turn *pathos* into *poiesis*". Yet when this happens, something that remains beyond the reach of technology begins to emerge.⁶³ A number of phenomena within life sciences and media technologies display particularly impressive looking symptoms of this but are rather difficult to grasp because of their complexity. By tracking these symptoms we may bring forth the implications of change that take place in the cultural status of touch. I will conclude by taking up one point that illustrates the re-articulation of touch and is already showing interesting symptoms.

Dave Boothroyd has seized on Derrida's ideas that the philosophy of touch must avoid the reproduction of haptocentrism, where we end up if we set up touch as the thumb of a "full hand" of the five senses. At the same time it must go via a theory of the skin.⁶⁴ Boothroyd suggests that we regard different IT interfaces as an emergent skin, which he describes by the term "inter(sur)face".⁶⁵ However, he feels that the angle to this epiphenomenal skin proves unnecessarily restricted if, for example, it is built on neurophysiological explanations. Boothroyd prefers to rely on Emmanuel Levinas in whose thought the skin is more fundamentally determined as an existential structure rather than based on its biological and cultural functions alone.⁶⁶

Following Derrida, Boothroyd argues that as soon as touch is articulated as a technological application field the angle is by definition haptocentric, because it is targeted to be a representation of touch.⁶⁷ The only thing we get in our field of vision is feedback that motivates interface design and affirms recognition and which could be called *narsissistic feedback*, because it forms in its functionality a circle that feeds the sense of self-power. Typically, the developers of multimodal interfaces set as their goal not only the richness and realism of sense feedback but also the pleasure that the user can experience.⁶⁸ The idea is to have

everything related to the system smoothly to hand. When this happens, the pathic moment of touch and the ethical dimensions of feedback remain in a dead angle. Boothroyd stresses pertinently that the ethical implications of “sensory enhancement” are not restricted to the level of practices and attitudes (in other words, the mediations of an ethical relationship) but what is at stake are above all the mechanisms of the constitution of an ethical subject.⁶⁹

Consequently, it is not essential from this standpoint to study the virtues and shortcomings of various touch-based devices and social networking interfaces but to ask, how they change our experiential horizon or even disfigure the figure of a horizon. If we want to understand the data glove, it is not enough to put it on and reflect on whether the hand is in the glove or the glove on the hand—we must also turn it inside out. In our thinking of touch, we must get on the reverse side of the lived body, beyond the phenomenally organised spatiality. This does not, however, mean out-of-body experiences or the mystification of the body. Nor does it mean turning touch into a metaphor or making it concrete. The task is to weigh the heterogeneous field of touch beyond these supposedly opposing poles. The challenge is to position the body in that field. If thought relying on visual logic tends to “substantivate” and as a result conceive of things in terms of concepts, and if “verbalizing” event-oriented thought threatens to mystify the body, then the heterogeneous field of touch tends to demand contact-seeking “adjectival thinking”.

This demand of tact implies that the constitution of an ethical subject must be considered in relation to sentience, which, as Aristotle helped us make evident, is related to the sensitivity of thought. It is therefore not all the same in what frames determined by what figures we make these distinctions and on what structures we reproduce them. Our techno skin, however, it may be constituted, ought to be tactful. On the basis of Aristotle, we must direct our thinking on the pathic structure of touch that evades technological control and at the core of which we find a gap or suspension span. It is from this suspension span and from the suspension of the span that touch is constituted and not between pre-determined parties. In other words, no contact surface can be taken for granted, not even biological skin, the

material foundation of the sense of touch. We must consider the heterogeneity and technicality as constitutive of touch and take them as our point of departure. Therefore, instead of focusing on grasping, we must direct our thinking to the friction between various contact points and faculties. In other words, as a response to the “adjectival” demand we must pay attention to the gaps where the apparent immediacy of touch cracks and the pathic exposures challenge the haptic-centric conceptions of touching.

Notes

1. Mark B.N. Hansen, *Bodies in Code: Interfaces with Digital Media* (London: Routledge, 2004), 4–6.
2. Carlo Ratti et al., ‘Tangible User Interfaces (TUIs): A Novel Paradigm for GIS’, *Transactions in GIS* 8, no. 4 (2004): 407–21.
3. Keywong Chun, ‘Stress OutSourced: A Haptic Social Network via Crowdsourcing’, (2009), <http://tangible.media.mit.edu/papers.php>
4. Jean-Louis Chrétien, *The Call and the Response*, trans. and ed. Anne A. Davenport (New York: Fordham University Press, 2004), 84.
5. Edmund Husserl, *Ideen zu einer reinen Phänomenologie und Phänomenologische Philosophie. Zweites Buch: Phänomenologische Untersuchungen zur Konstitution*. Ed. Marly Biemel (Haag: Martinus Nijhoff, 1952), 143–61.
6. Aristotle, *De Anima*, trans. J. A. Smith, in *The Works of Aristotle*, translated into English under the editorship of W. D. Ross, volume III. (Oxford: Oxford Univ. Press, 1931), 415b.
7. *Ibid.*, 403b.
8. *Ibid.*, 414a.
9. *Ibid.*, 413b.
10. *Ibid.*, 422b.
11. Erwin Strauss, *Vom Sinn der Sinne. Ein Beitrag zur Grundlegung der Psychologie* (Berlin, Göttingen and Heidelberg: Springer Verlag, 1956, 2. expanded edition), 107–111.
12. Waldenfels notes that according to Erwin Strauss, all the senses are characterised by the polarity of “gnostic” or “pathic” moments. Bernhard Waldenfels, *Bruchlinien der Erfahrung. Phänomenologie, Psychoanalyse, Phänomenotechnik* (Frankfurt am Main: Suhrkamp, 2002), 65.
13. Jacques Derrida, *On Touching – Jean-Luc Nancy*, trans. Christine Irizarry (California: Stanford University Press, 2005), 160–164; Mark Paterson, *The Senses of Touch. Haptics, Affects and Technologies* (New York and Oxford: Berg, 2007), 148; Waldenfels, *Bruchlinien der Erfahrung*, 64.
14. Aristotle, *De Anima*, 435a.
15. *Ibid.*, 442a, 30–442b, 3.

16. Matthew Ratcliffe, 'Touch and Situatedness', *International Journal of Philosophical Studies* 16, no. 3 (2007): 299–322; Peter W. Ross, 'Common sense about qualities and senses', *Philosophical Studies* 138 (2008): 299–316; Thomas A. Stoffregen and Benoit G. Bardy, 'On specification of the senses', *Behavioral and Brain Sciences* 24 (2001): 195–261.
17. Waldenfels, *Bruchlinien der Erfahrung*, 69.
18. Drew Leder and Mitchell W. Krucoff, 'Touch That Heals: The Uses and Meanings of Touch in the Clinical Encounter,' *The Journal of Alternative and Complementary Medicine* 14, no. 3 (2008): 321–7.
19. Chrétien, *The Call and the Response*, 128–30.
20. Waldenfels, *Bruchlinien der Erfahrung*, 78.
21. Ibid., 14–16. The term "pathic" which derives from the Greek word *pathos* refers to sensitivity, affection, susceptibility, suffering and, more generally, exposure, as discussed above.
22. Chrétien, *The Call and the Response*, 98.
23. Ibid., 99.
24. Daniel Heller-Roazen, *The Inner Touch. Archaeology of a Sensation*, (New York: Zone Books, 2007), 105–115.
25. Speaking of the horizon of exposure, Waldenfels uses the telling German word *Widerfahrnisse*, which is free from the psychological negativity of such words as "adversity" or "misfortune". Waldenfels, *Bruchlinien der Erfahrung*, 444.
26. Jean-Luc Nancy, *Corpus*, (New York: Fordham Univ. Press, 2008), 38; See also Derrida, *On Touching – Jean-Luc Nancy*, 265–80.
27. Jean-Luc Nancy. *L'Intrus*, (Paris: Éditions Galilée, 2000); Michael Naas, "One Nation... Indivisible": Jacques Derrida On the Autoimmunity of Democracy and the Sovereignty of God', *Research in Phenomenology* 36 (2006): 18–26.
28. Waldenfels, *Bruchlinien der Erfahrung*, 64.
29. Aristotle *De Anima*, 421a. Aristotle links the sense of touch and intelligence together in several contexts. Heller-Roazen, *The Inner Touch*, 291–300.
30. Aristotle, *De Anima*, 421a.
31. Aristotle, *Metaphysica*, in *The Works of Aristotle*, translated into English under the editorship of W.D. Ross, Volume VIII (Oxford: Oxford Univ. Press, 2nd ed. repr., 1954), 1072b.
32. Aristotle, *De Anima*, 424a.
33. Ibid., 419a.
34. Ibid., 416b.
35. Ibid., 419a.
36. Wolfgang Hagen, 'Metaxy. Eine historiosemantische Fußnote zum Medienbegriff', in *Was ist ein Medium?* eds. Stefan Münker and Alexander Roesler (Frankfurt am Main: Suhrkamp, 2008), 23–29.
37. Aristotle, *De Anima*, 429b.
38. Ibid., 418a.
39. Ibid., 419a.
40. Ibid., 419a, see also 423b.
41. Ibid., 423a.
42. Chrétien, *The Call and the Response*, 88–90.
43. Chrétien sees here a point in common between Aristotle's "sensing flesh" and Merleau-Ponty's "flesh of the world", with the difference that in Aristotle, the intertwining of the perceiver and the perceived only applies to the sense of touch, whereas in Merleau-Ponty, it applies to all sense perception. (Chrétien 2004, 99–100.) We cannot, however, make such a distinction categorically, if we accept the interpretation presented above that the pathic moment expands in Aristotle to cover all forms of sense experience. Rather, the difference is localised in the eventual symmetry or asymmetry of this chiasmic relationship.
44. Waldenfels, *Bruchlinien der Erfahrung*, 361–2; Bernhard Waldenfels, *Ortsverschiebungen, Zeitverschiebungen. Modi leibhafter Erfahrung* (Frankfurt am Main: Suhrkamp, 2009), 87.
45. Derrida, *On Touching*, 149.
46. Aristotle, *De Anima*, 432a.
47. Husserl, *Ideen II*, 143–61.
48. Ibid., 143.
49. Ibid., 147.
50. Ibid., 147–8.
51. Ibid., 149.
52. Ibid., 150.
53. Ibid., 150.
54. Ibid., 151, 158.
55. Ibid., 147–9.
56. Derrida, *On Touching*, 159–82.
57. Ibid., 175.
58. Ibid., 159.
59. Julie Doyle, 'Cybersurgery and Surgical (Dis)embodiment: Technology, Science, Art and the Body', *Transformations*, no. 15 (2007). http://www.transformationsjournal.org/journal/issue_15/article_03.shtml
60. M. Auvray, S. Hanne-ton, C. Lenay and K. O'Regan, 'There is something out there: Distal attribution in sensory substitution, twenty years later', *Journal of Integrative Neuroscience* 4, no. 4 (December 2005): 505–21.
61. Paterson, *The Senses of Touch*, 139.
62. Derrida, *On Touching*, 6.
63. Waldenfels, *Bruchlinien der Erfahrung*, 459.
64. Dave Boothroyd, 'Touch, Time and Technics. Levinas and the Ethics of Haptic', *Theory, Culture & Society* 26, nos. 2–3 (2009): 337–39.
65. Ibid., 338.
66. Ibid., 339–43.
67. Ibid., 336.
68. Ratti et al., 'Tangible User Interfaces (TUIs)', 410.
69. Boothroyd, 'Touch, Time and Technics', 335.