activities. Consequently, we have to say that the distinction between ID and non-ID objects does not distinguish neatly between artifacts and natural objects. Now you do not want to reject an otherwise useful distinction just because of a few, indeterminate cases. But as I have argued above, what we are dealing with here is not just a few such cases, but a lot of them. Moreover, they include whole ranges of historically significant and common kinds of objects—domesticated plants and animals, common foods, protheses, and skillfully manipulated tools. Perhaps even the human body—are those of us with a lot of ink (or plastic surgery) artifacts or natural objects? We would very much like to know! In any case, the wide range and the importance for human life of such ambiguously ID and non-ID objects suggests that the distinction between artifacts and natural objects is itself ontologically unilluminating. There is no sharp divide here, but a smooth continuum. But if there is no good reason to draw a sharp line between artifacts and natural objects, there is a fortiori no good reason to retain the distinction between ID and non-ID objects for this ontological purpose. In short, the distinction between ID and non-ID objects is a restricted version of an ontologically unilluminating distinction aimed at explicating another ontologically unilluminating distinction. As such, it is a distinction we do not need and should not want.

Second, it is unclear that the distinction between ID and non-ID objects would help us very much in distinguishing between artifacts and natural objects in any case, because it is itself desperately in need of explication. Moreover, once explicated, it is not clear that it can be used as its proponents propose. This is a very large topic, so I will just give one quick example of the problems involved. As Baker notes, one of the reasons artifacts are typically thought to be ID objects is that their proper functions are held to be dependent on human intentions. First, this assumes an awful lot about the correct account of artifact function. Since there is very little literature specifically on artifact function, it is fair to say that at this point most of the big issues are still up in the air, including the issue of where and how artifacts get their proper functions. Moreover, important, some of those who have studied artifact function specifically, including myself, are disposed to doubt that the proper functions of artifacts are dependent on human intentions in any relevant sense. If we are right, it will not be possible to distinguish artifacts from natural kinds by looking for things with intended proper functions. So it appears the distinction between ID and non-ID objects is, again, a distinction we cannot use and should not want. Especially if it secures a foothold for the proponents of the ontological deficiency thesis, which I heartily concur with Baker in rejecting.

**Endnotes**

2. Importantly, from a genetic and statistical point of view this process could have been completed in a matter of a few centuries (Smith 1995, 72-74).
4. This is pointed out on several websites describing the roborats. For example, see http://news.nationalgeographic.com/news/2002/05/0501_020501_roborats.html (accessed May 29, 2008), which also describes the robo-rat project in detail.
5. As just about everybody now knows, Ötzi, the Iceman, who died about 5,000 years ago, had tattoos (see http://en.wikipedia.org/wiki/%C3%B6tzi_the_Iceman, accessed May 29, 2008). But only some dots and dashes. Much more elaborate tattoos are known from mummies around the same age from the Tarim basin in what is now China (Mallory and Mair 2000) and from Siberia (Rudenko 1970; also see http://en.wikipedia.org/wiki/Pazyryk).
7. Why is a good question. But it is too big a question to address in this commentary.
8. Interpreted this way, it seems to me Baker’s opponents would also have to concede that human beings are not real, since human beings would not exist if there were no human beings any more than artifacts would.
9. A similar conclusion is reached by Dan Sperber (2007). He reaches it by a somewhat different but equally interesting route through consideration of biological and artifactual functions.

**References**


**Interesting Differences between Artifacts and Natural Objects**

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Lynne Rudder Baker argues in “The Shrinking Difference between Artifacts and Natural Objects” (2008) against the position that the mind-dependency of artifacts makes those artifacts ontologically deficient as compared to natural objects. The argument consists of two parts. First, Baker considers five standard conditions for singling out ontological genuine substances and then reasons that artifacts and natural objects fare equally good or equally bad in meeting these conditions. Second, she challenges the view that the distinction between mind-dependency and mind-independency should be one that serves as a foundation for metaphysics. Baker approaches the topic with her Constitution View (Baker 2000), but the argument she presents is not critically depending on this view—the reasoning is general, clear, and readily accessible for a reader with an appetite for ontology or metaphysics.

The analysis presented by Baker is an important contribution to an emerging trend in metaphysics to give artifacts a proper
position within metaphysics. The orthodox position is that artifacts are indeed ontologically deficient objects. Natural objects like elementary particles as described by the natural sciences are by current orthodoxy the objects that really exist, and artifacts are merely aggregates of those particles that exist qua aggregates of elementary particles but not qua artifacts. This orthodoxy is now challenged by authors like Baker (2004; 2007) and Thomasson (2003; 2007). By this challenge artifacts should also be included in ontological schemes as real objects.

We are very congenial to Baker’s position that the mind-dependency of artifacts does not signal any ontological inferiority of artifacts with regard to natural objects. If it would, we are living predominantly in an ontologically inferior world, since our life world is saturated with artifacts. In our own research on technical artifacts, which has its origin in conceptual, methodological, and epistemic analysis of engineering and the engineering sciences, we also take artifacts as ontologically mind-dependent, since they have a dual nature being physical and intentional constructions at the same time (Houkes, Vermaas et al. 2002; Kros and Meijers 2006). Our research has brought us increasingly nearer to ontological and metaphysical matters, and we are in strong support of the described development to include artifacts qua artifacts in ontological schemes: also technical artifacts as described by engineering should have a proper place next to the objects described by the natural sciences.

Our aim with this comment on Baker’s “The Shrinking Difference between Artifacts and Natural Objects” (2008) is twofold. On the one hand we will focus in detail on parts of Baker’s reasoning and then present some criticisms. Referring to the work of Wiggins (2001), Baker discusses five ways of characterizing ontologically genuine substances, none of which, she claims, leads to the conclusion that natural objects are ontologically genuine substances and artifacts are not. We will comment on the first (genuine substances have an internal principle of activity), the second (there are laws that apply to genuine substances), and the fifth one (the mind-independency of genuine substances). On the other hand, we will take distance to the particulars of the paper and explore the question of whether Baker’s aim is best realized by her reasoning. In this regard we will criticize Baker’s overall approach to the ontological upgrading of artifacts. In general there are two strategies available for emancipation: one can present that which should be acknowledged (in an ontology, in our case) as actually already quite similar to that which is already accepted (in that ontology); or one can present what should be acknowledged as making up a separate (ontological) domain that is different from the original (ontology) but as valuable as that original one. Already judging from the title of the paper, Lynne Rudder Baker opts for the ontological emancipation of artifacts by the first strategy by arguing that they are not (that) different from natural objects. We reason that there are good reasons to adopt the alternative strategy by taking artifacts as ontologically quite different from natural objects but not necessarily inferior.

Internal principles of activity
The first characterization of ontologically genuine substances is the Aristotelian one that they have an internal principle of activity. Baker claims that this characterization does not discriminate between artifacts and natural objects because “[a] piece of gold is a natural object, but today, we would not consider a piece of gold…to have an internal principle of change; conversely, a heat-seeking missile is an artifact, but it does have an internal principle of activity” (2008, 3).

These examples and the underlying line of reasoning are in our view rather problematic. Aristotle’s idea of an internal principle of activity can easily be reinterpreted such that a piece of gold has an internal principle of activity, namely, the physicochemical laws that determine its properties. Gold has the internal principle of activity to dissolve in aqua regia or the internal principle of activity not to react with ordinary water. In contrast to Aristotle’s original idea, these principles of activity are no longer teleological in nature, but that does not discount them as internal principles of activity. A pebble (heavy object) has the internal principle of motion, when released, to fall according to Galileo’s law of free fall; this is not a teleological principle of motion, but nevertheless is an internal principle of motion.

It is, moreover, questionable whether the heat-seeking missile has an internal principle of motion qua artifact. Considered as merely a physical object, albeit a rather complicated one, the missile may be said to have, in line with the above remarks, an internal principle of activity. Its motion is determined by the complex physicochemical processes that are taking place in the missile and is governed by the laws of nature. As a physical object, the missile (or any other kind of human-made physical object) is not different from a pebble or a piece of gold: it is a natural object because it has its own principle of activity. But does it have an internal principle of activity as an artifact, as a heat-seeking missile? That is what Aristotle would deny, because the principle of activity of artifacts lies in the maker of the artifact, not in the artifact itself (a piece of wood of a bed when planted lacks an internal principle of activity to grow into a bed). According to Baker it has, but it is not clear what kind of internal principle of activity she is referring to. What is the internal principle of the heat-seeking missile, qua heat-seeking missile? Is that the principle that it tracks a heat source? If so, to what extent is this an internal principle of activity of the artifact that goes beyond the internal principle of activity it has as a physical object? From an engineering point of view such an internal principle of activity qua artifact appears reducible to the internal principle of activity the object has in so far it is a physical object.

Hence, the first characterization of ontological genuine substances may be discriminative between artifacts and natural objects after all. Under a modern interpretion of internal principle of activity a piece of gold has one; and as long as it is not clear how Baker understands the internal principle of activity of a heat-seeking missile qua missile, it may be maintained that such a missile does not have one.

Let us take distance to the actual argument and switch to a more explorative style. In Baker’s Constitution View, “[a]rtifacts…essentially have intended proper functions, bestowed on them by beings with beliefs, desires, and intentions” (2008, 3). We suggest that this proper function may be taken to be its internal principle of activity. Artifacts, when used properly, ought to do certain things; our cars, for instance, ought to transport us from one place to another. Such a position does make sense, turns artifacts, under an additional assumption, into ontological genuine substances, and has, moreover, a number of surprising consequences. The proper function of a technical artifact can indeed be taken as a principle of activity of the artifact qua artifact because the function of an artifact is not reducible to the physical properties of the artifact (or to its physical principle of activity). As already alluded to in the last quotation of Baker, functions of artifacts depend on features that go beyond the pure physicochemical structure of the artifacts involved. Proper functions depend by virtually all accounts of proper functions on, for instance, the intentions of people and on the way in which the artifact is to be used. The proper function may even be assumed to be an internal principle of activity since the function is constitutive for being an
artifact, yet, “internal” cannot not mean intrinsic since as said functions depend also on features beyond the artifact.

According to this line of reasoning, artifacts would have internal principles of activity, just as natural objects, so they would be genuine ontological substances by the first characterization. The only difference with natural objects would be that the internal principles of activity of artifacts are not intrinsic to the artifacts. Yet this difference is not without consequences and may be used to actually identify interesting ontological differences between natural objects and artifacts. For instance, artifacts can come into existence temporarily by physical objects acquiring and losing functions even though these physical objects do not change at all qua physical objects. A pebble that is intentionally picked up from the beach and thrown at a stray dog is temporarily a projectile artifact, at least on some accounts of technical functions (e.g., Neander 1991; McLaughlin 2001), although the pebble need not change its physical properties. Moreover, artifacts can acquire new internal principles of activity in place of or in addition to their existing one when they acquire new proper functions by new uses (Preston 1998; Houkes and Meijers 2006), which is a phenomenon for which there seems to exist no counterpart in the realm of natural objects.

**Laws**

According to the second characterization objects are genuine substances only if there are laws that apply to them. Baker rejects the position that there are no laws that apply to artifacts because “[e]ngineering schools have courses in materials science (including advanced topics in concrete), traffic engineering, transportation science, computer science—all of which quantify over artifacts” (2008, 3). So there are sciences of artifact kinds, which means that artifacts are no less genuine substances than natural objects.

Baker is, in our view, right in pointing at the engineering sciences as fields in which classes of technical artifacts are studied and in which engineers try to come up with results that quantify over artifact kinds (such as design rules, relationships between, for instance, the efficiency of artifacts and design parameters, etcetera). Indeed, libraries of engineering schools are full of books devoted to analyses of artifact kinds. However, her argument is based on the assumption that the kind of regularities that engineers come up with for artifact kinds are similar to the laws pertaining to natural objects. That assumption needs further corroboration. From an epistemological point of view, little is known about the kind of knowledge produced by the engineering sciences, more in particular about the nature of the regularities they come up with—this is a sorely neglected field in epistemology. Many of these regularities pertain to physical/chemical processes that take place in artifacts, and as such these regularities appear to be laws that apply to natural objects and phenomena, and not to artifacts qua artifacts. But what about the regularities that quantify over properties of classes of artifacts? In our opinion there is simply not sufficient evidence to back up the assumption that we are dealing here with laws of the same kind as the laws that pertain to natural objects. So Baker’s second argument for artifacts being genuine substances needs further underpinning.

Taking again some distance and assuming that eventually this second argument can be underpinned properly, one can suspect that there is at least one difference between laws that pertain to natural objects and those that apply to artifacts. This difference is that it can be defended that the latter may change over time.1 Take the case of concrete as mentioned by Baker. It may be argued that the physical substance that constitutes concrete has gradually changed over, say, the last century. Disasters with collapsing bridges and buildings may have had the effect that the rules and regulations constructors have to follow when making and pouring concrete were changed or made more precise. Such a change would have an effect on the laws that pertain to the physical substance that constitutes concrete but also to the way in which it is used. Hence, also the laws applying to concrete may have changed, which probably becomes more plausible by noting that the content of courses taught on concrete has changed over the last century. The obvious explanation of this change in the laws for concrete is that concrete qua physical substance changed. Yet, when assuming that Baker’s second argument can be underpinned, then these changing laws apply also to concrete qua artifact. If the argument for changing laws can be made more rigorous (which hinges partly on the question to what extent concrete stays the same technical artifact in spite of changes in its physico-chemical makeup), one again has identified an interesting difference between artifacts and natural objects.

**Mind-(in)dependency**

Let us turn to the fifth characterization, about genuine ontological substances being mind-independent, which Baker considers being the most interesting one. Baker does not attempt to argue that artifacts may be mind-independent just like natural objects. Rather, she bites the bullet and acknowledges that the mind-dependency of artifacts via their functions does constitute a difference between artifacts and natural objects (see the heading of her second section). But, according to Baker, this difference does not imply that they are ontologically deficient. If we apply Alexander’s Dictum—to be real is to have effects—then artifacts are as real as natural objects; they have indeed all kinds of effects on human behavior. Her example of the automobiles, however, contains a curious twist: “[w]hen automobiles were invented, a new kind of thing came into existence: and it changed the world” (2008, 4). The “and” here is strange for to be real and to come into existence, is to have effects, so the argument should run: “when automobiles were invented, a new kind of thing came into existence because it changed the world.”

Baker concludes her paper with some general remarks on the insignificance of the mind-independence/mind-dependence distinction for the ontological status of artifacts. Apart from the fact that in her opinion this distinction is ontologically not illuminating, she draws attention to the fact that the distinction between natural and artificial objects gets more and more blurred by advances in modern technology. Modern technology creates all kinds of things that are difficult to classify unambiguously as artifacts or natural objects. We agree, but not with some of the (implicit) conclusions she draws from this. First of all, it is not due to modern technology that the distinction between artifacts and natural objects becomes problematic. The moment human beings started to use natural objects found in their environment and to change these objects intentionally, the distinction between artificial and natural objects started to pose problems. How much modification, how much human work (intellectual and physical) is necessary to change a natural object into an artifact? There is no “natural” line to be drawn here, since there appears to be a continuous spectrum of objects ranging from natural objects at one extreme to artifacts at the other.

Although she does not say so explicitly, it seems that Baker takes this as an argument for the insignificance of the distinction between natural objects and artifacts. “Does it matter?” she asks and answers that the distinction will become “increasingly fuzzy; and as it does, the worries about the mind-independent/mind-dependent distinction will fade away” (2008, 4). Hence, the only difference between artifacts and natural objects that she does acknowledge, Baker also brushes away
We have argued in this comment that the mind-dependency of things we deal with in daily life is inadequate, for others not. Without agreement with her about the contours of such an ontology; construction. What is at stake here is an issue that is of wider significance than the mind-(in)dependency issue, namely, the possibility that it may be necessary to seek for a broader picture in order to provide a knock-out argument against this criterion, but can all in all, weshare with Baker the conviction that any arguments are to be deflated based on the former, and others based on the latter. This linguistic and deflationist approach, it is to be noted from the start, is not meant “to provide linguistic solutions to metaphysical problems, but rather to show that there are analytic entailments among claims, and that there are no generally accepted list of such criteria. For some a natural entities and natural objects are not. This difference, however, does not make artifacts necessarily ontologically inferior to natural entities. That follows only if the criteria for genuine substances, in particular the criterion of mind-independency, that are suited for objects from the natural sciences, are applied to objects of whatever kind. We are not in the position to provide a knock-out argument against this criterion, but can note that in metaphysics the willingness to dispense with it is gaining ground. Thomasson (2003, 607), for instance, remarks that it may be necessary to seek for a broader picture in order to do justice to the ontological status of “independent parts and aspects of the world, and those that are in part our own construction.” What is at stake here is an issue that is of wider significance than the mind-(in)dependency issue, namely, the issue about the adequacy criteria for an ontology. There appears to be no generally accepted list of such criteria. For some an ontology that has no genuine place for most of the objects that we deal with in daily life is inadequate, for others not. Without consensus on these adequacy criteria, differences of opinion about the ontological significance of mind-(in)dependency will be hard to settle.

All in all, we share with Baker the conviction that any adequate ontology should contain artifacts as ontologically respectable inhabitants of our world and it is to her credit that she has put this problem on the philosophical agenda. We disagree with her about the contours of such an ontology; instead of assimilating the ontology of artifacts to the ontology of natural objects, we have no difficulty in allowing ontological differences between these kinds of objects.

Endnotes

1. We are agnostic about whether this difference immediately proves that laws pertaining to natural objects and laws pertaining to artifacts are of essentially different kinds.

2. This claim is to be taken not only as a kind of factual statement, but also as a normative one; however the distinction between natural objects and artifacts is going to be drawn, the Hubble telescope should end up as an artifact.

References


BOOK REVIEW

Ordinary Objects

Amie Thomasson (Oxford University Press, 2007).

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There have been various philosophical attempts to eliminate ordinary objects from ontology, including arguments from causal redundancy, colocation problem, vagueness, composition, rivalry with science, and parsimony. In Ordinary Objects Thomasson gives a characteristically meta-ontological defense of the “commonsense ontology” (of ordinary objects) against these eliminativist arguments. She invokes two views concerning language as tools in defusing these arguments: that there are analytic entailments among claims, and that there are significant constraints on the answerability (truth-evaluability) of existence or counting questions (claims). Some eliminativist arguments are to be deflated based on the former, and others based on the latter. This linguistic and deflationist approach, it is to be noted from the start, is not meant “to provide linguistic solutions to metaphysical problems, but rather to show that