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Bodies Translating Bodies: Tackling 'Aesthetic Practices' from an ANT Perspective

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Abstract

STS and 'aesthetic studies' share an interest in artifacts and the aim to describe and analyse both artifacts and their agency. The present article contributes to such dialogue, first by reconstructing the relation between Actor-Network Theory and 'aesthetic studies' and then by proposing an analytical model enabling the description of 'aesthetic practices', by considering artifacts as bodies. Such model draws on Latour's (2004) reflection about bodies, on Ingold's (2007) one about materials and especially on Fontanille's (2004) semiotics of the body. To illustrate the relevance of the model, the article offers a description-analysis of the development of a prototype of an electronic circuit designed for a data glove.

Keywords: design, instauration, bodies, affect, core-envelopes, aesthetic practices.

Introduction

STS and 'aesthetic studies', taken here to refer to a diverse field of research concerned with art, artworks, and more generally to issues related to the sensory dimension, possess certain commonalities. The most relevant amongst these, are an interest in artifacts and in accounting for their agency and, therefore, in finding ways to describe and analyse both artifacts and their agency.

Despite sharing such common ground, STS and 'aesthetic studies' have only recently embarked on an intense and sustained exchange, mainly due to the crossing of STS with 'aesthetic practices' (Salter et al., 2017).

This article intends to contribute to such exchange, by proposing a descriptive-analytical method based upon Actor-Network Theory [ANT], to account for 'aesthetic practices', especially for the role artifacts play in them, by considering artifacts as bodies.

Drawing on Latour's (2004) reflection about bodies, Ingold's (2007) one about materials and especially on Fontanille's (2004) semiotics of the body, we develop a descriptive-analytical model based on notions that bodies are constituted by relations between a core and one or more envelopes, through which they interact with other bodies. We subsequently use the model to

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describe-analyse a portion of a design practice, i.e. a specific phase in the development of a prototype of an electronic circuit, designed for a data glove.

The use of 'aesthetic' in 'aesthetic practices'

We refer to 'aesthetic studies' and 'aesthetic practices' by using the word 'aesthetic' in its adjectival sense. For us, 'aesthetic practices' are neither limited to artistic production and/or fruition, nor does the reflection they elicit only pertain to philosophy. Although we do not neglect, or assert a lesser significance to it, we leave 'aesthetics', intended as a purely philosophical reflection on art, beauty and judgments thereof, aside. Despite the fact that we do not assume aesthetics as our primary domain, we regard the adjective 'aesthetic' to be advantageous for the task of describing the kind of practices we are interested in.

In this sense, we employ the expression 'aesthetic practices' to conjure up a wider possibility of practices and activities characterised by both *aisthesis* and *poiesis*, with *aisthesis* intended as feeling or sensory perception and *poiesis* intended not just as making, but more specifically as making something that may produce *aesthesis* during, as well as after, the very process of making, so as "to *make feel*, and *to make oneself feel*, and also, by the sensations of the body [...] *to feel oneself doing*" (Hennion, 2007: 101, italics in the original). Therefore, in using the term 'aesthetic practices', we refer to any practice that while making, producing, or 'instaurating' something (see below), which includes also allowing something to take place, demands attention to the outcome – what is made, produced, instaurated, allowed to take place –, in order for it to unfold its affective multiplicity (Hennion, 2007).

'Artistic practices' – related either to creation or to fruition – can easily play the role of the prototypical model of 'aesthetic practices'. However, we suggest that the latter can apply in domains other than art, with the proviso that within the practice both *poiesis* and *aisthesis* have a role. This explains our reluctance to label the practices of our interests as 'artistic practices', because too great a limit would by definition have been placed upon the set of practices we want to refer to. Equally, if we named them 'sensory', 'sensitive' or 'affective' practices, we would have lost the relation with *poiesis*; if we named them 'making' practices we would have lost, at least partially, the relevance of *aisthesis*. Likewise, if we named them 'creative' practices, we would have opened our reflection to the many issues related to creativity (Farias and Wilkie, 2016a; Parolin and Pellegrinelli, 2020 a; 2020b), that are not analytically relevant for the practices we are concerned with, which do not necessarily need to be creative, in the sense of producing something new – whatever 'new' can mean.

We note that the adjective 'aesthetic' is both etymologically and historically related to the sensitive dimension in general. As is well known, aesthetics as a mode of philosophical reflection was originally intended in the 18th century as "a science of sensitive knowing" (Davey, 2009: 162), as "a discourse of the body" (Mascia-Lees, 2011: 3, citing Terry Eagleton; see also Highmore, 2010). Alongside, the fact that the term 'aesthetic' is today used in reference to art and artworks, and hence also to their *poiesis*, reaffirms our confidence in the path we have taken. Put simply, we exploit both the etymological meaning of aesthetics and its relation to sensitivity in general, as well as its further development, related to art and the production of artworks.

As we will show throughout the article, there could be less ambivalent ways of indicating the practices we want to refer to. The most adequate one would probably be 'instaurative practices'. For the STS reader, such a term, inspired by Étienne Souriau's (1956) aesthetics, recently rediscovered by ANT (Hennion, 2013, 2016; Hennion and Monnin, 2015; Stengers and Latour, 2009; see below), would most likely been regarded as somewhat obscure. In lieu of a better term, or for Souriau's aesthetics to become more commonly employed, we are content that 'aesthetic practices' provides a good enough description of what we refer to.

Of course, we are not the first to use the expression 'aesthetic practices'[1]. For instance, within STS literature 'aesthetic practices' has been used by Jennifer Gabrys and Kathryn Yusoff (2012: 17), who recover the definition Jacques Rancière ([2000] 2013: 8) provides of 'artistic practices'[2] as 'ways of doing and making' that intervene in the general distribution of ways of doing and making

as well as in the relationships they maintain to modes of being and forms of visibility".

Within a more classical canon of aesthetic studies, Hans Robert Jauss ([1977] 1982) too, talks about aesthetic practice (in the singular) and in a similar way to us, since he links it to *poiesis* and *aisthesis* (and *catharsis*). However, he tends to attribute *poiesis* to the production of artworks and *aisthesis* to their reception, despite his acknowledgement that reception also entails, as for us, forms of *poiesis*. Indeed, for us, both *aisthesis* and *poiesis* are constitutive of production and reception (see also, Hennion, 2007).

The mentioned uses of 'aesthetic practices' refer them more or less directly to "artistic practices", a choice that, as we said, we find limiting – a constraint, not just to our framework, but also to theirs, given their consideration of *aisthesis* or aesthetics is, like us, related in a very broad way to "sense experience" (see, for instance, Rancière [2000] 2013: 8). In 'aesthetic practices' then, we implicitly consider a very broad definition of aesthetics similar to the one proposed, within an ANT perspective similar to ours, by Mike Michael, Liliana Ovalle and Alex Wilkie (2018: 243), for whom "aesthetics does not just pertain to questions of beauty nor to the reception of works of art, but rather to sensible experience and form in general"[3].

Like Gabrys and Yusoff (2012) and Michael, Ovalle and Wilkie (2018), we, following Hennion (2007), claim that aesthetic practices, by giving attention to artifacts and unfolding their multiplicity, open up possibilities. However, because we are more interested in everyday practices, than in artistic practices, we are skeptical that this opening has any direct political relevance – especially at the scale of "forms of life to come" as, following Rancière, Gabrys and Yusoff (2012: 17), suggest.

Therefore, in agreement with the "new sociology of art" (de la Fuente, 2007, 2010; Fox, 2015), which "locates aesthetic experience in the flow of everyday life rather than in the sacred space of art institutions" (Kobyshcha, 2018: 481), we gravitate toward those reflections that connect aesthetics more directly to everyday practices, such as those found in John Dewey (1934) or Richard Shusterman (1999). The latter recovered and rearticulated Dewey's reflection on aesthetic experience to develop the new discipline of 'somaesthetics' as "the critical, ameliorative study of one's experience and use of one's body as a locus of sensory-aesthetic appreciation (*aisthesis*) and creative self-fashioning" (Shusterman, 1999: 302). As we can see, also Shusterman tends to think in terms of *aisthesis* and *poiesis* (creation), even if addressed to the self[4]. Similarly does Dewey (1934: 46-47), who distinguishes between 'artistic' that "refers primarily to the act of production" and 'aesthetic', which refers to the act of "perception and enjoyment". Dewey (1934)[5] is interested, as we are, in the intersection between these two aspects, which, besides 'artistic' and 'aesthetic', he calls 'doing' and 'undergoing' or 'perception'. For him, it is this intersection, which characterises the 'aesthetic experience'.

One last point. We do not use *poiesis* in the platonic sense, as creation *ex-nihilo*, or "something where before there was nothing" (Sennet, 2009: 70). Rather, with it, we intend something similar to the lesser known, already mentioned, term of "instauration" (Hennion, 2013, 2016; Souriau, 1956; Stengers and Latour, 2009), that is to say, creation through the transformation of something that is already there, a re-creation, a palim*poiesis*, which cannot but acknowledge the *aisthesis* of what is already there.

Exchanges between STS, 'aesthetic studies' and 'aesthetic practices'

The exchanges between STS and what we have called 'aesthetic practices' and 'aesthetic studies' are not new. However, they have become more intense and systematic. By way of illustration, the most recent (fourth) edition of the *Handbook of Science and Technology Studies* (Felt et al., 2017) has a specific chapter, hitherto absent in previous editions[6], dedicated to "Art, Design and Performance" (Salter et al., 2017). The authors of the chapter list four ways in which STS can engage with three paradigmatic 'aesthetic practices' – namely "art, design and performance" (Salter et al., 2017: 140), as "collaborators" (Michael,2018a: 116; see also, Storni, 2015):

1. an involvement of art and design in exploring science and technologies practices in order to generate enriched forms of knowledge (see, for instance, Boucher et al., 2018; Calvert and Schyfter, 2017; Lury and Wakeford, 2012), which includes aesthetics across all the senses (Benschop, 2009; Salter, 2015);
2. an engagement with "enlarged methodological repertoires" (Salter et al., 2017: 140) provided by art and design, in order to rearticulate how to display and communicate sciences (see, e.g., Lury and Wakeford, 2012);
3. an engagement related to the use of such repertoires in order to enact and communicate STS' research results so to facilitate "the inclusion of wider publics in the reflection on science and technology and contributing to its democratisation" (Salter et al., 2017: 140; see, e.g., Barry and Kimbell, 2005; Venturini et al., 2015; Yaneva, 2013);
4. an engagement with "alternative ways for STS to get involved in sites where science and technology are constructed", given that art and design can operate as "forms of radical political engagement with sociomaterial worlds", which can take part "in the shaping of technoworlds and the formation of technosocieties" (Salter et al., 2017: 140; see, for instance, Domínguez Rubio and Fogué, 2015; Gabrys and Yusoff, 2012; Myers, 2017)[7].

The general focus of Salter et al. (2017: 140) is on how STS could broaden their "ways of investigating and intervening into technoscientific worlds" by engaging with art and design, learning different methods, acquiring different forms of knowledge and by reflecting on it. Although we are interested in all four points listed by Salter, Burri and Dumit (2017) and we are actively engaged in at least three of them (see, e.g., Krois et al., 2017; Moretti and Mattozzi, 2020; Parolin and Pellegrinelli, 2020a), this article is concerned with 'aesthetic practices' as a "subject of enquiry" (Storni, 2015), as a "topic […][:] one object amongst others that can be subjected to [STS] analysis" (Michael, 2018a: 116), like many other STS scholars have done (see, e.g., Dubuisson and Hennion, 1996; Storni, 2012; Strandvad, 2012; Yaneva, 2003, 2009). This has also been the focus of Ruth Benschop's (2009) introduction to four papers about practices related to the art world and to music. More recently, such focus has been developed and expanded also in Farìas and Wilkie (2016b) and in Sormani et al. (2019).

What Benschop (2009) underlined, is not only how addressing art can provide STS with insights about the role of the senses, about the role of materiality and about the boundaries between science and other social realms. But also, she highlighted the specific perspective STS would bring to the study of 'aesthetic practices': STS, having focused on the everyday practices of scientific work, are able to provide the tools to describe the "ordinariness, heterogeneous ensembles and trivial work" (Benschop, 2009: 4) of 'aesthetic practices'.

The empirical investigation of everyday practices through empirical cases, considered the "bread and butter of STS" (Sismondo, 2010: viii, cited in Carbone et al., 2019: 2), is also what is proposed in Farías and Wilkie's (2016b) and Sormani et al. (2019). Farías and Wilkie (2016b) point to the different, but nevertheless analogous, sites of technoscientific and aesthetic production in the form of the laboratory and the studio, thus transposing the STS data gathering practice, namely 'laboratory ethnography' (Knorr Cetina, 1983; Latour and Woolgar, 1979) into the artists' or designers' studio. This, they argue, "turn[s] our gaze to the actual sites in which practitioners engage in conceiving, modelling, testing and finishing cultural artifacts" (Farías and Wilkie, 2016a: 7).[8] Similarly, Carbone et al. (2019) identify 'experiment' as a specific practice shared by scientists and artists and one which characterises contemporary encounters between sciences and arts (on the issue, see also Salter, 2015).

Agreeing with Benschop (2009), we also think that addressing 'aesthetic practices' can provide STS with revealing insights about the role of the senses and the role of materiality. This article, indeed, tackles these very issues through a second aspect, only touched upon by Benschop (2009) and, except for a section of Sormani et al. (2019), seldom addressed in the extant literature to which we have referred: how STS relate to existing research on "the arts" carried out by "aesthetics, art history; psychology and sociology of art, phenom-

enology of art, etc." (Benschop, 2009: 4), i.e. what we have altogether termed 'aesthetic studies'.

Exchanges between ANT and 'aesthetic studies'

Since we started reflecting on the exchanges between 'aesthetic practices and studies'[9] and STS, we have been confident that "a vast common ground [is] open[…]" (Latour, 1998: 422)[10] between STS and 'aesthetic studies' and that such common ground stretches around the relevance both these fields ascribe to artifacts.

However, whilst STS can provide 'aesthetic studies' with the capacity to investigate 'aesthetic practices' and 'aesthetic artifacts' *in the making,* extending, as we have seen, 'laboratory ethnographies' to other sites, 'aesthetic studies' can provide STS with a sensitivity to artifacts, that, despite the great attention payed to artifacts by STS, STS still lack.

Indeed, as Latour (1998: 422) has noted, there has been "very little in" science studies "at the level of detail and heterogeneity […] of the best social history of art", as for the description of artifacts[11].

ANT and the social history of art: mediation

Latour's (1998: 422) critique draws on the capacity of social history of art to "deploy […] mediations without threatening the work itself – *l'œuvre*". With reference to the work of social historian of art Svetlana Alpers, among these mediations, he mentions specific features of artworks like the "quality of the varnish" or the "narrative of the theme" (Latour, 1998: 422). Of course, Alpers, being a social historian of art considers also other kinds of mediations, external to the artwork, as those carried out by buyers and sellers, market forces, critical accounts, competition among painters, taste, knowledge, with which social scientists are usually more familiar. Nevertheless, she also considers features of the work, to which Hennion ([1993] 2015: 145 and 159) adds "the grain and the thickness of the paste", and "pigments and formats." Moreover, with reference to the historian, theoretician and semiologist of art Louis Marin, Hennion ([1993] 2015: 150) also adds all the aspects of the artwork that furnish it with its opacity, yet within which the transparency of a certain message is built, such as "the manner of […] style, format, grain and frame", as well as the architectural structure in which frescoes, for instance, are painted (see also, Hennion and Monnin, 2015).

These observations emerged from an intense reflection on the methods of (social) history of art, which took place in between the 1980s and the 1990s, carried out by some of the founders of ANT– specifically, Madeleine Akrich (1986, 1989), Antoine Hennion (1993, [1993] 2015; Hennion and Latour, 1993, [1996] 2003) and Bruno Latour (1998) – and which contributed to the constitution of ANT.

Indeed, Akrich, Hennion and Latour took the method of (social) history of art as a model for their approach in progress. For Hennion (1993: 16), the history of art provides a lesson in symmetry, going beyond the dualism of object/society, according to which objects are either abstracted from the social and studied in terms of "pure aesthetics", or they are considered as screens on which social beliefs are projected. Social history of art was able to escape such a dualism, because, according to Hennion (1993, [1993] 2015), it was able to introduce a model of mediation different to the one of social mediation elaborated by Durkheim, which was based on the notion of belief.

In this way, social history of art was able to account for the reciprocal construction of humans by things, and of things by humans (Hennion, 1993: 28). Moreover, by being able to multiply causes considered to have heterogeneous origins (Hennion, [1993] 2015: 29). As Latour (1998: 422) neatly summarised, "The social history of the visual arts could teach historians of scientific activity quite a lot in the matter of mediations".

ANT and Souriau's aesthetics: 'instauration'

The rediscovery of Etienne Souriau's (1956) aesthetic reflection on 'instauration', prompted an updated of Hennion's (2013, 2016; Hennion and Monnin, 2015) and Latour's (Stengers and Latour, 2009) take on mediation and 'aesthetic practices'. On the one hand "Souriau's perspectives echo" ANT scholars' discourses, yet on the other, they "provide a different relevance" (Hennion and Monnin 2015: 9, our translation) to many of the issues tackled by ANT.

The "different relevance" (Hennion and Monnin, 2015: 9) of Souriau's contribution raises the possibility to better frame 'aesthetic practices' *in vivo*, not only by paying more attention to artifacts, but also by heightening awareness of the full body contact between humans and non-humans.

'Instauration' is the process, by which an object is given a, relatively, autonomous existence.

The œuvre, for instance, "once […] created, it [can] escape[…] from its author, it [can] resist[…], it [can or cannot] have effects" (Hennion, 2016: 302).

Therefore, the existence of beings is always relative and gradual.

The relative autonomy and the gradualness of existence are issues that Latour had already addressed prior to Souriau's rediscovery, through notions like "shifting down" (Latour, 1992) and *factishes* (Stengers and Latour, 2009: 15), which account for autonomy, and through the AND/OR relations model (Figure 2), which allows describing the gradual existence of technoscientific entities (Latour, 1999).

What Souriau adds, which is particularly interesting for us, is the way he describes the ongoing instaurative process: he takes into account the little gestures – "each strike of the chisel on the stone" (Souriau, 1956: 12, our translation) – that allows "the gradual passage from one mode of existence to the other" (Souriau, 1956: 12, our translation). It is thanks to the possibility to focus on these detailed aspects of the process, that the 'anaphoric progression'[12], leading to 'instauration' as the terminative step of this process, can be accounted for, together with the "progressive metamorphosis of the one into the other" (Souriau, 1956: 12, our translation)[13].

As Stengers and Latour (2009) asserted, this also means that, through Souriau, *poiesis* is not seen as the outcome of a mind at the origin of all the actions to which matter complies, but as a distributed process where the 'work to be done' (*œuvre-à-faire*) also raises issues, with which the creator has to negotiate – and which need to be taken into account by the scholar interested in describing-analysing these processes. Therefore, in "Souriau's work it is the statue that gives you the hand, that obliges the gesture of the sculptor, as well as the reverse" (Hennion, 2013: § 14, our translation).

Again, this is not totally new for ANT. Hennion and Geneviève Teil (2004: 535, our translation) noted, indeed, that wine amateurs, when enjoying a wine, "move forward through a series of mediations" – the 'anaphoric progression' – in order to let or enable what they enjoy to "open", to "become[…] plural". However, more recently, Hennion and Monnin (2015) by comparing amateurs to Souriau's sculptor had to consider that the object of amateurs' passion, is not only what can open up and become plural, but also what produces an alteration of the amateurs, thus taking more into account the agency of the artifact.

Describing bodies translating bodies

Hennion (2016: 295) underlines that ANT, as well as Souriau, invites to "insist […] on the associations, […], the translations, […] the passages", when addressing artifacts, be they techno-scientific facts or artworks. We deem such invitation key in order to describe-analyse 'aesthetic practices'.

However, we also deem that, in order to actually carry successfully out such invitation, we need to integrate STS's and specifically ANT's methodology.

As we have seen, through the exchanges with 'aesthetic studies', ANT acquired insights in order to tackle practices of any kind, by accounting for the role artifacts have in them and especially for how they contribute to the emergence of mediations. On the other hand, neither the social history of art, nor Souriau, ever tackled aesthetic practices in their actual making. As we have seen, this is the specific contribution that STS, not just ANT, provide aesthetic studies with – the transposition of 'laboratory ethnography' to other sites of instauration (Beschop 2009; Farìas and Wilkie, 2016b; Carbone et al., 2019).

We build on this ground by devising – in this section – and putting on trial – in the following one – some tools, i.e notions, categories and models that should allow us to actually account for the passages Hennion was referring to.

In order to do that, these tools need not only to allow us to describe-analyse 'aesthetic practices' as translations, where artifacts and their "networks within" (Parolin and Mattozzi, 2020) play a role, but they need also to allow us to account for artifacts as bodies.

Describing-analyzing 'aesthetic practices' as situated and distributed translations among bodies

Within STS, ANT has tended to tackle scientific practices by describing how beings come into existence through processes of translations, the latter intended as "[a]ll displacements through other actors whose mediation is indispensable for any action to occur" (Latour, 1999: 311). In this way ANT, has accounted for scientific practices, and the artifacts that are both involved in and result from such practices, as a "series of transformations" (Latour, 1998: 421), where something nevertheless remains constant: the 'immutable mobile' (Latour, 1998).

This is illustrated elegantly by Latour's ethnography of scientists trying to understand the recip-

Figure 1. Few steps of the translation from savannah-forest to scientific diagram (Latour, [1993] 1999: 30-36)

rocal development of savannah and forest in a Brazilian region (Latour, [1993] 1999). In our view, in its brevity, such ethnography epitomises ANT's take of scientific practices, given that through the description they emerge as a series of translations[14]. Latour ([1993] 1999), indeed, accounts for the multiple and heterogeneous mediations – carried out through various instruments (Figure 1b and 1c) – which took place between the field and the laboratory. These mediations allowed passing from a blend of vegetation (Figure 1a) to a diagram (Figure 1d), translating the first into the second and, through such translation, generating knowledge.

A similar ethnographic attempt, albeit explicitly addressing 'aesthetic practices' in the form of 'artistic practices'[15], was carried out by Albena Yaneva (2003: 170-171). She described "a drawing in the process of becoming art", focusing on "the small installation operations and the variety of actors involved: the painter, the artist, chalk, self-adhesive paper, fixing liquid, carpets, curators, and the museum floor", by following "the dynamic of some peculiar assemblies of actors, their movements, dispersions, microscopic changes, and new alliances", by drawing attention to "those tiny, infrasmall differences among objects" (Yaneva, 2003: 170-171).

The present article follows these approaches to practices by adding a more fulsome appreciation of Souriau's insights and, consequently, a more nuanced account of the full body contact that takes place among human and non-human actors within processes of 'instauration'. We argue that this is a necessary step if the task of accounting for 'aesthetic practices', as we defined them, is to be successfully undertaken. In so doing, it is incumbent upon us to tackle issues related to the relevance of bodies in practices, as well as the significance of senses and affect – all issues that have recently been the focus of many STS scholars (amongst others, Burri et al., 2011; Guggenheim, 2011; Puig de la Bellacasa, 2009). More specifically, this article addresses issues related to haptics, intended as a sense "comprising the tactile, kinæsthetic and proprioceptive senses" (Fisher, 1997; see also Myers and Dumit, 2011; O'Connor, 2016), thus engaging with processes similar to those that Joseph Dumit and Natasha Myers (2011; Myers 2006; 2015), have explored for scientific practices, but with two relevant differences.

First, by acknowledging ANT's principle of symmetry, we consider artifacts as bodies, fully unfolding Latour's (2004: 205-206) pragmatist derived proposal that "to have a body is to learn to be affected, meaning 'effectuated', moved, put into motion by other entities, humans or non-humans". Consequently, we assume bodies as "interface[s] that becomes more and more describable as [they] learn[...] to be affected by more and more elements" (Latour, 2004: 205-206).

Secondly, we acknowledge the scholarship that has shown the relevance of bodies, senses and affect in scientific and technological practices, but our purpose through the exploration of empirical cases (Parolin and Mattozzi, 2013; Mattozzi, 2017), is primarily methodological. Methodology, however, is more than a reflection on data gathering methods, in which we concur with the extension of 'laboratory ethnography' to sites and practices beyond sciences. Methodology is also a reflection on the following question, which has been a recurring query for ANT: "how to describe-analyse?"[16] (Akrich, [1987] 1992[17]; Akrich and Latour, 1992 Latour, 1990; 1992; 2005).

In order to answer this question in relation to 'aesthetic practices', we propose tools that should allow to describe-analyse 1) bodies in interaction, transforming each other, 2) affects that result from these interactions and 3) the sensations related to the involved senses.

The tools we propose should then allow also to answer the questions Chris Salter (2015: xi) raised: "how does one write an account" of practices, which include various materials and "sensory inputs such as touch […]? How do you record the unrecordable experience of sense and affect?"

We then suggest a model that allows us to describe-analyse human, as well as non-human, living, as well as non-living instances, as bodies becoming sensitive to one another. Our model is an integration of Latour's infralanguage[18] (Akrich and Latour, 1992; Latour, 2005) – a way to provide actants within a body.

Showing how "bodies are impacted upon by particular circumstances" (Michael, 2011: 55), specifically by other bodies, enables us to account for affect, intended as "change[s], or variation[s],

that occur[…] when bodies collide, or come into contact" (Colman, 2005: 11)[19]. This provides an ANT pathway to trace the "affective capacities of objects" (McCormack, 2019: 218)[20].

Beyond 'doing' and 'making do': the role of artifacts as bodies

As we have seen, 'aesthetic studies' have provided ANT with insights, which enable taking artifacts into consideration as mediators. 'Aesthetic studies' have also shown that, in order to take artifacts into consideration as mediators, features of artifacts needs to be taken into account. As Latour also suggests:

> We [social scientists] should not state that 'when faced with an object, ignore its content and look for the social aspects surrounding it'. Rather, one should say that 'when faced with an object, attend first to the associations out of which it's made and only later look at how it has renewed the repertoire of social ties'. (Latour, 2005: 233)

In this sense, we need to account for what, elsewhere, we have called the 'network within' (Parolin and Mattozzi, 2014; 2020: 38 and 48), that is to say, the network constituted by relations between shapes, textures, colours and consistencies and the role they play in outlining cores and envelopes of artifacts (see below). 'Aesthetic studies' can be very useful in describing such relations because they, by attributing relevance to artworks, have elaborated notions, categories and models to describe how these relations take place (Lancioni, [2001] 2012)[21].

Having said this, we are mindful of Hennion's (2005: 140) concern that we should not analyse "properties" of artifacts "straightforward[ly]". And indeed, as we will better see below, we will address features of artifacts as relational, as the outcome of relations, as proposed, among others, by Dewey:

> The conjoined properties that mark off and identify a chair, a piece of granite, a meteor, are not sets of qualities given existentially as such and such. They are certain qualities which constitute in their ordered conjunction with one another valid signs of what will ensue when certain operations are performed. An object, in other words, is a set of qualities treated as potentialities for specified existential consequences. Powder is what will explode under certain conditions. (Dewey, 1938: 129)

More recently, Tim Ingold has reflected on artifacts and materials in a similar way:

> … the properties of materials, regarded as constituents of an environment, cannot be identified as fixed, essential attributes of things, but are rather processual and relational. They are neither objectively determined nor subjectively imagined but practically experienced. In that sense, every property is a condensed story. To describe the properties of materials is to tell the stories of what happens to them as they flow, mix and mutate. (Ingold, 2007: 14)

How then, can such stories be told? How can these relations, their coming together into features and, *qua* Dewey, their translations into different relations or consequences, be more fulsomely describe-analysed?

ANT, and in particular Akrich and Latour (1992) and Latour (1992), developed tools – like the notion of *script* and all related terms part of Latour's infralanguage – in order to describe-analyse what artifacts "do" and "make do" – and so telling some of the stories Ingold was talking about.

However, in order to generate a deeper understanding of 'aesthetic practices' – and telling also other kinds of stories Ingold was referring to – the processes artifacts and other entities undergo, also need to be accounted for.

Latour's (1990; see also, Akrich and Latour, 1992) example of the weight attached to a hotel room key (Figure 2) provides a good illustration of the way we intend to integrate Latour's infralanguage, in order to account for the way entities undergo the action of other entities. Through the utilisation of categories like AND/OR relations and Program/Antiprogram of Action (PoA/APoA), Latour (1990; Figure 2) describes-analyses the relative merits of 1) a verbal request by the concierge, 2) a reminder written tag attached to the key, 3) a weight attached to the key, in persuading hotel clients to return keys to the hotel desk when they go out and, especially, when they check-out. The weight,

Latour (1990) says, is more effective, because by operating a mediation (Latour, 1999: 186-187), rearticulates one of the PoAs of hotel clients: from having to remember to leave the key at the desk, to wanting to leave them. Indeed, when the weight is attached to the keys, clients want to get rid of it, since it is cumbersome.

The weight is able to carry out this mediation by continuously affecting the body of the clients: by increasing the weight, they need to carry and, when keys are retained in a pocket, by pressing on the moving leg. Both actions of the weight directly contrast the clients PoA related to moving. The weight's mediation is better understood once the ways in which actors affect each other are taken into account. Both the words of the concierge, and the reminder tag, have a limited perceptible effect on the body of the guests, who are not required to pay attention to them, whereas the weight, being bulky, heavy and pressing over parts of the guest's body, continuously affects them when with them.

A model to describe-analyse bodies translating bodies

Several scholars have reflected on the relations between artifacts and between artifacts and users as contacts among bodies. George Herbert Mead (1932), noted that relations among physical things are nothing but pressures onto respective boundaries and regarded bodies as bounded interiorities, interacting through pressures with other body-things. When conceptualising materials, Ingold (2007) also saw properties as the outcome of relations and, drawing on James J. Gibson, proposed descriptive categories to help describe the kind of interactions among the bounded interiorities Mead was referring to.

For Ingold (2007: 5), materials can be described by taking into account the:

- *medium* – basically air, for humans – which allows the transmission of energy and vibrations;
- *substances* which penetrate and diffuse within the medium - these are more resistant to penetration than the medium;
- *surfaces*, which provide substances with a "relatively persistent layout, a degree of resistance to deformation and disintegration, a distinctive shape".

In addition to these, Jacques Fontanille's (2004) semiotics of the body addresses bodies as constituted by envelopes and internal cores (Figure 3). Such semiotics of the body, developed to account for aesthetic experiences, initially in relation to literature, assumes a topology of the body similar to Mead's and Ingold's one. Fontanille exploits such topology in order to account for how bodies interact with other bodies through pressures, penetrations, expulsions, envelopments and disenvelopments (Figure 3; see also, Marrone, [2005] 2009). Thus, he is able to account, not only for interactions amongst bodies, but also, for the unfolding of the senses within these interactions as well as the unfolding of passions and emotions[22].

Because Fontanille's proposal is the most articulated and the most tested through empirical analysis, much of which related to artifacts[23] (among others, Festi, 2008; Fontanille, 2001), we suggest, that once lifted from the methodological shackles of its phenomenological legacy[24], it offers adequate categorisation for describing contacts amongst human and non-human bodies, and their outcomes (see also, Mattozzi, 2017)[25].

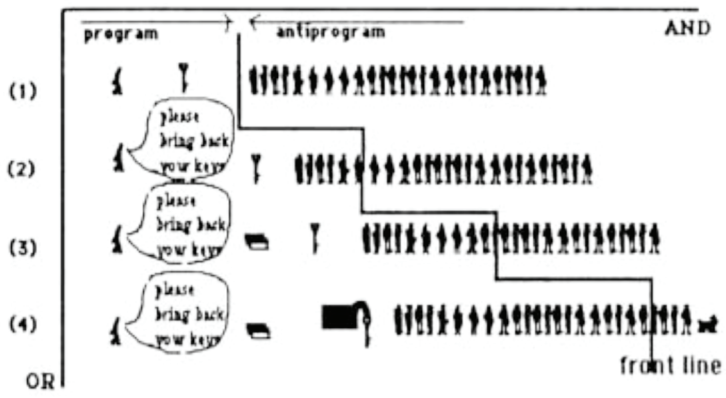


Figure 9.2
The hotel manager successively adds keys, oral notices, written notices, and finally metal weights; each time he thus modified the attitude of some part of the "hotel customers" group while he extends the syntagmatic assemblage of elements.

Figure 2. The efficacy of the weight attached to hotel room keys as described-analysed in Akrich and Latour (1992: 263; see also, Latour 1990: 107)

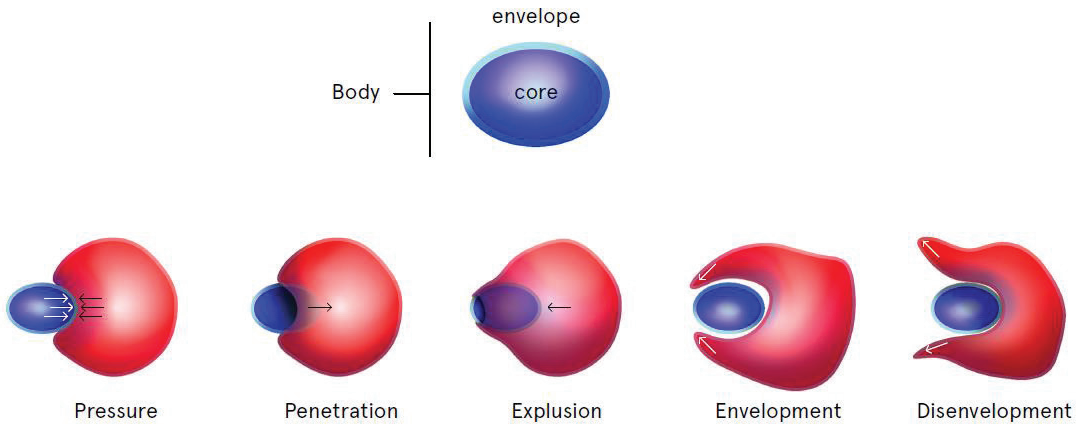


Figure 3. Our elaboration of Fontanille's (2004) model (Our drawing)

With these categories, we can account for 'aesthetic practices' and their mediations, not simply by keeping together *poiesis* and *aesthesis*, but more significantly, by the inevitable inclusion of *aisthesis* into *poiesis*. Indeed, if *poiesis* has to do with bodies and their transformations, their translations, or *qua* Souriau, their metamorphoses, then, it will also, inevitably, have to do with contacts among bodies and their consequential *aisthesis*.

The envelope-core model of the body allows us then to address 'aesthetic practices' as "bodies made translatable" (Parolin and Mattozzi, 2013: 304)[26].

Nevertheless, it does not exhaust all the aspects of 'aesthetic practices'. We only claim it provides an indispensable ground for starting a description-analysis of 'aesthetic practices', intended as translations among bodies. Other categories and other aspects need also to be taken into account for a full account of these practices.

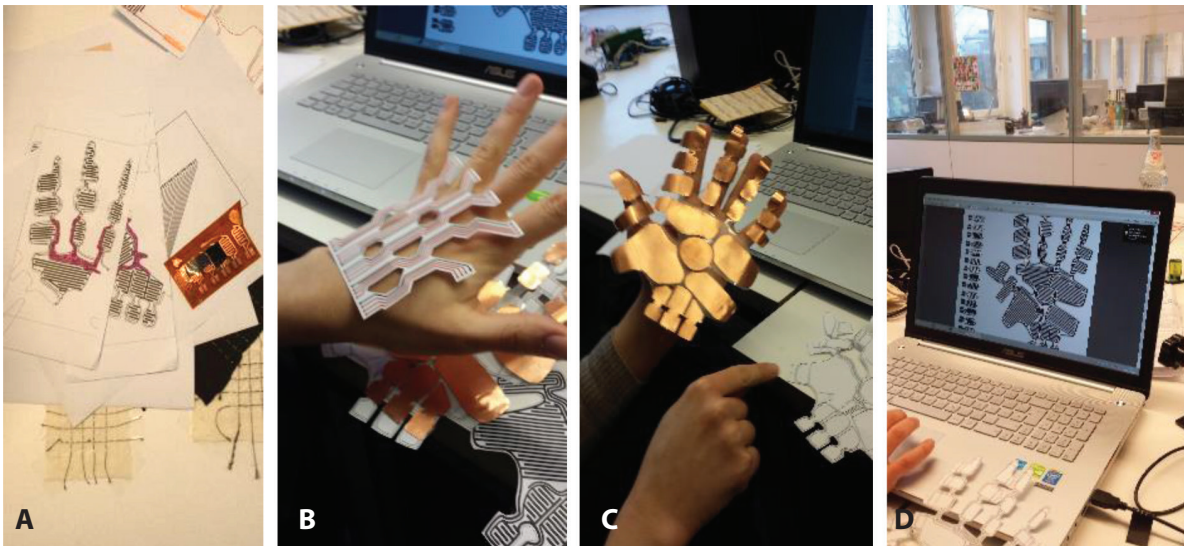
The case

To illustrate the potential relevance of our descriptive-analytical model for empirical research, we use a case study from our own observations of design practices. The observations were carried out at the Design Research Lab (www.drlab.org) of the Universität der Künste, Berlin, by one of the authors over two months of fieldwork in winter 2014, comprising observations and interviews. The specific empirical material used here reflects three full days of observation.

The observation focused on an interaction design project aimed at upgrading a special data-glove that functioned as a mobile communication and translation device for deafblind people. The "Mobile Lorm Glove" project (Figure 4; Bieling et al., 2014, 2016, 2017; Gollner et al., 2012) was intended as a motion sensitive glove with the ability to transform gestural code into alphabetic symbols that can be sent to other devices and, at the same time, receive alphabetic text messages and translate them into the tactual code of the Lorm alphabet.

At the time of the observation, a senior and two junior designers[27] were working on the project. A prototype (see Figure 4) already existed and their task was to redesign the circuit of the sensors to make the glove more sensitive. What follows is series of vignettes that capture complex interac-

Figure 4. The prototype of the Mobile Lorm Glove (Photo, courtesy of Tom Bieling – Design Research Lab)



Figures 5 a-d. Sketches, drawings, printed models, sheets of coppers and other artifacts used in the design process before the etching (Photos: Alvise Mattozzi)

tions between and within bodies, in the attempt to develop a working circuit that was flexible enough to withstand use in the glove, yet sensitive enough to translate movements and pressures into digital data.

Vignette 1: Pressing as part of the etching process

Despite appearances, the person in the picture below (Figure 6) is not ironing her clothes, she is hot-pressing one surface against another. This is part of a wider process related to the etching of a printed circuit board (PCB).

As we can read from a tutorial used by the designer in the picture, "[e]tching is a technique used to quickly make professional looking PCB's with limited resources"[28].

More generally, to etch means "to produce (as a pattern or design) on a hard material by eating into the material's surface (as by acid or laser beam)" (Merriam-Webster onLine). "[E]tching" is, then, a "subtractive method" used "for the production of printed circuit boards: acid is used to remove unwanted copper from a prefabricated laminate. This is done by applying a temporary mask that protects parts of the laminate from the acid and leaves the desired copper layer untouched"[29] (Figure 7).

Figure 6. Designer preparing a copper laminated film for etching (Photo: Alvise Mattozzi)

What is observed in the photograph was not etching, and the action of pressing with the iron was not subtracting anything. Instead, the designer was adding something in what is the preliminary step to etching, namely the application of the "temporary mask" in order to protect parts of the laminate from the acid. Thus, she is not concerned with what has to be removed but, by trying to make the ink outlining a pattern of the circuit printed on glossy paper transpose on

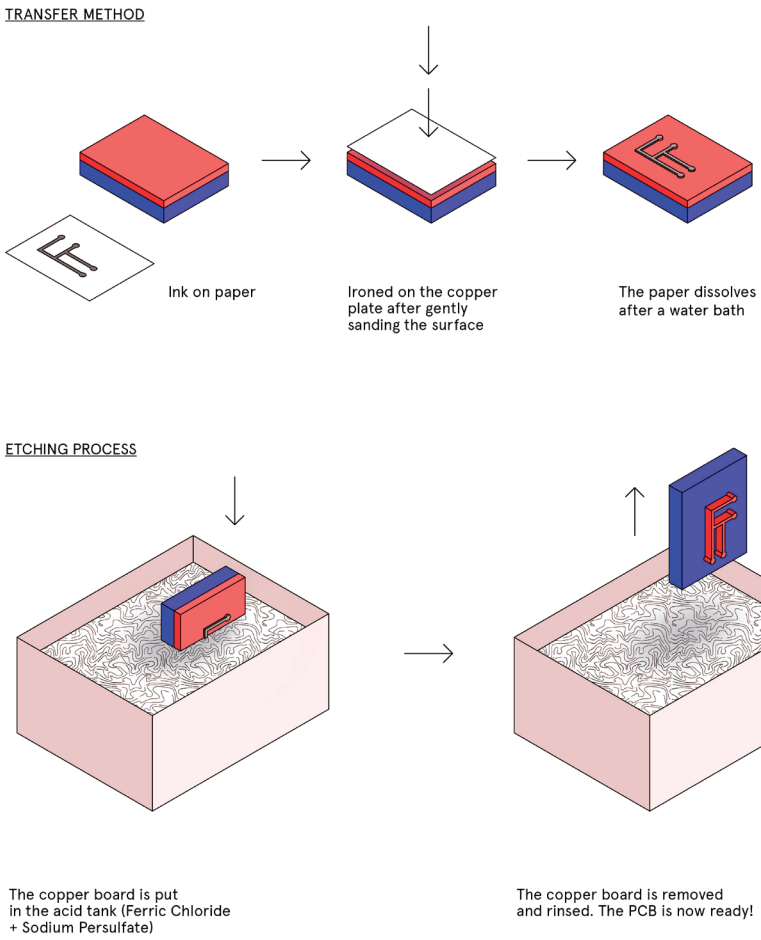


Figure 7. The subtractive method of etching a printed circuit board (our drawings)

to a copper laminated surface, she is concerned with what has to stay. Indeed, the laser printed ink is not affected by the etching acid and protects what is intended to be preserved. What the picture shows was the final step in various translations that took place prior to the transfer of the ink onto the copper (Figure 6). In short, a given configuration of a circuit has to pass from being drawn with a pencil on paper, to being drawn on a computer screen, to being printed on glossy paper, to being transferred to a copper laminated surface, in order to then be separated from the rest of the copper laminated surface (Figures 5, 7 and 8)[30].

Figure 8. The laser printer ink transferred to protect the copper surface that will result in the circuit. Notice how one of the copper laminas has been sanded and another not (Photo: Alvise Mattozzi)

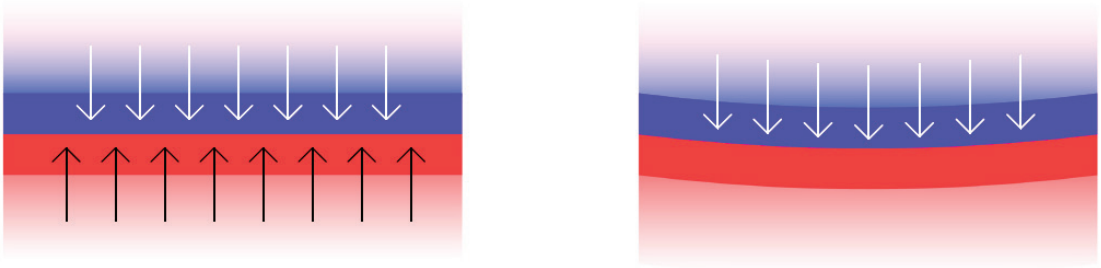


Figure 9. Dynamics of pressure among bodies: a. the pressing body affects only the envelope-surface; b. the pressing body affects also the core-substance of the pressed over body (Our drawings)

In each phase, a new mediation took place, each one entailing a contact between envelopes-surfaces like the contact between the printed surface of the paper and the one of the copper lamina, on which the paper was pressed (Figure 9a). Sometimes there were also contacts that involved the core-substance of both, or only one of the involved bodies, such as the one between the iron and the pressing board (Figure 9b). In this way, one body affects another. This is evident when the printed sheet affected the copper lamina with a trace of ink, which in turn created a further envelope-surface, shielding the lamina from the acid (Figure 7).

Vignette 2: Etching a film

In Figure 6, the designer was making her third attempt to affect the copper laminated surface, by seeking to engender the passage of the ink from the glossy paper to the laminated copper surface, and ensure its retention. Switching attention to Figure 10, we can clearly see that the copper lies on a film, precisely because the circuit needs to be mounted on a flexible substrate.

This particular detail adds a level of complexity and unpredictability to the procedure, since etching a copper laminated surface would commonly be applied to lamina laying on a hard-rigid substrate. Indeed, the tutorial she is using shows the etching of "printed circuit *boards*"[31], i.e. hard and rigid elements.

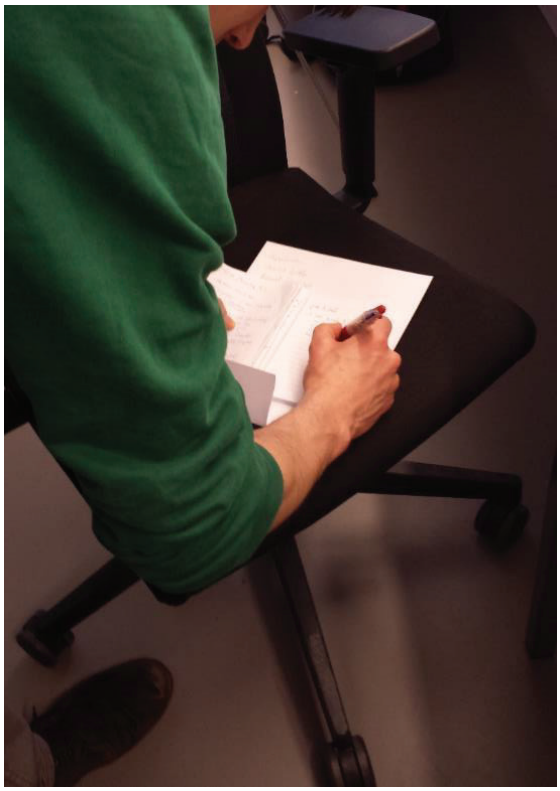
The changes to the material consistency of the substrate of the copper laminated surface, from rigid to flexible, were enough to make the tutorial much harder to follow than instructions, in general, usually are. The transference of ink from glossy paper to copper film did not work as described, consequently the designers needed to develop a new process to create a repeatable and reliable procedure.

Figure 10. Circuits etched on copper laminated films (Photo: Alvise Mattozzi)

Figure 11. Taking notes about successful trials (Photo: Alvise Mattozzi)

Figure 6 reflects one moment in three days of exploration with materials and testing various operations and procedures, in an attempt to make the copper laminate on a flexible substrate sensitive enough to accept, and retain, the ink from a scrap of glossy paper. The various experiments, especially those that were successful, were duly annotated (Figure 11), and involved all the actors who took part up to the step illustrated by Figure 6: the printed circuit film, the glossy paper, the ink, the printer, the iron and the iron board.

For each of these actors, the team of three designers tried various combinations and modulations: various thicknesses of glossy paper from different magazines; different surfaces of glossy paper (e.g. already printed or blank); alternative printer settings; other ways of treating the copper surface of the film (cleaning, polishing, sanding); setting the iron differently (heat, timings); variant consistencies of board to which pressure was applied, i.e. creating greater rigidity, by adding a ceramic tile (Figure 12).



What is apparent here, is how the change in consistency to the support of the copper lamina, demanded new ways for the pressure exerted by hand through the iron, to affect the envelope-surface of the printed glossy paper so that it will have, in turn, affected the envelope-surface of the copper laminated film. Indeed, the film exerts much less resistance to pressure than a board, thus making the contact between surfaces-envelopes less firm and continuous (Figure 9b).

Vignette 3: Sanding copper

After trials of cleaning and polishing the surface, it was the lightly abrasive sanding of the copper lamina that provided the required result. This proved successful in enabling the copper lamina to absorb, and retain, the ink by effecting change to its property of being even and sliding, to one that was rough and braking (Mattozzi, 2017).

Figure 12. The transfer of laser-printer ink from glossy paper to copper laminated film. A ceramic tile can be spotted below the cloth protecting the glossy-paper–printed-circuit-film coupling (Photo: Alvise Mattozzi)

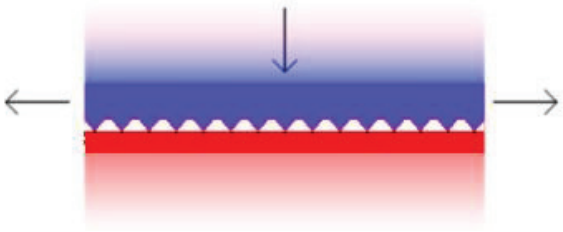


Figure 13. The action of a rough surface-envelope (sandpaper) over another one (copper lamina) (Our drawing)

Within this process, the bodies, and especially the hands and arms of the two junior designers, needed to become sensitive to the copper laminated surface to avoid abrading the delicate material too much, but enough to allow it to retain the ink. Thus, the junior designers working on the etching had to become sensitive enough to alter the envelope-surface of the copper laminated film without getting to its substrate-core. Indeed, going beyond the copper envelope-surface and getting to the film, would have disrupted the continuity of the copper envelope-surface, thus preventing the electric signal to flow undisturbed over the circuit board. Importantly, the action of manipulating the sandpaper was not only about pressure, it was also a matter of penetrations: the tiny glass grains constituting the fine sandpaper could, with the sweep of the designers hand, easily penetrate the copper lamina, scrape it, and take part of it off (Figure 13). That is why, a more violent action would not only have altered the envelope-surface of the copper laminated film, but actually removed it, producing an anticipation of the action of the acid, but without the constraints the acid has to undergo.

Within this specific interaction amongst bodies, whereby the designers and the copper lamina became, *qua* Latour (2004), more articulated, and thus, also more sensitive, the sandpaper became less, losing elements of its roughness that was passed to the copper lamina – the "progressive metamorphosis of the one into the other" Souriau (1956: 12, our translation) talked about.

Figure 15. The etched circuit displayed in the computer screen through an electric magnifying glass (Photo: Alvise Mattozzi)

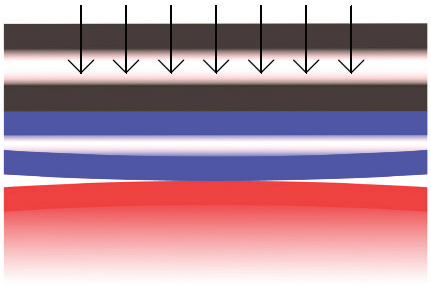
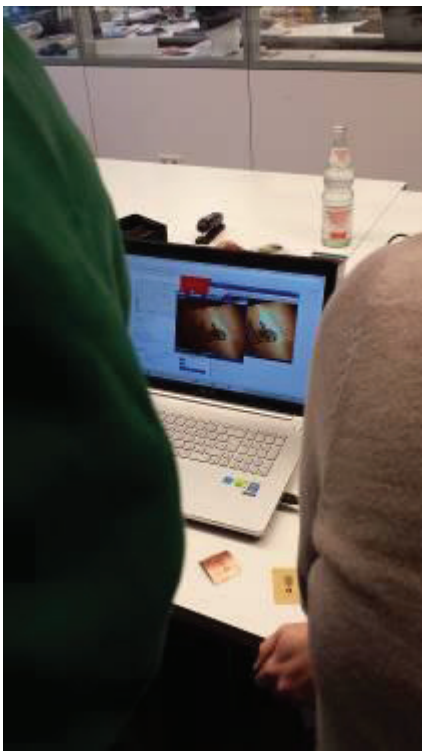


Figure 14. Non effective pressure as result of a lack of resistance from the pressed bodies (Our drawing)

Vignette 4: Finding the right resistance to pressure

The designers also had to develop a sensitivity to the ironing board, which was used as a surface to press together the inked glossy paper and the copper laminated film. They felt that the ironing board, with its soft foam rubber envelope, itself enveloped further in a soft cloth, was too supple for a flexible material like the film. Thus, the right level of pressure to generate the necessary resistance to make the two envelope-surfaces affect one another to the correct degree of adhesion (Figure 14) could not be reached. This accounts for the reason they had to make the surface-envelope of the ironing board harder by introducing a ceramic tile (Figure 12). At the same time, they



protected the copper laminated film from the hot iron, with a piece of cloth that enveloped the bodies of the paper and of the film, while they were pressed together.

Vignette 5: last steps

When, after a close examination through a computerised magnifying glass (Figure 15), the transfer of ink was judged to correspond with the original drawing (Figure 5d), the copper laminated film was inserted in a tray filled with acid to carry out the actual etching (Figure 7). The results of the etching process were again closely scrutinised to assess the continuity and connective integrity of the circuit.

Discussion

We describe-analysed only a small portion of what was a long and complex process. The project took place over a considerably greater number of phases of production than those, which we have focused on, although many are documented in figures 5a, b, c, d.

It is clear that many translations had to occur in order for a translation of a gestural code into an alphabetic one was able to occur. More specifically, we have shown that, for the glove to acquire the necessary sensitivity, many other bodies, not least the bodies of the designers, had to become more, and sometimes less, sensitive. In other words, many bodies were rearticulated, as outcome of the unfolding of mediations.

In order to account for these translations, we have used the descriptive-analytical model developed in the previous part of this article that drew upon insights of Latour, Mead, Ingold and in particular Fontanille's semiotics of the body. In this sense, we have understood bodies as entities, which are constituted by observable relations between envelope-surfaces and core-substances, and that interact through pressure, penetration, envelopments, expulsions, disenvelopments (Figure 3). In our vignettes, we have focused primarily on pressure and resistance to pressure. However, in everyday activities other kinds of interaction take place all the time, and what we argue is that these interactions need to be described-analysed to account for 'aesthetic practices' and for processes of instauration. We have done this through the rich analytical description of instauration of a specific portion of an electric circuit - or more accurately the prototype of a circuit.

As a means of clarification, we emphasise here that the features that may appear to be attributed to the various bodies involved in interactions we have described as rough, even, sliding, braking, soft, hard, rigid or flexible, are not properties of particular bodies, but the result of their interaction. To wit, something is rough if when in parallel contact with another body, it penetrates the envelope-surface of the latter, which is precisely the result of the contact between the sandpaper and the copper laminated film (Figure 13). Equally, something is soft when it yields to the perpendicular pressure exerted by another body (Figure 9b), and so on (Mattozzi, 2017; Parolin and Mattozzi, 2013). It was because the circuit needed to yield to the various shapes of the hand, and to its contracting and expanding movements, that film was needed as a support for the copper lamina. Such exigencies then, related to the consistency of support for the circuit, influenced the following processes and all the bodies taking place to the overall etching.

Even the latter entailed contact among bodies. The enveloping body of the acid takes away, by dissolution, the envelope-surface of the copper laminated film, leaving the core-substance of the film intact (Figure 10). However, etching is not peeling-off. The acid should not affect the entire envelope-surface but only "select" (Bastide, 1987) what not protected by a further envelope, provided by ink. This explains why the latter has to be translated – translated, in the etymological sense of transferred, in this case – and made to stick, on the surface of the copper lamina.

These transformations changed relations among bodies but also the "network within" (Parolin and Mattozzi, 2014; 2020: 38 and 48) of the copper laminated film – i.e., the network provided by the relations between core-substances and envelope-surfaces, related in this case to the film and the copper over it – as well as other features related to the texture, such as the relation between sliding and breaking. Through each phase of the

process, bodies in contact with other bodies were clearly affected by these contacts.

This ought not ignore that there were also bodies that, though taking part in the interactions we have described, took part also in other interactions.

These are especially the bodies of the designers. These bodies were able to detach themselves from the chain of bodies we observed, and to occupy a space tangential to the process, observing and comparing the bodies in the chain of interactions from a distance. They did this by addressing other bodies, and starting other chains, illustrated for example, by the pen and the notebook in Figure 11, or by the electronic magnifying glass in Figure 15.

This last detail clearly demonstrates that such detachments take place through artifacts too. Therefore, the detached observation the bodies of the designers are able to unfold on the chain of other bodies, do not transcend the situation but rather emerge from it. They constitute just a chain intersecting another chain. As we have shown elsewhere (Parolin and Mattozzi, 2013), it is through such shifts between more engaged positioning within a chain and more detached ones that knowledge is produced and can be recorded and fixed (Figure 11). It is produced not only through observation, but especially through comparison of 1) the elements constituting the observed chain and of 2) the relative positionings of the observer, the one engaged in the chain and the one detached from it.

Conclusions

Our research explores the grounds upon which STS and 'aesthetic studies' can develop dialogues around and about 'aesthetic practices' as assemblages of *aisthesis* and (*palim*)*poiesis*. Reconstructing the relatively long history of exchanges between STS, and especially ANT, and 'aesthetic studies', we reflected on how such exchanges have allowed ANT to think about mediation and how to account for artifacts taking part to these mediations. In the light of this, we proposed that such dialogue can be developed further by regarding 'aesthetic practices' as ones that encompass bodies translating bodies, including human and non-human bodies, and that can be further unfolded through a model, able to describe-analyse these complex translations among bodies.

Drawing on Fontanille's (2004) semiotics of the body, we developed the notion that bodies are constituted by relations between a core and one or more envelopes, which repose and dispose interactions among bodies through contacts involving pressure, penetration, envelopment, disenvelopments and expulsions, that can affect the envelope, the core or the entire body. To frame this explicitly within an ANT framework, we claim that through this model we have provided actants with a body.

We have used the model to describe-analyse various phases in the development of a complex prototype of an electric circuit for a digital interactive device (in the form of a glove) by accounting for the translations among bodies. In this example, the model was able to reveal various relations between core and envelopes, by focusing on the way a printed sheet could or could not affect a copper laminated film through pressure, the use of pressure and penetration of sandpaper upon copper lamina, the role of the bodies of designers.

However, whilst the model proved substantively telling in this instance, not all aspects of 'aesthetic practices' and the relations they entail can be reduced to translations among bodies. Other relations, like those to figures, values, meanings, as well as those to contrasts among shapes, colours, consistencies and textures, which we have tackled in part, cannot be ignored when considering 'aesthetic practices'. 'Aesthetic studies' can provide STS with notions, categories and models that can help in accounting for these relations.

Nevertheless, we strongly suggest that describing translations among bodies is an necessary step in accounting for 'aesthetic practices', as well as other relevant aspects related to the interaction among bodies, such as affect and its attendant sensations, passions, and emotions.

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The present paper is a collaborative effort by the two authors. If, however, for academic reasons individual responsibility is to be assigned, Mattozzi wrote the following paragraphs: "ANT and the social history of art: mediation", "Beyond doing and making", " A model to describe-analyse bodies translating bodies", "The case", "Conclusions"; Parolin wrote: "Introduction", "Exchanges between STS, 'aesthetic studies' and 'aesthetic practices'; "ANT and Souriau's aesthetics: instauration", "Describing-analyzing 'aesthetic practices'", as situated and distributed translations among bodies "Discussion".

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Notes

1 *Ästhetische Praktiken (nach Bologna)* was also the title of a research project lead by Priska Gisler, Elke Bippus and Monika Kurath (www.aesthetischepraktiken.com). We started the reflection we here present in order to devise a contribution for a conference that took place within the framework of that research project. The conference, called *STS Turns Aesthetic*, took place at the ETH Zurich on the 7th and 8th of November, 2013.

2 Rancière ([2000] 2013: 8) seems to actually distinguish between 'aesthetic' and 'artistic' practices. Indeed, he says that 'aesthetic practices' are "forms of visibility that disclose artistic practices" (Ranciére, [2000] 2013: 8).

3 In Boucher et al. (2018), the same authors refer to aesthetics as mainly related to form, intended as shape (Ovalle, 2018), and hence to visual appearance and, on a lesser extent, to auditory perception. Such relevance given to 'aesthetics' as visual appearance, probably led them to resort a framing of aesthetics related to beauty (Michael, 2018b), for them a relevant issue in engaging 'aesthetic' publics (Wilkie, 2018).

4 Shusterman has preferred the term 'soma-' over 'body-' or 'corporal-', because 'body', as well the latin 'corpus', can refer to human as well as to non-human and even to non-living bodies, whereas he intends to focus on human bodies. Given that, as it will become clear below, we will refer to bodies in general, the practices we are interested could also be called 'corporaesthetic practices'.

5 For the use of Dewey in relation to STS and aesthetic practices, see also Binder et al. (2011).

6 The *Handbook of Science and Technology Studies* is the major publication representing STS as a field (Ienna, 2018), being directly promoted by 4S, the leading association of STS scholars. The previous edition of the *Handbook* had a chapter signed by two of the three authors of the chapter discussed here, Regula Valérie Burri and Joseph Dumit (2008), on "Scientific Imaging and Visualization", which ended by noting the increasing relevance of hybridization between science and art.

7 We could also add a fifth way of STS engagement with 'aesthetic practices': the case of STS scholars working as mediators between scientists, artists and designers, within larger research projects, providing not only translations among different competences, but also a meta-reflections (Calvert and Martin, 2009; Ginsberg et al., 2017).

8 In a similar way Parolin and Pellegrinelli (2020a) propose the term 'creative laboratory' to stress the experimenting in the rehearsal room during a theatrical production.

9 See, note 1.

10 Here Latour (1998: 422) is specifically talking about studies of the "visualization in science and the visual arts". We, following the recent history of STS (see, note 6), extend the argument beyond studies of visualizations.

11 It is no coincidence then that, whenever Latour wants to provide examples of good ways of describing artifacts, he mentions examples of descriptions carried out in the history of art (see for instance Latour, 1992: 255, n. 2; 2005: 237, n. 332).

12 On 'anaphoric progression' or 'trajectory' as a useful notion to enable empirical research on 'aesthetic' production, see also Strandvad (2017).

13 Michael's (2018b) reflection on 'eventuation' is similar to Souriou's and provides a way to think 'aesthetic practices' that is similar to ours. Ingold's (2013) reflection on making is also similar to Souriau's one, even though he seems more interested in the process and the way the maker is engaged in it, rather than in the instauration as the outcome of the process, which produces the possibility of a disengagement.

14 Binder et al. (2011) and Guggenheim (2011) refer also to this article as paradigmatic of ANT as sociology of translation. More specifically, Binder et al. (2011) refer to it for reasons similar to ours. They intend to problematize the transformations of representations in the process of design. For these authors, different design representations change during the design practice, and initial ideas are subject to metamorphoses and further materialization in new representations.

15 Thus not considering 'immutable mobiles', which are a feature of the 'scientific' mode of existence (Latour 2013).

16 Lise Justesen (2020) reminds us that for Latour there is no difference between description and analysis. We agree, given that we can consider an analysis a description of relations (Mattozzi, 2019). On the relevance of description for ANT in relation to 'aesthtetic pratices', see Storni, 2015.

17 It is useful to remind readers that the original version of Akrich ([1987] 1992) was published in French with the title "Comment décrire les objets techniques?", which translates "How can we describe technical objects?".

18 When Guggenheim (2011) criticizes ANT-sociology of translation for not problematizing its own translation of practices, he forgets Latour's infralanguage. The latter allows not only to translate, but also to account for these translations. The present article delves into this issue proposing a way to translate senses, which is not only verbal, but also visual (see below). Therefore, the present article addresses all the main issues raised in Guggenheim (2011), showing that they can be tackled by ANT's descriptive methodology. On similar grounds, we partially reject Michael (2018a: 118) critique of classical ANT as "'too' empiricist". Considering infralanguage allows to acknowledge the ways in which ANT is instrumental in "'making' the object it is studying". Therefore, we do not feel the urge to introduce a 'post-ANT', before having delved into all the aspects of 'classical ANT'.

19 Connecting 'affect' with bodies – regardless if they are human or not – is actually getting back to Spinozian origin of the concept, which also inspired Deleuze (Blackman and Venn, 2010; Clough and Halley, 2007; Gregg and Seigworth, 2010; Massumi, 1995, 2002, 2015).

20 We deem that our attempt is not dissimilar to the one by Ash (2015), even though, differently from the latter, our takes fully place within an ANT framework.

21 The issue we raise, which emerging ANT raised much before us, is not dissimilar to the one raised by Anna Tsing (2017) about learning from natural history how to describe more than human encounters: natural history, which in Tsing broader framework takes the place that (social) history of art and aesthetic studies have for ANT, "requires constant attention to form, texture, and color, constant speculation as to pattern" (Mathews, 2018: 154).

22 As for the present article, we limited ourselves to use Fontanille proposal to account for interactions among bodies and senses, especially touch.

23 As far as we know, Ingold's (2007) Gibson derived categories have not been used in empirical descriptions of artifacts. Ingold himself does not seem to be interested in developing them as systematic descriptive categories, even though he does refer to them here and there (e.g., Ingold, 2013).

24 Heavily influenced by phenomenology, Fontanille (2001) introduces a strong asymmetry between human and other bodies, which, for us, is not only theoretically problematic but, most importantly, severely limiting methodologically.

25 Using Fontanille categories and model to integrate Latour's infralanguage is consistent with what has been done by Latour, given that his infralanguage has been articulated mainly through terms, categories and models taken from Greimasian semiotics (Mattozzi, 2019), of which Fontanille is one of the main continuators.

26 This is clearly a play on Latour's (1990: 103) famous sentence about technology as "society made durable".

27 Respectively, Tiago Martins, Chiara Esposito, Fabian Werfel.

28 http://www.robotplatform.com/howto/pcb%20etching/pcb_etching_1.html, accessed on the 26th May 2020.

29 http://fritzing.org/learning/tutorials/pcb-production-tutorials/diy-pcb-etching/, accessed on the 26th of May 2020.

30 This process works as an exemplification of what Binder et al. (2018) call 'metamorphoses' of representations.

31 See references in notes 28 and 29, italic is ours.