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Touching technologies, touching visions. The reclaiming of sensorial experience and the politics of speculative thinking

María Puig de la Bellacasa
School of Social Sciences, Cardiff University, Glamorgan Building, King Edward VII Avenue, Cardiff CF10 3WT, UK.
E-mail: PuigM@cardiff.ac.uk

Abstract The sense of touch is being revalued in disparate places, from cultural theory to expanding markets of haptic technologies. In this paper I explore the potential of thinking with literal and figural meanings of touch. My standpoint inherits from discussions in feminist knowledge politics and constructivist conceptions of science and technology that problematize epistemological distances – between objects and subjects; knowledge and the world; and science and politics. In this direction, touch expresses a sense of material embodied relationality that seemingly eschews abstractions and detachments that have been associated with knowledge-as-vision. Engaging speculatively with experience, knowledge and technology as touch, I explore the differences made by touching visions.
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Reclaiming touch

This paper is a partial exploration of literal and figural meanings of touch. Recently, new paths have been opened in theory and cultural critique to explore the specificity and interrelation of different sensorial universes (Rodaway, 1994; Marks, 2002; Sobchack, 2004; Paterson, 2007). Although all senses are affected by this re-examination of subjectivity and experience, touch features, saliently, as a previously neglected sensorial universe. Touch is also drawing attention in other contexts that are not especially dedicated to rethinking the senses. Why is touch compelling? Which meanings are being suggested by invoking touch?

Attention to what it means to touch and to be touched can increase awareness of the embodied character of perception, affect and thinking

(Ahmed and Stacey, 2001; Sedgwick, 2003; Blackman, 2008). Understanding *contact* as touch intensifies a sense of the co-transformative effects of connections between beings in the flesh. Significantly, in its quasi-inescapable evocation of close relationality, touching is also called upon as the experience par excellence in which boundaries between self and other are blurred (Marks, 2002; Radcliffe, 2008). The emphasis on embodied interaction is also prolonged in science and technology studies, for instance, by exploring 'the future of touch' in 'robotic skin' (Castañeda, 2001). Drawing our attention to laboratory touch devices can highlight the materiality and corporeality of subject–object 'intra-actions' in scientific practices; mostly misunderstood by epistemologies founded on 'representation' (Barad, 2007). Engaging with touch can also acquire political significance. In contrast to expecting *visible* 'events' that are accessible to or ratified by the politics of representation, fostering of 'haptic' abilities figures a sensorial strategy for perceiving less noticeable politics occuring in ordinary transformations of experience (Papadopoulos *et al*, 2008, p. 55). Here, haptic engagement conveys an encouragement for knowledge and action to be crafted *in touch* with everyday practices. I will come back to some of these interventions in which I perceive a manifestation of deepened attention to materiality and embodiment, an invitation to re-think relationality and its corporeal character, as well as a desire for concrete, *tangible*, engagement with worldly transformation.

Embodiment, relationality and engagement are all matters that have marked feminist epistemology and knowledge politics. I am interested in exploring meanings of touch for knowledge politics and subjectivity in the wake of feminist discussions regarding situated and committed knowledge. To think with touch has a potential to inspire a sense of connectedness that can further problematize abstractions and disengagements of (epistemological) distances – between subjects and objects, knowledge and the world, affects and facts, politics and science. The dominant metaphor in modern knowledge-making and epistemologies has been vision. Feminists have also confronted the embodied effects of enhanced visual technologies. In this context, Donna Haraway sought not to reject but to inherit from the 'persistence of vision', notably by contesting the unmarked and irresponsible 'view from nowhere'. Affirming the embodied and *situated* character of material and semiotic technologies of vision became a way to affirmatively transfigure the meanings of objectivity and open possibilities for committed knowledge practices (Haraway, 1991, pp. 183–201). Significantly, by embracing touch others seek also to emphasise *situatedness* and make a difference in cultural atmospheres strongly attuned to visual philosophical models of ways of being in the world (Radcliffe, 2008). Is knowledge-as-touch less susceptible to be masked behind a 'nowhere'? We can see without being seen, but can we touch without being touched? In approaching questions of engagement and committed knowledge, I think about Marx's famous phrase: 'philosophers have only interpreted the world [...] the

point is to change it', often quoted as a condemnation of abstract thought. A droll alternative could be: 'theory has only *observed* the world; the point is to *touch* it'. Awareness that knowledge-making processes are inseparably world making and materially consequential evokes the power to touch of knowledge practices, and therefore a feminist concern to keep in touch with the politics and ethics at the heart of scientific and academic conversations. To put the matter in a nutshell, in discussing the potential of touch *for* knowledge politics, I am also thinking *with* feminist politics.

Engaging in discussions that are revaluing touch, I will adopt the classic feminist strategy of reclaiming. To reclaim can mean to re-appropriate a field of domination and render it able of nurturing the transformative seeds we wish to sow, but also to recuperate previously neglected grounds. These forms of political labour are entangled within given conditions, and require dealing with poisons in the soil rather than expecting to assure an outside alternative terrain, untouched by trouble. For instance, reclaiming technologies of vision entails re-appropriating a *dominant* sensorial universe and epistemological order, seeking for alternative ways of seeing. The poisons confronted here can be optic arrangements that generate disengaged distances with others and the world, or claims to see everything by being attached nowhere. In contrast, touch is called upon today as a formerly *neglected* sense, with compelling potential to restore a gap of embodied subjectivity. But how is engagement with touch opening to other ways of thinking? I associate the reclamation of the neglected to the strategy of *thinking from* marginalized existences, from 'below', envisioned by the politics of standpoint theory as a potential for fostering and working for other worlds possible (for a collection of these discussions see Harding, 2004). This way of thinking doesn't need to translate in expectation that contact with neglected worlds will immediately signify a beneficial renovation. In this direction, Haraway argued that to think the potential of marginalized oppositional visions requires resisting to their idealization, and to foster 'skill with bodies and language, with the *mediations* of vision' (Haraway, 1991, p. 191, my emphasis). I am thinking of these discussions when partaking in an atmosphere of mostly confident reclamations of touch: there is a risk of idealizing the paradigmatic 'other' of vision, for instance, as a signifier of embodied *unmediated* knowing and relating. Thinking with touch does not assure resolution; it opens new questions.

The lure of touch

Well before thinking about such epistemological and political matters, my seduction into the worlds of touch was provoked and compelled by the very word, by the mingling of literal and metaphorical meanings that make of touch a figure of feeling, relating and knowing. Its power, its attractiveness for

thinking, is not only that of evoking a specific and forceful sensorial experience, but also its affective charge. Starting with being touched – to be attained, *moved* – touch exacerbates a sense of concern, it points to an engagement that relinquishes the distance of detachment. Indeed, one insight often advanced about the specificity of experiencing touch (commonly supported by reference to Merleau Ponty's phenomenology) is its 'reversibility': when bodies/things touch, they are also touched. Yet, here already I wonder: to touch or to be touched physically doesn't automatically mean *being in touch* with oneself or the other. Can there be a detached touch? I know that unwanted touch, abusive touch, can induce a rejection of sensation, a self-induced numbness. What kind of touching is produced when we are unaware of the needs and desires of that what/whom we are reaching for?

These questions become more pressing when facing touch's potentially *totalizing* signification: touch, affirms Jean Louis Chrétien, is 'inseparable from life itself' (Chrétien, 2004, p. 85). There is something excessive in that we touch with our whole body, and that touch is there *all the time* – by contrast with vision, which allows distant observation and closing our eyes. Even when we are not intentionally touching something, absence of physical contact can be felt as a manifestation of touch (Radcliffe, 2008, p. 303). Moreover, to be felt, sensorial and affective inputs that other senses bring to experiencing pass through material touching of the body. This total influence contributes to its capacity of creating a sense of 'immersion' (Paterson, 2006, p. 699), and is incarnated in its atypical organ, the whole skin (Ahmed and Stacey, 2001). In fact, touch exhibits as much ascendancy as it admits vulnerability.

Touché is a metaphorical substitute for wounded. The way in which touch opens us to hurt, to the (potential) violence of contact, is emphasized by Thomas Dumm who reminds that touch comes from the Italian word 'toccare' to strike, to hit. His meditations on touch are particularly illuminating regarding its ambiguity.[1] Touching, he says, 'makes us confront the fact of our mortality, our need for each other, and, as [Judith] Butler puts it, the fact that we are undone by each other' (Dumm, 2008, p. 158). In contrast, Dumm explores two meanings of becoming *untouchable*. First, the loss of somebody we cared for that makes this person untouchable: 'that which we imagine as part of us is separate now' (p. 132). Second, to become oneself untouchable: 'a figure of isolation, of absolute loneliness' (p.155).

But do the capabilities of untouchability and of protective disconnection with feeling contradict the omnipresence of touch? I don't think so. Total presence of touch doesn't necessarily entail awareness of its influence. Also, Dumm makes us see that rejecting touch is possible and sometimes necessary to survive hurt. Yet, if such shielding becomes entire, it entails a negation of life itself. The unavoidable ambivalence of touch is thus of conveying a vital form of relation and a threat of violence and invasion. Dumm unfolds Ralph Waldo Emerson's avowal of feeling untouched by the death of his son and his

affirmation that touching is both 'an impossible act' and necessary for becoming 'actors in the world of experience'. Dumm concludes that losing touch is a flight into the 'futility of total thought', whereas touching is a turn to the 'partial nature of action', a move 'from transcendence to immanence, from the untouchable to the embrace of corporeal life' (Dumm, 2008, p. 158). Life is inevitable mortality, partiality and vulnerability: the troubles and *conditions* of living. Trust might be the unavoidable condition to allow openness to touching, to relation and corporeal immanent risk.

And yet another emblematic extreme associated to touch is healing: 'If I only touch his garment, I shall be made well' thinks a sick woman approaching Jesus (Mathew, 9.21.). The logo of *Touch of life technologies*[2]– a company developing software for medical learning purposes that reproduces the impression of touching bodies – features two human hands, fingers extended to touch each other, invoking the divine contact between God and Adam represented by Michelangelo and his apprentices on the ceiling of Chapel Sistine. The futuristic version is science-fiction-oriented; a first contact extra-terrestrial like image portrayed against an outer space dark blue background. An uncanny light emanates from the space closer to a not yet accomplished touch, producing circling waves of brilliance that contour supernatural hands. The techno-biblical imagery of this logo appeals to yearnings of healing transformation, and maybe salvation, through embodied and direct contact with a source of powerful promise.

Mystical touch versus prosaic touch. Though neither scientific nor political cultures have ever been (totally) secular, there is, however, a sensible way in which access to *evidential knowledge* is associated with the material rather than the spiritual. This connection is supported by a long history in which concrete, factual, material knowledge is opposed to 'bare' belief. Remaining in the biblical imaginary, we remember how Saint Thomas became the paradigmatic doubter, manifesting human weakness in his need to touch Jesus in order to believe the news of resurrection. In recent declarations regarding the explosion of the financial speculative bubble, the current Catholic Pope supports beliefs that are not based on material things. He warns that those who think that 'concrete things we can touch are the surest reality' are deceiving themselves.[3] Touch falls here on the side of prosaic knowledge, of the doubtful who need to get hold of something, whereas faith belongs to trust on an untouchable immaterial. My recently nationalized bank, unashamed, still arbours out the posters of a campaign inviting clients to give up 'paper titles' in favour of digitalized ones: *Dematerialization. Inform yourself here*.[4] Benedict XVI was here clearly out of touch with what critics of the now imploded financial system have been relentlessly highlighting: the immaterial and unreal character of a speculative bubble frantically inflated by global markets disconnected from the finite material resources of people and this planet – 'delirious' capitalism (Cooper, 2008).

My point is not to refute faith in the ungraspable. I am just realizing how easily an inclination for touch as intensifying awareness of materiality and

immanent engagement can get caught in a quarrel about what counts as real and authentic, worth of belief and reliance. Whether this real is a source of divine promise or of tangible factuality, *authenticity* is at play here. This seems to be reproduced by promises of enhanced immediacy and intensified *reality* in computing experience that abound in the research markets of innovative haptic or touch technologies. If seeing is *believing*, touching is *feeling* (Paterson, 2006). *To feel* becomes the ultimate substantiation of reality, seeing is expelled from genuine feeling, whereas believing continues its descent in authenticity. Is this increased desire for touch manifesting an urge to re-materialize reliability within a techno-scientific culture fuelled by institutionalized scepticism? Is this suggesting a desire to re-infuse *substance* in worlds where digitalized technology extends and delocalizes the networks and mediations that circulate reliable witnessing?

Remaking (digital) touch

Touch technologies belong to what Bill Gates proclaimed as the 'age of digital senses'.[5] They 'do for the sense of touch what lifelike colour displays and hi-fi sound do for eyes and ears' announces *The Economist*. The time to lick and sniff keyboards and screens is not yet trumpeted,[6] for now, technology is 'gradually bringing the *neglected* sense of touch into the digital realm'.[7] Haptic technologies are engaging with a new frontier for *enhancing* experience through computing and digitalized technology. These speculations, promises and expectations about the 'innovative' prospects of touch for people in techno-science constitute a massive matter of investment in a future of which i-touch and other handy devices are only gadget sprouts.

Though here I will focus on imaginaries of enhancing everyday experience, the proliferation of applications is vast. Haptic or touch devices are implemented, or fantasized, in relation to many different technologies: for developments of touch sensors in precise industrial robotics;[8] for the creation and manipulation of virtual objects; to allow a feel of materials in video games; to enhance sensorial experience in varied simulators (surgery, sex) and other devices aimed at distant control and operation. They also refer to technologies allowing direct command of laptops and phones through the screen. From the most sophisticated and specialized to the most banal gadgetry, the marketing of these developments uses exciting language that engages play, dexterity of manipulation, cultural imaginaries of affection, augmented or enhanced reality, experiences of sensorial immersion that mimic *the real thing* and promises of immediate connection. The sense of materiality of contact can take different meanings: it may seem particularly exciting to touch and manipulate 'virtual' entities, while in other contexts it is reassuring to touch without being touched, to manipulate without physically touching (for example, in military situations).

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In his essay, 'Feel the Presence', Mark Paterson describes these technologies of 'touch and distance' and their possibilities of concrete and immediate manipulation of objects, virtual or not. Others and things can be located faraway but become 'co-present' (2006). Paterson explains how adding touch to visual effects produces a sense of 'immersion', how these technologies give a feeling of 'reality' enhancing the experience of users. However, he shows that the efforts to reproduce and 'mimic' tactile sensation are actually productive. An active reconstruction of the sensorial is at stake when developers discuss what will be the *right* feel of a virtual object to implement within the actual design. The transformation of sensorial experience doesn't occur only through *prosthesis*, but participates in the 'interiorization of technological modes of perceiving' (2006, p. 696; Danius, 2002). In other words, touch technologies are remaking what touching means. Inversely, I would add, haptic technology works with the powerful imaginary of touch and its compelling affective power to produce a touching technology.

It is through entangled agencies, practices of matter and meaning that techno-scientific worlds 'come to matter' (Barad, 2007). In this spirit, interest in the kinds of worlds that are brought to matter through celebrations of techno-touch requires attention to meaningful effects in specific configurations. I must say that it is not so much longing for the *real* that is the problem for feminist critiques of the socio-technological arrangements that conceal material mediations while pretending quasi-transparent immediacy (Hartsock, 1983; Smith, 1987). It is what will count as real and which mediations, forms of sustaining life, and problems will be neglected in the counting. Which meanings are mobilised for realizing the promise of touch? By which forms of connection, presence and relation is the haptic touch supposed to enhance everyday experience?

Tactile technologies, a company dedicated to the development and expansion of touch screens, advertises the benefits in its promotional website.[9] A first advantage is speed: 'Fast, faster, fastest'. Touch screens cut time waste through direct touch in a world where 'being one second faster could make all the difference'. This directness is enhanced and integrated for 'everybody', as a second advantage is assured: 'touch makes everybody an expert' by 'intuitive' reaching out, 'you just point at what you want'. To touch is to get. Expertise would ameliorate as 'touch screen-based systems virtually eliminate errors as users select from clearly defined menus'. The goal is intuitive immediacy, reduction of training to *direct* expertise, elimination of mistakes based on pre-ordered selection. In conclusion, they offer a 'naturally easy interface to use' for what the job requires: efficacy and speediness, reduction of training time and keeping costs down. On top of these advantages – hands being guilty vehicles of everyday contagions – they are 'clean': this company offers systems that are 'not affected by dirt, dust grease or liquids'. Here the driving dream is not so much of enhanced reality, but enhanced efficacy. Touch stands for unmediated directness of manipulation, while hygiene worries respond to remnants of involved flesh.

Computers are touching technologies in a very special way via keyboards, screens and mice. As somebody who spends most of her time behind a computer, I am not immune to the seductive hype of sparkling touch screens. But as a newcomer in the community of RSI (repetitive strain injury) and other health hazards of the computerized workplace, I also wonder about the possibilities offered by these technologies for at least not worsening this epidemic. My computing experience includes diverse ergonomic devices that make repetitive touch labour easier and dress up my cyborg imaginary of flesh wired to a keyboard (adapted mouse and keyboard, wrist and back elastic bands, microphones and voice recognition software). In order to situate keyboard-related illness as a historically collective phenomenon, it is insightful to read Sarah Lochlann Jain's account of the injury production concomitant to this device's history. We can then learn about the possibilities overlooked by an industry in hasty development: missed opportunities to be in touch with the consequences that constant keyboard touch feedback, doubled with pressures of efficiency, has had on users' everyday lives (Jain, 2006).

Reducing distance

Yearnings involved in the everydayness of computing technology are expressed in a poem by Susan Leigh Star – that also raises ambivalent feelings about promises of enhancement:

ii
my best friend lives two thousand miles
away
and everyday
my fingertips bleed distilled intimacy

trapped Pavlovas
dance, I curse, dance
bring her to me
the bandwidth of her smell

iii
years ago I lay twisted
below the terminal
the keyboard my only hope
for work
for continuity

my stubborn shoulders
my ruined spine
my aching arms
suspended above my head
soft green letters
reflect back
Chapter One:
no one can see you
Chapter Two:
your body is filtered here
Chapter Three:
you are not alone.
(Susan Leigh Star, *The Net*, 1995, pp. 30–31)

Computers are more than working prostheses; they are existential tools for people trying to keep in touch with dislocated networks of loved ones. *My sister lives ten thousand kilometres away* – my parents, siblings and friends are spread

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throughout the network. A scattered heart, bleeding fingertips and a ruined back, frustrations of distilled intimacy, are not enough to stop efforts to remain in touch. E-political communities in a globalized world also depend on virtual touching. Haptic technologies are appealing for those for whom mobility has transformed community. 'The task is to survive in the diaspora' said Haraway in her Cyborg Manifesto (Haraway, 1991, p. 171). Touch technologies and dreams of being in touch match well. The remaking of sensorial experience through the intensification of digital touch feeds on the marketing of proximities in the distance and the investment in longing. There is no point in discarding yearnings for touch, for being in touch; there is no point in idealizing the possibilities.

If touch extends us, it is also a reminder of *finitude*. If touch depravation is a serious issue, *overwhelming* is the word that comes to my mind when enhancement of experience is put at the forefront. Permanent *intouchness*? With what? Touch receptors, located all over our bodies, are also pain receptors; they register what happens through our body surface and send signals of pain and pleasure. When absorbed by work and e-relations, these sensations take time to be perceived. We can get relatively out of touch with what bodies endure and forget the care and labour that is needed to get them through the day. Feminist work shows that there is no production of virtual relationality, whether commodified by capitalist investment or consumer society, that will not draw upon the life of somebody somewhere. Kalindi Vora shows for instance how the 'vital energy' of call-centre workers in India is drained by overnight labour of keeping in touch with needs of clients in North America to which their bodies are invisible (Vora, 2009). Insisting on many ways in which digitalized technologies engage material touching of finite flesh, could make a difference here: make even more unacceptable to qualify the knowledge economy and affective work – because of the nature of their 'products' – as matters of 'immaterial' labour (Hardt and Negri, 2000, p. 290). Alertness to chains of touch in digital culture could expand awareness of the layers of material mediations that allow technological connection. In addition to human labour, virtual techno-cultures always touch some*thing* somewhere, for instance through demands for electric power generation or high-tech trash (Stephenson, 1996; Basel Action Network, 2002; Strand, 2008).[10]

Thinking from neglected labours and marginalized experiences often acts as a feminist thinking device to remain in touch with problems forgotten in striving techno-science. By addressing technologies that are supposed to enhance conditions of labour with questions such as 'what kind of social relations are assumed to be desirable […] whose interests are represented, and whose labours are erased' (Suchman, 2007, p. 224). These questions can be posed in another field of haptic research investment that concerns mundane expectation: distant surgery in which touch sensors seek dexterity in distant manipulation (Satava, 2004). The rationale is not *more* touching, but improving the chain of

technological mediations in order to give a sense of directness and precision of touch while accessing distant flesh and bodies. The surgeon becomes physically absent, a 'telepresence' that can, however, simultaneously work on multiple patients. The reduction in the number of nurses that will do the work *on site* is also invoked. 'The epitome of efficiency' is understood in quantitative terms: reduction of costs and human resources.

If complex chirurgical intervention is not yet realizable, healing through telecare is not a fantasy. Sometimes it aims to enhance access to health care in deprived locations, where developing haptic technologies for co-presence makes sense. However, what types of experiences of caring will be produced through these innovations? Which 'conduct' of care (Latimer, 2000)? Thinking from labours that become less visible, and from the perspective of patients/users and that of 'non users', Nelly Oudshoorn shows how care at a distance challenges existing modes of interaction and *transforms* rather than reduces burdens of labour. Also, the replacing of face-to-face interaction places sections of the networks of healthcare out of touch for patients (Oudshoorn, 2008a, b). The materiality and directness of touch acquires other tones, as other mediations are rendered irrelevant: what are more efficient tele-doctors going to be in touch with? What kind of healing touch is this? Is the reversibility of touch, its potential of consequential co-relationality, invalidated when patients cannot attain who is touching them? One thing is sure, in a finite world, these new forms of connection produce as much co-presence as they increase absence. They do not really *reduce* distance; they redistribute it.

Interlude: The politics of speculative thinking

Questions and scepticism about expanded possibility in certain promises of touch accumulate. However, my aim here is neither to purify an 'other' vision of touch nor to distance myself from these yearnings. I have no interest in elucidating social, political and cultural reasons of the contemporary lure of touch nor the promises of techno-touching; nor to declare a 'turn' to touch corresponding to other theoretical ones: to materiality, practices, ontology – to a radical empiricism. Though I have shown distaste towards some promises of touch, I am weary of the pitfalls of critique through theoretical thinking: blanketing specificities under a general rationale and placing the observer in an outside from where she understands *the* problems at stake (Stengers, 2008). Finally, zooming out at theoretical speed, blending categories that mirror each other into a feel of sameness to support the argument that *something is happening* might be precisely what thinking haptically is not about: the specificity of textures disappears and 'a' problem insidiously becomes everybody's problem.

The worlds into which touch will attract us will not be given by the nature of its singular phenomenology or a singular rationale. They involve *visions* of

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touch. If feminist constructivism seeks to produce accurate descriptions and explanations of what *is*, to learn how things got to be what they are in order to devise appropriate interventions, there is a strong sense in which it is invested in thinking what *could be*. Speculative thinking belongs to the conceptual nebula of vision. It is also part of feminism's affective power to touch, to nurture political imagination about what the world could be, with its promises *and* threats (Haran, 2001). From a feminist perspective this involves political imagination of the possible, akin to purposes of making a difference through strategies of 'diffraction', rather than mere 'reflection', and the fostering of accountability for the differences we try to make (Haraway and Goodeve, 2000, pp. 101–108; Barad, 2007, pp. 71–94).

When opting for the speculative today, and for other investments in thinking the possible or even the virtual, one has to consider the spirit of a time and culture radically turned into investment in the future (see Adams *et al* in this issue); and that the speculative is also the incentive of fairly intoxicating bubbles out of touch with finite pasts, presents and futures. Visionary diffractive efforts do not need to be a free flight on a universe of inflated virtual (future) possibility, nor detached from (present) material finitudes. A (feminist) politics of speculative thinking could claim the haptic as a way to keep in touch with an engagement to respond to what a problem 'requires'. This means also that what we consider *problematic* is grounded in collective commitments that shape our thinking. It could be though as what Isabelle Stengers calls a 'speculative constructivism'. Constructivism takes here the strong active signification of 'constructing a response to a problem', and its speculative orientation aims at exploring responses that do not 'simply reflect that which, *a priori*, we define as plausible' – or that which confirms a theory (Stengers, 2004). In other words, engaged speculative responses are situated by what appears as a problem to standpoints/visions resulting from practical commitments and inheritances. We become susceptible to be affected by some issues and not others. As such, situated responses to a problem effect a production of collective subjectivity and political consciousness. Therefore, in revaluations of touch, in reclamations of touch, we can also read the kind of world-making knowledge that is being speculated upon. The differences we make when reclaiming touch and re-inventing touching technologies are all but neutral, they are marked by touching visions.

Touching visions

My initial partiality for touch came from questioning abstract and disengaged distances that are more than epistemologically problematical, and are more easily associated to knowledge-as-vision. Yet, as touch short circuits *distance*, it is susceptible to convey other powerful expectations: immediacy as authentic

connection to the *real*, claims not of transparent and unmarked observation but of direct and extended *efficient* intervention. I seek for touching visions more susceptible to foster accountability for complex mediations, ambivalences, and eventual pitfalls of touch and its technologies. It is in this spirit that I return now to interventions that engage with touch to reclaim vision and that manifest deep attention to materiality and embodiment, invite us to re-think relationality, as well as suggest a desire for *tangible* engagements with worldly transformation.

A modest vision of transformation of experience through touch comes when Claudia Castañeda engages speculatively with the 'future of touch', exploring specific touch-abilities in developments of 'robotic skin'. One of her stories is that of a 'bush' robot constructed with a trillion of tiny 'leaves', each equipped with tactile sensors. This touchy leafy skin would, according to its conceiver's ambitious vision, see *better* than human eye, for instance by feeling a photograph or a movie through direct touch with its material (Castañeda, 2001, p. 227). Castañeda is interested on the 'suggestiveness' of such a robotic formation for feminist theories of embodiment and relationality: 'What would it be like to touch the visual in the way this [robot] can?' When vision is 'rematerialized' through direct contact, refusing the distinction between vision and touch troubles the ground of objectivity: 'the distinction between distanced (objective) vision and the subjective, embodied contact' (Castañeda, 2001, p. 229). Yet, this vision doesn't translate in a promise of overcoming (human) limitations. On the contrary, Castañeda reminds us that robotic touch is not limitless; it responds to the technological reproduction of specific understandings of how touch works.

In other projects studied by Castañeda, robotic skin is rather conceived as a site of learning in interaction with the environment. One characteristic of these learning robots' interactive skin is that it first acts as protection: an alarm system that assists in learning to distinguish what is harmful and can destroy it (Castañeda, 2001, p. 231). The requirement and outcome of ongoing techno-haptic learning is not here mastery of dexterous manipulation, but a skilful recognition of vulnerability. This suggests that contrary to directness, implementing touching technologies entails awareness that learning (to) touch is a process. Developing skills is required for precise and careful touching, for learning *how to touch*, specifically. Ultimately, the experience of touch can serve to insist on the specificity of contact. In that sense, Castañeda argues drawing from Merleau Ponty that experience of touch 'cannot be detached from its embodiment', but neither is it 'reducible to the body itself'. The skin, an active living surface, 'becomes a site of possibility' (Castañeda, 2001, pp. 232–234). The productiveness of touch is not given, it emerges from contact with *a* world, a process through which a body learns, evolves and becomes. The affirmation of specificity of contact is not a constraint for possibility, specificity *is* what produces diversity: touch has multiplying effects.

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We can go further to affirm that *touch is world making*, a thought that resonates with relational ontologies for which being *is* relating. In this direction I think of Karen Barad's account of the seeing-touching made possible by 'scanning tunnelling microscopes' (Barad, 2007). These devices are used to 'observe' surfaces at atomic level, a procedure that operates 'on very different physical principles than visual sight' (Barad, 2007, p. 53). Her account calls upon the 'physicality of touch'. A sense of the object passes through a 'microscope tip' and the 'feel' of the surface passes with an electron current tunnelled through the microscope. The data produced (including the resulting image of the surface) corresponds to 'specific arrangements of atoms'. In this *meeting*, there is no separateness between observing and touching. Figuring well a vision of non-separation between knowing and *being-relating*, such an account of the closeness of touch stands for a conception in which 'knowing does not come from standing at a distance and representing the world but rather from *a direct material engagement with the world*' (Barad, 2007, p. 49).

This vision challenges the framing of knowing within epistemologies of representation and 'optics of mediation' (Barad, 2007, pp. 374–377) – in social constructivism, for instance, 'nature' never comes to 'us' but mediated by the knowledge of it. A critique of this optic order requires a more subtle thinking of the 'agency' involved in knowing, yet without necessarily speaking for immediacy, for directness in touching the real, or nature. On the contrary, vision-as-touch works rather to increase a sense of the entanglement of multiple materialities, as in Barad's theory of the 'intra-activity' of human and non-human matters in the scientific constitution of phenomena. Going further than interaction, intra-action problematizes not only subjectivity, but also the attribution of agency merely to human subjects (of science) – as the ones having power to intervene and transform (construct) reality. The reversibility of touch (to touch is to be touched) also helps here to trouble such assumptions: who/what is object? who/what is subject? It is not only the experimenter/observer/human agent who sees, touches, knows, intervenes and manipulates the universe: there is *intra-touching*. In the example above, it is not only the microscope that touches a surface; this surface *does something* to the artefact of touching-vision. In other words, touching technologies are material and meaning producing embodied practices entangled with the very matter of relating-being. As such, they cannot be about touch and get, or about immediate access to more *reality*. Reality *is* a process of intra-active touch.

Thinking touch as world making, that what and how we know in the world produces specific connections, is also what Haraway does when she affirms that people and things 'are in mutually constituting active touch' and that 'rich naturalcultural contact zones multiply with each tactile look' (Haraway, 2008, pp. 6–7). Curiosity about what happens in contact zones starts with a question such as 'whom and what do I touch when I touch my dog?' with which Haraway opens an adventurous exploration of the layers of naturecultural

relations *that make* interspecies touchings possible – including sophisticated and mundane technologies – while actively speculating on what *could be possible* through taking seriously these chains of touch. These worlds of collective feeling, relational processes that are far from being always caressing, have something specific and situated to teach us. Intensified curiosity is figured by a particular way of seeing-touching, a haptic-optic look with 'fingery eyes' – an evocative phrasing that Haraway borrows from Eva Hayward. The world is constantly done and undone through *encounters*, which are not always those we might expect. The question of how we learn to live with others, being in the world, is an opening to 'becoming with' – to be touched as much as to actively touch. Touch 'ramifies and shapes accountability' (Haraway, 2008, p. 36), furthers a sense of inheriting 'in the flesh' and invites us to be more aware about how living-as-relating engages both 'pleasure and obligation' (Haraway, 2008, p. 7). As a metaphor of the material embodied relations, *which hold the world together*, touch intensifies awareness about the transformative character of contact, including visual contact – tactile looks.

Thinking with touch can thus emphasize an ethical awareness regarding material consequences. This concerns knowing practices that take the chance to *add* relation to a world by involvement in touching and being touched by what we 'observe'. I seek a conception of touch that doesn't evoke a hold on reality with improved grasp, but rather engagement with the proximity of touching vision with slowness and care, attention to detail, definitively not hurried efficacy and cleanliness.[11] In an analysis of *close-up* images, taken at an almost touching closeness, Laura U. Marks describes how these blur figures and produce intimate detailed images of tiny things, inviting the viewer into 'a small caressing gaze' on pores and textures at the surface (Marks, 2002, p. xi). She argues that the power of a *haptic* image is not the identification of/with a distinct 'figure', but to engage viewer and image in an immersed 'bodily relationship'. Though wanting to 'warm up' optic culture, Marks doesn't aim to abolish distance, but rather to keep an 'erotic oscillation' not driven by possessiveness in which the desire of banishing distances is in tension with the letting go of the other, (Marks, 2002, pp. 13–15). Significantly, she says that the closeness of haptic visuality induces to acknowledge the '*unknowability* of the other'. When vision is blurred in close imagery objects become 'too close to be seen properly', 'optical resources fail to see' and optic knowing is 'frustrated'. It is then that the impulse of haptic visuality is stirred up, inviting to 'haptic speculation' (Marks, 2002, p. 16). To speculate is also to avow that we do not *really* know wholly. In this sense, though there are indeed many things that knowledge-as-distant vision fails to feel, touch might augment but also *complicate* proximity and, more specifically, *knowledge* in proximity.

Haptic speculation doesn't assure material certainty; to touch is not a promise of enhanced contact with 'reality', but rather a chance for participating in re-doing it. Papadopoulos, Stephenson and Tsianos draw upon feminist work

to point at transformative possibilities in *everyday* forms of sociability that are neglected by optic representation (Papadopoulos *et al*, 2008, p. 143). They encourage haptic experiencing as an attempt to change our perception, to 'hone' it to perceive the 'imperceptible politics' in everyday practices in which another world is *here*, in the making before 'events' become *visible* to representation. In these they see a chance, not only for subversion, but for creating alternative knowledge. Haptic (political) experience is for them that of a craft of *carving* possibility in the mid of potential incommensurability. Unknowability takes here another sense.[12] Haptic speculation is not about imaginative expectation of events to come; it is a (survival) strategy of the *present* in 'life below the radars' of optic orders that do not welcome, know, or even *see* the practices that exceed pre-existent representations and meanings. This sense of haptic engagement relates well to the (knowledge) politics of reclaiming the neglected: to speculative commitments that are about being in touch, relating with, and partaking in those worlds that are struggling to make their other visions not so much *visible*, but possible. I believe these engagements do not so much entail that knowing will be *enhanced*, more given or immediate through touch than it is through seeing, they rather bring attention to the dimension of knowing which is not about elucidating but about affecting, for better or for worse.

Coda: Sensory values

> Kira laid a slim hand on the bulkhead, on the square plate that was the only access to Helva's titanium shell within the column. It was a gesture of apology and entreaty, simple and swift. Had Helva been aware of sensory values it would have been the lightest of pressures.
>
> (Anne McCaffrey, *The ship who sang*)

Kira is a human travelling through space *in* Helva, a female-gendered spaceship with a human brain and the central character of Anne McCaffrey's science fiction classic *The ship who sang*. These two beings are starting their first conjoint mission and learning to know each other. Both are touchy, in intense pain because of the loss of loved ones (a husband for Kira, a previous human ship brawn for Helva). The excerpt above comes from a scene in which Helva is touched by Kira after a moment of tense argument. Helva has no skin which is sensitive to 'sensory values', however she indeed *feels* something, beyond her titanium shelled body, by *seeing* Kira's gesture. Helva cannot touch Kira either; her power to act through physical touch is limited. She touches Kira through careful word communication, and by creating a caring environment in her body-spaceship. Kira knows that Helva cannot 'feel' her touch and still her gesture of apology expresses the 'lightest of pressures'.

Throughout this paper I have used 'vision', instead of sight to refer to visual sensorial universes. Lacking of a word that does to touch what vision does to

sight, I have used touching visions as a surrogate. I do not have conclusions for this very partial reclaiming of touch nor do I intend to propose an alternative epistemology. I am aware that I have left significant territories unexplored – notably blindness studies – and opened more questions than indicated answers. However, I will end by suggesting a need for something like 'sensory values' for the power of touch, for our touching technologies. *Values* envisioned not as moralizing visions but as collective ventures of ethical doing contingently embedded in the situated relationalities that are the driving force of being.

A sensory value could be tactfulness, the same word for touch in some languages – for example, in Spanish: *tacto*. Politeness might be an ethical and political ability, a vital learning, in worlds in the making through constant touch.[13] Also, if experiences of touch can lead to emphasize reversibility and vulnerability, or support a conception of touch as 'intra-active', attentiveness to the response of the touched becomes crucial: haptic speculation can be cut short by the resistance of an 'other'. Not frustrated by a vacuum of knowing, but rather by the encounter of another way of touching/knowing. If touch is an experience in which boundaries of self and other tend to blur, we should be especially wary of appropriation prospects because it is possible to touch without being touched by the other's needs. Reciprocity and care (Puig de la Bellacasa, forthcoming) might also be ethico-political obligations required by touch's remarkable quality of reversibility. These are not qualities reserved to touch, but thinking with touch emphasizes them well. Actually, these hints for an exploration of sensory values simply indicate that touching technologies do not need a celebration of the inherent significance of touch, they require touching visions that also account for haptic asperities.

About the Author

María Puig de la Bellacasa is a research fellow at the School of Social Sciences, Cardiff University. She was previously a research associate at the Group for Constructivist Studies, Université Libre de Bruxelles and a Marie Curie fellow at the Center for Cultural Studies and History of Consciousness Department, University of California, Santa Cruz. Her research interests and writings lay at the crossroads of feminist theory, science and technology studies and contemporary continental philosophy.

Notes

1 I thank Rebecca Herzig for bringing Dumm's work to my attention.
2 http://www.toltech.net: last accessed 10 October 2008.
3 BBC News, DATE http://news.bbc.co.uk/1/hi/world/europe/7654878.stm, last accessed 10 October 2008.

4 FORTIS bank, Brussels 2008.
5 BBC News, http://news.bbc.co.uk/1/hi/technology/7174333.stm, last accessed 10 October 2008.
6 See Laura U. Marks (2002, Chapter 7, The logic of smell) for an account of attempts to commodify the yearnings of our nostrils.
7 *The Economist*, 8 March 2007.
8 For an overview of applications see Eurohaptics: http://www.eurohaptics.vision.ee.ethz.ch; about adding touch perceptions to training in laparoscopic surgery, see: Basdogan *et al* (2001); about how a 'hapstick' enhances video billiard games: http://www.vrlab.buffalo.edu/projects_haptics/hapstick; as for haptic cybersex, the fantasy seems still to exceed actual implementation or significant research.
9 http://www.tactiletechnologies.co.za/why-touch.htm, last accessed 10 October 2008.
10 I thank Rebecca Herzig for suggesting this point and providing references.
11 For a creative approach to the crafts of virtual handling and grasping as well as to knowing as embodiment, see Natasha Myers' work on the relations of scientists with computer protein models (Myers, 2008).
12 That reminds the haptic quality that Deleuze and Guattari attributed to (nomadic) art, when perception and thinking operate in *smooth* spaces for which there is no pre-existent map (Deleuze and Guattari, 1987, Chapter 14).
13 I learnt about politeness as a political art of distance and proximity with Deleuze's *Pericles et Verdi* (1996). Haraway also insists in politeness for living well in interspecies relating (Haraway, 2007, p. 92).

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