

Relative Identity and the Number of Artifacts

Massimiliano Carrara
Department of Philosophy
University of Padova

Abstract

Relativists maintain that identity is always relative to a general term (*RI*). According to them, the notion of absolute identity has to be abandoned and replaced by a multiplicity of relative identity relations for which Leibniz's Law does not hold. For relativists *RI* is at least as good as the Fregean cardinality thesis (*FC*), which contends that an ascription of cardinality is always relative to a concept specifying what, in any specific case, counts as a unit. The same train of thought on cardinality and identity is apparent among those – *Artifactualists* – who take relative identity sentences for artifacts as the norm. The aim of this paper is (i) to criticize the thesis (T1) that from *FC* it is possible to derive *RI*, and (ii) to explain why Artifactualists mistakenly believe that *RI* can be derived from *FC*. The misunderstanding derives from their assumption that the concept of *artifact* – like the concept of *object* – is not a sortal concept.

Keywords: Relative identity, cardinality, sortal concept.

1. Introduction

Let *a* and *b* be any two objects and consider the claim that one cannot judge whether *a* is identical to *b*, or whether *a*, for example, remains “the same” unless one specifies some kinds of *things F*. Or, in other words, let identity be a relation which is always relative to some general term of an appropriate kind and accept, moreover, that *a* and *b* can stand in the relation “same *F*” (formally ‘ $a =_F b$ ’) but simultaneously not be in the relation “same *G*” (‘ $a \neq_G b$ ’), where ‘*G*’ is, again, like ‘*F*’, a symbol for a common noun standing for a kind of thing – even though ‘*G*’ stands for a property that *a* and *b* possess. This claim is the *relative identity thesis (RI)*.

An easy way to illustrate *RI* is on the basis of the following example. Consider a gold ingot that is first used to make a ring and is afterwards melted down to make a brooch. One and the same gold ingot can then – at different times – be different jewelry. According to P.T. Geach (1967/68) – one of the first supporters of relative identity – examples such as these are by no means an exception to the rule; they are rather the norm.

As the example shows, it is usual to find sentences implicitly committed to this relative identity thesis *RI* for artifacts:

- (1) *a*, the *Ford Fiesta* I saw yesterday, is the same car as *b*, the *Ford Fiesta* I see now, but *a* is not the same sheet of metal as *b*.
- (2) The *Goldberg Variations* as played by Glenn Gould is the same piece of music as in Murray Perahia's rendition, but the two do not constitute the same interpretation of Bach's masterpiece.
- (3) Theseus' ship is the same collection of planks as the reassembled ship, but the two entities are not the same ship.
- (4) The inscription ‘identity’ is the same word (i.e., a so-called type-word) as the inscription ‘identity’, but it is not the same inscription (token-word).¹

So, we can – at least *prima facie* – claim that *there exist linguistic phenomena* of relative identity. And one can add that they are very common, and that they are furthermore *prima facie*, plausible, in particular for artifacts, as the above examples indicate.

Let us call *Artifactualists* those who take relative identity sentences for artifacts to be the norm. For Artifactualists identity is a relation that is always relative to some general term of an appropriate artifact kind. Moreover, Artifactualists claim that there are, or that there could be, cases in which *a* and *b* – where *a* and *b* are artifacts – stand in the relation “same *F*” but not in the relation “same *G*”, where ‘*F*’ and ‘*G*’ are count nouns for specific artifact kinds such as ‘car’ and ‘fork’, even though ‘*G*’ stands for a property that both *a* and *b* possess. (1) – (4) are examples of the thesis just mentioned. According to Artifactualists, examples such as these are by no means the exception, but rather the norm.

Relativists (*RI supporters*) add that the reasons supporting the notion of relative identity are the same as those that bear out what they take to be a strictly connected thesis, namely: a Fregean cardinality (*FC*) thesis. Fregeans (*FC supporters*) claim that any numerical ascription underscores a concept whose role is to specify the kinds of objects to be counted, i.e., what, in any given case, has to be taken as *a unity*. The train of thought which underpins Relativists’ argument is the following: if the Fregeans are right in claiming that it makes no sense to talk of counting objects in general, because what are counted are always objects of a specific kind then, given the strict connection that there is between cardinality and identity, one is also right to claim that it makes no sense to talk of individuating objects in general, because what is individuated is always an object of a specific kind.²

The Relativists’ general idea is that *RI* is at least as good as the *FC* thesis: if the latter holds, then the former has to hold as well because it is very similar.

The same argument could be attributed to Artifactualists. To them it does not make sense to talk of counting artifacts in general, because what are counted are always artifacts of a specific kind. But, given the strict connection that there is between cardinality and identity, one is also right to claim that it does not make sense to talk of individuating artifacts in general, because what are individuated are always artifacts of a specific kind. “When does the modification of an object (or objects) by an agent lead to the existence of a new object?” – Hilpinen asks in *Authors and Artifacts*. “This depends on concepts [...] used for describing objects, that is, on the ways we choose to divide the world into objects”.³

The aim of this paper is (i) to criticize the thesis that:

(T1) from *FC* it is possible to derive *RI*,

and (ii) to explain why Artifactualists mistakenly believe (T1) that *RI* can be derived from *FC*. Their reason for this belief is related to their assumption that the word “artifact” is equivalent to the word “object”: “artifact” is not a *sortal* term, or, in other words, the concept of an *artifact* – just like the concept of an *object* – is not a *sortal* one. Sortal concepts possess an identity criterion; Artifactualists assume that *object* and *artifact* do not possess an identity criterion.

2. Some relevant consequences of the Relative Identity thesis

The doctrine of relative identity includes three claims. Claim (A) is that:

$$(a =_F b)$$

is not equivalent to:

$$Fa \wedge Fb \wedge a = b$$

Or, in other words:

$$(P) \quad (a =_F b) \leftrightarrow (Fa \wedge Fb \wedge a = b)$$

is not true. One argument against (P) is the following one.⁴ Let us consider the following two sentences:

- (5) Lord Newriche discussed armorial bearings with a herald yesterday and discussed armorial bearings with the same herald again today.

and:

- (6) Lord Newriche discussed armorial bearings with a man yesterday and discussed armorial bearings with the same man again today.

Both (5) and (6) contain expressions of the form “the same F ” where F is a sortal term, namely, “the same herald” and “the same man”. Now, according to Geach, if (P) held, then (5) and (6) would be logically equivalent to the following two sentences, respectively:

- (5') For some x , x is a herald and Lord Newriche discussed armorial bearings with x yesterday and discussed armorial bearings with x again today.
 (6') For some x , x is a man and Lord Newriche discussed armorial bearings with x yesterday and discussed armorial bearings with x again today.

But this equivalence does not hold. In fact:

- (7) Whatever is a herald is a man

is a true sentence. Moreover (7) is equivalent to:

- (7') For any x , if x is a herald then x is a man.

However, (5') and (7') entail (6'), whereas (5) and (7) do not entail (6). In fact, (6) may be false even if (5) is true (there is an overnight change of staff in the College of Heralds). Geach's conclusion is that (5) and (6) are not equivalent to (5') and (6'). It then implies in turn that:

$$(PL) \quad (a =_F b) \rightarrow (Fa \wedge Fb \wedge a = b)$$

is not true.

The second claim (B) is that:

$$(8) \quad (a =_F b) \wedge (a \neq_G b)$$

is compatible with the fact that *both* Ga and Gb are true: so, for example, a is the same car as b , but a is *not* the same sheet of metal as b even if a is a sheet of metal and b is a sheet of metal.

(A) is the central claim of a Relativist, (B) is just evidence of it. Moving from (A), a Relativist concludes that (C) no one object is absolutely identical to or distinct from another object. In particular, there is no such thing as being just “the same”. The absolute relation of identity needs to be replaced by a multitude of relative identity relations for which the logical principle of the identity of the indiscernibles:

$$(InId) \quad \forall x \forall y (x=y \rightarrow \forall F (Fx \leftrightarrow Fy)),$$

does not hold.

3. Relative Identity and Frege Cardinality

For Relativists *RI* is *similar* to the Fregean cardinality thesis *FC* that there is no such thing as counting or numbering *simpliciter*; there is only counting or numbering according to a concept F , or G .

The *FC thesis* features as the conclusion to an argument often known in the literature as the *relativity argument*.⁵ The argument aims at showing that the real bearers of numbers are concepts and not ordinary objects or ordinary external events. Frege’s strategy is to prove that thesis through a *reductio ad absurdum* of the opposed thesis. It runs roughly like this. If the real bearers of numbers were ordinary objects, cars and spoons for example, then there would be no absolute sense in which a given number could be said to belong to its bearers. The reason is that a given object – or a given artifact – can be conceived of in many different ways. Take, for example, an artifact such as the *Iliad*. One could think of it as one poem, as twenty-four books, or as a large number of verses. The ascription of a number to something would therefore be relative and not absolute. But what would it be relative to?

Frege’s answer is that any ascription of a number to something is always relative to a concept, introduced by a general term (or as he says: “The content of a statement of number is an assertion about a concept”). The role of the concept is to make counting possible by specifying, in each case, the nature of the task to be performed, or – as Frege puts it – the object of investigation. For example, if we say:

$$(9) \quad La\ Rotonda \text{ has zero rooms,}$$

we are ascribing a certain property to the concept *Room of La Rotonda*, i.e. the property of having an empty extension. Instead, if we say:

$$(10) \quad Palazzo\ Barberini \text{ has four rooms,}$$

we are stating that the number which belongs to the concept *Room of Palazzo Barberini* is four, or that the concept has four unities in its extension.

In general, for Frege, a sentence like:

$$(11) \quad x \text{ is one (object)}$$

is always an incomplete way of saying:

$$(11') \quad x \text{ is one } A$$

where A is a specific concept and *one* a certain property we are ascribing to it.

There are – at least – two close similarities between *RI* and *FC*. Firstly, for a Relativist/Artifactualist there is always a monadic predicate involved in an identity statement, i.e., one always says that x and y are *the same something*; and for a Fregean there is always a concept involved in any numerical statement. Thus, for Geach we cannot say that:

$$(12) \quad a \text{ and } b \text{ are the same}$$

but we must say, instead:

$$(13) \quad a \text{ is the same } F \text{ as } b$$

for an appropriate F . And for a Fregean we cannot say of a certain collection that it simply numbers *two*, but we must say instead that it numbers *two* F s for an appropriate F , *room in this building* for example.

The second similarity is that both Fregeans and Relativists/Artifactualists would agree that there are unquestionable logical relations between the notions of identity and counting in:

$$(14) \quad \text{If } x \text{ is not } y, \text{ then they are two.}$$

The antecedent and the consequence of (14) are clearly connected and, given this connection, it seems to be impossible for the relativization to concern only the consequence of (14) and not its antecedent. All things being equal, what is at stake is whether these similarities are sufficient to back the Relativists/Artifactualists thesis that whoever claims that F is essentially involved in any cardinality statement is thereby committed to claiming that F is essentially involved in any identity statement as well.

4. If Frege Cardinality holds, does Relative Identity then hold as well?

The answer to this question would be positive if the reasons justifying the use of the general term F in the first case also justified parallel use in the second case. Since those reasons have to do with the fact that a lack of specification of the general term F in a cardinality statement would signal incompleteness in that very statement, we can conclude that *FC* would justify *RI* if the reasons why a sentence of the form:

$$(15) \quad x \text{ is } n \text{ (where 'n' is a numeral)}$$

is incomplete also justified the incompleteness of an identity statement such as:

$$(16) \quad x=y.$$

The notion that this is how things are is precisely what Geach – a Relativist – believes. Even though Geach does not actually put forward any explicit argument in defense of that thesis, the

train of thought that supports it seems to be the following. If a sentence such as (15) is incomplete because any ascription of cardinality to an object or collection is always relative to a general term which specifies the kind of objects to be counted then, given that the introduction of different completing general terms can determine different ascriptions of cardinality to the same object or collection, it follows that identity must also be relative.

Unfortunately, Frege's grounds for the incompleteness of a cardinality statement such as (15) do not justify the incompleteness of (16) as *relative identity* theorists hold. "One" is, according to Frege, the name of an object – notably a particular kind of logical object – and an object, for Frege, is a saturated entity which, by its very nature, is unsuited to playing a predicative role. The fact that "one" – or any other numeral for that matter – cannot express a property of an object emerges very clearly if one considers the outstanding differences that there are between a sentence such as:

(17) x is one

and:

(18) x is strong.

Take two hammers a and b . While we can combine:

(19) a is strong,

and

(20) b is strong,

to obtain the sentence:

(21) a and b are strong,

we cannot in the same way combine:

(22) a is one,

and

(23) b is one,

to obtain:

(24) a and b are one.

Of course, we can see (22) as an elliptical sentence for:

(22') a is a strong hammer,

as happens when, for example, a person is asked to refer to a strong hammer and, for sake of brevity, she answers by uttering (22).

Even though it is possible for a numeral to figure alone in a predicative position, this does not mean that these cases can be properly described as cases in which the property of the uniqueness of an object is predicated. Otherwise, as Fregeans show, we would have a property that, unlike any other property, would not allow an inference such as:

$$\begin{array}{l} a \text{ has the property } P \\ b \text{ has the property } P \\ \hline a \text{ and } b \text{ have the property } P \end{array}$$

We can thus say that, according to a Fregean, a cardinality statement of the form:

$$(17) \quad x \text{ is one}$$

is incomplete because ‘one’ is an *Eigenname*; it can never function as a predicate but, at most, as a predicate constituent. But which predicate can it be a part of? To answer this question one has to consider the role played by the general term which is introduced to complete the sentence. Now, according to a Fregean, such a term plays the completion role, not because it specifies the sentence predicate – so that the predicate would be ‘... *is one F*’ as a Relativist/Artifactualist maintains – but because it specifies the *logical subject* of the sentence, the object about which something is said when a numerical judgment is made.⁶

Now that we have shed light on the real subject of cardinality statements this puts us in a position to understand what kind of completion is appropriate in such cases, i.e., the predicates of which ‘is one’ is a part. The open sentence “... is one” must be completed in such a way as to express a property which is ascribable not to objects but to concepts. The property in question is that of *having a given number of exemplifications*, in this particular case of *having exactly one such exemplification*.

The Fregean thesis is that what is said in sentences like:

$$(17) \quad x \text{ is one}$$

is that the concept *being identical with x* has the property of *having a singular exemplification*. So, for example, the sentence:

$$(24) \quad a \text{ and } b \text{ are one}$$

(where ‘a’ and ‘b’ are two different names of my hammer) predicates the property of *having a singular exemplification* to the concept of *being identical with b*. According to this analysis (24) turns out to be equivalent to:

$$(26) \quad a = b.$$

But (26), as one can see, is not equivalent to any relative identity sentence! In fact, for Relativists:

$$(P) \quad (a =_F b) \leftrightarrow (Fa \wedge Fb \wedge a = b)$$

is not true. The claim (C) of Relativists/Artifactualists is that there is no absolute relation of identity: no object is absolutely identical or distinct from another object; there is no such thing as being just “the same”. But, if there is no absolute sense in which a certain object a differs from b , then there is no absolute sense in which a set containing two objects a and b has two objects. So, in Geach’s cardinality picture, for example, if Tom and Bob are *two human beings* but *the same herald*, then the set with the two individuals as its members:

$$\{\text{Tom, Bob}\}$$

will have cardinality $2_{\text{human being}}$ and 1_{herald} because:

$$(27) \quad \text{Tom} \neq_{\text{human being}} \text{Bob}$$

and

$$(28) \quad \text{Tom} =_{\text{herald}} \text{Bob}.$$
⁷

So, for Geach (for Relativists and Artifactualists) the predicate F in a sentence such as:

$$(13) \quad a \text{ is the same } F \text{ as } b$$

tells us which relative identity relation is being questioned, and, similarly, in cardinality claims F ’s role is to determine which relation we are to determine: because the question of x and y and their identity has no absolute sense, nor does the question of whether x and y are one. For Frege, on the other hand, the concept F is essential in cardinality statements because without it there is no specification of what is to be counted. The statement, pointing at a pile of cards:

$$(29) \quad \text{that is one}$$

is ambiguous. We might mean to claim that there is one pack or that there is one card. But the connection with absolute identity is straightforward:

If there is one pack on the table, then for any pack x and y on the table, $x = y$.

If there is one card on the table, then for any cards p and q on the table, $p = q$.

Once it is clear what are the entities in question, there is nothing left to be specified; there is no variety of identity-like relations between which to choose.

To sum up: I have rejected Geach’s (and Relativists/Artifactualists) claim that Frege’s cardinality thesis is analogous to the relative identity thesis by showing that the role played by the completing general term is different.

3. Why Artifactualists mistakenly believe that Frege Cardinality implies Relative Identity?

I propose that the answer to this question is simply that Artifactualists think that the concept of *artifact* – just like the concept of *object* – is not a sortal one.⁸ If ‘artifact’, as ‘object’, is not a sortal word, then the expression ‘the number of artifacts’, like the expression ‘the number of objects’, is meaningful only when supplemented by a sortal term. For Frege the sentence:

$$(11) \quad x \text{ is one object}$$

is meaningful only when supplemented by a sortal term. In the same way, for an Artifictualist:

(30) x is one artifact

is meaningful only when supplemented by a sortal term. Due to the fact that *artifact* is not a sortal word Artifictualists think that it does not make sense to talk of counting artifacts in general; what are counted are always artifacts of a specific kind. But – as with Relativists – given the close similarities that there are between cardinality and identity, they also think that it does not make sense to talk of individuating artifacts in general, because what are individuated are always artifacts of a specific kind. That is one reason why Artifictualists hold that Frege Cardinality (*FC*) implies Relative Identity (*RI*), i.e., it is why they think that the entailment is true.

Putnam, for example, could be viewed as a leading exponent of Artifictualists.⁹ He supports the idea that it is nonsensical to speak of the number of objects with the help of the following example. I bring a friend into a room. There is a table and chair with a book and a spoon on the table. Nothing else. I ask:

(31) How many objects are there?

If the friend's answer is: "Four" I ask again:

(32) Which objects are there?

Answer:

(33) A table, a chair, a book and a spoon.

A reply could be:

(34) What about the pages of the book? And what about the chair's legs?

And so on.¹⁰

One way to stop this chain of queries is to argue that (31) does not hold a determinate meaning. It would be rightly raised if there was a specification concerning the kind or sort of objects to be counted.¹¹ Then Putnam, talking about the fact that (31) does not hold a determinate meaning, argues that also "certain identity statements exhibit the same phenomenon". The examples of identity sentences he proposes are relative identity sentences, along the lines of (1) – (4).¹²

If *artifact* – as *object* – is not a sortal concept, then nothing prevents us from recapitulating Putnam's argument using, instead of (31), something like:

(35) How many artifacts are there?

Why is 'artifact' not a sortal word? According to Frege, if a concept is to be ascribed a finite number, the following two conditions have to be met:

- (i) The concept must determine in a precise way, which objects belong to its extension.
- (ii) The concept should not permit an arbitrary division into parts of the objects which belong to its extension.

A good illustration of the Fregean standpoint is provided by the following quotation:

The concept “letters in the word ‘three’” isolates the ‘t’ from the ‘h’, from the ‘r’, and so on. The concept “syllables in the word ‘three’” picks out the word as a whole, and as indivisible in the sense that no part of it falls any longer under that same concept (Frege 1884, §54).

By contrast, a concept such as *red*, for example, does not isolate what it applies to because it permits an arbitrary division into parts of the objects belonging to its extension (contravening (ii)). As Frege says “we can [...] divide up something falling under the concept ‘red’ into parts in a variety of ways, without the parts thereby ceasing to fall under the same concept ‘red’” (Frege 1884, §54).

For Wiggins condition (i) “could be naturally developed to cover precisely that which we have intended by our conditions upon being a sortal”.¹³ a predicate “with which we articulate or segment the reality of our experience”.¹⁴ As Rumfitt observes, talking of articulation or segmentation is no more metaphorical than when Frege’s talks of delimitation. However, Wiggins explains the metaphor by making explicit the connection between a sortal term and a claim of identity; a sortal term articulates reality because it provides a basis for answering question such as:

- (36) Is this *F* identical to that *F*?
- (37) Is the *F* that is *G* identical to the *F* that is *H*?

Like Frege we can say that a concept/term is sortal if and only if it carries an identity criterion. Conversely, the concepts that do not satisfy that condition are called *characterizing concepts* or *non-sortal concepts*. Strawson claimed that a sortal concept, or in his words a “sortal universal”, supplies a principle for *distinguishing* and *counting* the individual particulars which it collects. On the other hand, a characterizing universal can only be applied to particulars already distinguished, or distinguishable, in accordance with an antecedent principle or method. In rough terms, and with some reservations, we can therefore assert that certain common nouns for particulars introduce sortal concepts, whereas verbs and adjectives applicable to particulars introduce characterizing concepts.¹⁵ Whatever the value of the distinction between *sortal concepts* and *characterizing concepts* may be, we believe that an appeal to this may prove useful in capturing some of Frege’s insights concerning concepts.

If that is so, then asking if ‘artifact’ is a sortal word corresponds to asking if ‘artifact’ extends an identity criterion. In a recent paper written with various others (Carrara et al. 2004) I argued that ‘artifact’ is not a sortal term.¹⁶ Consider the usually adopted philosophical definition for ‘artifact’:

An artifact is a concrete object intentionally produced by human beings.¹⁷

Given this characterization of ‘artifact’ it seems natural to look for conditions concerning the origin of the objects as identity criteria for ‘artifact’. Consider, as plausible, elements of that same origin:

- (A) the matter that constitutes the object at its origin
- (B) the identity of the author.

Can (A) and (B) be accepted as a general necessary and sufficient condition of identity for artefacts? No.

In fact, firstly for (A), it is easy to imagine some circumstances in which there are two artifacts constituted of the same amount of original matter: a chair could be built from the same wood as a previously made table.¹⁸

Secondly, arguing for (B) is equivalent to arguing that if an artifact has been produced by a different author, then it is different. The identity of the author seems to be of great importance to artworks but almost completely irrelevant to other kinds of artifacts such as mass-produced industrial products.

Notice that many other elements of origin, like for example spatio-temporal location or the specific intentions of the author or the instruments used for making the artifact etc., could be seen as good candidates for being considered to be identity conditions for artifacts.

Unfortunately, all these kind of tentative identity criteria for artifacts suffer from the same general problem faced by reductive conceptions of identity criteria. In fact, from a reductive point of view, identity criteria are conceived as principles that reduce issues of identity among objects of a given kind to relations among objects of a more basic kind. Kripke formulates the above notion of identity criteria in this way:

$\bar{x} = \bar{y}$, but \bar{x} is the entity of the new kind associated with x , and \bar{y} is the entity of the new kind associated with y if and only if x and y , which are admittedly distinct objects (or can at least be distinct objects; of course they could be the same object) stand in the relation R . R will in general be some equivalence relation in the unbarred entities (Kripke 1978, p. 36).

Formally:

$$\bar{x} = \bar{y} \leftrightarrow R(x, y)$$

Kripke speaks of a reductionist conception of identity criteria just because identity between objects of a certain kind depends on relations between more basic objects.

There is a fundamental criticism to this kind of reductive conception of identity criteria: if identity criteria have to provide an analysis of identity even if sortally determined, we have to admit objects for which there are no reductive criteria of identity and from which we move on in order to give identity criteria to less basic objects. Otherwise we run into an infinite regress. Consider this example of identity criterion:

- (M=) Material objects are identical if and only if they occupy the same place at all times.

One could ask for a criterion of identity for the notion of place, a criterion that has to be given in terms of entities different from material objects and places. It is not clear what these entities could

possibly be, but there should be some entities if identity between places is to be reduced to identities between more basic entities. It is obvious that continuing to apply the same kind of demand produces an infinite regress.

In order to stop this infinite regress, a reductivistic philosopher could introduce some scientific standards and suppose that a criterion of identity is adequate if and only if the right-hand side of the criterion is an ontological reduction of the left-hand side in terms of the selected scientific standard. This seems to us to be, more or less, for example, Sellars' answer.¹⁹ He argues that "chairs" do not really exist. There are objects that really exist and which correspond to what the layman calls "chairs", but the objects called "chairs" by the layman are part of a pre-scientific, intuitive, picture of the world. "Chairs really are ...", and here the reduction follows the basis of the scientific standard adopted. For example, if the scientific standard adopted is a physical theory, the reduction will be in terms of a bundle of particles and so on. Such a kind of explanation forces the whole question of the adequacy of identity criteria to depend on the reference standard adopted. The problem then becomes: what is the standard in the case of artifacts?

A third reason for maintaining that 'artifact' is not a sortal term relates to certain notorious *puzzles* on artifact identity. Consider the well-known problem of the Ship of Theseus. This is an example of a problem that concerns ordinary artifacts which cannot be decided on the basis of the relevant information. Let v be the old Ship of Theseus that has been restored and n the new one resulting from the replacement of all the old planks. Of course, v is different from n . But, let t be the ship that was sailing in Theseus' time. The relevant information is known and does not allow us to decide whether $t=v$ or $t=n$. This is a question of identity concerning ordinary artifacts.²⁰

Obviously, this does not commit us to the idea that it would not even be possible to find identity criteria for *specific* kinds of artifacts, like *cars*, *forks*, *hammers* etc. A good attempt would be to specify identity criteria based on the function and structure of the objects.

If there is no identity criterion available for *artifact* we can conclude that it is not a sortal concept, and if *artifact* – as *object* – is not a sortal concept then the expression 'the number of artifacts', like the expression 'the number of objects', is meaningful only when supplemented by a sortal term. This is the first step for an Artfactualist.

The next step for an Artfactualist is to argue that – along the same lines as a Relativist – since it does not make sense to talk of counting artifacts in general because what are counted are always artifacts of a specific kind (given the strict connection between cardinality and identity) it does not make sense to talk of individuating artifacts in general, because what are individuated are always artifacts of a specific kind. Hence, from *FC* and the position that artifact is not a sortal concept, an Artfactualist mistakenly believes it is possible to hold *RI*.

4. Conclusions and final remarks on Artfactualists

In this paper I have argued that one reason for Artfactualists to hold that the cardinality thesis is connected to the thesis of relative identity is that they think – like Frege for *object* – that *artifact* is not a sortal concept.

A final remark on Artfactualists concerns the costs and advantages of taking the concept of artifact to not be a sortal concept. According to Quine, identity criteria are required for ontological respectability: only entities that have clearly determined identity criteria are

ontologically acceptable. Think, for example, of the case of properties: they would not be ontologically acceptable because they do not have any suitable identity criterion. If *artifact* is not a sortal concept/term because there is not an identity criterion for artifacts, then *artifacts* are not entities that are ontologically acceptable.

But ordinary language describes a world inhabited by entities of different sorts: people, tables, trees and one could say, more generally, *artifacts*. We utter sentences such as:

(38) There is an artifact on the table

which contain explicit existential idioms and which therefore seem to commit us to the existence of the corresponding entities or artifacts. Even without explicit quantification, the very use of a term – singular or general – naturally suggests the existence of a corresponding entity, as in:

(39) This artifact is heavier than that one.

Some would say that sentences such as these imply the existence of the entities named. Others would say that they presuppose the existence of those entities. Either way, the existential import can hardly be questioned.

If artifacts are not ontologically acceptable (38) becomes misleading for Artifactualists; they should then argue that its grammatical form is not ontologically transparent and that only a suitable reformulation would exhibit its proper truth conditions. For example, (38) could be paraphrased as:

(38') There are *xs* on the table, and these *xs* are arranged artifact-wise,

where the bound variable ranges over accepted entities. (38') would be true even if the original sentence (38) were, strictly speaking, false.

Thus, another consequence of the Artifactualists' thesis to the effect that *artifact* is not a sortal concept is that natural language has to be considered to be ontologically opaque: ordinary sentences must be suitably rewritten or paraphrased before questions of ontological commitment may be raised.

The problem which then ensues is this: according to what criteria do Artifactualists feel entitled to change the meaning of what one says in (38)? Why do we have to accept that – in this case – there is, on the one hand, a language in use that is highly idiomatic but ontologically deceptive while on the other hand there is regimented language that is hardly utterable but ontologically transparent or “intrinsically non-misleading”, as Ryle put it?²¹ On what grounds should we accept that?

One solution to the above questions is that the revisions seems to be necessary if we are to avoid the traps of grammatical form: in such cases we have to accept that the grammatical form of a sentence such as (38) turns out to be deceptive in terms of its semantic analysis.

In general, one familiar form of argument when rejecting a grammatical form or a certain piece of language in use is that, in rejecting it, we avoid certain problems or inconsistencies associated with it: if some well-confirmed logical or epistemological principles become false using a certain grammatical form then that same grammatical form will be deceptive in its semantic analysis. For Artifactualists, in rejecting that *artifact* is a sortal term and by holding *RI*, we avoid the notorious

puzzles of coincidence like, for example, the statue/lump and the Ship of Theseus puzzles. A revision of the grammatical form of a sentence such as (38) – which is highly idiomatic but ontologically deceptive – then seems to become necessary.

The cost of denying that artifact is a sortal concept is thus that one cannot thereafter take the ontological commitment of ordinary language at face value.

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References

- Baker, L.R. 1997. "Why Constitution is not Identity," *Journal of Philosophy*, 94: 599-621.
- Blanchette, P. 1999. "Relative Identity and Cardinality," *Canadian Journal of Philosophy*, 29: 205-224.
- Bloom, P. 1996. "Intention, History and Artifact Concepts," *Cognition*, 60: 1-29.
- Carrara, M. and P. Giaretta. 2004. "The many facets of identity criteria," *Dialectica*, 58: 221-232.
- Carrara, M., P. Giaretta, V. Morato, M. Soavi, and G. Spolaore. 2004. "Identity and Modality in OntoClean," in: A.C. Varzi and L. Vieu, eds., *Formal Ontology in Information Systems*, Amsterdam: IOS Press, 128-139.
- Frege, G. 1884. *Die Grundlagen der Arithmetik. Eine logisch-matematische Untersuchung Über den Begriff der Zahl*, Breslavia: Kábner.
- Garbacz, P. 2004. "Subsumption and Relative Identity," *Axiomates*, 14: 341-360.
- Geach, P.T. 1967/68. "Identity," *Review of Metaphysics*, 21: 3-12.
- Geach, P.T. 1973. "Ontological Relativity and Relative Identity," in: M.K. Munitz, ed., *Logic and Ontology*, New York: New York University Press: 287-302.
- Gibbard, A. 1975. "Contingent Identity," *Journal of Philosophical Logic*, 4: 187-221
- Hilpinen, R. 1993. "Authors and Artifacts," *Proceedings of the Aristotelian Society*, 93: 155-178.
- Kripke, S. 1978. *Time and Identity*, manuscript.
- Lowe E.J. 1989. *Kinds of Being. A Study of Individuation, Identity and the Logic of Sortal Terms*, Oxford: Basil Blackwell.
- Putnam, H. 1987. *The Many Faces of Realism*, La Salle, IL: Open Court.
- Putnam, H. 1988. *Representation and Reality*, Cambridge, MA: MIT Press.
- Putnam, H. 2004. *Ethics without Ontology*, London: Harvard University Press.
- Ryle, G. 1931/32. "Systematically Misleading Expressions," *Proceedings of the Aristotelian Society*, 32: 139-170.
- Rumfitt, I. 2002. "Concepts and Counting," *Proceedings of the Aristotelian Society*, 112: 403-430.
- Sellars, W. 1930, *Science, Perception and Reality*, London: Routledge & Kegan Paul.
- Sloman, S. and B.C. Malt. 2003. "Artifacts are not Ascribed Essences, nor are they Treated as Belonging to Kinds," *Language and Cognitive Processes*, 18: 563-582.
- Strawson, P. 1959. *Individuals. An Essay in Descriptive Metaphysics*, London: Methuen.
- Thomasson, A.L. 2003, "Realism and Human Kinds," *Philosophy and Phenomenological Research*, 67: 580-608.
- Van Inwagen, P. 2002. "The Number of Things," *Philosophical Issues*, 12: 176-196.
- Wiggins, D. 2001. *Sameness and Substance Renewed*, Cambridge: Cambridge University Press.
- Yourgrau, P. 1997. "What is Frege's Relativity Argument?" *Canadian Journal of Philosophy*, 27: 131-171.

Endnotes

- 1 The examples (2)–(4) are from Garbacz (2004, p. 348). Garbacz observes that *RI* is very convenient in applied ontologies, such as for example *stratified ontologies*. By “stratified ontology” Garbacz means “an ontology that splits everyday objects into sets of objects”. He proposes considering, for example, a cylindrical brass paperweight. From a functional point of view it will lose its identity when used as a missile, even if from a morphological point of view it retains its identity. “The paperweight used as a paperweight has the same morphological properties as the paper-weight used as a missile, but the cylindrical paper-weight has different morphological properties than the cube paper-weight since they are not congruent. From the topological point of view it will still retain its identity, which it will lose if one of its parts will be detached from it” (2004, p. 352).
- 2 See, for example, this quotation from Geach: “Frege emphasized that “*x* is one” is an incomplete way of saying “*x* is one *A*” [...] or else it has no clear sense since the connection of the concepts one and the same comes out as much in the German ‘*ein und dasselbe*’ as in the English ‘one and the same’ it has always surprised me that Frege did not similarly maintain the parallel doctrine of relativized identity” (1967/68, p. 3).
- 3 Hilpinen (1993, p. 166).
- 4 This argument does not concern artifacts, but it seems to be rather easy for an Artificialist to reproduce the same kind of argument for artifacts along the same lines as (1) – (4). The argument is taken from (Lowe 1989, pp. 65-66).
- 5 For an analysis of the argument see Yourgrau (1997).
- 6 On the same topic see the important paper of Blanchette (1999).
- 7 An Artificialist can supply the same kind of example with gold ingots and jewelry.
- 8 Recently, the same thesis has been discussed by Bloom (1996) and Sloman and Malt (2003) from a cognitive point of view, and furthermore by Thomasson (2003) from a philosophical point of view.
- 9 In Putnam (1987; p. 2004).
- 10 The example is taken from (Putnam 1988, ch. 7).
- 11 Putnam (1987, p. 19). For Hilpinen “[c]haritably interpreted, this should be regarded merely as a somewhat misleading formulation of Frege’s old point that the word ‘object’ is not a sortal expression” (Hilpinen 1993, p. 166). For a response to Putnam see Van Inwagen (2002).
- 12 Putnam (2004, p. 47).
- 13 Wiggins (2001, pp. 75-76).
- 14 Rumfitt (2002, p. 56).
- 15 Strawson (1959, p. 168).
- 16 I repeat here an idea outlined in Carrara et al. (2004).
- 17 In Carrara et al. (2004) we stipulate that the author has to be a human being. Obviously, if we want to include among artifacts all intentionally produced objects, the realm of artifacts can be expanded in relation to the adopted notion of intentional action and intentional agent. So, for example, we could include sticks used by monkeys for catching ants, or paintings created by elephants, etc.
- 18 On this topic see, for example, Gibbard (1975) and Baker (1997).
- 19 For example in Sellars (1930).
- 20 The topic of identity criteria is discussed in more detail in Carrara and Giaretta (2004).
- 21 Ryle (1931/32).