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The Hermeneutic Circle of Data Visualization: the Case Study of the Affinity Map

In this article, we show how postphenomenology can be used to analyze a visual method that reveals the hidden dynamics that exist between individuals within large organizations. We make use of the Affinity Map to expand the classic postphenomenology that privileges a 'linear' understanding of technological mediations introducing the notions of 'iterativity' and 'collectivity.' In the first section, both classic and more recent descriptions of human-technology-world relations are discussed to transcendently approach the discipline of data visualization. In the second section, the Affinity Map case study is used to stress three elements: 1) the collection of data and the design process; 2) the visual grammar of the data visualization, and 3) the process of self-recognition for the map 'reader.' In the third section, we introduce the hermeneutic circle of data visualization. Finally, in the concluding section, we put forth how the Affinity Map might be seen as the material encounter between postphenomenology, actor-network theory (ANT), and hermeneutics, through ethical and political multistability.

Keywords: data visualization, postphenomenology, hermeneutics, iterativity, collectivity.

Introduction

In the beginning, this article was supposed to be a philosophical account of some transcendental aspects of data visualization. Our intention was not to focus on the technological solutions of our case study, neither was it supposed to be a posteriori analysis describing the multiple visual emergence of it. This article instead looks at the result of the encounter between a designer and a philosopher, in which the term ‘transcendental’ refers to a common reflection on the ‘conditions of possibility’ of a specific data visualization.

In particular, our intention was to turn to postphenomenology, a philosophy of technology that deals with the human-technology-world relations (Rosenberg and Verbeek 2015). Postphenomenology is based on the idea that humans and the world are co-constituted by the means of technological mediations. Hermeneutic relations (Ihde 1990) and composite relations (Verbeek 2011) seemed particularly helpful in supporting our analysis.

We have applied this framework to a project called Affinity Map. The output of this project is a visual method revealing the hidden dynamics that exist between individuals within large organizations (Rodighiero 2018a, Rodighiero et al. 2018). The research was carried out at a specific organization, the *École Polytechnique Fédérale de Lausanne* (EPFL), focusing specifically on the School of Architecture, Civil and Environmental Engineering (ENAC). The Affinity Map outcome is an interactive data visualization that represents the ENAC collective identity of one thousand scholars through their collaboration flows.

To our surprise, we have discovered that this case study could also be used to ‘expand’ the classic postphenomenological perspective, which is usually characterized by a ‘linear’ understanding of the technological mediations. Furthermore, postphenomenology tends to consider just one mediation at a time. Several discussions about the Affinity Map brought us to think of technological mediation in terms of ‘iterativity’ and ‘collectivity.’

The article has been formatted into three sections. The first section presents the classic and somewhat more recent postphenomenological human-technology-world relations,

which, in our opinion, are adequate for transcendently describing data visualizations. The second section is about our case study and stresses three elements: 1) the collection of data and the design process; 2) the visual grammar of the data visualization, and 3) the process of self-recognition for the map 'reader.' The third section introduces the notions of 'iterativity' and 'collectivity' along with the idea of the (double) hermeneutic circle of data visualization.

In the conclusion we argue that a data visualization such as the Affinity Map can be seen as a material encounter between postphenomenology, actor-network theory (ANT), and hermeneutics. We also highlight the ethical and political multistability of this visual method.

1. Postphenomenology

Postphenomenology is a current in philosophy of technology that deals with the technological mediation between humans and the world. Such mediation has not just epistemological consequences on the ways we perceive the world, but has also ontological consequences on both ourselves and the world. Postphenomenology is a sort of correction of the myopia towards the technology that affects classic phenomenology and hermeneutics. Indeed, for both these disciplines the frontiers between the lifeworld and its understanding are rather static; on the contrary, postphenomenology suggests that these frontiers change noticeably as sociotechnical conditions vary (Romele 2018).

Don Ihde (1990) distinguished among four kinds of technologically mediated human-world relations. The first is *embodied relations*, whose specificity lies in the fact that, after a certain period of adaptation, the technology becomes almost transparent. This is the case, for instance, of a pair of glasses that almost 'disappear' with use. The second is *hermeneutic relations*, in which technology gives a representation of the world that must be 'interpreted' in order to be accessible. Typical cases are maps, thermometers, and flight instruments. The third kind is *alterity relations*, which is when the relationship with the world is shortly suspended and the technology is treated as the main interlocutor or

competitor. This, for example, could be video games or any form of artificial intelligence. Finally there are *background relations*, in which the technology establishes the conditions for our relation to the world. For example, heating and lighting systems allow a specific kind of being in the world that would otherwise seem impossible in specific conditions, such as winter, darkness, et cetera. These four relations are graphically represented in Table 1.

Embodied relations	(human-technology) → world
Hermeneutic relations	human → (technology-world)
Alterity relations	human → technology-(-world)
Background relations	technology → (human-world)

Table 1: Classic human-technology-world relations.

Several critiques and variations of this fourfold distinction have been proposed. Peter-Paul Verbeek (2011, 140) extended it for instance from above and from below. On the one end, he introduced the notion of *cyborg relations* to describe situations in which the boundaries between technologies and human beings are blurred in a physical way, as in the case of psychopharmaca and neural implants. Such examples represent a radicalization of the technological embodiment in which technology is not limited to acting as a mediator between humans and the world, but it is incorporated into humans so that they constitute new, hybrid beings. On the other end, he spoke of *immersion relations*, in which technologies do not merge with the human body, but rather with the environment. Toilets, beds, and even entire cities are examples of smart environments (Rosenberg and Verbeek 2015, 21–22).

Verbeek also formulated the idea of *composite relations*. Composite relations represent specific situations of technological mediation in which a double intentionality occurs: one is of technology towards ‘its’ world and one is of human beings towards the result of this

technological intentionality. Later, Heather Wiltse (2014) suggested splitting the technology element into trace and substrate. In digital environments, the trace and substrate are separated into two different devices that produce and display the content. For instance, unlike classic thermometers, weather websites show no direct relation between the substrate supporting the inscription and the actual instrument measuring the temperature. More recently, Wellner (2018) introduced the concept of *writing relations* in order to include the ability of machine learning that would automatically write news for the forecast, stock market, and sporting events. These variations have been graphically represented in Table 2.

Cyborg relations	(human/technology) → world
Immersion relations	human ↔ technology/world ¹
Composite relations	human → (technology → world)
Hermeneutic relations (Wiltse's version)	human → ([trace substrate] → world)
Writing relations	human ← algorithm → text → world ²

Table 2: Some recent variations to the classic human-technology-world relations.

This list, of course, is not exhaustive, and other options have been already sketched out³. Our intention, rather, is to show how postphenomenology can be used for approaching data visualization.

¹ The arrows indicate the directionality of the intentionality. In this case, the left right arrow indicates the fact that this type of relations has a bi-directional character: human beings are directed towards technologies that are also directed towards them. The slash instead of the simple dash suggests the fusion between two entities.

² Wellner separates trace (text) and technology (algorithm), but inverts their order. Moreover, she considers the double algorithmic intentionality: the algorithm is directed toward the writing of the text, but also suggests the reading human what to read.

³ See, for instance, Liberati (2016); see also the simplification and reduction proposed in Nørskov (2015).

First, we would say that data visualizations are strongly related to hermeneutic relations since they represent portions of the world, and these representations must be ‘read’ in order to access the world. However, data visualizations imply hermeneutic relations of a specific kind. Indeed, data visualizations are representations of a dataworld (Grey 2018) which is, in turn, a representation (or captation)⁴ of a world that would remain in great part unperceivable and unintelligible to us because of its complexity. In other words, data visualizations are representations of representations⁵. For this reason, they bear a likeness to composite relations in which human and nonhuman double intentionality combine.

Data visualization is as necessary as flight instruments are in case of bad weather conditions. It is aesthetic not only in the cosmetic sense of the term, but also in the sense of *aisthesis*, the Greek word for perception, because it acts as our ‘eyes’ in order to orient ourselves in the dataworlds — a bit like Merleau-Ponty’s famous white cane.⁶ The work of the data visualization designers is not much different from the work of quantum physicists, or researchers involved in deep space explorations. Imagination, images, and the imaginary, along with a large dose of maths, methods, and technologies, are used to reduce the distance between an alien world and us.

⁴ In the words of Callon, Lascoumes, and Barthe (2009, 52), ‘the famous data (givens) of experience are never given; they are obtained, ‘made,’ fabricated.’

⁵ Peirce famously distinguished between indexes, icons, and symbols. One might argue that data are indexes or traces and data visualizations are icons. This means that data visualizations have a pictorial dimension, while data not. Giardino and Greenberg (2015, 2–3) divide iconic signs into pictures (perspectival drawings, photographs, paintings, film clips) and diagrams (graphs, charts, timelines, etc.). One could say that the latter are closer to a symbolic dimension that is more conventional and abstract than the former one. This is precisely the case of data visualizations. From a postphenomenological point of view, it can be affirmed that their specificity is of being hermeneutic relating technologies that still have a minimal degree of embodiment features (see Ihde 1998, 95). This is the reason why Ihde (1998, 166–168) also speaks of “textlike” visualizations.

⁶ Lynch (1988) speaks of ‘externalized retina’ to account for the process of selection and mathematization (that is, synthezation) in the visualization processes in the field of life sciences. According to him, visualizations of this kind do not concern just the psychology of an isolated individual, but also the coordinated practices of groups of people (Lynch 1988, 204).

Data visualizations are usually actualized on a computer screen. Yet, as in the case study we present later, they can also be actualized differently — for instance on a poster, a carpet, a bag. Here there is, in sum, a sharp separation between the ‘traces’ and their material ‘substrates,’ and that is why data visualizations can be presented as hermeneutic relations in Wiltse’s version. Of course, a certain degree of algorithmic intentionality characterizes most of the current practices of data visualization, so one can consider them as forms of writing relations as well — the TF-IDF algorithm (Salton et al. 1975) used in our case study is a good example.

Postphenomenology is a powerful tool that describes the process of data visualization. However, while one can use postphenomenology for improving the understanding of the design process of data visualization, things can also go the other way around. The concrete practices of data visualization can support an ‘expansion’ of the theoretical postphenomenological framework. That is precisely what we have discovered through the case study we will introduce in the next section.

2. Affinity Map as a Case Study

The Affinity Map project (see Figure 1) began as a doctoral thesis that lasted for four years, whose output was a dissertation (Rodighiero 2018a) and two materializations of the map into the form of a walkable surface (Rodighiero 2018b) and a web-based application.⁷ As suggested by its name, the project revolves around the concept of *affinity*, which is used to understand the social relations that drive an academic organization internally. EPFL scholars enjoy a great intellectual freedom that allows them to reinvent the tree-shaped organizational structure.

The question was how to observe this specific reorganization that occurs between individuals without any kind of conflict that might be introduced by evaluation methodology (Hertig 2016). The answer is in the concept of affinity, which helps to focus

⁷The Affinity Map is currently available for public use at <https://affinitymap.epfl.ch>. A private version with scholars’ names is available to the ENAC community only, through authentication.

on both actual collaborations and potential synergies between scholars. The Affinity Map is relevant to three different aspects that are described here; these correspond to: 1) the collection of data and the design process, 2) the visual grammar conceived to protect individual identities, and 3) its actualization (Deleuze and Parnet 2007, 148–152) through a process of materialization that allowed for interactive experience.

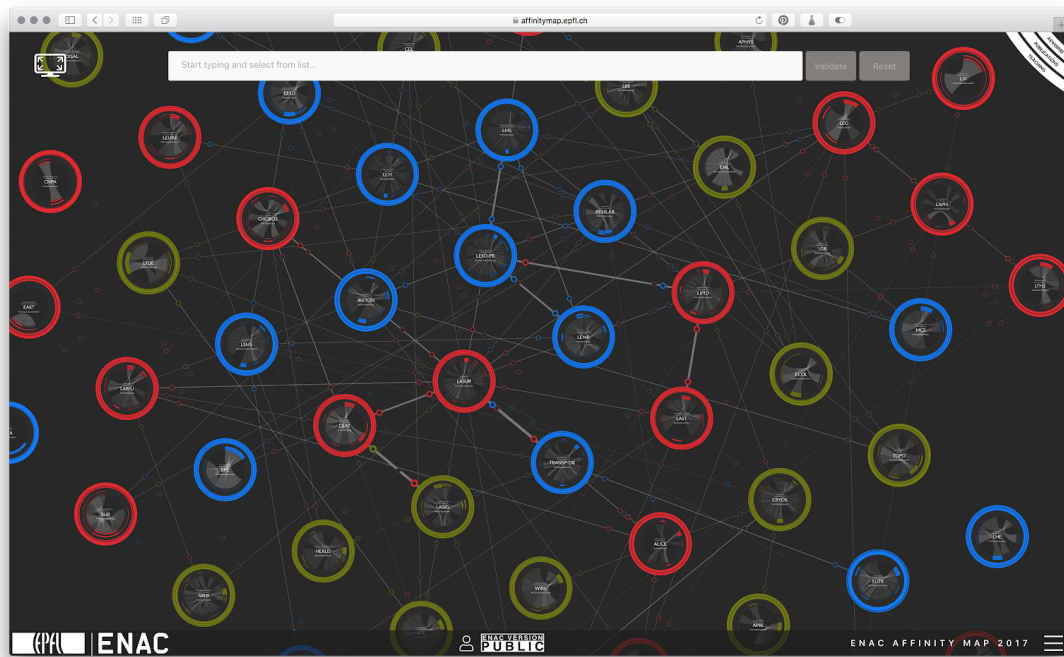


Figure 1: The Affinity Map represents actual and potential collaborations of the ENAC School. From a distant perspective, the data visualization arranges laboratories according to the affinities they share using a force-directed algorithm for graphs.

The process of design was based on an iterative cycle in which data were collected, treated, and visualized to be at the center of a debate stirred by a committee composed of the dean of the ENAC, her assistants, the thesis directors, and Dario Rodighiero as a doctoral student. This iterative cycle allowed for a rapid assessment of the data quality of available sources, which brought to a severe selection of actual affinities that were identified in teaching courses, supervision, and co-authoring. Potential affinities were

created from scratch using the TF-IDF algorithm (Salton et al. 1975), which computed homogeneous sets of keywords using the lexicon employed by authors in their abstracts. Potential affinities correspond to a lexical distance between specific sets of papers, which actually corresponds to laboratories, creating a spatiality based on terms frequency.

The Affinity Map changed position while the project was already underway. During the second year of PhD, the ENAC community was publicly asked to give its opinion about the project at the annual general assembly. The result was clear although unexpected (Rodighiero 2018a, 40–41); the audience attending the assembly was not only favorable to supporting the project, but wanted to be considered as a potential user. As a result, the project took a position according to the logic of governance that facilitates both top-down and bottom-up organization. Although this change was radical, the data collection was not modified, unlike the visual representation that was redesigned to avoid evaluation as much as possible (see Figure 2). Any possible element that could lead back to an assessment logic was removed; preference was given to a visual grammar based on collaboration only. The Affinity Map, indeed, never shows any figures like the number of publications or citations that might suggest a certain logic of comparison. Furthermore, the Affinity Map never shows isolated individuals, it reassembles all the scholars in laboratories. This strong visual choice led to the creation of a network visualization arranged on two levels where the macro network shows the laboratories as nodes, and each node hosts a micro network displaying individuals. As a result, this double-structured network arranges collaborations on two levels respectively filled by laboratories and scholars, and the rings that surround the laboratories are veritable thresholds that divides collective and individual relations.

between the data visualization and the ENAC community enabled discussion, but more than that it was an example of what Ezio Manzini calls dialogic design, which is a collective-driven design process whereby opinions are seriously considered (Manzini 2016). During these events, all the comments and remarks were useful for spotting problems and further improving the data visualization, especially the individual representation of ENAC members.

During these events it was also possible to observe how scholars interacted with the Affinity Map. Usually, the first action a reader does with a data visualization is finding something personally relevant. Yet, when the subject of data visualization is its observer, the very first action is an act of self-recognition that connects the individual with their own representation (Rodighiero & Cellard 2016). At the time of the first presentation, the Affinity Map was unveiled as a walkable visualization in a large hall situated within the EPFL. In this specific environment, the first action of the scholars was to find their own laboratory, then to find themselves. The double structure of the map was working as a pathfinder: to find your own self you had to find your own laboratory first. This public interaction was performed by many individuals at the same time, who were walking on the decal crossing their paths like the traces animals leave in the soft surface of mud, sand, or snow (Ingold 2007, 43). These walking paths were trajectories to discover one's own self before all else, but at the same time they were also a means of creating opportunities that would lead to unexpected conversations.

A specific conversation that happened with greater frequency during the ENAC Research Days was about the personal representation. Scholars are, foremost, interested in their own visual representation. Indeed, many conversations were oriented towards an understanding of the individual representation, and they were actually very useful for discussing the Affinity Map and sensitizing the scholars to their personal data. ENAC scholars were specifically represented with three quantitative indicators — corresponding to teaching courses, supervision, and publications — relative to their laboratory colleagues. Characterizing the identity of individuals using the thickness of three arcs was a way to understand academic roles without showing any figures. Most of the time, the

conversation was about the emptiness of the quantitative indicator for publications, which is information in the academic environment. This public design process allowed the identification of many issues related to the Infoscience system, which is the official repository of EPFL publications. Usually the quantitative indicator for publications was empty because of a problem with metadata. Regardless, the core of the conversation was not about the correction of these data, but rather the active participation of ENAC scholars to the design process. They were actually able to modify their own self by uploading their research papers in a sort of self-design process. The design process is thus characterized by a *double iterativity* that occurs at the levels of both the steering committee and the single scholar.

3. Iterativity and Collectivity

Postphenomenology uses several diagrams, made in part of dashes and arrows, to translate the mediating role of technologies in human-world relations into visuals. Here, we use the case study of the Affinity Map to show two limits to these diagrams. First of all, human-world relations are linear, a characteristic that risks visually limiting human thinking (Flusser 2007). Certainly, postphenomenology does not in principle exclude forms of hermeneutic circularity or iterativity. The fact that authors such as Ihde and Verbeek speak of the constitutive role of technological mediations on both humans and the world demonstrates that the design and use of technologies have the effect of reconfiguring someone's being. However, such circularity is mostly implicit, while it represents the first element that explicitly emerges from a transcendental reflection in our case study.

The term 'iterativity' refers to the fact that technological mediation is neither a mono nor a bidirectional movement, it is circular. Using technology to approach the world has specific effects on the user and is not a one-shot experience in most cases. Moreover, technology is characterized by an iterative learning process to get a certain degree of familiarity. Children, for instance, learn to deal with tools such as knives and forks by

repeating the same sequence of actions several times. The same holds true for body mobility and language, which are probably the first 'tools' we have at our disposal.

The Affinity Map shows a circularity that, in some ways, recalls the structure of the hermeneutic circle. In its Heideggerian version, such a notion refers to the fact that all of our interpretations of the world are always-already situated. That is, these interpretations are predetermined by both our pre-understanding and expectations. For Heidegger, the hermeneutic circle is not vicious in so far as it opens up the possibility of an authentic self-understanding. In this context, we are referring to the circularity illustrated by Paul Ricoeur through the threefold mimesis in the last volume of *Time and Narrative*.⁸

Ricoeur's three mimesis are prefiguration, configuration, and reconfiguration: 1) *Prefiguration* has to do with the predisposition of human action to be told and, more precisely, to be textualized; in this context one may say traced or datafied; 2) *Configuration* corresponds to the emplotment (in French *mise en intrigue*). With this, the different textualized, traced, and datafied elements of the human action are combined and recombined according to a certain coherence. Yet, for Ricoeur, narrative is not used for its own glory ('for its own sake' using the words of Roman Jakobson); 3) *Reconfiguration* has to do specifically with the application of the text to the hearer or the reader, but also to the author herself (Ricoeur 1988, 71).

The analogy about the dynamics beyond the Affinity Map is clear. The scientific practice of scholars is disposed to be traced and datafied. The resulting digital traces are then emplotted into information systems and transferred to data visualizations to be diagrammatically revealed. Data visualizations are successively given back to the scholars who are not indifferent to their visual representations, just as they are not indifferent to bibliometrics and rankings. In other words, data visualizations induce the *reconfiguration* of the scholars' own self and, consequently, of their scholarly practices. The modification of these practices induces changes in the visualization as new traces are written, iteration

⁸ There is no room for such discussion here, but the reasons for preferring Ricoeur to Heidegger are not extrinsic. Indeed, Ricoeur gave a constitutive role to the technological mediation of the text, while for Heidegger the use and the eventual break of a tool (for instance, the hammer) is merely an occasion for improved self-understanding.

after iteration. The most evident difference from a classic text is that data visualizations are never static like the hermeneutic circle of data visualization, which is based on a ‘reader’ who is also the author. In the style of postphenomenological linear diagrams, iterativity might be represented in several ways:

Human ∞ (technology-world)
Human \emptyset (technology-world)
Human \circ (technology-world)
Human \rightarrow (technology-world) \leftarrow

Table 3: Iterativity in hermeneutic relations.

However powerful the model of the threefold mimesis is, it risks being reductive here. Indeed, the hermeneutic circle of data visualization is, so to speak, a *double* hermeneutic circle. The hermeneutic circle of the ‘reader’ must always be paired with the circle of the designer (see Figure 3). Digital traces are collected and, through an opportune treatment, transformed into data and emplotted into databases. The designer will then resort to programming or digital tools to emplot data again in a visual form using a scope that renders them more understandable, and eventually aesthetically appreciable. The design process can lead to different forms of actualizations, of which computer screens are the most common option. The production and collection of new digital traces will bring into question these actualizations, and the hermeneutic circle of the designer will start again. The hermeneutic circle of data visualization has, thus, the form of the lemniscate, or the infinity symbol⁹.

⁹ Heidegger used to distinguish between *Selbstwelt* (self-world), *Mitwelt* (with-World), and *Umwelt* (surrounding world). It can be argued that the hermeneutic circle of data visualization deploys the articulation among the three, insofar as both the technological infrastructure and the social environment emerge as fundamental contributors in

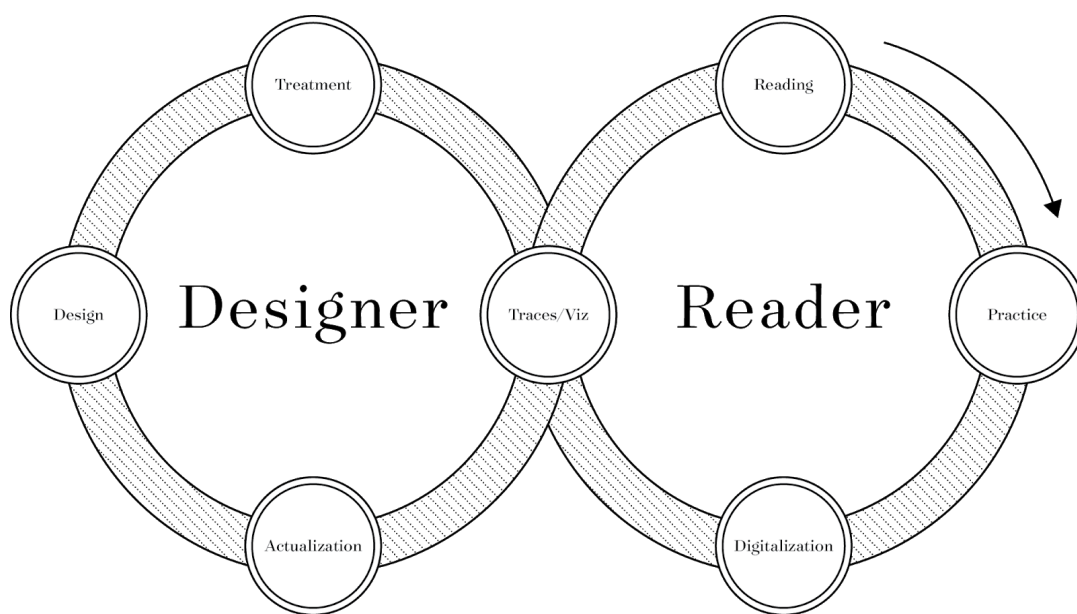


Figure 3: The (double) hermeneutic circle of data visualization comprehends the design process and the interpretative action. Both are intended to be a continuous flow in which the changing of the reader's practice updates the form of the data visualization. Digital traces and data visualization cross at the center like two sides of the same coin.

The second element that emerges from our case study is what we have called 'collectivity.' The Ricoeurian model of triple mimesis suggests that there is *one* author, *one* book, and *one* reader at a time. It is worth noting that even when Ricoeur writes of more than one author (e.g. the Bible), more than one book (e.g. the New Testament), and more than one reader (e.g. the public reading and listening practices in the Christian Churches) he implicitly applies the classic model of solitary, silent writing and reading.

The Affinity Map clearly shows a collective engagement and collectivization in both sides of the hermeneutic circle. Digital traces do not concern one unique, isolated individual. Even when digital traces are collected for quantifying individuals, they are continuously used as touchstones for comparison with someone else as a condition of visual proximity.

the reconfiguration of the self. Moreover, it can be supposed that such reconfiguration has, in its turn, performative consequences on the technological infrastructure and the social environment.

The digital plotment implies a series of stratified processes and technology uses that are the result of a mediation between human and nonhuman double intentionality. Not to mention the fact that the designer does not work in solitude, she is usually part of a team, in continuous contact with clients and the audience in a dialogic design (Manzini 2016).

We want, however, to focus on a specific moment of the Affinity Map when the data visualization 'reading' occurs. One aim of the Affinity Map was not to quantify several isolated selves, but rather to develop an overall image of ENAC characterized by the richness of every single individual immersed in the complex dynamics of an autonomous arrangement. This collective image was challenging because each of the 1,000 scholars of ENAC had to agree with the graphical representation. For that reason, during the design process a temporary version of the Affinity Map had been shared at the ENAC Research Days and, later, privately on the Internet. Since the representation of each scholar was very delicate, a dialogue with the ENAC community was collectively established.

In 2016, the Affinity Map was presented as a large carpet for the first time in the hall of architecture (see Figure 4). All of the members of the school were invited to look at the data visualization from the balconies in order to grasp the distant view of the laboratories' arrangement (Rodighiero 2018b). Then, they were invited to walk on the Affinity Map so they would be able to find themselves. The exercise was effective: from the balconies they were able to identify their own unit and, afterward, to go directly there and identify themselves by walking on the Affinity Map. The public presentation of the Affinity Map allowed for the creation of a social space where ENAC members could talk and discuss what they saw. This moment of disclosure actually became a learning activity in which individuals were taken through the visual choices that impacted the ongoing design.

community through simple talks was fundamental to finding them. The work was finally published in September 2018.

The Affinity Map is a continuous project, as digital traces are updated every year through a personal report that professors are requested to fill out each year. This personal report is an important instrument because it allows us to go over data gathered during the year in a sort of revalidation performed by laboratory directors. As a result, each year new digital traces are added to the Affinity Map with the idea to transform in a time machine to remount years. Although a few years of data are available in the database, it is too early to check if the visual method effectively impacts the academic practice of scholars. During the interviews used for the thesis, it was implied a sense of assessment especially for the tenure-track positions. The remaining doubts were resolved by creating two versions of the Affinity Map, one private and one public. The difference between the two versions is that identities are only available in the private version; they are available to the ENAC community only.



Figure 5: During the ENAC Research Day 2017 a dynamic version of the Affinity Map was presented. Although the size was smaller compared to the previous year, the main concept was always the stimulation of the dialogue in a sort of social design process.

Conclusion

From an epistemological and ontological point of view, one can say that the Affinity Map is the material encounter between postphenomenology, ANT, and hermeneutics. Postphenomenology is particularly suitable for ‘in-depth’ analysis of the human-technology-world relations until it focuses on deploying the ‘quality’ and the ‘intensity’ of these relations. Moreover, postphenomenology discriminates ‘by nature’ between at least three different modes of existence: humans, technologies, and things of the world. However, postphenomenology can also look simplistic in so far as it considers one sole relation at a time. For this reason, it has been proposed to integrate it with the network perspective developed in the context of the ANT, which is more suitable for ‘in-width’ analysis. According to Verbeek (2005, 165),

While Latour in principle can study the endless number of chains, postphenomenologists seem to be restricted to two [...]. But the difference between the two approaches is more subtle than that, for in these short chains the postphenomenological perspective can bring to light things that remain invisible to actor-network theory. The postphenomenological perspective, for instance, offers a more nuanced look at the connections between the entities in its chains.

Both postphenomenology and ANT have contributed and are part of the ‘empirical turn’ in philosophy of technology. As a consequence, they tend to focus their attention on the most immediate, visible, and touchable aspects of technological mediations. Hermeneutics, through the notion of the hermeneutic circle, is rather oriented towards the silent effects of technology design, and use on the designer and the user themselves. Hermeneutics suggests that part of our attention as philosophers of technology should be focused on the symbolic mediations that always-already mediate the empirical technological mediations, and that render these technological mediations more or less effective on our individual or social existences. Without considering the symbolic and imaginary structures (the one described, for instance, by Cassirer, Panofsky, and Bourdieu), the effects of the technologies on the self would remain understandable.

For example, Taina Bucher (2017) has studied the ‘algorithmic imaginary,’ that is to say the ways of *thinking* and *speaking* about what algorithms are, which have a generative role for her in molding the algorithm itself. More generally, we are moving to a sort of ‘hermeneutic turn’ in philosophy of technology, in which language, signs, symbols, and imaginaries, which were brutally defenestrated by the philosophies of technology of the empirical turn, are readmitted through the main door — see for instance the concept of ‘narrative technologies’ in Coeckelbergh and Reijers (2016) or, in what specifically concerns digital technologies, Romele, Severo, and Furia (2018).

In the case of the Affinity Map, the effectiveness of the data visualization on the researcher depends in large part on the importance given in the academia to the dynamics of agonistic (helas, often non-mutual) recognition. The Affinity Map actualizes these dynamics, but it must be emphasized that the use of the digital traces is radically

different from classic bibliometrics because of its aggregation complexity and its advanced visual design. The codification of the Affinity Map is different from standard evaluation index such as citations, h-index, i10-index, et cetera, and this might explain its appreciation among the researchers. The Affinity Map was initially directed as a tool of governmentality, but it succeeded in becoming an instrument of governance, in which the top and bottom members of the organization hierarchy equally contribute to the decision-making (Pierre & Peters 2000).

As all technologies, the Affinity Map remains ambiguous and ‘multistable’ by nature. Ihde first introduced the notion of multistability in *Experimental Phenomenology* (2012 [1977]) with the intention of accounting for illusions and multistable phenomena exceeding familiar perceptions, such as the Necker cube or the duck-rabbit illusion. More specifically, he resorted to this concept in order to present the potential of the phenomenological approach. In his words, ‘phenomenological observations do violence to the passivity of ordinary viewing. There is a deliberate probing of the phenomenon for something that does not at first show itself, and a growing sense of control over what is seen’ (Ihde 2012, 76). Subsequently, the same notion has started to be used to account for the socially and culturally based variations in technology uses and misuses (Ihde 1990, 144–145). Now, we believe that the ethically and politically fragile equilibrium of the Affinity Map (the same holds true for many other technologies) as a means of governance rather than as an apparatus of governmentality depends on the continuous interactions (another hermeneutic circularity?) among the social actors that constitute the collectivity beyond the limits of the sole platform: researchers, tools, methods, designers, institutions, and so on.

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