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HEIDEGGER'S EQUIPMENT VS. GIBSON'S AFFORDANCES. WHY THEY DIFFER AND HOW THEY ARTICULATE*

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ABSTRACT. My main objective in this article will be to compare Heidegger's description of the way we perceive our environment in everyday coping – which is based on the concept of *equipment* (*Zeug*) – and James Gibson's theory of affordance perception. More precisely, I will discuss whether equipment and affordance can be equated. In contrast to some interpretations, I will defend that they cannot: equipment and affordances refer to different ontological kinds and the perceptual or cognitive processes that are implied in each case have nothing in common. In addition, I will defend that distinguishing equipment and affordances is a key step towards a more comprehensive account of the way we perceive and deal with the possibilities offered by our environment, and that Heidegger's and Gibson's accounts, far from being mutually exclusive, complement each other. Some work has however to be done in order to articulate them in a coherent theoretical framework.

Keywords: Heidegger, Gibson, affordance, equipment, perception

I. Introduction

Heidegger's phenomenology and Gibson's theory of perception are two important theoretical resources that have been extensively used in embodied, enactive and – more generally – 4E approaches to cognition. And scholars have often noted that, despite their belonging to different domains, they converge on several claims and share important theoretical commitments (Kadar & Effken, 1994; Zahorik & Jenison, 1998; Dreyfus, 2005; Turner, 2005; Dotov et al., 2012; Blok, 2014).

For instance, both Heidegger and Gibson reject the subject-object dichotomy as a relevant model to account for our ordinary experience and focus instead on a type of relation to the world where the subject-object divide hasn't been operated yet and which is, they claim, more original (Heidegger, BT, §12 and §13; Gibson, 1986, p. 129)[1]. Both

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1 I use the following abbreviations for Heidegger's works: *Being and Time*: BT; *History of the Concept of Time: Prolegomena*: HCT; *The Basic Problems of Phenomenology*: BPP.

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defend that perception, in its most ordinary form, is not of substances ("things") with properties, but that what we first and foremost perceive is already interpreted and meaningful for the kind of activity we are engaged in. Especially, both defend that we perceive *possibilities for action*: we see beings through the lens of what can be done with them, what they offer to do. When absorbed, Heidegger says, in one's everyday activities – what he calls concerned coping (*besorgenden Umgang*) –, the intraworldly beings do not present themselves as objects with properties, but as equipment (*Zeug*) for this or that, things to do things (BT, §15, p. 97 [68]). And what one "sees" (or foresees) first is *what they are for*, what can be done with them, what support or service they provide, or how they could help achieve one's goals (BPP, §.15, pp. 163-164). Gibson claims, in a similar way, that "what we perceive when we look at objects are their affordances, not their qualities. […] The meaning is observed before the substance and surface, the color and form, are seen as such." (Gibson, 1986, p. 134) The way Heidegger and Gibson describe the process of perception also shows striking similarities. In particular, both explicitly reject projective models of values or meaning, viz., the idea that the meaning that the environment presents to the perceiving agent (what makes it intelligible and readily actionable to us) is the result of a mental projection of representations (functions or values) on an initially neutral exteriority (bare spatial objects) (BT, §15 and §20; Gibson, 1982, p. 410; 1986, pp. 138-139). Accordingly, both reject sense-data models of perception, i.e. the view that the perceptual access to worldly objects is mediated by contents of sensation that are informed by some interpretative act of the mind. Gibson famously claims that the perception of affordances has a *direct* character: one does not have to "think", i.e. proceed to inferences or any other reasoning process, to perceive that an object affords doing something. The detection of affordances is solely based on the –generally merely automatic– extraction or "pickup" of informational invariants (Gibson, 1986, p. 238 sqq.). No top-down processing (involving, typically, semantic memory content) of incoming sensory data has to intervene.

Now, based on these convergences, a widespread view is that Heidegger's concept of equipment and Gibson's concept of affordance are roughly equivalent and refer to the same sort of thing. Kadar & Effken (1994, pp. 310-311), for instance, claim that "Heidegger's equipment concept can be understood as synonymous with Gibson's affordance structure". There are also authors such as Bruineberg & Rietveld (2014) who, without mentioning Heidegger, give the concept of affordance an extension that makes it very close to Heidegger's concept of equipment and – in my opinion – very far from Gibson's concept. That is, they use the term affordance, but they speak in fact of equipment[2].

[2] See also Rietveld & Kiverstein (2014) and Costall (1997, 2012). Authors such as Dreyfus (1996) and Dings (2018), in contrast, make a cautious use of the concept of affordance by distinguishing the affordance as such – which exists be it detected or not –, and whether this affordance solicits action, which depends on contextual, cultural and biographical factors.

In the following, I would like to show that these obvious convergences between Heidegger and Gibson do not justify this sort of crude equivalence. In addition, I will defend that distinguishing equipment and affordances is a key step towards a more comprehensive account of the way we perceive and deal with the possibilities offered by our environment, and that Heidegger's and Gibson's accounts, far from being mutually exclusive, complement each other. Some work has however to be done in order to articulate them in a coherent theoretical framework.

II. Affordances are for someone. Equipment is for anyone

A first important difference between equipment and affordances is related to the nature of their functional reference. Equipment is always equipment for something, it is constituted by an in-order-to reference to a *for-which* or *towards-which* (*Wozu*), that corresponds basically to the possible uses one can make of it (BT, p. 97 [68])[3]. In a seemingly similar way, affordances are constituted by a reference to some behaviour that the affording structure potentiates,[4] something that the agent could do with –or based on– that structure: reach it, grasp it, lift it, walk on it, climb it, pass through it, avoid it, bump into it, etc.

Beyond these surface similarities, however, it is obvious that the functional references implied in each case are different. A fundamental difference is that the *for-which* of equipment –what it is serviceable or usable for (BT, §31, p.184 [144])– has a normative and standardized character: equipment refers to the way it is used *by people in general*, the way it is used *normally* (Haugeland, 1982; Dreyfus, 1991; Carman, 1994; Malpas, 2008; Slama, 2018)[5]. The functional references characterizing equipment

[3] Heidegger uses the term *Bewandtnis* to refer to the referential structure through which equipment refers to what it is for, its *Wozu* or *Wofür*. *Bewandtnis* is generally translated as "involvement" (of the item of equipment in this or that activity) (Macquarrie & Robinson, in BT; Dreyfus, 1991), but could also be rendered as "functional reference", "assignment-relation" (Mulhall, 2001), or, as suggested by Sheehan (2018) and Guignon (1983, 95-99), as "means-to-end relation".

[4] In Gibson, the concept of affordance refers basically to the behavioural opportunities offered by an object – or more generally structure – of the environment. An object O affords a given behaviour to some agent S (is A-able for S), i.e. it makes it possible to realize this behaviour (O can be A-ed by S). In that respect, affordances can basically be interpreted as dispositional properties (Heft, 1989; Turvey, 1992). However, contrary to dispositional properties such as liquidity or solidity, affordances are properties of the environment *taken by reference to an agent* and having a *behavioural significance* for that agent (Gibson, 1977, p. 67; 1986, pp. 157-158) – what Gibson expresses by saying that, strictly speaking, affordances are not properties of the environment, objects, layouts or structures, but properties of the animal-environment system taken as a functional unity (Stoffregen, 2003).

[5] This "socionormative" analysis of the functional reference of equipment is not always explicit in *Being and Time*, which may sometimes give the impression that equipment is very close to affordances. But it is directly supported by Heidegger's analysis of the "they" (das *Man*) –or, as Haugeland (1982, p. 17) suggests,

are consequently only indirectly about what *I* can do right now in the situation of my activity. The in-order-to of equipment is foremost a *what-it-is-used-for* (in general), and only secondarily a *what-I-can-do* with it now. What I can do with equipment (e.g. the circumspective presentation of that chair as something on which I can actually sit and rest) is a secondary hermeneutic achievement, which builds on its what-it-is-for: it is the appropriation in the context of my situated activity of possibilities that belong intrinsically to it and are the same for all, that is, have an essentially public or anonymous character (Malpas, 2008, p. 85). The consequence is that I am not the ultimate meaning-giving source of the in-order-to. I have just appropriated a standardized way of expliciting equipment – i.e. seeing it *as* this or that – that is used by many. Equipment is for anybody and not for me in particular.

The situation is opposite with affordances[6], which constitutively refer to a *particular* agent that is capable of taking advantage of the affording structure. In particular, something will afford some action

"*the anyone*"– as the true "subject" of everyday concern or, to put it more exactly, as "the 'who' of everyday Dasein" (BT, §25, p. 150 [115]): the one who the Dasein is when dealing with its day-to-day environment. Without going into details, Heidegger claims that the Dasein, "as it is proximally and for the most part – in its average everydayness" (BT, §5, pp.37-38 [16]), is not "really" him/herself –"is *not* the 'I myself'" (BT, §25, p. 150 [115])– but an anonymous or impersonal subject who –this is one of its chief characteristics– "concerns itself as such with averageness" (BT, §27, p. 164 [126]). This tendency to be and behave like the others determines how the Dasein spontaneously interprets the intraworldly beings it deals with and limits the possibilities that it projects to a set of (so to say) socially authorized roles, attitudes and behaviors. "The 'they' itself articulates the referential context of significance, […] within the limits which have been established with the 'they's' averageness" (BT, §27, p. 167 [129]) and determines, to that extent, the meaning (i.e. functional references) with which entities (viz. equipment) are encountered. "The 'they', which is nothing definite, and which all are, though not as the sum, prescribes the kind of Being of everydayness. […] Publicness [*die Offentlichkeit*] proximally controls every way in which the world and Dasein get interpreted" (BT, §27, pp. 164-165 [126]).

[6] This characterization of affordances would probably not be accepted unanimously by researchers within the Ecological Psychology community. It mostly corresponds to the position expressed by Gibson himself in his most important works (Gibson, 1977, 1986) and to the accounts that have been developed by Gibsonians such as Turvey, Shaw, Reed, Mace, Warren, Whang, Stoffregen, and Michaels (Turvey & Shaw, 1979; Turvey, Shaw, Reed, & Mace, 1981; Warren & Whang, 1987; Turvey, 1992; Stoffregen, 2003; Michaels, 2003). In particular, some attempts have been made to take into account the social and normative character of the affordances we human beings tend to perceive in our everyday world (Costall, 1995; Chemero, 2009; Rietveld & Kiverstein, 2014). The line I draw in my argument between equipment and affordances applies foremost to so-called "transcultural" views of affordances (what the environment affords is independent of the social practices and cultural conventions). And it could be discussed whether my account and arguments also apply to "sociocultural" views of affordances (what the environment affords depends on the social practices and cultural conventions). See Heras-Escribano & Pinedo-García (2018) for discussing the pros and cons of these two competing approaches.

to some agent only with respect to the so-called "effectivities" of that agent: its skills and body properties, its biomechanical structure, its dimensions and weight, or the kind of material it is made of (Gibson, 1977, p. 67; Gibson, 1986, p. 157; Turvey & Shaw, 1979; Turvey, 1992). This reference is embedded in the very functioning of the informational process underlying affordance perception: in order to extract the informational invariants specifying a given affordance (i.e. specifying that the afforded behaviour can be realized with the affording structure, is supported *qua* possibility by that structure), the extraction process must be calibrated on the effectivities of the agent to whom the object might afford the behaviour (see e.g. Warren, 1984; Mark, 1987; Warren & Whang, 1987), which is generally *me*, but can also be *someone else*, for instance when I see that someone is too far from an object in order to grasp it (Gibson, 1986, p. 128; Valenti & Gold, 1991; Rochat, 1995; Stoffregen et al., 1999). What the structure affords is something that an identified someone can do, not something *one generally does* with that sort of thing.

This difference between equipment and affordance has an important consequence, for it means that the ability to see what a given structure affords is not sufficient (and maybe not even *necessary*) to present it as equipment. Imagine someone living in a community that does not use chairs. Putatively, if seeing a chair, she will be able to detect its affordance of sittability (Lanamäki et al., 2015). The chair can be used to sit and rest just as the floor, a rock or a tree trunk. Yet, this condition is not enough for the chair to access the ontological status of equipment-for-sitting, i.e. chair in the normal sense. To be a chair, the sitting and resting opportunities that it offers must be referred to a set of anonymous users that are used to take chairs that way: they must gain the status of assigned functions (Dreyfus, 1991, p. 64). This does not mean that human beings do not detect affordances when dealing with their environment. For sure, like many animals, we are able to extract informational invariants specifying if this or that action can be realized with this or that structure, is *feasible* given our position, our skills and body characteristics. But this is a different operation from relating to beings as equipment for this or that. In the latter case, the social dimension of Dasein's perceptual relation to its world is constitutively implied. Not in the former case. I will come back to this issue in section VI.

It shall be noted that this "socionormative" account of equipment and the sharp distinction it seems to imply between *what equipment is for* and *what I can do with it* is not without difficulties when considering other aspects of Heidegger's phenomenology of everyday coping. Especially, besides stressing the normative character of the functional references that are constitutive of equipment, Heidegger, as is well known, insists on the primacy of concrete activity and manipulation for the apprehension of these references and for discovering equipment with its genuine being, its readiness-to-hand (*Zuhandenheit*). It is when using it to hammer things – when it is actually put to use – that the hammer is encountered with its genuine character as equipment, shows itself authentically as the being that it is (BT, §15, p. 98 [69]; on this issue, see Dreyfus, 1991, pp. 184-185 and p. 200). Equipment, more generally, always makes sense when actually appropriated for this or that particular use (nailing this board), in a particular

context of activity, to reach some particular situated goals (fixing the shelf to the wall, doing some home repair). Equipment, on the one hand, is thus endowed with a sense that does not depend on the particular use that one can make of it in one's particular situated activity: the functional references that are constitutive of equipment are defined at a sociocultural level, they depend on socially standardized uses and social practices, which are not constrained by the particular (and maybe deviant) use that *I* can make of it. But, on the other hand, equipment is never apprehended in a detached or theoretical attitude: equipment is put to use and it is only through use – that is, when using it as a means to reach some particular goal – that we are acquainted with its in-order-to referential structure. How to reconcile these two apparently contradictory statements?

The best answer, I think, is that the way we make use of equipment – *how* we use it and *for (doing) what* – is never arbitrarily guided by practical efficiency (in which case any object, provided it possesses suitable properties, could be used to reach any goal), but is always *constrained normatively* by the functions equipment is used to serve, how one *normally* makes use of it, and when (in what circumstances). When Heidegger says that when hammering with the hammer, "our concern subordinates itself to the 'in-order-to' which is constitutive for the equipment we are employing at the time" and "appropriate[s] this equipment in a way which could not possibly be more suitable" (BT, §15, p. 98 [69]), what he means is not only an ability to use that sort of tool so as to reach one's practical situated goals (nailing the shingles so as to waterproof the roof), but also an ability *to comply with standardized uses*, socially approved ways of doing things, that have been appropriated though enculturation. Hammers are for hammering things, which means that *they must be used that way* in order to access their very meaning of hammers[7]. If I use a hammer to heat my home, I do not use it *as a hammer* but *as firewood*. Certainly, atypical or deviant uses are always possible. But a deviant use still understands itself as deviant with respect to a normal or canonical use. I can use a knife as

[7] When Heidegger claims that it is when using equipment that we discover it in its very character of equipment (BT, §15, p. 98 [69]), two claims must consequently be distinguished: (a) To deal with equipment in agreement with its very being of *Zuhanden*, one must *use it* and not *stare at it*; it is when using it for hammering something that we "uncover the specific 'manipulability' [*Handlichkeit*] of the hammer." (b) To deal with equipment in agreement with its equipment identity, one must use it for what it is used normally and not use it in a deviant way. In that respect, using a hammer, even circumspectively (that is, without just staring at it), as a door-wedge, a book-end or a paperweight, does not respect its being-in-itself-a-hammer, even though it does respect its being of *Zuhanden*. In order to use it as the equipment it is – a hammer –, our "dealings with equipment" must "subordinate themselves to the manifold assignments of the 'in-order-to'" (BT, §15, p. 98 [69]). This is another essential aspect of Heidegger's account: items of equipment do not have volatile identities, *what they are* does not depend on the particular – and maybe be non-optimal or deviant – ways we use them, our particular needs, knowledge and mood. This hammer was already a hammer before I came to use it. It is a hammer even if I am not familiar with the sort of equipment hammers are. And it remains a hammer even if I do not use it as a hammer.

a screwdriver. But the fact that I know that this is a knife that I am using demonstrates that I understand the way I make use of it by reference to the normal canonical use, the use in virtue of which knifes get their equipmental identify (are knifes, not screwdrivers)[8].

A second important argument in favor of this socionormative account is that the way we use equipment is sensitive to contextual parameters that have to do with what is appropriate or inappropriate from a sociocultural point of view. In *Being and Time*, Heidegger makes use of the concept of circumspection (*Umsicht*) to refer to Dasein's ability to cope skillfully with equipment, "deal with them by using them and manipulating them" (BT, §15, p. 98 [69]). Thanks to this kind of 'sight', "from which [our manipulation] acquires its specific Thingly [*Dinghaftigkeit*] character" (BT, §15, p. 98 [69]), we are able to adapt and react directly and fluently to the requirement and opportunities of the situation (HCT, §29.b, p. 274 [378-379]). We immediately know (or see) *what can and must be done*, *how* and *with what*, in order to achieve a given practical purpose. But, Heidegger insists, circumspection is not only an ability *to do* – some manipulatory skill –, but is altogether a discriminative ability to *know when* to exercise that skill, and is, as such, *sensitive to sociocultural norms* (on this issue, see especially Christensen, 2017, pp. 175-176). It not only implies the ability to see if, say, physical conditions of realization of the skills are met (if it *can* be done), but also if performing this behaviour is appropriate from a socionormative perspective (if it *may* be done). And the same is true when considering the way we make use of equipment when using it – e.g., how you hold your fork, sit on your chair, smoke your cigarette –, which is always subtended and constrained by social conventions, and depend on the location and context of activity we are implied in.

III. Affordances are perceived in isolation. The discovering of equipment is holistic

A second important difference between equipment and affordance has to do with the holistic nature of equipment. Contrary to "objects" or "mere things" (cartesian or husserlian *res materialis*), the equipment one deals with in everyday coping is never apprehended in isolation, but "always belongs [to] an equipmental whole (*Zeugganzheit*), in which it can be this equipment that it is" (BT §15, p.97 [68]). Any item of equipment is what it is only as a node in a huge system of references (*Bewandtnisganzheit*), where it is connected to other equipment that point as a whole towards a set of normalized practices and contexts of use. Any item of equipment refers to other equipment, e.g. the pen refers to ink, paper, table, furniture, etc., with which it forms a coherent system referring to shared social practices (writing). This means, as Heidegger repeatedly explains, that Dasein cannot present a being as equipment –take it as something *for* this or that– in isolation (BPP, §.15, p.164;

[8] See also Malpas (2008, pp.85-86) on this issue.

BT, §15, p.97 [68-69])[9]. The circumspective presentation of equipment always takes place within an equipmental whole one is familiar with, and which is already disclosed as an available totality before we encounter any *particular* being. This "specific functionality whole is *pre*-understood" before any individual piece of equipment we come to meet (BPP, §.15, p.164; BT, §15, pp.97-97 [68-69])[10].

The consequence is that a condition for discovering beings as equipment is to be already familiar (*Vertrauten*), accustomed or acquainted with the system of functional references (*Bewandtnisganzheit*) and the equipmental totality (*Zeugganzheit*) inside of which each item of equipment takes place and has its very meaning[11]. This is the only way for a particular intraworldly being to present itself as being *for* something, get an in-order-to. Though Heidegger does not say it explicitly and is not interested, in general, in developmental or genetic issues, we can follow Dreyfus' claim that this sort of familiarity results basically from *enculturation mechanisms*, which include transfers of habits and knowledge that are both implicit and explicit (explaining to children what this or that item is for is a common thing)[12].

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[9] As Mulhall (2001) explains, "the idea of a single piece of equipment makes no sense: nothing could function as a tool in the absence of what Heidegger calls an 'equipmental totality' – a pen exists as a pen only in relation to ink, paper, writing-desks, and so on. […] its being ready-to-hand is constituted by the multiplicity of reference- or assignment-relations which define its place within a totality of equipment and the practices of its employment. Properly grasped, therefore, an isolated tool points beyond itself, to a world of work and the world in which that work takes place" (Mulhall, 2001, pp. 226-227) As Guignon (1983, pp. 99-100) puts is, "For Heidegger, the *essence* of any entity – its being what it is – is nothing other than its *actual place within a total context* – its 'that it is.' " "it is the *totality* of the equipmental context as an interconnected field – a totality understood in advance – that is articulated into an as-structure in interpretation." (Guignon, 1983, pp. 95-96)

[10] "It is precisely out of this totality that, for example, the individual piece of furniture in a room appears. […] I primarily see a referential totality as closed, from which the individual piece of furniture and what is in the room stand out." (HCT, §23.a, p. 187) "What we encounter as closest to us […] is the room […] as equipment for residing. Out of this the 'arrangement' emerges, and it is in this that any 'individual' item of equipment shows itself. Before it does so, a totality of equipment has already been discovered." (BT, §15, p. 98 [68-69])

[11] Heidegger uses several expressions for this non-thematic acquaintance that precedes and conditions one's circumspective encountering with equipment, including "familiarity with significance" (BT, §18, 120 [87]), "having previously discovered the world", "Being-already-alongside-the-world" (*schon-bei-der-Welt-sein*) (BT, §13, 88 [61]) or "being-already-in-the-world" (*schon-in-der-Welt-sein*) (BT, §41, 236 [192]).

[12] Dreyfus (1991), p. 17. Defending a view close to Dreyfus, Vasterling (2014) gives the following illuminating example of how infants get progressively acquainted with the referential system that enables pre-reflective direct understanding. "Cognition in infants consists mostly in pre-reflective familiarizing with action and interpretation possibilities. For example, a baby sitting in my lap may play around with the spoon I have used to feed it some yoghurt. This playing around with the spoon familiarizes the baby with this particular action possibility in its world which, by itself, does not yet constitute understanding. It has become understanding when the baby, a couple of months later, takes the spoon herself,

Heidegger's view, in that respect, is reminiscent of semantic holism, as it is defended by authors such as Davidson or Wittgenstein (Wheeler, 2017). An important difference, though, is that Heidegger's holism is non-propositional: the network from which any item of equipment gets its meaning is not a network of propositions (or beliefs or any other propositional attitude), but a network of beings and functional references related to contexts of practices (see Dreyfus, 1991, p. 22).

Now, this very idea is obviously absent from the concept of affordance and the ecological theory of perception. Take the graspability of an object, such as a pen: there is nothing, in Gibson's account, that indicates that this affordance should be integrated, in order to be perceived, to an encompassing system of affordances referring to each other and against the background of which every particular affordance, when perceived, would stand out. Graspability can in principle be perceived *in isolation*, and outside the meaningful context of normalized practices or uses. The only prerequisite to affordance perception is the information processing ability to extract informational invariants specifying the affordance. We might want to argue that there are sometimes conditional relations between affordances and that some affordances have a so-called nested character (Gaver, 1991, p. 82). But this is different from the kind of holistic structure equipmental totalities consist of and the kind of referential relations articulating equipment, that have to do primarily with normalized practice –how one makes use of that sort of things–, not with physical possibilities. I will return to this point immediately.

IV. Affordances are real possibilities. Equipment refer to existential possibilities

Another critical issue that separates Heidegger and Gibson is their respective understanding of *what is possible* for a given agent, which has to do with the question of the modal status of the possibilities that we access through ordinary perception.

Equipment and affordances are both constituted by a reference to some possibilities that they support. Seeing what some item of equipment is for and detecting affordances both amount to anticipating *possibilities*. Both amount to some sort of foreseeing. Heidegger says that Dasein's understanding (*Verstehen*) has a projective character and he speaks of being-ahead-of-oneself (*sich-vorweg-sein*) (BT, §31). Gibson and ecological psychologists claim, in a seemingly similar way, that perception has a prospective or anticipative character (Turvey, 1992; Gibson E.J. & Pick, 2000, p. 164 sqq.; Stoffregen, 2003). "To perceive an affordance is to perceive a possibility, something that *could be*, rather than something that currently *is*." (Stoffregen, 2003, p. 118) Affordances concern "what might happen in the future" (Stoffregen, 2003, p. 124).

and starts eating with it. In tandem with the development of her motor skills, the baby has appropriated the action possibility of grabbing the spoon and eating with it. From that point onwards, the appropriation enables direct understanding or direct perceptibility of the spoon as spoon."

Yet, while Heidegger defends what could be termed an existential approach to possibility, Gibson promotes a realistic account of what is possible and what is not. For Heidegger, if you haven't been raised in a culture where some artifact is used for this or that purpose, this artifact simply *does not offer* the possibility of doing that thing, even if absolutely speaking (i.e. in merely "physical" terms) it does (Dreyfus, 1991, p. 189). On the contrary, for Gibson, affordances exist from the moment their physical basis exists, and independently of whether the agent is able or used to detect them (Gibson 1982, p. 410; 1986, pp. 138-139; Turvey, 1992). An object affords a behaviour provided it possesses physical and functional properties that are appropriate –considering the body structure and skills of the agent– for the enactment of this behaviour (Gibson, 1986, p. 127).

The difference, ultimately, comes down to the methodological perspective that each adopts. Heidegger defines what is possible for the agent on the basis of a phenomenological analysis, that is, from the point of view of what *appears possible* to the agent, while Gibson studies possibilities from a naturalistic point of view. There is no sense from the perspective of Heidegger's existential analytic to say that a piece of equipment makes it possible to do this or that if the Dasein is not already familiar with this functional reference, i.e. does not "know" (has the background knowledge) that this equipment can be used to do that, or if the related action makes no sense in the current context of activity. The same is true if considering what is authorized or prohibited from a socionormative point of view: what Dasein *can* do is always narrowed by what it *may* do, i.e. *is allowed* to do (BT, §41, p. 239 [195-196]; Dreyfus, 1991, p. 189 sqq)[13].

The fact that equipment, contrary to affordances, refers to socially standardized possibilities, namely *what one generally does* with that sort of things –the range of functions the object has been culturally assigned to –, also implies a different modal status. The in-order-to (*um… zu*) of equipment refers to a kind of possibility that is much more virtual compared to affordances. We can make mistakes when detecting affordances, that is, the structure may in fact not support the action that was anticipated. But perceiving an affordance always means perceiving that some action can actually be realized. On the contrary, perceiving equipment (i.e. taking it circumspectively as equipment for this or that) means perceiving something that is for some use *in general*. As a result, it may happen that I *cannot* use some item of equipment and yet present it circumspectively as equipment for this particular use. That I cannot use this chair to sit and rest for this or that reason (I am paralyzed, this is someone else's place, the chair does not have the right dimensions) does not deprive it of its in-order-to and involvement in the web of functional references I am familiar with. Whether *I* can or cannot use equipment is of no concern for its presentation as equipment-for-this-or-that: the in-order-to references in virtue

[13] "This interpretation has already restricted the possible options of choice to what lies within the range of the familiar, the attainable, the respectable – that which is fitting and proper. This levelling off of Dasein's possibilities […] results in a dimming down of the possible as such." (BT, §41, p.239 [195-196])

of which intraworldly beings make sense entail no direct commitment with respect to my current field of behavioural possibilities.

More radically, the way Heidegger analyses the functional references that are constitutive of equipment allows a gap between, on the one hand, what we can do in terms of know-how –the skills that we have acquired trough experience–, and, on the other, our familiarity with equipment and contexts of use. *Theoretically*, we do not have to know-how to use an item of equipment in order to be able to present circumspectively this item as equipment for that use. Think of car driving. I can be familiar (acculturated) with the world of car driving and have a standard understanding of the equipmental wholes and system of references cars belong to, and yet not have my driver's license, i.e. be incapable of driving a car (Dreyfus, 1991, p. 64).

V. Who one is (or strives to be) is ultimately why equipment makes sense. The affordances we detect have nothing to do with one's self

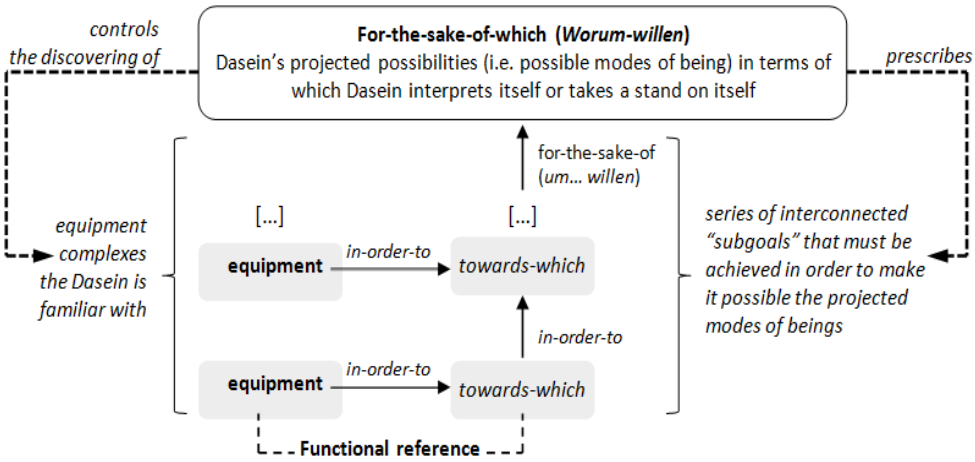
Last but not least, the circumspective presentation of equipment is inseparable, in Heidegger's account, from the process through which the agent coping with its environment *interprets its own being*. If we develop the functional relations by which intraworldly beings make sense in ordinary dealings (the chains of in-order-to), we ultimately arrive to a term with which there is no further in-order-to reference, and that has to do with Dasein's modes of being, values and concerns, which are, so to say, self-referred: they are not *for* something else, they are their own end (BT, §18, pp.116-117 [84]). Dasein – as the being which, in its very Being, has a problematic relationship towards that Being[14] – is the ultimate reference in virtue of which intraworldly beings make sense. And this is because Dasein has an implicit (undeveloped, says Heidegger) understanding of the modes of being that are ultimately at stake with equipment, the modes of being equipment is ultimately dedicated to support or sustain or possibilize –such as "being at home" or "having shelter" for a house, viz. "equipment for residing" (BT, §15, p.98 [68])–, that it can make sense of the beings it is confronted with in day-to-day concern[15]. The discovering of equipment is always subordinated to possibilities of oneself that one projects, possibilities that one cares about and through which one understands who one is. Heidegger uses the terms "for-the-sake-of" (*um... willen*) and the "for-the-sake-of-which" (das *worum-willen*) for this ultimate reference of the equipmental system to Dasein's possibilities (BT, §18, pp.116-117 [84])[16].

[14] "Dasein is an entity which does not just occur among other entities. Rather it is ontically distinguished by the fact that, in its very Being, that Being is an *issue* for it. But in that case, this is a constitutive state of Dasein's Being, and this implies that Dasein, in its Being, has a relationship towards that Being-a relationship which itself is one of Being." (BT, §4, p. 32 [12])

[15] See especially Guignon (1983), pp.96-99.

[16] Heidegger uses the term "significance" (*Bedeutsamkeit*) (BT, §18, p. 120 [87]) to refer to the integrated system formed by these two kinds of referential structures: the in-order-to (*um… zu*) a towards-which (*Wozu*), on the one hand, and the for-the-sake-of (*um… willen*) some Dasein possibilities, on the other. Significance is what

Another way to understand the articulation between the hermeneutic process through which Dasein interprets its own being and the discovering of equipment is to consider that our activities and the – short or longer-term – goals that we pursue set a *relevance frame* for the equipment we deal with (Guignon, 1983). Basically, any item of equipment is articulated through a complex set of functional references and can be put into perspective according to one or another depending on the situation. The totality of functional references each Dasein is familiar with (through always to a different extent) constitutes a huge repertoire of available ways to make sense of equipment, a set of standardized and ready-made meaning-giving relations that can be used to connect equipment to situations and activities and to connect several items of equipment together (articulate them as a coherent functional system)[17]. What decides of the functional references that come to be selected or highlighted in a particular situation is their relevancy for the task one is currently undertaking: *what* one does. But Heidegger's point is that *the reasons why* one does what one does always have to do with some possibilities of ourselves that we project and that we care about. That is, *why* one does what one does refers ultimately to some projected possibilities of our being that both motivate and justify teleologically these activities. As a result, the possibilities that we project –the modes of being to which we implicitly assign ourselves to understand who we are– operate in a kind of top-down manner in the referencing process



constitutes the phenomenological structure of the world in Heidegger's idiosyncratic use of the term, what makes it a world in the sense of *that in which* Dasein exists (BT, §69.c, p. 415 [364]) "These relationships are bound up with one another as a primordial totality […] we call 'significance'. This is what makes up the structure of the world – the structure of that wherein Dasein as such already is." (BT, §18, p. 120 [87])

[17] "The totality of involvements is revealed as the categorical whole of a *possible* interconnection of the ready-to-hand." (BT, §31, p. 184 [144])

governing the presentation of beings. The for-the-sake-of-which (*das Worum-willen*) ascribe concerns (or reasons why) to Dasein's everyday coping (BT, §24 [111]). These concerns specify to-be-achieved subgoals, which in turn specify the functional references through which beings come to be encountered. As Guignon explains, our self-understanding "lays […] out conditions of relevance for the equipment we encounter": it "determines how entities will punctuate the environment" and "whether things will stand out as significant or recede into insignificance." (Guignon, 1983, p. 97)

This referencing process is not unidirectional, though, for the possibilities that we project (the modes of being having a self-interpretating function, i.e. telling us who we are) are themselves specified in a "bottom-up" manner by the system of functional references the world consists of and our tendency to be and behave as others do (social normativity). When taking a stand on oneself (i.e. projecting one's own being on a possibility), we "make our choice" among a limited field of possibilities that is specified in advance by the world we live in: the world provides a sort of costume gallery that altogether opens and limits the field of possibilities of self-interpretations, i.e. ways of being-open-to (interpreting) oneself[18]. We reuse –so to say– the common stock of social *personae* (standardized ways of behaving and self-understandings) with which we are acculturated. As a result, the possibilities to which equipment ultimately refers are not our own private possibilities: they belong to everyone. Roofs are made to protect people *in general*, and it is because I am "one of them" (BT, §27, p. 164 [126]) that roofs are also to protect my own Dasein[19]. In addition, the possibilities that we project are always conditioned *qua* possible modes of being by the availability of specific systems of equipment and norms (BT, §41, p. 238 [194]; 69.c, p. 416 [364]). I could not be a locksmith –play this role and self-interpret in that way– in a world where doors, locks, keys, private property would not exist. As Dreyfus explains: "Dasein needs 'for-the-sake-of-whichs' and the whole involvement structure in order to take a stand on itself, i.e., in order to be itself." (Dreyfus, 1991, pp. 95-96)

The result is that, ultimately, no equipment can be perceived apart from the process through which Dasein takes a stand on itself. It is always *to be a particular someone* that Dasein selects some subset of functional references within which the equipment around makes sense. Everything that makes sense draws its meaning from a –most of the time implicit– reference to some possibility of oneself that one has projected, possibilities that one cares about, that is, through which one implicitly understands –and relates to– one's own being.

[18] In *Being and Time*, it is difficult to see exactly how these anonymous and collective possibilities that the world makes available and my own projected possibilities (the possibilities for the sake of which I am) articulate. But Heidegger seems to hold basically that we simply appropriate or reuse them when projecting one's own self.

[19] That is why Heidegger says that the possibilities of our being that we ordinarily project are not *really* our own (BT, §27, p.165 [128]).

Once again, such claim is obviously absent from Gibson's account. Like most theories of perception, the ecological approach tends to insulate perception from cognitive processes related to what psychologists usually call self-knowledge (Neisser, 1988) and to limit it to some epistemic function. Whatever the explanatory load Gibson puts on activity and modes of life, perception remains taken as a process of extracting information about the world (even if it is a world related-to and significant-for the agent, an *Umwelt* in Jakob Von Uexküll's paradigmatic sense), that is, a process of acquisition of knowledge. In the same way, the process through which long-term goals and, to put it roughly, our self-concept (the for-the-sake-of-which) prescribe or control the selection of subgoals, and subsets of equipment relevant for their achievement, has no real counterpart in Gibson's account. This prescription process can be related, in the Gibsonian framework, to the general issue of what parameters control the detection of affordances. This issue is generally addressed in Psychology under the label of selective attention, action planning and executive control. As far as I know, it has been little studied by Gibson and his followers (Noble, 1981; Heft, 1989)[20]. And ultimately, the only thing Gibson has to say about that matter is that *needs* ultimately control the detection of affordances[21]. Obviously, Gibson's perspective on this issue remains largely "biological".

VI. And yet… How dealing with equipment and perceiving affordances articulate

The previous analysis shows that Heidegger's concept of equipment and Gibson's concept of affordance – despite some surface resemblance – shall not be confused, but refer to different ontological kinds and proceed *qua* descriptive concepts from different methodological perspectives: equipment is a *phenomenological category*: it refers to something that (in a way or another) appears to the agent, while affordance is a *real category*: it denotes a physical property and the "direct" process which is taken to be responsible for affordance perception is informational in nature. Equipment and affordances constitutively refer to something that can be done, but the nature of the possibilities that are implied in each case is totally different. Affordances are related to an identified agent (which is generally me) and their detection has an egocentered character. Equipment, by contrast, is *for anybody*, and its *for-which* has the character of a *normalized* use. What forks are for is basically what they are for *for anybody*. And when I come to perceive (present circumspectively) or use that something *as a fork*, I just perceive it and make use of it as anybody does. As a result, I am never the only and exclusive point of reference of the for-doing-what that is attached to the equipment that I use, which tacitly refers to an ideal community of users to which I myself belong. Making this distinction is important

[20] See however the recent and promising account of Dings (2018) about what parameters determine whether a particular affordance solicits to act or not. Dings defends, based on the work of authors like Slors & Jongepier (2014), that self-narrativity or self-theory (which story we tell ourselves about our life, who we are, what we do and why, etc.) is an essential parameter in this process.

[21] "Needs control the perception of affordances (selective attention) and also initiate acts." (Gibson, 1975, p. 411)

for it leads to claim, against a widely accepted view in embodied approaches, that the possibilities we foresee when coping with our environment do not identify with *what I can do*, the actions that my body structure and abilities offer to realize. What the equipment complexes we are familiar with offer to do, they offer to anyone. These possibilities have – as Merleau-Ponty (1962, p. 82) could say – an anonymous character and are not tailored to my own body structure and abilities.

Correspondingly, the perceptual and cognitive processes – and learning abilities – that are required for the presentation of equipment and those implied in affordance detection are different and probably operate in a functionally separated way. The ability to anticipate what equipment is *for*, though it amounts in a sense to anticipating what can be done with it (action possibilities), cannot be equated to – nor even presupposes – the detection of what the object affords in a Gibsonian sense. The presentation process through which intraworldly beings come to be taken – or *discovered* in Heidegger's terms – as equipment for this or that[22], builds on a familiarity (*Vertrautheit*) with the equipment complexes (*Zeugganzheit*) and network of functions (*Bewandtnisganzheit*) – and associated practices – they are culturally dedicated to. This includes background knowledge about the functions that the equipment serves (what it is used for) in habitual (i.e. non-deviant) contexts of use[23]. There is nothing to suggest that the presentation of equipment shall be subordinated to the detection of the affordances that this equipment makes available. Conversely, it is not sufficient –and perhaps not even necessary– to be capable of detecting the affordances that something offers for this something to count as a piece of equipment. Take the book on the shelter. The presentation of this something as *a book* presupposes a familiarity with the equipmental totality to which books belong, what they are used for, how one makes use of them (by reading them), what other things one uses when one reads books, what sort of persons reads them and when, what they are made of (paper, ink), where one can find them (libraries, etc.), etc. In order to see and treat practically this object *as a book*, one must, in short, be acculturated with human beings' reading practices and the "world of reading". Anticipating if this book *can actually be read*, that is, presents physical attributes enabling the actual realization of the reading behaviour (the af-

[22] What Heidegger calls the prepredicative expliciting (*Auslegung*) (BT, §32).

[23] Though Heidegger does not seem to mention it, obviously this background knowledge is also about *what can typically occur* with this or that item of equipment: pens can be out of ink, they can leak, one can be throw them away and sometimes reload them, the ink can have different colors, etc. Minsky's frames, despite their limitations (Dreyfus, 1991), offer a good formalization of this kind of background knowledge, things one typically knows about objects. But of course, and Dreyfus is undoubtedly right on this, frames shall not be reified and "propositionalized", understood in terms of propositional and symbolic knowledge. My background knowledge that pens are for writing can certainly express in propositional forms, e.g. if I explain to a kid what one does with that kind of objects. But there is no reason to assume that it is intrinsically propositional.

fordance of "readability"), is not a requirement to take it as a book, and refers to a totally different cognitive process.

Now, this does not imply that the detection of affordances is not required in some way or another by the *actual coping* with equipment, nor that the presentation of equipment has *nothing to do* with the detection of affordances[24]. In order to understand this point, we must distinguish between, on the one hand, the process on the basis of which equipment comes to be *identified*, or *discovered* in Heidegger's terms, i.e. taken *as* equipment for this or that (its apprehension under an as-structure that makes it the equipment that it is); and, on the other hand, the process through which we actually *coordinate* with equipment, that is (basically), make use of it (manipulate it, put it to use) so as to achieve this or that situated goal. These two aspects of one's ability to deal with equipment are not clearly distinguished in Heidegger's analysis, where they correspond to two facets of circumspection (*Umsicht*, meaning literally both *looking (or seeing) around* and *looking for*), which is altogether a practical know-how – the ability to cope skillfully with the equipment, "deal with them by using them and manipulating them" (BT, §15, p. 98 [69]) – and a presentative ability: the ability to "see" immediately – in the heat of the moment, so to say – what equipment is for and what must be done with what in order to achieve one's practical purposes. Speaking, as Heidegger does, of one and the same faculty for apparently so different abilities could certainly be criticized. Heidegger's decision is probably guided by a principle of phenomenological simplicity: from a first person's point of view, these various skills are just different aspects of one's ability to deal with equipment: we are familiar with what things are for and we immediately see what must be done and do it without having to think. But it does not mean of course that these skills shall not be distinguished conceptually for the sake of phenomenological clarity.

(1) You do not have to perceive that this fork is graspable or affords pricking food in order to present that thing right there as a fork – equipment-for-pricking-food –, or, more radically, take for granted the presence and availability (readiness-to-hand) of forks in the kitchen or restaurant you just entered[25]. However, when it comes

[24] How the circumspective presentation of equipment and the detection of affordances must be articulated is a complex issue that would require an in-depth analysis and the development of a whole coherent theoretical framework. I will only propose here some quick thoughts as a conclusion.

[25] We might want to argue that one must be able to detect these affordances (i.e. possess the perceptual or information-processing ability) in order to be capable of using forks, *and consequently* – assuming that the possession of that sort of skill is a necessary condition to understand equipment – in order to present those beings with this identity, i.e. as equipment-for-pricking-food. But this claim overlooks the fact that there is obviously a lot of equipment we are acquainted with that we are *not able* to use, e.g. helicopters or abacuses or saxophones (see Dreyfus, 1991, p.64). We also might be tempted to claim that in situations where one must guess what an unfamiliar (e.g. vintage) tool is used for, we usually proceed based on its visible affordances (inferring tools' functions from their apparent structure). But this objection is not acceptable, for this situation has to do with the process of becoming acculturated with equipment, and this must be distinguished

to actual use and manipulation, things are different. In order to use a fork (and use it *as* a fork), you must be able to grasp it and manipulate it efficiently so as to prick food in your plate and bring it to your mouth (e.g. control its trajectory and the force that you put in your arm). And the exercise of that sort of skills requires detecting affordances such as the graspability of the fork (that is, affordances related to the actions that must be performed to actually make use of that sort of equipment) or the affordances that the fork, once grasped, makes available, e.g. the prick-ability of the food (affordances that the equipment, when actually in hand, potentiates). In a same manner, I could not open the door by turning the doorknob (BPP, §.15, p. 163) if I were incapable of perceiving that I can grasp the doorknob and turn it that way, or that turning the doorknob is what makes it possible to open the door (nested affordances). We must be able to see – based on the extraction of the appropriate optical invariants – if those actions are actually feasible in the current situation, given parameters such as our relative position, orientation and posture. And if they are not, we must be able to anticipate how the situation must be changed to make them feasible. That is, the *actual coping* with equipment requires the exercising of some know-how, which implies the ability to detect affordances.

(2) Conversely, we can presume that the detection of affordances is someway *framed* by the presentation of equipment. Each time one makes use of equipment (or, more broadly, equipmental totality, say, a kitchen, an office or a supermarket), one's background knowledge about what the item is for (its *towards-which*) operates as a basic frame that altogether orients and constrains the affordances that we come to detect. When I am about to use a fork, I immediately focus on the affordances that are related to its status of equipment-for-sticking-food: be it the actions that must be performed to actually make use of it, for instance its reachability and graspability, or the actions that the fork, once grasped, makes available, such as the stick-ability of the food in my plate. That sort of knowledge is embedded in one's circumspective ability to deal with forks.

This last point is of central importance for current research on affordance perception. A pressing challenge for ecological Psychology is to identify the parameters that control the detection of affordances, considering that only a few affordances –amongst all the affordances that are currently available– come to be detected at each instant by the agent. Why these and not others? Most research on this topic focuses on action planning, executive functions, and parameters controlling selective attention, such as needs, short-terms objectives ("desired states") and moods. But this sort of account can only deal with the top of the iceberg, for parameters such as needs depend themselves on some background knowledge about what is possible and what is not, both from a merely physical and sociocultural point of view. As Heidegger explains, Dasein "has already restricted the possible options of choice to

from the process of presenting circumspectively equipment, a process which cannot take place if such background knowledge is not *already* in place.

what lies within the range of the familiar, the attainable, the respectable – that which is fitting and proper." (BT, §41, p. 239 [195-196]) This is a key element to understand the specificity of our perceptual relation to the environment as human beings. The affordances we are attuned to when going around our business in our day-to-day environment, are always already filtered by our familiarity with significance (*Bedeutsamkeit*), that is to say, with the system of meaningful references that is constitutive of the social world we inhabit[26].

As a final remark, it is worth noting that the distinction I have made above between, on the one hand, the process supporting the circumspective presentation of equipment and, on the other hand, the process of actual coordination with equipment, parallels the distinction that is usually made in Cognitive Psychology with respect to our knowledge of tools, between: (*a*) conceptual knowledge about the tool's normal function (knowledge that the tool is used for this or that), a kind of *knowing-that* which implies semantic memory, and (*b*) the ability to actually make use of the tool, grasp it and use it appropriately, a kind of *knowing-how* or procedural knowledge that relies on the possession of suitable motor programs (see e.g. Johnson-Frey, 2004). This distinction has especially been supported by the kind of behavioural dissociation that we can observe in different forms of apraxia following brain lesions[27]. This parallel shall however be taken with caution for at least two reasons. First, several approaches in Psychology, especially enactive approaches, have argued against a too clear-cut distinction between semantic or conceptual knowledge and sensorimotor skills. Especially, some observations suggest that the semantic ability to understand the tool's function could rely on the covert activation of motor programs associated with its use, i.e. on the implicit simulation of the instrumental behaviour.

[26] I have claimed in Declerck (2020) that it is a basic feature that distinguishes the sort of possibilities we as human beings selectively perceive when dealing with our environment and the possibilities that animals perceive, typically in animal tool-use sequences.

[27] Patients suffering from so-called "ideational" or "conceptual" apraxia (De Renzi & Lucchelli, 1988) can still perform the skillful actions associated with the actual use of the tool (or pantomime this use), which demonstrates that their tool-use skills are intact (the motor programs are still available and accessible). But they seem incapable of using the tool in the right context to do the right thing, thus demonstrating "errors of content" (e.g. misusing a toothbrush for a fork). That is, they seem to have lost their knowledge of *when* (in what functional context, for doing what) it is appropriated to actually make use of the tools and available skills (semantic knowledge about the functions that are associated with tools) (Ochipa et al., 1992). Besides this, these patients are still capable of identifying and naming the tool, which separates this condition from mere agnosia (Ochipa et al., 1989). Patients suffering from 'ideomotor' apraxia demonstrate the reverse impairment: their knowledge of the tool's function and context of use is intact, but they seem to have lost the motor skills necessary to actually make use of it. They typically show difficulties when asked to pantomime how a familiar tool is used or demonstrate this use with the tool actually in hand (De Renzi et al., 1982; Sirigu et al., 1995). This is not due, however, to a mere sensorimotor control deficit, for these patients are still capable of accurately grasping and manipulating the tool (Buxbaum et al., 2003; Johnson-Frey, 2003a,b; Johnson-Frey & Grafton, 2003).

Second, Heidegger's claim that concerned coping (*besorgenden Umgang)* is the primary mode of engagement with the world aims precisely to overcome the traditional opposition between mere doing and mere thinking. And he makes it clear that the kind of knowledge the concepts of familiarity and circumspective presentation refer to cannot be equated to some conceptual knowing-that. Especially, the linguistic expression of the functional references articulating equipment already presupposes that it has been prepredicatively interpreted (*ausgelegt*) as equipment-for-this or that (BT, §32, p. 189 [149])[28]. Telling what things are –what Vasterling (2014) calls "narrative understanding"– presupposes a being-already-open-to the world as a network of interrelated meanings (Heidegger, 1976, §12.a, p. 121 [144])[29].

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[28] "In dealing with what is environmentally ready-to-hand by interpreting it circumspectively, we 'see' it *as* a table, a door, a carriage, or a bridge; but what we have thus interpreted [Ausgelegte] need not necessarily be also taken apart [auseinander zu legen] by making an assertion which definitely characterizes it. Any mere pre-predicative seeing of the ready-to-hand is, in itself, something which already understands and interprets." (BT, §32, p.189 [149])

[29] "Every form of speaking about things is, as an ontological comportment of existence, already grounded in existence as world-open. That is, all speech speaks about something that is somehow already disclosed. […] Speaking indicatively about something —'this table here,' 'that window over there,' 'the chalk,' 'the door'— already entails [their prior] disclosure. What does this disclosure consist in? Answer: the thing we encounter is uncovered in terms of the end-for-which of its serviceability. It is already posited in meaning —it already makes sense [*be-deutet*]. Do not understand this to mean that we were first given a something that is free of meaning, and then a meaning gets attached to it. Rather, what is first of all 'given' —and we still have to determine what that word means— is the 'for-writing,' the 'for-entering-and-exiting,' the 'for-illuminating,' the 'for-sitting.' That is, writing, entering- exiting, sitting, and the like are what we are *a priori* involved with. What we know and learn when we 'know our way around' are these uses-for-which we understand it." (Heidegger, 1976, §12.a, 121 [144])

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