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Beyond "hybrid". The partially misleading relevance of a notion, alleged to be one of Latour's, and its possible overcoming

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Abstract. The present paper intends to show that "hybrid" is not a Latourian notion and, consequently, intends to explore what such claim entails for social research interested in the role artifact in our collectives.
In the first part, it shows the marginal use of the notion of hybrid in Latour's work and questions the relevance Italian Greimasian semiotics of objects and design has given to it, by also proposing a hypothesis regarding the ground on which such attribution of relevance has emerged.
In the second part, the paper explores alternatives to the notion of hybrid, able to account for the mediations carried out by "individual aggregate actors" – a formulation replacing "hybrid" –, as well for those carried out by instances constituting "individual aggregate actors". The second part of the paper, as well as the paper, ends by resorting to early Actor-Network Theory's methodological proposal related to *de-scription*, which, founded on the semiotic method, is considered apt to properly address the issues raised by the notion of hybrid and by the debate around it.

One is not born traditional; one chooses
to become traditional by constant innovation
Bruno Latour

1. What if "hybrid" was not a Latourian notion?

Since the publication of *We have never been modern* (Latour 1991), Bruno Latour has been associated with the notion of "hybrid"[1].
This issue of *E/C* assumes such association as its own ground.
Within the semiotic domain, especially the one related to the Greimassian semiotics of objects, technical objects and design as it has been developed in Italy (from now on "Italian Greimasian semiotics of objects and design" or IGSOD), "hybrid", indeed, is seen as a way in which Latour addresses artifacts and a specific kind of relation they establish with humans.
Despite the association between Latour and the notion of hybrid has been widespread acknowledged, in the first part of the paper I will argue that "hybrid" is not a Latourian notion (see also, de Vries 2016). Of course, I will not claim that Latour has not used the term "hybrid". He has, on very specific, though relevant, occasions. However, such use did not allow "hybrid" to rise at the level of one of Latour's notions, as Latour himself has acknowledged.
In the second part, I will explore alternatives to the notion of hybrid, able to account for the mediations carried out by "individual aggregate actors" – a formulation replacing "hybrid" –, as well as for those carried out by instance constituting "individual aggregate actors". The second part, and the article as

[1] See, among others, Kenshur (1995) and Elam (1999), which assume as main reference Latour (1991). However, see also, Blok and Jensen (2011) and Pellegrino (2022), which establish a more general association between Latour and the notion of "hybrid".

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well, will conclude on the necessity to recover the early Actor-Network Theory (ANT) proposal related to *de-scription* – founded on the semiotic method –, in order to properly address the issues raised by the notion of hybrid and within the debate around it.

2. Hybrids between semiotics and ANT

2.1. Hybrids in Latour's scholarship

Despite the fact that, after the publication of *We have never been modern* (Latour 1991), Latour has been associated with the notion of hybrid, if we look closer at Latour's overall scholarship (Fig. 1), we see that, in his authored books, "hybrid" is a word that has been extensively used only on two occasions: *We have never been modern*, indeed, and *Pandora's hope* (Latour 1999a). *Pandora's Hope* is a collection of revised and rearranged, previously published, articles. Among these, the article "On technical mediation" (Latour 1994a) constitutes Ch. 6, "A collective of Humans and Nonhumans". It is there that most of *Pandora's Hope*'s occurrences of "hybrid" can be found (14 out of 27; Fig. 1). Moreover, it is there that the most famous and most relevant example of a "Latourian hybrid" can be found: the one of the "hybrid actor comprising [...] gun and gunman" (Latour 1994a, p. 33; 1999a, p. 180).
All along these two books (Latour 1991, 1999a), Latour's uses "hybrid" in order to refer two different, albeit strictly related, issues. On the one hand, "hybrid" is used in order to refer to a general – cosmopolitical – situation, characterized by moderns' restless mixing of things, which they nevertheless consider as purified and, thus, separate and unmixable. It is through such activity that the "modern" "hybrid world made up at once of gods, people, stars, electrons, nuclear plants, and markets" (Latour 1999a, p. 16) is constituted. On the other, "hybrid" is used to refer to specific occurrences of such mixing, like the "pedocomparator" (Latour 1993; 1999a, p. 48), the "earth/sign/drawer" (Latour 1993, 1999a, p. 54), "[t]he hybrid person (he called himself 'I')" constituted by "a corporate body ('the coordinator'), and a natural phenomenon (the genome, the DNA sequence, of yeast)" (Latour 1993; 1999a, p. 203).
As the number of occurrences of "hybrid" shows, the notion has been especially used to talk about technology and society (Latour 1994a; Latour 1999a, Ch. 6), on a general level, as well as, on a more specific one, in order to refer to the relation between an artifact and a human, as the mentioned "actor comprising gun-gunman" or the "hybrid [conjunction] [of] [,] a cigarette smoking a man" (Latour 1996, engl. tr. p. 55; 1999, p. 21).
This second use of the notion of "hybrid" is the one that interests the most the IGSOD and also the focus of this issue of *E/C*.

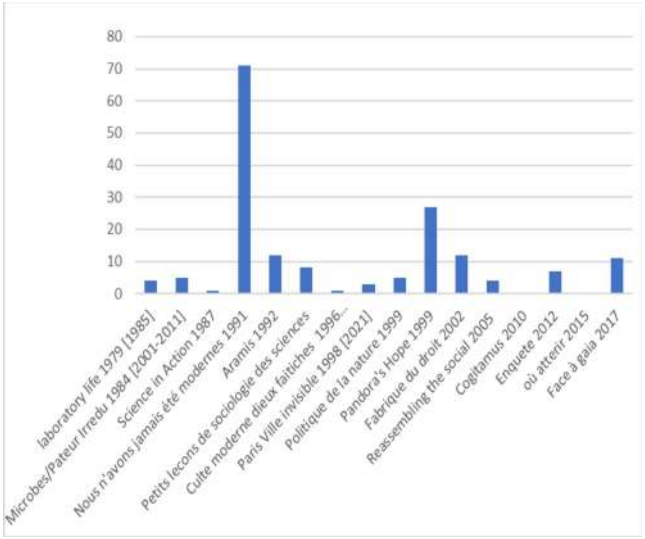


Fig. 1 – Occurrences of the word "hybrid" (ad related ones) in Latour's authored books.

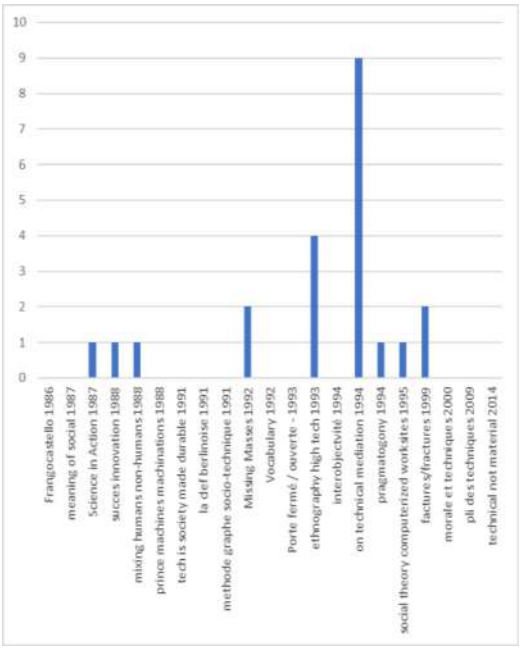


Fig. 2 – Occurrences of the word "hybrid" (and related ones) in Latour's articles about technology.

2.2. Hybrids in the Italian Greimasian semiotics of objects and design

The interest for hybrids intended as the juxtaposition of one or more humans and one or more technological non-humans – but usually one of each – stems, within Italian semiotics, from a vulgate, which assumes that Latour's reflection on artifacts, design and technology turns around such notion, to which Latour allegedly "often resorts" (Mangano, Marrone 2002, p. 177, my translation).

For instance, Ilaria Ventura Bordenca (2021b, p. 21, my translation, my italics), analyzing childrens' tableware and the way in which the "baby-at-the-table" emerges, says she "will refer to the concept of '*hybrid*', put forth by Latour [...] and then reworked by the semiotics of design".

Still Ventura Bordenca (2021b, p. 26, my translation), in a recent introduction to a collection of Latour's articles about design (Latour 2021), refers to the notion of hybrid as a general notion Latour uses to talk about the "combinations and recombinations of heterogenous actors". Through this reference, she intends to show the relevance of the notion for the semiotics of object and design in continuity with Latour's thought: "The concept of [...] hybrid, which stems from semiotic theory, ha[s] came back to semiotics, when the latter [...] has started again to delve into objects and design" (Ventura Bordenca 2021b, pp. 19-20).

Though more skeptical about the heuristic value of the notion of hybrid (see Finocchi, Perri, Peverini 2020), and also keener than Ventura Bordenca in highlighting the differences between Latour's approach and semiotics, Paolo Peverini (2021, pp. 287-288) assumes, as starting point, in order to investigate "the new society of smart objects", a framework similar to Ventura Bordenca's one. He indeed identifies, in Latour and Actor-Network Theory, a "distinctive feature [...] in regards to semiotic theory [...] [:] the central role that is assigned to the associations that are established between different actors and, in particular, to the formation of hybrid-type actors [...]".

We can retrace such vulgate in Gianfranco Marrone's (2002) introduction to Landowski and Marrone (2002). There, Marrone (2002, p. 28, my translation) notices that the idea of the sociality of those "'non-human' subjects, as objects are, and especially those 'hybrid' subjects, joining humans and non-humans from

more or less random encounters [...] between human actors and non-human actors" is also Latour's one. Marrone (2002, p. 28, my translation) further adds that Latour has stressed the fact that "actors present in our society are hybrid composites, partial and temporary synthesis of human subjectivities and non-human subjectivities, persons and things, which, in different ways, but in a continuous complementarity, act within the social, constituting and transforming it".

Thus, as we have just seen, there is a general agreement among Italian semioticians working on objects and design about the strong relation between the notion of hybrid and Latour's sociology of associations (Latour 2005), especially Latour's sociology of objects[2].

However, the ways in which such notion of "hybrid" is used by these semioticians differs slightly.

First of all, there is an acknowledgment of the very general manner in which Latour (1991) has used the term "hybrid" in order to define modernity as the continuous production of new beings through the hybridization of instances that had been separated, purified and attributed to different domains as those of nature and culture, body and mind, subject and object (see, Ventura Bordenca 2021b, p. 15).

Secondly, "hybrid" has been used to talk about the general participation of artifacts to our sociality and "humanity", given that they "contribute to build subjectivities, on the one hand, and the social network, on the other, since they are part of it" (Ventura Bordenca 2021b, p. 13, my translation). Therefore, "hybrid", intended as the "unions between humans and non-humans" is "the term Latour uses in order to account for the composite nature of society and for the distribution of agency on a multiplicity of actors, not necessarily anthropomorphic" (Ventura Bordenca 2021b, p. 14, my translation).

Then, thirdly, "hybrid", as referred still to objects in general, has been seen as a less adequate synonymous of "syncretic". Because of that, the notion of "hybrid" has been criticized as "ambiguous" and, eventually, dismissed, because relevant only for the matter of expression, and not for the actual articulation of the object as text (Mangano, Marrone 2002, p. 177; see also, Ventura Bordenca 2021b, p. 21).

Fourthly, "hybrid" has been used to specifically point to the joint action of a human and a non-human when together, as Marrone (2002, p. 28, see above) underlined, setting hybrids apart from non-humans alone, as well as from humans alone. Within this use of the term "hybrid", what is relevant is not only the presence of an object juxtaposed to a human, giving way to an "instrumental" (Peverini 2021, p. 228) interpretation of the relation between the juxtaposed instances, but "the combination between distinct actors", where such "combination" "may radically alter an initial program of action, contributing to the formation of a new actor that cannot be traced simply to the juxtaposition of two pre-existing elements" (Peverini 2021, p. 228), given that the "combination" is "more than the sum of the individual components". As Mangano (2008) well shows, this fourth way of intending "hybrid", corresponds to Latour's notion of mediation, which is exactly what Latour (1996) was talking about when using the example of the "gun-gunman" hybrid. Indeed, in a section, tellingly called "Hybrids", which summarizes Latour's point on objects, Mangano (2008, pp. 46-54) provides various examples of mediators (explicitly mentioned on p. 49), before introducing the very notion of hybrid in the following way:

> Latour's suggested way is to dodge the controversy [related to the opposition of subjects and objects]. Giving-up the perspective according to which there are, on the one hand, humans and, on the other, non-humans, each one using the other, in order to think in terms of *actants*, [i.e.] beings defined by a certain program of action, more than by their presumed nature. *Actant* is the human with the electronic planner. Not the planner (which without the human would do very little), nor the human (who without the planner would not be able to manage their day), but the joining of the two, the *hybrid* human-planner, which, differently from the two individual components, possesses properties in addition: not only it can get into action, but can do it within value perspective which is not the one of the simple human being. For the "human-with-the-electric-planner" time has acquired a completely different

[2] See Marrone (2002, p. 28), where a list of major Latour's publication about objects is mentioned as if they all referred to hybrid.

> meaning. Fragments of time, which before were not relevant, have become relevant; they have found a specific duration that before they did not possess and so on. For a *hybrid* the world is different because it has the competence to act. (Mangano 2008, p. 51, my translation, my italics)

To this description of hybrid, follows the example of the gun-gunman.
Finally, and fifthly, "hybrid" is used to refer to a specific way in which a human and a non-human come together as the outcome of a mediation: by fusioning their respective bodies (Finocchi, Perri, Peverini 2020), by affecting the somatic dimension (Ventura Bordenca 2021a), as also underlined by the example of the "driver-car"[3] mentioned by Marrone, cited in Ventura Bordenca (2021b, p. 13) and Marrone's well known case of the cellular-phone (Marrone 1999; Dusi, Marrone, Montanari 2002[4]). It is on the ground of this idea of the "hybrid" that the notion is rejected by Finocchi, Perri, Peverini (2020, p. 160), because not considered adequate to investigate new configurations of human and non-humans emerging through smart-objects like Alexa:

> The identifications emerging from the forms of life of S[mart]O[bject]s, ultimately, will indeed be *composite* (or triggered by the relations between the elements/components of particular assemblages), *but not hybrid*, because the components (whether human or object is not important) are not fused together or formed as a single substance, but rather appear independent (Finocchi, Perri, Peverini 2020, p. 160, my italics)

Summarizing, we can say that Italian semioticians working on objects and design, use the alleged Latourian notion of "hybrid" in (at least) five different ways, three of which (2, 4, 5) are connected through a relation of inclusion and refer especially to artifacts. As for these three – the most relevant ones for what is discussed in this issue of *E/C* – "hybrid" is used to refer to

2. a general notion defining objects and their social role;
4. the result of a mediation that transforms the programs of action of two or more – but usually two, one human and one non-human – instances, in a new and single program of action;
5. a specific instantiation of the latter related to the formation of not only one new program of action, but also of one body, i.e. a hybrid that works not only at the narrative level, but also at the figurative one or at what I would define "corporal" level – related to what Pierluigi Basso Fossali (2015, pp. 34-35, my translation) calls a "prosthetic valorization", which lead to "one actorial body"[5].

[3] "Driver-car" is a term coined by Tim Dant (2004) in an article about the composite actor of the human driver and the car. Dant intends his contribution as a critique of ANT and the notion of hybrid, more in general, not just in ANT – as for ANT his reference is more Callon (Callon, Rip 1991) than Latour. Interestingly, he points especially to the bodily-sensitive dimension as something left out by ANT, underlining how the car mediates that aspect. In that article, Dant (2004, p. 65) rejects the notion of "hybrid" since the "word hybrid refers to the offspring of two species that are usually unable to reproduce whereas the driver-car is an assemblage that comes apart when the driver leaves the vehicle and which can be endlessly reformed, or re-assembled given the availability of the component cars and drivers", adding that the "driver-car is not a species resulting from chance mating but a product of human design, manufacture and choice". Other reflections on the "driver-car" actor can be found in, among others, Lévi-Strauss (1962) and Vanderbilt (2009).

[4] Dusi, Marrone, Montanari (2002) show the relevance of the notion of "hybrid", beyond Latour's alleged use, to describe various aspects of our epoch.

[5] Of course, there is no need to refer to hybrids to talk about the mediating role of artifacts as intended in 4) and 5), see, for example, Marsciani (1999).

2.3. "Hybrid" is not a Latourian notion

As we have seen, Latour has made reference to hybrids, nevertheless only in a marginal way, quite circumscribed in time – the first half of the 1990s. Indeed, the high number of occurrences in Latour (1999a) is due to the fact that in there we find republished articles, already published during the first half of the 90s – Latour (1993; 1994a), i.e. Ch. 3 and 6 of Latour (1999a), which made up almost all occurrences of "hybrid" (19 out of 27).

Of course, I know semiotics enough to be aware of the fact that, counting occurrences of a certain lexeme – thus enacting a naïve version of "content analysis" – does not actually tells us much about the presence of a certain notion or, better, sememe within a certain discourse. Therefore, in this case, like in many others, evidence of absence in most of Latour's work at the manifest level is not absence of evidence from the totality or majority of Latour's work at the immanent level – at the same time, though, evidence of presence at the manifest level, does not mean presence of evidence at the immanent level, as the critique of Mangano and Marrone (2002, p. 177) somehow highlights.

However, the fact that Latour has used the notion – and also profusely – and then has abandoned it quite abruptly, tell us that very likely such abandonment has not taken place by chance.

Already in 1998, before the publication of *Pandora's hope*, where the notion, as we have seen, is used, Latour was actually starting to distance himself from it: "Tracking the ferret of the social, one does never encounter these two venerable figures of the good sense: the actor and the system, the individual and his/her context. One does not even fall upon something that would lie in the in-between space, a sort of dialectic or *hybrid*; no, we engage in following a movement which does not have any kind of relation with the individual actor, nor the social context: we jump on an alignment of traces" (Latour and Hermant 1998, p. 42, my translation, my italics)[6]. One year later, he expresses a similar point in another context "we are going to begin to understand the nature of these functions [perplexity, consultation, institution, hierarchy, separations of powers, scenarization of the totality] other than as *hybrids* of science, politics, administration, and morality" (Latour 1999b, Eng. tr. p. 154, my italics). Such distanciation has been fully accomplished thirteen years later: "One didn't have to be a genius, twenty years ago, to feel that modernization was going to end [...]. *At the time*, *I offered* a number of examples, referring to *the multiplication of 'hybrids' between science and society*"; "It is clear that I was not so far off base earlier when I distinguished in the modern Constitution what I called procedures of *'hybridization'* (below) and of 'purification' (above). *The terms were too simplistic*, but the diagnosis was accurate [...]" (Latour 2012, Eng. tr. p. 9 and p. 175, my italics[7]).

Before 1991, "hybrid" has little relevance, except for the account of the Pasteurian enterprise, which gives way to an "'experimental illness,' a *hybrid* " (Latour 1984, Eng. tr. p. 63, my italics), the result, in turn, of the "*hybridization*" of hygienists and Pasteurians. Such "laboratory *hybrid*" is clearly one of the hybrids at the center of Latour (1991; see for instance, Eng. tr. p. 112), so that in Latour (1984), we find

[6] In this case especially, "hybrid" is not used as a notion indicating a specific kind of actor, but just as a term indicating an in between situation. Therefore, this quotation is not a critique of, or a distancing from, the notion of hybrid. Nevertheless, its relevance lies in the fact that through it, Latour clearly rejects the kind of configuration on which also the notion, and the figure, of hybrid is constituted: a mix of two things, which are supposed to preexist the "hybrid" configuration. However, for Latour the stabilized instances making up what can be consider hybrids are the results, and not the origin, of the coming together in a configuration of various relations, through which the social is traced. The sentence is indeed taken from a book reporting an empirical enquiry into all the practices that allow to hold Paris together and the social relations that unfold within Paris, possible.

[7] Please, notice that, in the first sentence, the use of quotation marks around "hybrids" clearly signals a distanciation from the notion; such use of quotation marks is different from the one of the second sentence, where they are used to signal a quotation of two technical words used in Latour (1991).

very likely the first formulation of the notion of "hybrid" has it has been used, and given relevance, in Latour (1991).
What is most interesting for the present discussion, which mainly turns around objects and design, is the irrelevance of the notion of "hybrid" in Latour's reflections upon, and analyses of, technology and technical objects, till Latour (1994a) (see, Fig. 2). After 1994, Latour does not focus so much on technology and technical objects, except for Latour (1998 and 2012), already considered as places where Latour distances himself from the notion, and except for a reflection upon design, where the notion of "hybrid" does not appear.
Moreover, in Latour (1992) – a summary of the previous methodological reflections and analyses of technical objects (Johnson [Latour] 1988; 1990; Latour, Mauguain, Teil 1992), Latour uses twice the word "hybrid". However, he first uses it in order to refer to the door as a hybrid of wall and hole – not exactly the kind of hybrid considered by IGSOD –, and then in order to refer to a simple juxtaposition of technology and society, which he rejects: "What appears in the place of the two ghosts – society and technology – is not simply a *hybrid* object, a little bit of efficiency and a little bit of sociologizing, but a *sui generis* object: the collective thing, [...]" (Latour 1992, p. 254, my italics).
From the previous quotations and especially this last one, we start to understand why, then, "hybrid" never became an actual Latourian notion – and indeed never appeared in any of his infralanguage lexica (Latour 1999a; 1999b; 2012; see also, Akrich and Latour 1992), nor even in indexes (see, for instance, Latour 1999a; 2005)[8]. "Hybrid" is a term that allows to consider instances – usually two –, which are seen as *a priori* distinct and separated, if not opposed, as juxtaposed or joint or integrated, but still keeping a trace of their *a priori* distinction. Therefore, "hybrid", especially if used in order to talk about mixings of humans and non-humans or nature and culture or beings which represent one of these classes, tends to be a term coming from the perspective of "late moderns", when the latter start to understand that "purification" hides a much more complex intertwining of trajectories, which "late moderns" cannot but see as the coming together of distinct and separated things. It should be of no surprise then, if Latour has, indeed, used it galore in the work (Latour 1991) especially addressed to moderns, in order to show them that they are not modern as they thought they were.
This is also the thesis of political philosopher Gerard de Vries, who, very critical of Blok and Jensen (2011)'s title that strongly associate "hybrid" with Latour, states:

> What are the "hybrids" about which Latour talks? The term itself shows embarrassment. A "hybrid" denotes something made by conceiving two different elements, a mixture – but a mixture of what? Humans and nonhumans? Nature and Society? Construction and reality? Subject and Object? But then we define "hybrids" in terms of the language of the modern Constitution – the conceptual architecture that, Latour suggests, needs to be replaced by something else. He has to communicate his new thoughts in the old language (de Vries 2016, pp. 129-130)

Of course, for Latour, the issue is not to assume a late modern perspective, but an actual non-modern one, metaphysically but, especially, methodologically. Therefore, a perspective which prevents to consider differences as set "*a priori* and [...] hierarchize[d] [...] once and for all", not in order to "deny

[8] Within the (Italian) semiotic community I often noticed a quite diffused distrust of Latour "terminological architecture", as one of the reviewers called it, when s/he highlighted "Latour's eclectic and non-systematic personality". By doing so s/he questioned the fact that Latour's "shifting and nonchalant" "terminological choices" "do not actually reflect an effective metamorphosis of the elaboration of the notions on which his sociology of technology is based". Though Latour's ANT is not as systematic as Greimasian semiotics is, I think that throughout his entire work there is an attempt to a high level of systematicity and consistency, which is often countered by the exigency of resulting understandable by people, who do not share his "terminological architecture" and the metaphysics behind it. Resorting to "hybrid", both the notion and the term, is exactly one of these cases, as I try to clarify below.

differences" (Callon, Latour 1992), but in order to account for them in more adequate and sensitive way – thanks to semiotics (Latour 2014). A perspective, then, that does not propose to "reconcilia[te] [...] the famous object/subject dichotomy [...] [nor] to link[...] 'material' and 'social' [back] again [after] having distinguish[ed] them" (Latour 2005, p. 75); i.e., a perspective that allows to "dissolve" dualisms, not that allows to better connects their terms; a perspective that allows "to redistribute the whole assemblage from top to bottom and beginning to end" (Latour 2005, p. 76; see also, Latour 1999b, p. 22).
Thus, as noticed by political philosopher Mariano Croce (2020, p. 49 and p. 62, my translation, my italics), in a chapter nevertheless dedicated to the notion of "hybrid" in Latour, what have been called "hybrids" "do not [actually] lend themselves to any *a priori* bipartition or classification", because what interests Latour (2015, Eng. tr. 57) are "actors, with their multiple forms and capacities, never stop exchanging their properties [...] since what counts is not the initial snapshot but the metamorphoses".

2.4. Bedazzled by "hybrids"

If "hybrid" is not a Latourian notion and has been used marginally in Latour's overall work, why then semioticians working on objects and design have been somewhat bedazzled by it, up to considering it at the center of Latour's work, especially the one about objects?
A foray into sociology of science and of the circulation of knowledge, will allow me to develop a hypothesis about such bedazzlement. It cannot but be a rough hypothesis, since such kind of investigation would require a much deeper research.
During the '90s of the last century, only few works by Latour had been translated in Italian – if I am not mistaken, the *The pasteurization of France* (Latour 1984) in 1991, "Where are the missing masses" (Latour 1992) in the journal *Intersezioni* in 1993, *We have never been modern* (Latour 1991) in 1995, "The Politics of Explanation: an Alternative" (Latour 1998) in Neresini (1996), "On technical mediation – Philosophy, Sociology, Genealogy" (Latour 1994; Ch. 6 of Latour 1999a) in Donghi (1998) and partially in Nacci (1998)[9] and *Science in action* (Latour 1987) in 1998, "Berlin's key" in Semprini (1999). As we can see, both the venues (Latour 1991; Latour 1994 and Ch. 6 of Latour 1999a; Fig. 1) in which hybrid has a central role had been translated in Italian. Of course, Italian semioticians do not read only publications in Italian. Nevertheless, it is very likely that in Italy the association between "hybrid" and "Latour" was stronger than elsewhere, knowing that, in any case, such association was strong a bit everywhere at the time. Thus, the connection between "Latour and "hybrid" would certainly speak to those in Italy that had read Latour, especially those interested in technology and design.
However, the fact that the association of Latour and "hybrid" was available for Italian readers of Latour does not justify the relevance "hybrid" has acquired for the IGSOD. As we know, what became relevant for this strand of semiotics, was the example of the "gun-gunman", as told in Latour (1994; Ch. 6 of Latour 1999a). This example appeared in Italian in two different essays published in two different edited volumes (Donghi 1998; Nacci 1998), but only the second one, a collection of historical and sociological essays about everyday artifacts, has had a relevance for semioticians of objects and design and, indeed, is often cited (see bibliographies in Marrone, Landowski 2002; Mangano 2008; Ventura Bordenca 2021b). In Latour (1994a), through the notion of hybrid, Latour introduced a specific object of study, not falling under the jurisdiction of any discipline, but semiotics – and, indeed, in Latour's article there are many references to the meanings of the mediations carried out by technical objects (Latour 1994a, p. 39; Latour 1999a, p. 187, also present in the version published in Nacci 1998, now in Latour 2021, p. 66). Marrone (2002, p. 28; see § 2.2.) cannot but notice such connection between "hybrid", objects and

[9] What we find in Nacci (1998), which title in Italian is "Fatti, artefatti e fatticci" [Facts, artifacts, factishes] (now republished in Latour 2021) is a combination of the first part of Latour (1994; Ch. 6 of Latour 1999a) and of a part of Latour (1996), a version of which appears also in Latour (1999a).

meanings. Indeed, when he "invents" the strong relation between Latour's notion of the sociality of artifacts and the notion of "hybrid", he also underlines that the idea of the intrinsic sociality of objects and especially of hybrids, proposed by Latour, is implicit in semiotics. "Hybrid", then, allows semioticians to exert an actual claim of jurisdiction (Abbott 1988), the assertion of "epistemic authority over specific bodies of knowledge" (Burri 2008, p. 36). Semiotics, especially Greimassian semiotics practiced by Italian semioticians of objects and design, which is also the semiotics through which Latour builds his infralanguage (Mattozzi 2019a; Peverini 2023), is implicitly put forth by Marrone as the only discipline possessing the expertise to be able to adequately manage and analyze "hybrids". Semiotics is thus considered the only discipline able to account for hybrids, against, on the one hand, realists, who would reduce artifacts to passive, objective, objects, and, on the other, social constructivists like sociologists, who would not be able to take artifacts into account – as Latour clearly writes in Latour (1994a), article published in the appendix to the volume of which Marrone (2002) is the introduction.
Hybrids acquire then a strategic relevance for semiotics. If, more and more, our societies are inhabited by hybrids, then any discipline interested in understanding society or technology or both needed to pass through semiotics. The latter then would become a methodological "obligatory passage point" (Callon 1984) for all other sciences, in a way similar to what happened for semiotics with the "linguistic turn" thirty years before.
It is, in my opinion, such disciplinary strategic relevance that has allowed the notion of hybrid to bedazzled semioticians and to make them keeping referring to it and invent a tradition of research around it.

3. Beyond "hybrid"

Let me say right away that I support Marrone's claim – as for the way I reconstructed it. I think too that the Latourian sociology of associations and its description-analysis[10] of artifacts provides (Greimasian) semiotics with a way to (re)gain centrality among social sciences and that social sciences would gain, in return from semiotics' contribution, the ability to account in detail – I stress, "in detail" – for the specific contribution artifacts make to the emergence of aggregate actors[11], the unfolding of agency, and, through all that, to the articulation of collective relations – i.e. to account in detail for mediations (Mattozzi 2019b, 2020), as Ventura Bordenca (2021a) well shows. Latour has always acknowledged this role for semiotics. However, I do not think that Marrone's claim can be found on the notion of "hybrid".

3.1. Not just a lexical issue

Of course, the entire issue I am raising could be considered mainly, if not only, lexical. Thus, we could keep using "hybrid" as a convenient term in order to address phenomena that are of Latour's and ANT's interest[12], like the "distribution of agency on a multiplicity of actors, not necessarily anthropomorphic" (Ventura Bordenca 2021b, p. 14, my translation) or an actor, affording the figurative traits to an actant, which program of action is made possible by the convergence of many other different actors, regardless if they are humans or not (Mangano 2008, p. 51), provided that we do not ascribe anymore such notion to Latour. Therefore, the bedazzlement I mentioned would not be so problematic. For semioticians, "hybrid" would only be a way to point to a specific kind of actor, blending preferably two, but also

[10] I use this dyad because, in sociology, analysis if often a different procedure from description, whereas in Hjelmslevian derived semiotics they basically coincide, given that an analysis is a description of relations.
[11] I use the term "actor" as it is used in Greimasian semiotics. Nevertheless, it can be also considered as the more generic sociological term, provided non-human actors are considered as actors.
[12] What Croce (2020) basically does.

more, figures – a specific type of the collective actor[13], in between a "partitive totality" and a "totality of integrals" (Greimas et al. 1971, Eng. tr. pp. 116-117).
Such convenient use of the term "hybrid" has actually taken place within ANT and within ANT inspired research. Michel Callon, Latour's colleague at the Centre de Sociologie de l'Innovation, co-author of Latour's many papers and one of the co-founder of ANT, has used the term "hybrid" in much more persuaded and systematic way than Latour (Callon, Rip 1991; Callon, Law 1997; see also Dant 2004). He has however used it mainly in its adjectival form and always in order to refer to a plurality of instances as in formulations like "hybrid collective", "hybrid forum" or as in the following sentence – where it is used as a substantive: "a nuclear power station, is a *hybrid*, a monstrous group which regulates interaction between graphite rods, turbines, atoms, operators, control boards, flashing lights, concrete slabs and engineers" (Callon, Rip 1991, p. 141, my italics, my translation). Within the field of sociology of organizational communication, Francois Cooren (2010, p. 57, my italics) and his collaborators have underlined that "the organizational and social worlds are *hybrid* achievements to the extent that they mobilize a plethora of entities that constantly embody or incarnate them", so that organizations are "*made of different things* – humans, texts, architectural elements, processes and machines" (Cooren et al. 2005, p. 276, italics in the original).
The fact is, however, that, in both Latour's most notorious examples – "cigarette-smoking-a-man" and, especially, "gun-gunman" – as well as in the IGSOD's ones, the notion of "hybrid" tends, eventually, to refer to only two instances – as the original term presupposes –, one classified as human and one classified as technical.
Such potentially dualist drift emerges quite clearly if we consider the entirety of what Ventura Bordenca writes. Before referring to the "distribution of agency" (Ventura Bordenca 2021b, p. 14, my translation, see above), she mentions the two instances (human and gun) ascribable to two domains (humans and non-humans):

> The human with the weapon is different, and also the weapon is different, once in the hand. These unions between humans and non-humans are *hybrids*, term, which Latour uses in order to account for the composite nature of society and for the distribution of *agency* on a multiplicity of actors, not necessarily anthropomorphic (Ventura Bordenca 2021b, p. 14, my translation; italics in the original).

A potentially dualist drift is actually latent in the work of Cooren et al. (2005), too. Despite the "plethora" of entities considered, these are, eventually, clustered into "discursive" and "material". Such drift is fully assumed in an article written by two of Cooren's collaborators for whom "action should be considered as a *hybrid* phenomenon: an association between subjects and objects, humans and non-humans" (Meunier, Vasquez 2008, p. 183, my italics).
As we can see, "hybrid" is almost never just a tag that can be used for more complex configurations. Somehow, the word disposes a reference to a dual instance – a semantic trait embedded in its original meaning. Such reference to a dual instance, disposes, in turn, that the two considered instances be preferably oppositional. Situation that offers, in turn, the perfect ground for the blossoming of dualisms. As we have already seen at the end of § 2.3., *a priori* dualisms are an issue within an ANT-Latourian framework for ontological, epistemological, and, especially, methodological reasons (Latour 2005): by imposing a categorization on actors and on their relations, dualisms prevent to actually follow and

[13] Not "collective actant", given that an actant cannot be but a singularity – speaking of "shifting and nonchalant" "terminological choices" (see note 8). Please, notice that in the first formulations by Greimas (1973b; Greimas et alii 1971) "collective actors" (by him and his collaborators called "collective actants") were mainly made up by (naked) humans – "in principle human" (Greimas 1973b, Eng. tr. p. 211) –, though, within "syntagmatic collective actors", machines could replace humans, within specific segments (see also, Greimas 1973a, p. 149) The perspective starts to change in Greimas (1973b), see note 21.

describe in detail the mediations actors take part to and the classifications they come up with. The latter can be dualist, of course, and need to be recorded and described, but they are not *a priori* classifications, but what comes out of the inquiry.

3.2. "Hybrid"'s risks

It is quite evident, then, that one of the risks of using "hybrid" is reproducing, more or less implicitly, dualisms – between society and technology, humans and artifacts, subjects and objects, discursive and material, culture and nature etc. Of course, through "hybrid" – as it also happens through the juxtaposition of the previous listed terms in formulations like "natureculture", "sociomateriality" etc. – what is aimed at is showing the tension, the connection, or even the integration, between the two terms of a dualism. Nevertheless, an *a priori* dualism persists: it is not overcome, dodged or made irrelevant, just complexified or dialecticized[14].
From this first risk embedded in the use of "hybrid", two other follows: reduction and absolutization.

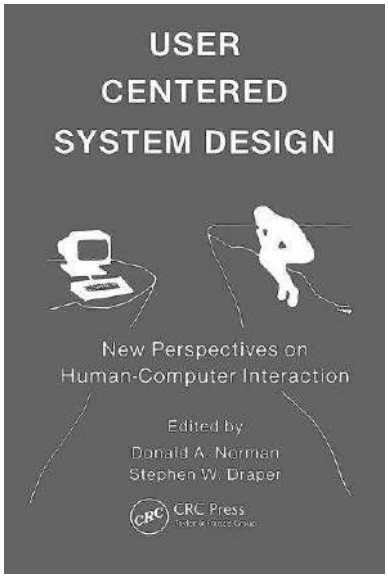


Fig. 3 – Cover of Donald A. Norman and Stephen W. Draper (eds.), *User Centered System Design* (1986).

They are vividly exemplified in the cover of a seminal book about human-computer interaction (Fig. 3), coming from a research field – the one of cognitive ergonomics – very far from both ANT and Greimasian semiotics. As we can see, not only the human is opposed to the computer – a dichotomy very likely based on *a priori* dualism –, but also, they are only two – i.e. reduction –, and each one of them does not have any other relation with anything else, except for the outlined cliffs dividing them – i.e. absolutization. As if, when computers arrived in offices, these were not already populated by other "business machines" – from typewriters, to calculators, to photocopiers, to faxes, to more basic folders and desks – and by various employees, with their pens, rulers, block notes, watches, telephones, planners etc. When computers arrived in offices did not find themselves in front of naked humans to get in contact with, but in the middle of a complex organizational network, which computers contributed to reconfigure, by replacing or decentering or assimilating some of the previous mentioned actors.

[14] See the end of § 2.3., for Latour's position on the matter.

If the emergence of reduction and absolutization is understandable for a field like cognitive ergonomics which, at the time of that book, had desocialized the mind and universalized a purified Human Being containing that mind, it is not understandable for the IGSOD, for which, like for ANT (Latour 2005, p. 217), relations prime over entities, so that, as Greimas (1973a, Eng. tr. p. 149) said, in an anticipation of ANT, "individual instances appear to be made up of all the relations of an individual with the surrounding objects that make him the center of this relational network".
Somehow, the notion of hybrid allow reduction and absolutization to take place within the IGSOD – albeit not in a such drastic way depicted in Fig. 3. This happens when only two instances are considered and one or both of them – but this concerns especially humans – are considered as pure or pristine, somehow untouched by the other instance or by similar ones, before joining in the hybrid relation. Example of such improbable situations are, among others: Ventura Bordenca's (2021b, p. 12) "elevators which accomplish the action of going up the stairs at our place", as if the stairs together with handrails, were not part of a previous "hybrid", rearticulated by the introduction of elevators; Ventura Bordenca's (2021a) babies learning to eat at the table with design tableware, as if, without those artifacts, they would get food directly in their mouth from nowhere; Marrone's (cited in Ventura Bordenca 2021b) "driver–car" as if, before getting into cars, pedestrians were not surrounded by artifacts like side-walks, cross-walks, traffic-lights, and so on, so that, before becoming "driver–car" hybrids, pedestrians are always "urban-furniture–pedestrians" hybrids; Mangano's (2008) "human–planner" as if, before planners there was nothing to manage time, not even bell towers or just the visible sun together with the shadows it casts; Finocchi, Perri, Peverini's (2020) and Peverini's (2021) smart-objects as if, before their arrival into households, families – seen as parents-child relations – did not enjoy the presence of other actors, like record players, radios, computers, TV-sets, nannies, tutors, grandparents or other relatives, babysitters, helpers, servants, slaves, other children, dogs, cats or other animals, through which their relations were mediated. I acknowledge that these are examples, aimed at giving relevance to the new entry in a given configurations. Nevertheless, I think the risk of reduction and absolutization[15] is present and somehow facilitated by the use of the notion of hybrid: thinking, on the one hand, a naked human (or a naked family) and, on the other, the arrival of a new technology so powerful as to create a "hybrid" from scratch. As Latour and Callon have kept underlining we, as humans, are never alone, we are always "equipped" – provided with some kind of instrument or tool – and part of aggregate actors, because "all action is collective since it is distributed" (Çalışkan, Callon 2010, p. 10, see below).

3.3. Alternatives to "hybrid"

3.3.1 *Agencements*

As I highlighted, within ANT, Callon has been the one who has made a much more persuaded use of the term "hybrid". Nevertheless, he gave the term "hybrid" up, too. He replaced it with "socio-technical *agencements*", which, according to him (Callon 2007; Çalışkan, Callon 2010) is a notion able to replace the one of "agency" and works better than "assemblage", given that

> [t]he [...] French word [*agencement*] has no exact English counterpart. In French its meaning is very close to "arrangement" (or "assemblage"). It conveys the idea of a combination of heterogeneous elements that have been adjusted to one another. But arrangements (as well as assemblages) could imply a sort of divide between human agents, those who do the arranging or assembling, and things

[15] Reduction and absolutization have, of course, nothing to do with the need to restrict the focus of description-analysis: one thing is to decide to focus the analysis on two actors, or one actor made by two, another is to absolutize these from the broader network of relations.

> that have been arranged. This is why [Gilles] Deleuze and [Felix] Guattari [...] proposed the notion of *agencement*, which has the same root as agency: *agencements* are arrangements endowed with the capacity to act in different ways, depending on their configuration. (Callon 2007, p. 320; Çalışkan, Callon 2010, p. 9)

And indeed, "*agencements* denote socio-technical arrangements when they are considered from the point view of their capacity to act" (Çalışkan, Callon 2010, p. 9).
Koray Çalışkan, Callon (2010, p. 10) also add that "*agencement*" "has several distinct advantages":

1. "it frees the analyst from a priori distinctions between categories of agency", therefore, "the classification of the different forms of agency is a finishing point, not a starting point of investigation", so that rather than "establishing great divides, this approach to agency aims for the (continuous) proliferation of differences";
2. it "make[s] the changes of size intelligible", knowing that "other than size, there is no difference in the nature of macro-actors and micro-actors [...]; all that changes is their composition and the way in which their constituent elements are arranged, aggregated or deployed", so that "same analytic tools can be used to study an 'individual' consumer, a firm or an international organization: the size and strength are compound realities that can be studied and elucidated by analysis";
3. "a frame of analysis based around *agencements* leaves the question of the assignment of agency wide open"; indeed, "[c]ollective action can either be shared between several entities [...] or attributed to only one of them [...]; thus, "[t]he notion of socio-technical *agencement* is a protection against the temptation to contrast individual and collective action", given that "all action is collective since it is distributed; what vary are the mechanisms for attributing the source of the action".

More recently Nicolas Dodier and Anthony Stavrianakis (2018) have edited a volume about "composite objects" [*objets composés*], i.e. configurations of various things, which "internal heterogeneity constitutes [...] a central and problematic feature, requiring a conceptual and a methodological renewal" (Dodier and Stavrianakis 2018, p. 9, my translation).
What the edited volume proposes is that the heterogeneity of the various considered configurations – among which are the apparatus developed by the municipality of Paris in order to erase graffiti, the one for the diagnosis of neurodegenerative diseases in two hospitals, an American person of color with chronic diseases, the press in China, the system of *hallal* meat certifications, humanitarian aid in Congo, or farmers' offices – can be addressed through the notion of *agencement*, as developed by Deleuze and Guattari, or the one of *dispositif* as developed by Michel Foucault or the one of *assemblage*, which, originally the English translation of the Deleuzian-Guattarian *agencement*, has started to be used independently of such origin.
Albeit in the introduction, actor-networks as elaborated by Latour, Callon and John Law are mentioned as a way to deal with heterogeneously composite object, there is no reference to "hybrid", nor to *agencement* as specifically defined in Callon (2007) and Çalışkan, Callon (2010). The latter notion is indeed reconnected to the original concept developed by Deleuze and Guattari and to its features, like the relation between territoralization and deterritorialization, the role of desire or the relation between *agencements*–assemblages of enunciation and machinic *agencements*–assemblages.

3.3.1. Risks and drawbacks of *agencement*

Given that "*agencement*"

1. has been proposed as a replacement of "hybrid" within ANT and that it has started to be used

within social sciences to account for aggregate actors;
2. by referring to heterogenous instances, which are reciprocally arranged and connected, is able to account – like "hybrid" does – for the synthesis of heterogenous instances into one competent, and, therefore, capable to act, individual aggregate actor, albeit – as "hybrid" does – without losing the figurative traces of the actors composing it;
3. because of its features – plurality rather than duality, embeddedness of agency (Çalışkan, Callon 2010, my italics; see above) – should prevent the risks, inherent in the use of hybrid, namely, the reproduction of *a priori* dualisms, reduction and absolutization;

Can "*agencement*" actually replace "hybrid"?
Despite these advantages, also "*agencement*" has its risks and drawbacks.
First of all, it results to be penetrable by dualisms, too. Maybe not as much as the notion of hybrid, which predisposes them, but certainly the simple use of *agencement* does not prevent dualisms to sneak in, within the discourse of those using the notion. Already the way in which Çalışkan and Callon (2010) qualify *agencement* – i.e. "socio-technical *agencement*" – shows a possible drift toward the reemergence of an *a priori* separation between society and technology, though stressing their connection and integration[16].
Whereas we can interpret Çalışkan and Callon's move only as a convenient tagging, in order to clarify the domain, which they refer to, more problematic is the fact that in Dodier, Stavrianakis (2018), as well as in some of the articles they introduce, the heterogeneity, which notions like *agencement*, *dispositif* and assemblage should help to account for, is often reduced to *a priori* dualisms like "discursive and non-discursive" (p. 10), "discursive and material" (p. 13), "language and material" (Denis, Pontille 2018, p. 41; Weller 2018, p. 333). Such *a priori* dualisms are actually already present in the original formulation of the concept of *agencement* by Deleuze and Guattari (1980), and thus are somehow justified. For Deleuze and Guattari *agencement* is a concept, which allow, at the same time, to recover the one of "desiring machines" and to dynamize and destabilize the determinism inherent in certain ways of intending "structure" within French structuralism (Buchanan 2020). Therefore, Deleuze and Guattari identify *agencements*

1. on the "signifying" or "expression plane", i.e. arrangements of incorporeal instances like statements, signs, words, enunciates and enunciations – a "*collective assemblages of enunciation*, of acts and statements [*énoncés*]" (Deleuze, Guattari 1980, Eng. tr. p. 88, italics in the original);
2. on the "signified" or "content plane", i.e. arrangements of bodies or instances considered in their own materiality – "*machinic assemblage* of bodies, of actions and passions" (Deleuze, Guattari 1980, Eng. tr. p. 88, italics in the original);
3. given by the relations between a *collective assemblages of enunciation* and a *machinic assemblage*.

As we can see, and as Deleuze and Guattari (1980, Eng. tr. pp. 85-86) say themselves, within this reformulation of the expression/content dichotomy, incorporeal and corporeal, signs and things are opposed, thus grounding the concept of agencement in an *a priori*, non-necessary, dualism[17].

[16] See also, Mackenzie, Muniesa and Siu (2007, pp. 14-15) who, commenting on Callon's work state: "*Agencements* are the assemblages or arrangements which are simultaneously human and nonhuman, social and technical, textual and material – from which action springs".
[17] I have been always struck by the presence, at the center of Deleuze and Guattari's philosophy, of what seems to me a staunch dualistic categorization. My surprise follows from my knowledge of Hjelmslev's work – one of the main references for Deleuze and Guattari's concept of *agencement*. Indeed, Hjelmslev radical way of rereading Saussure allows a purely relational understanding of the two planes, in tune with Deleuze's metaphysics – there is no need to associate the two planes to any specific substance or matter. I have the impression that Deleuze and Guattari only on the surface of what they write oppose signs and things. Probably, what they actually do is to consider the "signifier"-"expression plane" like what is uttered (*énoncé*) and the "signified"-"content plane" like

As the previous paragraph made it clear, one of the drawbacks of *agencement* derives from the fact that it is a notion with its own history and articulation (Buchanan 2020). Therefore, it is wise not to use it naively, without actually engaging with it, with its subtleties and complexities. As Buchanan (2020) notices, most of the times, especially when using the English translation of "assemblage", *agencement* has been mainly used to refer to machinic *agencements*-assemblges, thus ensembles or arrangements of human and non-human, living and non-living, bodies – as I also do here, when I consider it as a possible replacement of "hybrid". Moreover, Buchanan (2020) also notices, "assemblage" has been used to refer to bodies that are not necessarily reciprocally positioned and connected, as the meaning of "*agencement*" would require, but to looser aggregate – what very likely Greimas et alii (1971) would refer to as "unity of integrals", rather than a totality, "of integrals" or a "partitive totality".

Another risk is the one of, what I would call, dilution – dilution of one aggregated instance into the plurality of other aggregated instances constituting the *agencement*, as well as dilution of the *agencement* as individual aggregate actor into the plurality of instances constituting it.

With "hybrid" such dilution was more difficult, given the small number of instances, which had to be taken into account. Thus, mediation was usually the focus of the accounts as the examples provided by Latour (1999) of gun-gunman and by Mangano (2008) of human-planner or the analysis of children design tableware carried out by Ventura Bordenca (2019b) show.

Instead, "*agencement*", but especially "assemblage", used, as I said, to refer to looser ensembles of heterogeneous instances, is likely to further authorize social researchers investigating what has been called "sociomateriality" to disregard individual artifacts or, in any case, individual instances, regardless their ontological status.

This is not a novelty for artifacts. If we give a quick look at the relations between social research and artifacts, we can see that the former has passed from neglecting artifacts all together, as Latour (1994) noticed, to taking them into account, acknowledging their presence within social relations, without however being able to account for them – i.e for their mediations – as asked by Latour (2005). This happened because most of recent developments of social research interested in artifacts and sociomateriality, has only taken into account the way humans use, and talk about, artifacts (Mattozzi 2019a).

Thanks to *agencement*-assemblage, the last step we are very likely going to witness[18] of this asymptotic relation social research has with artifacts is the decentering of humans, through their dilution into the fuzzy-messy cloud of aggregated heterogeneous instances, followed by the corresponding symmetric dilution of individual artifacts into the same fuzzy-messy cloud, which will result in still disregarding individual artifacts and their contributions to mediations, though within a more symmetric framework.

For the issues I want to address here, among which the dialogue between semiotics and ANT and the relevance and efficacy of semiotics for the development of social research based on the way ANT has been outlined by Latour (2005), this is a paramount risk. Once dilution takes place, on the one hand, ANT is not able anymore to account for actors – both those constituting the *agencement* and the *agencement* as actor – as mediators (Latour 2005, p. 128) – i.e. ANT is not able anymore to "take into account [the specificity] [of these actors] every time" (Latour 2005, p. 39) in order to describe the translations among configurations of relations they carry out (Latour 2005, p. 128). On the other,

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the situation of enunciation, i.e. what Latour (1985) would respectively indicate as what is in "the frame of reference", the "internal referent", and the "enunciator's own setting". Seen in this way, the "collective *agencement*-assemblage of enunciation" should be renamed "collective *agencement* -assemblage of utterances" or, better, "of enunciates" – indeed, in Deleuze, Guattari's (1980, Eng. tr. p. 88) list, which clarifies what they mean by "collective *agencement*-assemblage of enunciation", the word "statements", following "enunciation" and "acts", translates the French word "*énoncés*".

[18] This likely outcome can only be confirmed through a thorough review of literature that is not possible to conduct here.

semiotics becomes irrelevant, given that such descriptions need (Greimasian) semiotics in order to be carried out (Latour 2005, p. 54).
A final drawback is related to the fact that "*agencement*" is a word far from everyday parlance – contrary to "hybrid" – especially in languages other than French, among which many do not have a term providing an apt translation of it[19]. Thus, "*agencement*" can result not only unclear, but also too sophisticated and, in the end, awkward, and thus not useful to introduce certain issues within a larger audience.

3.4. *De-scribing* individual aggregate actors

Eventually, an adequate term able to replace "hybrid" in order to refer to individual aggregate actors has not been found[20]. For the various reasons listed above nor "hybrid", nor "*agencement*", and even less "assemblage", fully work[21].

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[19] For the non-adequacy of the word *assemblage* as an English translation of *agencement*, see Buchanan (2020). In Italian, the Deleuzian-Guattarian concept has been translated as "*concatenamento*" (concatenation, enchainment). Whereas such translation better highlights the reciprocal disposition and connection of the aggregated instances, than the English translation, it also introduces a seme of linearity and succession, which can seem plausible for *agencements* of enunciations or enunciates, but not for *agencements* of bodies.

[20] With "adequate" I mean a term that, when referring to individual aggregate actors, is able to keep the tension between plurality and individuality, like "hybrid" does between duality and individuality. It seems to me that nor in English, nor in French, nor in Italian such term is present or available to be used within the domain of, at least, humanities and social sciences. For instance, terms like "composed", "composite", "aggregate" tend to give more relevance to the more or less scattered plurality, than the individuality – in Greimasian terms (Greimas et alii 1971), they are "unities of integrals", rather than totalities. Moreover, they are often used for inanimate assemblages, to which everyday parlance in those languages does not usually attribute agency. A term like "complex" – which is actually related to the concept of "*agencement*" as developed by Delezue and Guattari (Buchanan 2020) – would work quite well – especially the Italian word "*complesso*", which also means "band" – but, as we know, it is taken by another discipline and usually not attributed to acting beings, and thus it could generate misunderstanding; maybe just "plexus" could work, but again is not attributed to acting beings, at least in common Italian parlance.
The lack of an appropriate term has tempted me to come up with a new term. Thus, I have been playing for a bit the Harawayan "cyborg trick" of coining new words and notions to keep the tension between previous ones – e.g. "natureculture" – or address new issues – "Chthulucene". Eventually, I came up with "*plybrid*", i.e. a "*pl*ural h*ybrid*", i.e. a "hybrid" emerging from the coming together of many beings, rather than only two. What is interesting in this word is that it actualizes also the word "ply", which in English means "one of several layers (as of cloth) usually sewn or laminated together" (see *plywood*) or, even more relevantly, "one of the strands in a yarn" (Merriam-Webster on-line). The English word "ply" comes from the French "*pli*" (fold), so that for French speaking people, such word actualizes also "*pli*", a quite relevant word for the universe of discourse I am convoking in this paper – think of Deleuze. For me, however, its relevance is especially related to the way Latour uses the notion of "fold" – as far as I know, without any direct reference to Deleuze. Latour discuss especially technology in terms of folding. In Italian "*plybrid*" could be calqued as "*plubrido*", rather than "*plibrido*". The same in French, which, however, has the advantage that the pronunciation of the letter "u" is closer to the one of the letter "i", than in the other two considered languages. Thus, "*plubride*" in French should work very well, fully recalling the "*-u-*" of "*pluriel*", but also the "-y-" of "*hybride*". Given that I am more interested in focusing mine attention, as well as the readers' one, on the analytical-descriptive procedure, rather than on the adequacy of a new word, I leave the proposal in this note. In the main body of the text, I only talk about "individual aggregate actors".

[21] In the first version of the paper, "*agencement*" had been assumed – with some doubts – as an adequate replacement of "hybrid". After reading the reviews of the two anonymous reviewers and, consequently, Buchanan (2020) – besides rereadings relevant excerpts of Deleuze, Guattari (1980) –, I came up with the decision to drop this possibility, assuming "*agencement*" mainly as a Deleuzian-Guattarian concept, with which it is productive to engage, but not as a social research notion and a direct model for actors.

Nevertheless, by exploring these notions and their adequacy for ANT as outlined by Latour (2005), relevant features of individual aggregate actors, which need to be taken into account and accounted for through their description-analysis, have emerged. With them, also a sketch of a possible procedure to account for individual aggregate actors has emerged.
Given that for ANT any actor is, and can therefore be described-analyzed, as an individual aggregate actor or as part of an individual aggregate actor[22], these are some points we need to take into account, when describing-analyzing actors and when we are interested in giving relevance to their heterogeneity and plurality:

1. their competence to act as one and the actual performances they carry out – the fact that an individual aggregate actor in a certain situation provides a figuration to an actant;
2. their aggregated instances, which make individual aggregate actors up, by considering
   a. their (of the aggregated instances) specific contribution, i.e.
      - the way in which they contribute,
        - i.e. the competences with which they endow the aggregate actor or the way they contribute to rearticulate the individual aggergate actors' competences.
      - the configurations they form and its tightness or looseness
3. their contribution to further encompassing aggregate actors, of which the one we focus on is an aggregated instance.

3.4.1. An old/new paragon for individual aggregate actors

In order to clarify the previous points, I will use the example of the "slashing horseman", a vivid exemplary case, already used in the reflection on *agencements* by Deleuze and Guattari. I will resort to the way it has been described by medieval historian Lynn White (1962), before it became one of the key examples of Deleuze and Guattari's *agencement*-assemblage, specifically, of "machinic *agencement*-assemblage".
Such description – and especially the second paragraph (see below) – would have the potential to make the "slashing horseman" a much better paragon for individual aggregate actors, than the Latourian "gun-gunman" or the "driver-car", were it not for its remoteness from our everyday lives.
White writes:

> As for the spear, before the invention of the stirrup it was wielded at the end of the arm and the blow was delivered with the strength of shoulder and biceps. The stirrup made possible – although it did not demand – a vastly more effective mode of attack: now the rider could lay his lance at rest, held between the upper arm and the body, and make at his foe, delivering the blow not with his muscles but with the combined weight of himself and his charging stallion.
> The stirrup, by giving lateral support in addition to the front and back support offered by pommel and cantle, effectively welded horse and rider into a single fighting unit capable of a violence without precedent. The fighter's hand no longer delivered the blow: it merely guided it. The stirrup thus

[22] This is a major difference between semiotics and ANT. For semiotics there are individual actors as such. For ANT, individual actors are always the result of aggregations. Thus, for ANT, actors are always what semiotics calls collective actant-actors (see note 13), which configuration is never fully stabilized and can move among the four configurations identified by Greimas et alii (1971). From this difference, few misunderstandings unfold, which justify the positions reported in note 8. Somehow, Greimas (1973a, p. 149), who, from a quite dualist position opposing beings-humans-subjects to things-objects, introduces a network view emerges, according to which "individual instances appear to be made up of all the relations of an individual with the surrounding objects that make him the center of this relational network" and "the collective instance appears as the set of networks (electricity, gas, water, sewers, telephone, mail, subway, streets etc.) whose terminals constitute a series of individual instances", anticipates ANT's take on the issue.

> replaced human energy with animal power, and immensely increased the warrior's ability to damage his enemy. Immediately, without preparatory steps, it made possible mounted shock combat, a revolutionary new way of doing battle (White 1962, pp. 1-2)[23].

As we can see, first, there is an individual actor – "a single fighting unit" – what Deleuze and Guattari (1980, Eng. tr. p. 90) call "a new man-horse symbiosis" – i.e. a quite tight individual aggregate actor, which has one actantial and one thematic role. Second, such individual actor is competent – "capable of a violence without precedent" – and able to act as one – "delivering the blow [...] with the combined weight of himself and his charging stallion". Third, there is a plurality of actors, and not only two, which are aggregated: the horseman, the horse, the saddle, with its cantle and pommel, the lance and the stirrups. Fourth, the contribution of stirrups – the focus of the article, given that stirrups are the new instance, entering within the individual aggregate actor made up by all the listed aggregated instances – is accounted for as a redistribution of competences: the stirrup made the horseman able to stand lateral jolts and thus more stable on the horse and so able to follow the horse movement. The latter becomes the main movement requiring muscles and energy, so that the horseman is able not to exert his power, but able to exert only a control on the weapon and on the horse[24]. Fifth – something noticeable only reading the rest of the article –, White underlines how such "slashing horseman" was not alone, but part of the cavalry, which after the introduction of stirrups, became – according to White – the main sector Frankish army. White also underlines how the way of fighting of the French army changed due to the increased relevance of cavalry. From there, he hypothesizes that the need to provide such strategic component of the Carolongian collective with sustenance, gave way to the Feudal system – thus, to what Deleuze and Guattari (1980, Eng. tr. 89) call the "feudal *agencement*-assemblage".

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[23] This description comes from the first chapter of White (1962). In that chapter, White develops the hypothesis of the connection between the introduction in western Europe of stirrups and the rise of feudalism. Such hypothesis has generated a relevant controversy among historians – the Great Stirrup Controversy (see, Wikipedia's entry of the same name and Roland 2003) – many of whom accused White of technological determinism, reducing a complex phenomenon like feudalism to the effects of one artifact, which was – according to the critics – not as relevant as White depicted it, within the Carolingian society (Roland 2003). Proposing the above description and qualifying it as good paragon for individual aggregate actors does not imply that I am taking a position within the controversy. One thing is describing the mediation an artifact disposes as for the specific situation in which it intervenes, another is to connect such situation with a much broader network and hypothesizing a cause-effect relation between the first and the second. As we can read in the quotation above, White (1962, p. 2), in any case, only says that stirrups "made possible" "a vastly more effective mode of attack", and opposes "made possible" to "demand[ed]", thus attenuating any possible technological determinism.
Among the critics of Lynn White there are also those (Alvarez 2000) who say that stirrups do not have the special role White attributed them within the individual aggregate actor of the "slashing horseman" and that mounted shock combat could be performed also without them, since what is key are saddle and spurs. However, also among these critics the difference stirrups make before the impact, by allowing the horseman "to brace [...] more firmly against the cantle" is acknowledged. Nevertheless, mounted shock combat has emerged in western Europe, and not elsewhere were stirrups were already used, only after the introduction of the stirrups.
Deleuze and Guattari, who connect the machinic *agencement*-assemblage present in the cited description with a collective *agencement*-assemblage of enunciation – "the juridical regime of heraldry, all of the incorporeal transformations, in particular, oaths" (Deleuze, Guattari 1980, Eng. tr. p. 89) – clearly prevent any determinism by underlying that objects cannot be taken into consideration in isolation: "The stirrup entails [*entraîne*] a new man-horse symbiosis that at the same time entails [*entraîne*] new weapons and new instruments. [...] They presuppose a social machine that selects them and takes them into its "*phylum*": a society is defined by its amalgamations, not by its tools" (Deleuze, Guattari 1980, Eng. tr. p. 90).
[24] Strangely enough, a similar rearticulation, from effort to control, is also the disposed for the dentist by contemporary dental engines, as described in Marsciani (1999).

We see how White's description covers basically all the points I have identified for an adequate description-analysis of an individual aggregate actors.
Nevertheless, it is only through comparison with the role stirrups played in the individual aggregate actors they were coming from – i.e. the "man-horse-bow machinic *agencement*-assemblage" (Deleuze, Guattari 1980, Eng. tr. p. 404), component, in turn, of the nomad *agencement*-assemblage – that we can fully appreciate the specific role stirrups played, in what will be later known as the feudal *agencement*-assemblage.
As we have already seen, in general, stirrups, by providing a relatively steady foothold, make mounting a horse and staying on its back, also in case of lateral jolts, less effort and agility requiring, than in their absence. Therefore, stirrups make mounting and staying on a horse easier and less discriminating – a likely relevant aspect if the goal is to increase the number of people being able to join the cavalry. More specifically, stirrups were unfolded in two different ways, in relation to the individual aggregate actors of which they became part. Such different unfolding took especially place in relation to the weapon – bow or lance – used by these individual aggregate actors. These, indeed, took advantage of different competences – or of different affordances – stirrups provided for waging war.
Given that horse's movement is characterized by a horizontal travel and by vertical oscillations, stirrups provided nomad mounted archers with "being able to stand and detach their bottoms from the horse back" and thus with "being able not to follow horse's vertical oscillation", besides "being able to stay on the horseback more firmly", I mentioned before. All this consequently meant that the bow and the arrow could be directed, with a good precision, in any direction – therefore stirrups provided also the mounted archer with "being able to direct weapons in any direction", in an easier way, than without them.
Differently, stirrups provided knights with a "being able to brace the horse" in an easier way than without them, which consequently provided a "being able to follow the horse movement", which consequently provided a "being able not to exert any effort" to move the weapon. The latter, then, needed only to be controlled. However, this also meant providing the knight, as well as the overall individual aggregate actor, with "being not able not to direct the weapon in any direction" but one, the one of horse's travel, thus introducing a sort of "having to do": "having to direct the weapon in the direction of the horse's travel". Finally, stirrups, together with the cantle, provided a "being able to withstand the shock" of the clash with an enemy.
By being unfolded in different ways, stirrups have, then, contributed to the rearticulation of the two individual aggregate actors in different ways. In the first case, the individual aggregate actor took advantage of the relative looseness between the body of the archer and the one of the horse stirrups afforded. In the second, on the contrary, the individual aggregate actor took advantage of the tightness between the body of the knight and the one of the horse stirrups afforded.

3.4.2. Back to *de-scription*

Providing descriptions like those presented above – the one by White and my detailing of it – is a way to answer the question asked more than thirty years ago by Madeleine Akrich, when she and Latour where trying to propose a method to describe-analyze technical objects.
She asked:

> I am arguing, therefore, that technical objects participate in building heterogeneous networks that bring together actants of all types and sizes, whether human or nonhuman. But how can we describe the specific role they play within these networks? (Akrich 1992, p. 206)

Now that we are at the end of this paper, we can fully appreciate the relevance and timeliness of this question, still after more than thirty years. It was and still is the adequate question to ask in order to

dispose a research able to fully account for individual aggregate actors according to what Latour (2005) proposes. We can also regret the fact that this question has been somewhat forgotten, disregarded or misunderstood by the STS community, given the little number of researches trying to fully answer it, when studying individual aggregate actors and/or their aggregated instances[25].

The questions Akrich asked are actually two. The first one – the actual question present in the sentence – has a methodological bearing, to which Akrich's article, Latour's (1992) one and their vocabulary (Akrich and Latour 1992), answered quite extensively and satisfactorily[26], introducing the notion of *script* and the scientific practice of *de-scription*. The second one – implicit and subsequent – has an empirical bearing and need to be raised, and answered, each time we, as social scientists, "faced with an object" need to "attend first to the associations out of which it's made" (Latour 2005, p. 233) and thus, actually describe the specific role *an* artifact plays within *a* heterogeneous network of which is part – the difference *an* artifact makes.

Now, this question – what specific difference does an artifact make within the individual aggregate actor of which is part? – is the core of the question Finocchi, Perri and Peverini (2020) and Peverini (2021) were asking about smart objects. The answer however, does not reside in deciding if smart objects contribute to constitute hybrids or not, or if are hybrid themselves, but, following what done and proposed by Akrich, Latour and the IGSOD, in describing the differences smart objects make.

Here, I conclude suggesting some steps that should be taken in order to account for the differences a certain instance make when moving from one individual aggregate actor to another. It is a way to better frame the points I listed at the beginning of the paragraph.

I will talk about artifacts, because it has been the core of the entire discussion around hybrids, however what is the focus of the *de-scription*, do not need to be artifacts.

1. consider the artifact to be *de-scribed* always as part of an individual aggregate actor;
    a. and consider what role it plays, what difference it makes, within such individual aggregate actor
        - Nota: sometimes the role it plays and the difference it makes becomes clear only through a comparison with the role it played and the difference it made in the individual aggregate actor from which it comes
2. consider how such artifact is punctualized, i.e. how it emerges as an individual with a relative autonomy and stabilized figure, within the individual aggregate actor of which is part; this means *de-scribing*
    a. how such artifact detaches itself from the rest of the individual aggregate actor and from the other instances constituting the individual aggregate actor;
        - Nota: here plastic categories can become handy (see, for an example, how in Marsciani (1999) the dental engine is sngled out;
    b. how and if such artifact moves across and within the individual aggregate actor of which is part and, in case, also beyond it;
    c. how and if such artifact is addressed, and if it addressed as an individual, by the instances part of the individual aggregate actor, as well as how and if the *de-scribed* artifact addresses other instances,
        - Nota: this last feature is an issue raised by Finocchi, Perri and Peverini (2020) and Peverini (2019) in relation to smart objects, which semiotics is able to tackle through enunciational categories;
3. consider such artifact as coming from one or more other individual aggregate actors

[25] See Mattozzi (2019b), for an overview of this lack.

[26] Of course, integrations and adjustments are possible, and this is what I tried to do since my doctoral dissertation, better retuning what proposed by Akrich and Latour within a methodological framework based on Greimasian semiotics.

   a. and what role it played, what difference it made, within such individual aggregate actor
   b. follow step 2 also for the individual aggregate actor of origin
4. consider how much such artifact is able or not to fully detach itself from the individual aggregate actor of origin
   - Nota: traditionally artifacts could be fully appropriated and almost completely detached from the individual aggregate actor of origin; this is lesser and lesser the case, because more and more products maintain relations with the individual aggregate actor of origin in the form of assistance services, or in the form of a licenses or leases, or in the form of inbuilt software or frimware to be updated;
     - the latter is the case of virtual assistants, addressed by Finocchi, Perri and Peverini (2020) and Peverini (2021) as well as of most networked technologies; they basically play a role within two individual aggregate actors at once; one of the issue to tackle is if, through such connection, one of the two individual aggregate actor – the family in the case of Finocchi, Perri and Peverini (2020) and Peverini (2021) – becomes an instance of the other individual aggregate actor – Amazon in the case of Finocchi, Perri and Peverini (2020) and Peverini (2021);
5. compare the target individual aggregate actor before and after the entry of the new artifact, mainly looking at how competences are redistributed, and, from there, how roles are redistributed,
6. consider that the arrival and integration of the new artifact is gradual and takes place through a process of domestication (Silverstone and Haddon 1992), thanks to which, feature of the artifact or of the individual aggregate actors are negotiated and articulated.

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