Sortals and Criteria of Identity

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Analysis 72, No. 3 (2012), 474-478.

In a recent article, Harold Noonan argues that application conditions and criteria of identity are not distinct from one another. This seems to threaten the standard approach to distinguishing sortals from adjectival terms. I propose that his observation, while correct, does not have this consequence. I present a simple scheme for distinguishing sortals from adjectival terms. I also propose an amended version of the standard canonical form of criteria of identity.

Noonan 2009a makes the surprising claim that criteria of identity and application conditions are not distinct from one another.[1] Bad news, it would seem, for sortals. Since Geach 1962, it has been standard to distinguish sortals (or substantival general terms) from adjectival terms using this difference. Where adjectival terms only have application conditions, sortals are taken to have both criteria of identity and application conditions.[2] But according to Noonan, criteria of identity are just one type of application condition among others. Thus it seems that having criteria of identity, at least on the standard treatment, cannot be a distinctive characteristic of sortals. So Noonan suggests in 2009a and 2009b, regarding the approach of Dummett 1973 as a more promising route for characterising sortals.[3]

[1] Noonan 2009a focuses on one-level criteria of identity, in the sense of Williamson 1991. In Noonan 2009b he also points out that two-level criteria of identity can be recast as one-level criteria (cf. Lowe 1991). The application conditions of a predicate are understood as the conditions for the satisfaction of that predicate by an object.

[2] This point is elaborated in Dummett 1973, Gupta 1980, and Lowe 1989.

[3] Dummett interprets ‘conditions of application’ as ‘the condition for the truth of a “crude predication”,’ and defines a ‘weak feature-placing’ expression as one that involves

Noonan's observation is, I believe, correct – a term's criterion of identity is entailed by its application conditions. This is surprising, given that philosophers since Frege 1884 have debated whether one can grasp a concept like *book* or *number* if one knows only its application conditions without knowing its criterion of identity, but have taken for granted that the two are distinct. However, I propose that his observation does not threaten the standard use of criteria of identity for distinguishing sortals from adjectival general terms. I present a simple scheme for making this distinction. Or – to be more precise – for distinguishing 'sortal*ish*' terms[4] from adjectival general terms. It may be that there is more to being proper sortal beyond just having a nontrivial criterion of identity. But I will not be concerned with features of sortals beyond their criteria of identity.

Following Noonan 2009a and Lowe 1991, I will provisionally take the canonical form of a criterion of identity for a term K to be:

(1) $\Box\forall x\forall y(\mathrm{K}x \;\&\; \mathrm{K}y \rightarrow (x{=}y \leftrightarrow \mathrm{R}xy))$

where R is the 'criterial relation' of K.[5] Below, I will propose a slight amendment to this form.

To get things going, I will start with the simpler problem of how an adjectival term can be supplemented with a criterion of identity. Let us stipulate that an object is 'screwdrivery' just in case it performs the function of turning screws.[6]

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identification using a predicate, but no reference to an object. Noonan suggests that adjectival terms are those that can be used in 'crude predications' but have no use in the weak feature-placing expressions, while sortals have a use in both.

[4] I take this apt term from Bennett 2004.

[5] The necessity operator is usually left implicit, but here and in subsequent formulas I include it explicitly, for reasons that will become obvious.

[6] For simplicity, let us understand 'function' in the old causal-role sense, not in the sense of a proper function or teleofunction. For an item to have function F, it must perform F, not have been designed or introduced with F as its aim. In this simple sense, an item cannot have function F and fail to perform that function.

(2) $\Box\forall x(\text{screwdrivery}x \leftrightarrow \text{F}x)$

A stone, part of a stone, part of a screwdrivery stone, an artifact, an oddly shaped person, and so on, might be screwdrivery. ‘Screwdrivery’ is adjectival: the definition does not give us the means to count screwdrivery things, nor does it give us nontrivial conditions for determining whether two objects that are both screwdrivery are identical. Still, ‘screwdrivery’ has fully determinate application conditions, at least to the extent that it is determinate whether or not an object can turn screws. Any object that performs the function is screwdrivery, and one that does not perform the function fails to be.

The following strategy can be employed to supplement this adjectival term with a criterion of identity, and hence introduce a substantival term. Suppose we stipulate that ‘screwdriver_s’ holds of objects that are screwdrivery and that satisfy some particular criterion of identity, such as:

(3) $\Box\forall x\forall y(\text{screwdriver}_s x \ \&\ \text{screwdriver}_s y \rightarrow (x{=}y \leftrightarrow \forall z(x \text{ has } z \text{ as a proper part} \leftrightarrow y \text{ has } z \text{ as a proper part})))$[7]

The functional application conditions taken together with the conditions implicit in this criterion of identity do not provide an immediate definition of ‘screwdriver_s’, but one can be extracted from it. Let R*xy* be the relation $\forall z(x$ has z as a proper part $\leftrightarrow$ y has z as a proper part$)$. Let us express (3) as a pair of necessary conditions for screwdriver_s:[8]

(4a) $\Box\forall x(\text{screwdriver}_s x \rightarrow \text{R}xx)$

(4b) $\Box\forall x(\text{screwdriver}_s x \rightarrow \forall y(\text{screwdriver}_s y \ \&\ \text{R}xy \rightarrow (x{=}y)))$

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[7] I give this mereologically essentialist criterion only for illustration; I do not mean to propose this as an analysis of our term ‘screwdriver’.

[8] Cf. Noonan 2009a. Noonan transforms the criterion of identity of a sortal K in this way to show that it is logically equivalent to a conjunction of two application conditions for K.

Thus the three necessary and jointly sufficient conditions for screwdriver_s are the consequents of (4a) and (4b), together with *being screwdrivery*. We cannot construct an explicit definition of screwdriver_s from these, because the consequent of (4b) includes screwdriver_s. Instead, we use the method of Lewis 1970 for extracting implicitly defined terms. Define the theoretical postulate T[*X*] for screwdriver_s with the three conditions:

(5) $\Box\forall x(Xx \leftrightarrow (\text{screwdrivery}x \mathbin{\&} \text{R}xx \mathbin{\&} \forall y(Xy \mathbin{\&} \text{R}xy \rightarrow (x{=}y))))$

Screwdriver_s can then be defined with the Ramsey-Lewis definition:

(6) $\iota Y\forall X\ (\text{T}[X] \leftrightarrow Y{=}X)$

Depending on the criterial relation and on what properties there are, it is possible that the theoretical postulate will be unrealized or multiply realized. In normal circumstances, though, the formula will implicitly define a unique property.[9]

Thus far, we have seen only that we can construct a sortalish term, not yet how to divide sortalish terms from adjectival terms. But to accomplish this, we need only run the same strategy in the opposite direction. Consider a term K. To work out K's criterion of identity, we need to identify the criterial relation. That relation is the one that realizes R in the term's canonical criterion of identity. Define the theoretical postulate T[*X*] to be:

(7) $\Box\forall x\forall y(\text{K}x \mathbin{\&} \text{K}y \rightarrow (x{=}y \leftrightarrow Xxy))$

Plugging this into formula (6) is close, but not quite enough, for defining R. Since the identity relation will always realize the formula, it is never unrealized. Unfortunately, this also means that if there is any nontrivial criterial relation at all – as we hope there will be for sortalish terms – it will be multiply realized, and hence (6) will fail to denote a property. Moreover, a worse multiple realization problem also arises, because condition (7) only

[9] It may go unrealized if, for instance, properties are sparse or be multiply realized if properties are hyperintensionally individuated. Since we take the conditions to be jointly sufficient, however, it will ordinarily be realized by a unique property even when the application conditions are empty.

imposes restrictions on X in its application to Ks, and has nothing to say about X's application to non-Ks. If there is to be a hope of a unique property serving as the criterion of identity for Ks, we will have to rule out those properties that say the right things about pairs of Ks but various things about the non-Ks. The most straightforward way to address this is to stipulate that X does not hold of any pairs that are not both Ks.[10] The following adds clauses for non-Ks and for nontriviality to (7):

(7') $\Box\forall x\forall y((\mathrm{K}x \ \& \ \mathrm{K}y \rightarrow (x=y \leftrightarrow Xxy)) \ \& \ ({\sim}\mathrm{K}x \vee {\sim}\mathrm{K}y \rightarrow {\sim}Xxy)) \ \& \ \Diamond\exists x\exists y(Xxy \ \& \ x\neq y)$

We might see (7') as a supplement to the canonical criterion of identity for our narrow purposes. But it may be better to understand (7') (substituting R for X) as an amended canonical form.[11] In either case, this change means that formula (6), using (7') as the theoretical postulate, denotes a relation just in case there is a unique nontrivial equivalence relation to fulfill the role of K's criterial relation. We might plausibly demarcate a sortalish term as one for which its respective (7') is uniquely realized, and an adjectival term as one for which its (7') is unrealized.

Geach was nearly right. The distinction between adjectival and sortalish terms can be drawn on the basis of criteria of identity, so long as we understand these criteria properly, ruling out trivial and irrelevant ones. Noonan's observation does remain surprising, raising new questions about

[10] This condition also rules out realization by relations that are not equivalence relations.

[11] This does have the downside that the criteria of identity for *dog, cat* and *animal* will no longer be the same, contra Wiggins 1980 and Lowe 1989 and 2007, among others. On the other hand, it was always a mistake to say that they had the same criteria of identity, since even in (1) the antecedents of the conditional involve K, so (1) is different for *dog*, for *cat,* and for *animal.* Instead, Wiggins and Lowe must mean to say that *dog, cat,* and *animal* have the same criterial relation. One approach to making a (7')-like canonical form compatible with their view is to take the unique domain of a sortal's criterial relation to be the objects falling under its 'ultimate sortal.' Or instead, this implication may be a benefit rather than a downside, since it is peculiar for a term's criterial relation to apply to objects apart from those to which the term applies.

what it takes to know how to use a sortalish term. It eliminates the option that it requires knowledge of its full application conditions, but not its identity conditions. Moreover, it shows that is a misconception to regard sortals as having criteria of identity *in addition to* their application conditions. Still, the fault is not with the standard treatment of criteria of identity, nor does it justify turning to a Dummett-style treatment of sortals.[12]

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[12] I am grateful to David Denby and to an anonymous referee for helpful comments.

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