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**NATURAL**

**AND**

**ARTIFACTUAL**

**OBJECTS**

**IN**

**CONTEMPORARY**

**METAPHYSICS**

**Exercises in Analytic Ontology**

BLOOMSBURY

# Artifacts and *Fiat* Objects: Two Families Apart?

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## Introduction

*Fiat* objects may come into existence by intentional explicit definition and convention or they can be the result of some spontaneous and unintentional activity resulting in tracing fiat spatial boundaries. *Artifacts* and *fiat objects* seem intuitively to be correlated: both artifacts and fiat objects depend for their existence on agents and their intentions. Is it possible to consider fiat objects as *artifacts* and to what extent? Or else can we conceive at least some artifacts as fiat objects? In order to draw a map of the possible answers to these two questions we will take into account various definitions of *artifacts* stemming from the two classical approaches: the intentional and the functional one.

We start our analysis by considering the following two questions:

Question (1): Is there a relation between being an artifact and being a fiat object or are they two completely independent notions?

In this first section of the chapter we adopt a sort of top-down approach; that is, we confront the two definitions associated with the general expressions ‘artifact’ and ‘fiat object’. We may cast the second question in the following form:

Question (2): Does being an artifact imply being a fiat object? And, conversely, does being a fiat object imply being an artifact?

Clearly, the bi-conditional expressed in question (2) is false in one direction: being an artifact does not imply being a fiat object. The other direction is instead much more interesting: in fact, it is debatable if being a fiat object implies being an artifact. We argue that the notion of ‘intentional production’ plays a crucial role in answering the question.

In the second part of the chapter we consider a bottom–up approach: instead of considering the general definition of *artifacts* and *fiat objects* we will examine the possibility of a functional characterization of kinds of fiat objects in line with that of artifact kinds, hence the individuation of fiat objects through functional criteria.

By way of conclusion one could argue that even if artifacts and fiat objects are not strongly related as ontological categories, they are not two families apart: both kinds for fiat objects and artifact kinds can belong to the family of functional kinds.

### Artifacts and *fiat* objects: A preliminary characterization

In this first section we start from a top–down approach, that is, we start by comparing the definitions of ‘artifact’ and ‘fiat object’. Where artifacts are concerned, we can isolate two key elements in the most discussed definitions in the philosophical literature: *intentions* and *purpose* or *function*. For example, Baker writes,

‘Artifacts are objects intentionally made to *serve a given purpose*’ (Baker 2007, p. 49; emphasis in the original).

Hilpinen writes,

An artifact may be defined as an object that has been *intentionally* made for some *purpose*. (Hilpinen 2008, p. 1)

But what do we mean exactly by stating that artifacts are intentional products? On the one hand intentionality marks the intuitive – but as we will see misleading – distinction between artifacts and natural objects; on the other hand being an intentional product marks the difference between objects that are merely results of some intentional human action and objects that are the intended product of an action. To exemplify, pollution, crumbs, garbage and the greenhouse effect are all products of human intentional actions but for sure they are not the intended products of our actions. This is a crucial distinction in the literature concerning human action. Following a suggestion by Dipert (1993) we can label objects that are merely the result of human action: ‘artificial objects’. Thomasson (2003, p. 600) gives particular importance to this intentional character of the artifacts as products. In her perspective conditions for belonging to artifact kinds are the following:

Necessarily, for all  $x$  and all artifactual kinds  $K$ ,  $x$  is a  $K$  *only if*  $x$  is the product of a largely successful intention that  $(Kx)$ , where one intends  $(Kx)$  *only if* one has a substantive concept of the nature of  $Ks$  that *largely* matches that of *some group* of prior makers of  $Ks$  (if there are any) and intends to realize that concept by imposing  $K$ -relevant features on the object. (Thomasson 2003, p. 600)

Casting aside the complexity of this definition, we can briefly say that a spoon is a spoon only if its author intended to produce a spoon, and was largely successful in producing it, and this is, in our view, exactly the condition for an object to be considered an intended product. If someone carves a spoon out of a piece of wood he will for sure leave on the working table a lot of scrap material, but this material is not to be considered an artifact but is something artificial, something that exists in consequence of human action. Indeed, it seems plausible to say that our intuition regarding 'artificial' includes under this label not only objects that are the products of human action but products that from a certain perspective we can consider as objects that would not exist without the intervention of human action, like scrap, the ozone layer hole, rise in sea levels and so forth. It is plausible to think that there is no clear-cut distinction between artifacts and artificial objects, nor between artificial and natural objects. This type of remark concerning the requirement of intentional production for artifacts will be central for evaluating fiat objects that don't seem to be produced by the fiat of intentional decisions.

The second component of the definition, that of *purpose* or *function*, doesn't play a fundamental role at the level of the general definition of the category of artifacts but, as we will see, it is central to the formulation of the conditions for being an artifact of a certain kind. So we will examine it in detail in the second part of the chapter, where we will adopt the bottom-up approach.

Consider now the term *fiat object*. In the following passage Smith and Varzi give a short and precise definition for *fiat objects*:

Once *fiat* boundaries have been recognized, it becomes clear that the *bona fide*-*fiat* opposition can be drawn not merely in relation to boundaries but in relation to objects also. Examples of *bona fide* objects are: John, the moon, a lump of cheese. Examples of *fiat* objects are: Dade County, the State of Wyoming, the North Sea. ... Broadly, it is the drawing of *fiat* outer boundaries in the spatial realm which yields *fiat* objects. (Varzi, Smith 2000, p. 403; emphasis mine)

Roughly, the idea is that if there are discontinuities in the material world corresponding to the external boundaries of an object, then the object is

bona fide, while if there are no such material discontinuities the boundaries of the object are fiat boundaries and the object is a fiat one. The boundaries of bona fide objects depend crucially on topological features of the material world (and if they are artifacts also on the intention of some agents), while the boundaries of fiat objects depend exclusively on the intentions of the agents but they are not arbitrarily drawn. In the most prototypical cases, fiat boundaries and hence fiat objects are created for very good reasons that can be of economic, political, social and cultural nature. In the words of Varzi and Smith,

Moreover, there are normally perfectly good reasons – reasons of topography, economy, or military strategy – why these and those *fiat* objects are created rather than others. *Fiat* objects thus owe their existence not exclusively to human *fiat*: real properties of the underlying factual material are involved also. (Varzi and Smith 2000, p. 403; emphasis mine)

Indeed, we are perfectly aware that the burden of the distinction is completely charged on the notion of *physical discontinuity*. There are many problems about strictly defining what a physical discontinuity is supposed to be, but in this work we take for granted that such a distinction can be traced in a relevant way. On this argument many interesting observations are made by Vogt.<sup>1</sup>

Casting aside the difficulties on clearly distinguishing fiat and bona fide objects we can say that in this top-down inquiry the answer to the first question, whether *being an artifact* implies *being a fiat* object, is obviously negative: there are a lot of artifacts that do not have fiat boundaries and so a lot of artifacts that are not fiat objects. The answer to the second one, whether *being a fiat* object implies *being an artifact*, is less straightforward and involves crucially the requirement of intentional production.

### Comparing artifacts and *fiat* objects

We can be driven by our intuitions to believe that fiat objects are indeed artifacts basically because human intentionality is essentially involved in their coming into existence. Despite this belief the way we understand ‘production’ in the definition of artifacts plays a central role in two different respects:

1. To the extent that we have reasons to believe that the concept of ‘production’ involves the idea of some kind of physical or material modification, we have

reasons to exclude fiat objects from the category of artifacts: fiat objects are just produced by fiat. We can illustrate different reasons found in the literature to be more or less restrictive on the notion of production.

2. If we accept the distinction between artifacts and artificial objects described above and we see an artifact as the intended product of an intentional action, we might find that there are fiat objects that are not artifacts.

With regard to point 1, a quite intuitive approach would take production as an action involving some kind of material modification, but such a stance on production does not fit well with some intuitions we may have concerning artifacts as well. There are strong reasons for admitting abstract objects among artifacts; for example, if we choose certain metaphysical options, we may want to enumerate not only mathematical and logical proofs among artifacts but also words, pieces of music, scientific theories and even such social objects as institutions.<sup>2</sup> Whether to include or exclude a requirement of material modification for intentional production depends on our preferences concerning the extent of the concept of *artifact*. Given this double possibility concerning the notion of production, it would be perfectly reasonable either to adopt a less restrictive notion of *artifact* including fiat objects or to opt for a more restrictive one, excluding fiat objects.

The conclusion that the relation between fiat objects and artifacts crucially depends on the more or less restrictive interpretation of the notion of 'production' is focused just on one of the components of the concept of artifact.

One further consideration on the general notion of artifacts may in fact lead us to reconsider question (2) from a quite different perspective (Does being an artifact imply being a fiat object? And, conversely, does being a fiat object imply being an artifact?) We can place in doubt the relevance of a category of artifact as classically defined by Baker and Hilpinen (see the above definitions). As a matter of fact such definitions impose very few restrictions on the type of objects that can figure as artifacts: in the end, the only restriction in place depends on the limits of our ability to produce something. This results in a hodgepodge class of objects with no relevant similarities that could help us in finding some common nature.

At this point we might be tempted to take into account as an alternative approach a naive *functional* characterization of artifacts, but what we obtain are some odd results, as Wiggins (2001, p. 87) observed. Take, for example, a functional characterization of a pen in terms of 'any rigid ink-applying writing implement', a clock in terms of 'any time-keeping device' and so forth.

Now, observe that it is part of our way of individuating artifacts to accept a vast range of possible changes in them – for example, parts replacement, dismantling, interruption of functioning and so forth – while leaving the identity of the artifact untouched. In the case of a damaged clock, in order to fix it we may send it to a watchmaker, who may stop it, open it and replace its damaged parts. The very *same* clock starts to function again. Hence one could argue that the principle of functioning is not related to the conditions of persistence for a clock. Moreover, the functional nature of an artifact is insufficient to specify any common properties in relation to objects belonging to the same artifact kind:

Clocks, for instance, may be made of a variety of different kinds of material and may function by radically different kinds of mechanisms and are collected up not by reference to a theoretically hypothesized inner constitution but under functional descriptions that have to be indifferent to specific constitution and particular mode of interaction with environment. (Wiggins 2001, p. 87)

Hence, the category so defined seems to be completely irrelevant from a metaphysical point of view or for any other theoretical interest one may have.

Before deriving a conclusion concerning the possibility for fiat objects to be considered a kind of artifacts let us examine point 2, concerning production. If artifacts are intended products of intentional action is it possible that there are fiat objects that are not the intended product of intentional action or even not the product of intentional action at all, that is, fiat objects that are not artifacts and not even artificial objects?

So it might be that the question of whether fiat objects are or are not a subclass of the class of *artifacts* so defined is not only ontologically uninteresting but also questionable. Can we conclude that they are two unrelated notions despite the fact that they have some point of similarity? Is there any further consideration we can do to tackle the problem of the relation between artifacts and fiat objects?

### Artifacts and *fiat* objects: A bottom–up strategy

Our proposal is to adopt a different strategy for characterizing the relation between artifacts and fiat objects, a sort of bottom–up one. We start from some considerations concerning artifact kinds leaving in the background the general category of artifacts. We take into account different notions of artifact kinds, even if all of them developed around the notion of function. Broadly speaking

artifact kinds constitute a particular type of functional kinds, and we propose to treat kinds of fiat objects as functional kinds on par with artifact kinds. Functions are commonly recognized as the most adequate properties to be used for classifying and individuating artifacts. For example, we can say that given an object *a* at time *t* and an object *b* at time *t'*,

Identity criterion (IC): If *a* and *b* belong to a functional kind *K*, then *a* is the same as *b* iff there is a continuous material path between *a* and *b* and *a* and *b* are able to perform the same *function*.

The intuition behind IC is that the identity of an artifact is strongly connected with its ability to perform a certain *function* and the *function* gives the spatio-temporal identity conditions of an artifact. We propose to consider a similar IC for fiat objects also. There are, as a matter of fact, a lot of fiat objects undoubtedly endowed with functional unity: chairs made of one piece of wood have fiat parts as legs, backs and seats that are functionally individuated. Other interesting examples can be taken from the biological domain: roots, trunk and leaves of a tree are all physically continuous to one another and so they are fiat objects, but are clearly functionally distinguished parts of the entire organism. The same can be concluded for many functional parts of other living organisms. It is interesting to note that Vogt (see Chapter 6 of this volume, p. xx) – as we have done – concludes that there are many fiat objects having functional unity, but, unlike our point of view, by exploiting an innovative characterization of bona fide objects he takes these to be not real fiat objects.

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As regards the role of function as an essential feature of artifacts, it is important to notice that there are different conceptions of functions, and that they are differently applied to artifacts. Following Carrara and Vermaas (2009), it is possible to distinguish four conceptions of artifact function.

1. *The designer/creator intentions account*, in which the technical functions of an artifact are the capacities or goals for which agents designed the artifact.

This is a position Philip Kitcher (1993) proposed. In the design view of function one holds that what defines an artifact *a* as an *F* is that *a* is a token of the designed artifact kind *F*.

2. *The user intentions account*, in which the technical functions of an artifact are the capacities or goals for which agents use the artifact.

This so-called use view holds that what defines an artifact *a* as an *F* is that *a* is being, or could be, used as an *F*, irrespective of whether *a* was designed as an *F* in the first place. This conception of function has been proposed, for example, by Neander (1991) and McLaughlin (2001). Note that if one takes

the designer/creator of an artifact as one of its users, the use view may well subsume the designer/creator intentions account. It is a position Dennett, for example, considers when he says that ‘the inventor is just another user, only circumstantially and defeasibly privileged in his knowledge of the functions and uses of his device. If others can find better uses for it, his intentions, clear-headed or muddled, are of mere historical interest’ (Dennett 1990, p. 186).

3. *The causal-role account*, in which the functions of an artifact are the capacities by which it causally contributes to the capacities of larger and more complex systems (Cummins 1975).

For example, the function of a carburettor is the capacity by which it causally contributes to the overall capacities of a car it is a part of. According to the original definition provided by Cummins, a function of a component is a certain kind of *disposition* to interact with the other components of a containing system so that it produces certain effects. The conception of dispositional property we intend to adopt then becomes crucial, because the category of fiat objects surely includes abstract entities. Cummins adopted a plain causal notion of disposition, and its functional analysis is meant to be a type of explanation that can be applied to a wide range of scientific disciplines: from physical to psychological and even social systems. The notion of disposition presupposes the notions of *capacity* and *causal power* and this might raise some problems to the extent that we admit abstract fiat objects; the same problem arises for artifacts as well.

4. *The etiological account*, in which the functions of an artifact are the capacities for which the artifact is reproduced in a long-term sense (Millikan 1984, 1993 and Preston 1998).

For example, the function of aspirin in the twentieth century was painkilling, because painkilling was the reason why aspirin was reproduced. Some supporters of the etiological account of functions, in particular Neander (1991), proposed inclusion of in the etiological characterization of function also the capacities for which artifacts are reproduced in a short-term sense. The stability and the historical persistence of fiat objects clearly suggests that they are actively maintained or reproduced by human community.

If this analysis ends positively, we can defend the thesis that, after all, there is some relevant similarity between artifacts belonging to functional kinds (of a certain type, the type depending on the notion of function adopted) and fiat

objects. This doesn't allow us to give a straightforward positive answer to the second question of question (2) (Does being a fiat object imply being an artifact?) but we can say that both questions of question (2) (Does being an artifact imply being a fiat object? Does being a fiat object imply being an artifact?), even if natural and intuitive, are not useful in revealing important similarities between artifacts and fiat objects.

### Benefits and costs of using functions for artifact and fiat object classification

One could argue that the above-described four options work differently as criteria for artifact classifications. In the following, we briefly examine the benefits and the costs of adopting each of them in turn as the basis for artifact classifications and then see if it is plausible to adopt each of them also for the classification of fiat objects.

The first two options deal with intentional notions of function and will be discussed here together. The attribution of function according to the designer or user intention can capture quite well many of our intuitions concerning artifact classifications. Some artifact kinds seem to bear in their names their functional nature: can opener, corkscrew, pencil sharpener and screwdriver are a few prominent examples. But, in fact, even for artifacts such as chairs, cars, phones and so forth, it seems intuitive to regard their nature as that of objects designed to perform a certain function. Nonetheless, there are two main problems regarding this option: firstly, functions commonly associated with kinds, such as chairs or cars, seem to be too loosely described for the individuation of artifacts of the same kind; secondly, we may have objects produced for a certain function that are – as a matter of fact – systematically used to perform a different function and in many circumstances we seem to favour a function attribution related to their use and not to their design. The result is that an object can be classified in different ways according to its different uses. Furthermore, if we try to define functional identity conditions associated with artifact kinds we obtain an ontology of very fragile artifacts that can jump in and out of existence whenever a new use is established for them.

Let us examine the first problem. Consider the first phone designed by Alexander Graham Bell and the later phones that succeeded it. On the *designer intentions account of artifact functions* the first telephone had the function of

aiding the hard-of-hearing, since history has it that Bell designed his original phone for that capacity. Later phones designed by Bell or by others were however designed for long-distance communication and thus have this type of communication as their function on the designer intentions account. The first phone is thus of a different functional kind from the successor phones. Given the later developments in telephone technology, the consequence is that Bell's original phone and a modern twenty-first-century cellular phone are not of the same functional kind. Is this really a problem? Couldn't it be acceptable to consider artifacts that we commonly classify as objects of the same functional kind as such even when in fact they are not? Might it not simply be that for our everyday communication we don't need a fine-grained classification of artifacts? As soon as we move to a technical level we need a some more refined way of describing functions and it is at this level that we can find the tools for such a description. In some sense, we commonly misclassify artifacts, in the same way as we misclassify fruits and vegetables or stars and planets. The way an agent thinks of the artifact he is designing is for sure much richer than a simple description such as 'keeping time' for a watch or 'sitting upon' for a chair. As is well known, what is characteristic of functions is that they can be described at different levels of abstraction, from the more abstract with an input-output formulation to more detailed descriptions including elements of material constitution and functioning: the more abstract characterization of functions seems to be inadequate to describe the function intended by the designer. The price to be paid is that of regarding our common classifications of artifacts as in need of revision in favour of a more fine-grained and sophisticated classification. It seems to be a small price to pay, which simply places common functional kinds of artifacts on par with common kinds of natural objects: trees, stars, fruits and so forth are all commonly associated with criteria that we have no problem in discarding in favour of scientific ones.

The second problem, connected with the proposal of classifying artifacts according to their use, concerns essentially ontological benefits and costs. This problem leads us to connect directly with the discussion of the second criterion of function attribution mentioned. As a matter of fact no one has defended the general thesis that functions are attributed in relation to users' intentions excluding the possibility of considering designers as users: all the more so if our objective is not that of resolving the general problem of function attribution to artifacts but that of merging it with the individuation of artifact kinds – objects would too easily change their kind. A chair would become all of a sudden a shelf

and then go back to being a chair even tens of times a day and this would sound as a weird classification already from a commonsensical point of view, but if we add the metaphysical requirement that criteria of classification are or give rise to criteria of individuation, then we would obtain a plethora of objects going in and out of existence too easily. There are no reasons in principle to think that such an option is impossible to defend; maybe someone could take such an inflationary ontology seriously. Of course, one may wonder what is exactly the notion of use at work here; probably a more manageable way to consider it is to understand 'use' as 'standard use' or 'common use'. However, we are handling some very pre-theoretical and vague notions<sup>3</sup> and their indeterminate nature does not allow us to arrive at a good standard criterion of classification for artifacts.

The user intention account is maybe the one that more easily can be applied to fiat objects as well: they are put to uses and their existence does not always start with any easily identifiable event that could demarcate their production. In this regard it seems obvious that a relevant distinction to make is that between institutional fiat objects and non-institutional fiat objects. While Italy may be regarded as a fiat object that originated on 17 March 1861, the northern hemisphere of Earth can be individuated as something with a geographical use but for sure it does not have any clear event that signals its origin.

We already remarked on the centrality of the notion of production for understanding the relation between artifacts and fiat objects but we placed in question only one aspect of the notion of production involved in the definition of artifacts, that of material modification; the other important aspect is that of intentionality. Production of an artifact might be a long-lasting process involving the action and thought of a lot of people, but it seems natural to attribute a crucial role to some final decision: something is intentionally produced if at a certain point the processes of production are deemed complete, and this can be the mark of intentional directedness of the process of production. To the contrary we think it is possible to leave open the possibility that fiat objects are created by habits and traditions and, even though these can be regarded as kinds of production processes, they are not intentionally directed processes. To accept a more liberal notion of production including collective and unintentional production is a strategy for treating both artifacts and fiat objects as objects produced by human agents and regarding their functions as those assigned by their users/makers. Nonetheless the attribution

of function in relation to this more liberal notion of production gives rise to an extravagant and inflated ontology, as we already mentioned at the end of the last paragraph.

As regards the third approach, the causal role account, its adoption for artifacts has one main consequence: in order to work out the criteria of classification we need to make reference to a containing system and a functional analysis. In the classification of parts of artifacts we need to appeal to a certain functional analysis of the object and for the classification of whole artifacts we need to consider some external system, typically the system of use, in order to evaluate the function and classify the object used. In such a perspective, the resulting classifications would be contextually dependent on the overall system referred to, and relative to the functional analysis adopted. Hence, causal role function doesn't seem to be the best choice for a functional classification that could work as a taxonomy; nonetheless there seem to be no specific problems for fiat objects in this case.

In the fourth account – the etiological one – in order to obtain a functional criterion we need to supply an historical reconstruction of maintenance or (re-)production in which some particular properties of a given artifact play a distinctive causal role: such properties playing that role favour the re-production of objects of a certain type. Quite often an etiological account of function will involve a notion of copy; that is, the items with a certain function are reproduced in the sense that they are copies of other items of the same type. For artifacts it gives rise to some common problems concerning either the attribution of function to the first instances of a certain type, that is, instances that cannot be considered as the result of some history of maintenance, or re-production or else the possible shift in causal role. The first problem can be overcome by accepting that the first exemplars produced are part of a sort of mental history of maintenance<sup>4</sup> or accepting a mixed criterion of function attribution. As regards the second one, consider again the case of aspirin (the example is taken from Houkes and Vermaas 2004). The aspirin produced during all of the first half of the twentieth century was intended to be a painkiller; only later, in the second half of the century, was its property as a blood-clot preventer discovered. In the *etiological account*, in which artifact functions are the capacities for which artifacts are re-produced, the first tablets had painkilling as their function. Indeed, at that time, painkilling was the known capacity of aspirin. A tablet of aspirin produced nowadays has both the function of painkilling and that of blood-clot prevention: this has generated a shift in how to classify aspirin. Shifts in classification are not

per se problematic but they have the undesirable consequence of allowing different kinds with the same name and with instances with the same physical structure.

Let us consider now fiat objects. Their existence depends on cognitive acts of agents intending to refer to portions of physically continuous objects. This intention is socially recognized and adopted and it gives rise to different types of convention. These are established for their practical utility but can persist even despite a complete lack of it. They persist as long as the conventions are active. Hence the most natural way of extending the etiological account to fiat objects is in relation to the production version of it: they come into existence in consequence of certain conventions and these fix their function. As a matter of fact the notion of re-production is sensitive to the same problems of the notion of production and also to further problems concerning the notion of a copy.

## Conclusions

Our choice to compare artifacts and fiat objects was mainly motivated by the fact that both ontological categories involve a certain dependence of the existence and nature of the objects on human intentions. They seem to be two kindred ontological categories. We started from a classical top-down perspective analysing the main implications of their general definitions, but this survey didn't give us any conclusive result: we simply noted that a certain problematic aspect in the general definition of artifacts – that is, if production involves material modification – is also crucial for the inclusion of fiat objects among artifacts. Some further considerations led us to question the ontological benefit of such an approach; it is evident, in fact, that a general definition of artifacts doesn't lead to the individuation of a category of objects significantly similar to one another. We proposed then to shift to a different approach trying to consider fiat objects as well as artifacts as objects that are best classified according to their function, that is, objects that belong to functional kinds. Functional classifications depend on the criteria for function attribution we decide to adopt and so we briefly examined four different classical options. The aim of our analysis is not to give reasons to choose one among these options, but simply to give a critical assessment of each of them in order to give credibility to the idea that fiat objects might be considered objects belonging to functional kinds. Regarding artifacts we have few reasons to doubt that they are best viewed as items of functional

kinds and so a strict comparison between function attribution and classification of artifacts and function attribution and classification of fiat objects may lead to the adoption of a functional classification also for the latter.

## Notes

- 1 On this see Chapter 6 of this volume, on *granularity* and *frame of reference*.
- 2 On words as artifacts see Chapter 9 of this volume.
- 3 For a more detailed analysis of the notion of use, see Houkes and Vermaas (2004).
- 4 See Millikan (1984), (1993).

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