Copulas and relations

One of the cornerstones in the study of the (in)definiteness restriction is the well-known contrast emerging in existential sentences. Indefinite (weak) determiners can occur in existential constructions whereas strong determiners cannot (Milsark 1977; Keenan 1987; Reuland and ter Meulen 1987; etc.).

(1) a. There is(are) the/all the/each/every/most statue(s) in the garden.
   b. There are some/zero/fewer than three/many statues in the garden.

Keenan (1987) observes that this same contrast can be attested in the complements of the verb have, when this verb has an existential interpretation:

(2) a. Kim has four/fewer than four/many cars.
   b. * Kim has most of the/each/every car.

There is cross-linguistic variation in the choice of the verbal copula used to express the HAVE relation. Many languages use be instead of have. For example, Turkish and Latin use be systematically and most other languages (including English) do so at least in certain constructions. There are also languages where a copula is not required (some Bantu languages, Malagasy for certain constructions, etc.). Morphological weakening or “bleaching” of the copular verb correlates with a language’s ability to express certain semantic relations (kin, possession, etc.) through morphological cases. For example, in Turkish the meaning of have is expressed by the copula plus a genitive DP (Lees 1972; Kelepir 2007) — this option is also possible in English, and other languages for possessive constructions: This is ours = We have this. In Latin, where the copular verb to be (essere), possessive meaning is expressed via dative case marking on the postcopular DP (Bauer 1996): Libri sunt mihi ‘The books are mine’. Finally, in certain Malagasy have-constructions there actually is no copula linking the two terms of the have-relation (Keenan and Ralalaoherivony 2000):

(3) Marary znaka Rabe.
    Sick child Rabe
    ‘Rabe has a sick child.’

(4) Besa manahirana ako.
    big work bother 1sgNom.
    ‘I have a lot of bothersome work.’
Evidence of this sort is the source for the Benveniste/Kayne generalization (Benveniste 1971; Kayne 1993), which concludes that have is the syntactic amalgam of a light or contentless copula and a preposition — cf. also Szabolcsi (1983), Freeze (1992), Uriagereka (1996), Arregi (2004). In this squib, it will be argued that this analysis is also on the right track from a semantic viewpoint. In other words, have is used to express a variety of relations between the subject and the object.

2 Existence, proper and restricted

Let us start with a revisititation of Keenan’s (1987) generalization: Existential-have sentences are like existential-there sentences in expressing an assertion of existence. More concretely, one consequence of this generalization is that sentences such as those in (5) are assertions of existence, as the respective paraphrases in (6) show. In this respect, they are equivalent to those in (7):

(5) a. John has a dog.
   b. John has four cousins.

(6) a. A dog (owned by John) exists.
   b. John’s four cousins exist.

(7) a. There is a dog owned by John.
   b. There are four cousins of John.

In considering these equivalences, there is an element that introduces an apparent asymmetry. In most existential-there sentences, an XP modifier restricts the assertion of existence to those individuals in the universe under consideration satisfying the denotation of the XP. The assertion of existence does not normally affect the whole universe but rather a “slice” of it, making contrastive statements such as (8) possible:

(8) There are two students in the garden. There is another one inside the house.

The presence of the restricting modifier is critical. If it is omitted, the discourse becomes odd:

(9) There are two students. *There is another student inside the house.

The only way of improving (9) is to accommodate a restrictive (locative) element. On the other hand, it seems that in existential-have environments it is more difficult to accommodate such a restriction. For example, (10) is not felicitous if the chair under discussion has four legs:

(10) The chair has three legs. *The chair has another leg too.

Nevertheless, to claim that have-sentences are incompatible with an explicit or implicit restriction would be incorrect. The occurrence of a restriction depends on the interpretation of the sentence (on the type of relation expressed by have). The modifying adjunct can at times express an explicit spatio-temporal restriction, as in (11a) or a property of the object (11b):
This restriction delimits the predication relation (the assertion of existence). We can then distinguish two types of assertions of existence: pure (unrestricted) and restricted. In the case of existential-there sentences only the restricted existence reading seems to be possible. This idea would receive support from proposals that consider there as an expression of a contextual parameter (Freeze 1992; Hooekstra and Mulder 1990, etc.). The presence of this parameter would make possible the ‘intrusion’ of a pragmatically-conditioned restriction.

3 Locative, essential and accidental readings

It has been observed that there-constructions have a locative-deictic reading that is quite different from the existential one, as in (12) (Lakoff 1987):

(12) a. There is a man on the porch.
   b. There is Harry on the porch.

What sentence (12) asserts is not an existential statement, but one that indicates the (spatial) location of Harry or is uttered while pointing at Harry. In this respect, the locative-deictic interpretation of there-sentences is not merely a variant of the restricted-existence reading that we considered in the previous section. The main contrast with existential sentences is that the locative-deictic reading does not satisfy the definiteness restriction, as the grammaticality of (12b) shows. Any other variant with a definite or strong determiner would also be grammatical: There are those books on the table, etc. Additionally, the postcopular DP is not “discourse new” and the sentence normally has a characteristic intonational contour, where there receives the main pitch/focus accent and loses its clitic-like character, becoming a deictic term. This property is shared by other languages (Kayne 2008).

Have-sentences exhibit the same behavior as there-constructions in this respect. A sentence such as (13) is a genuine locative-have construction:

(13) There you have the apple.

Sentence (13) is generally uttered to indicate the location of the apple under discussion, normally in a deictic fashion, i.e. accompanying its utterance with a pointing gesture. Locative-have sentences do not obey the definiteness restriction either and require the insertion of the prosodically strong counterpart of there. Hornstein, Rosen, and Uriagereka (2002) claim that the predication relation established between the postcopular DP and the PP coda or adjunct is not semantically uniform. They link the two resulting readings to a contrast between what they call integral predication and standard predication. Consider (14), which can be interpreted as either (15a) or (15b):

(14) There is a Ford motor in my truck.
(15) a. My truck runs on a Ford motor.
    b. A Ford motor is loaded in my truck (in the trunk).

The reading in (15a) corresponds to the integral-predication relation. Here we will label this reading the essential interpretation. The object of the existential predicate refers to an
essential part of the truck. On the other hand, (15b) would be a manifestation of the standard predication relation or what we will be calling the accidental or contingent interpretation of (14). In this case, the object is only contingently related to the truck. The associated property is only an accidental property of the truck, subject to contextual variation. This is why we are calling this reading accidental. The predicate in (14) establishes the positional relation of the motor with respect to (inside) the truck. It is important to highlight the fact that we say that the reading is accidental and we are not saying that it emerges "accidentally". We are referring to the philosophical (and semantic) distinction between essential and accidental properties, the latter being those non-essential properties that may be associated with an entity (Carnap 1956; Bennett 1969; Gorman 2005). This distinction overlaps but is not equivalent to the individual-level/stage-level distinction (Carlson 1977), since there might be properties that are essential but are instantiated by a stage-level predicate. This characterization appears to be a better fit than the one proposed by Hornstein et al. (2002), given that the relation that is established between the subject and the object in (15a) is essential. One does not exist without the other. Establishing such a relation would be impossible in (16), and the only available reading would be the accidental one:

(16) There are two cans of soda in my truck.

The preference for one reading or other is also related to contextual factors. Whether I have two cans of soda, a newspaper or a CD in my truck is subject to circumstantial variation. On the other hand, having a motor is an essential property of this truck or of any truck, and actually having one motor brand or other also identifies the model/type or brand of the truck. It is interesting to note that if we express (14) with a have-construction, only the essential reading seems to be allowed:

(17) My truck has a Ford motor.

Nevertheless, as it was the case above, this asymmetry between there-constructions and have-constructions is only apparent. Adding a circumstantial adjunct/secondary predicate dilutes the difference. For example, adding the modifier in its trunk forces the accidental reading (My truck has a Ford motor in its trunk) and adding the modifier following factory specifications would trigger the essential reading (My truck has a Ford motor installed following factory specifications). Thus, it seems that an apparent asymmetry is again the result of the greater ability of there to associate with a contextual parameter. There are other factors determining the emergence of one reading or other, such as the nature of the object. For example, (18) only seems to have the accidental reading:

(18) My truck has a dent.

4 Essences and varieties

The essential reading is not uniform in nature. There are several well-known varieties, depending on the relation established between the subject and the object:

- Possession: He has a house.
- Inalienable possession: A donkey’s skeleton has 300 bones.
- Part-whole: This house has four windows.
• Container-containee: That glass has wine.

When we say that these relations are essential in nature, we are referring to properties that could in principle be essential for the subject, the object or both. Nevertheless, what we will be defending here is that have-predication relates the essential attribute directly to the object and only indirectly to the subject. For example, a house and (its) windows are essentially related by the whole-part relation; or a glass and an amount of wine by the container-containee relation. What is not implied, of course, is that it is essential for a house to have four windows or for a glass to have wine, etc. There is an asymmetry in how the predicating relation takes place. Furthermore, the nature of the relation between subject and object is lexically and contextually determined. Sometimes it is difficult to determine to which subtype an essential relation under consideration belongs, as more than one might be instantiated. Not all relations have existential-there equivalents. For example the partwhole and container-containee relations exemplified above have existential-there correlates, as in (19).

(19) a. There are four windows in this house.
   b. There is wine in that glass.

On the other hand, inalienable-possession relations are normally not expressed through an existential there-sentence:

(20) * There is a leg in Peter.

Furthermore, not all essential relations allow the same type of restriction or certain specific restrictions. For example, the possession relation can be (spatially) restricted, as in (21). This possibility is not available for inalienable-possession and whole-part relations, as shown in (22).

(21) He has a house in New York.
(22) a. * Peter has a leg in . . .
   b. * The glass has wine in . . .

There are additional semantic constraints that go beyond the definiteness restriction and are a by-product of the nature of the complement. For example, when the relevant essential relation is the container-containee relation, if the containee is expressed by a mass noun, no determiner is allowed, even if it is a weak determiner. Some measure phrases (two tons) and partitive determiners are allowed:

(23) a. The glass has wine/*a wine.
   b. The boat has wood/two tons of wood.

A related restriction seems to be satisfied by inalienable-possession relations (Guéron 2003): (24a) is grammatical, because leg is a count noun.

(24) a. Peter has one/two legs.
   b. * Peter has leg.
Towards a semantics for have

There are several theories that attempt to explain the main structural and semantic data related to have and its associated internal argument. A majority of these theories can be described as incorporation theories, although their assumptions and goals are very different. Syntactic incorporation theories are based on the idea that there is an X\textsubscript{0}-movement operation incorporating the object noun into the verb. The possibility of having weak DPs as complements is explained by an additional hypothesis on determiner transparency for weak determiners. In other words, weak determiners would not block the incorporation of the object into the verb (cf. Baker 1988). Other authors defend the hypothesis that bare nominal complements are headed by null determiners (Longobardi 2001), so the asymmetry is related to the requirements associated with a null head (government, etc.).

Semantic incorporation approaches also come in two varieties: type-shifting theories or theories of lexical incorporation (van Geenhoven 1998); and mode of composition theories (Chung and Ladusaw 2003; Farkas and de Swart 2003). For both types of theories, indefinites have to be treated as properties. Theories of semantic incorporation focus on the interaction of the verb and its complement and somewhat downplay the importance of the coda. Contrastingly, in Keenan’s (1987) proposal, the role of the coda is critical in determining the truth conditions of existential-haves:

(25) A VP[have] of the form [have NP XP] is interpreted as a function mapping an individual x to True iff the denotation of the XP is a member of the generalized quantifier denoted by the transitive NP applied to x.

Let us consider the truth conditions for (26) according to the above definition:

(26) John has three friends in the government.

Sentence (26) would be True iff the property denoted by in the government (the set of individuals serving on the government in a particular situation) is a member of the generalized quantifier denoted by three friends (of John). The main properties of Keenan’s account are the following ones: (i) Quantificational force clearly comes from the complement; (ii) the role of the XP coda becomes critical in determining the interpretation of the structure; and, finally, (iii) the semantic content of have is light (membership). This account also takes care of what Sarbo (2009) calls ‘the pertinence problem’. The subject binds a variable in its complements. For example, in (26) above the three friends have to be friends of John (the subject). In what follows, I will develop a more elaborate account of the semantics of have that assumes the main features of Keenan’s account.

Have and essential properties

I will assume that the basic semantic content of have is that of a light or bleached verb (Szabolcsi 1986). It denotes a function relating two generalized quantifiers or set of properties (Keenan and Westerståhl 1997; Peters and Westerståhl 2006). This core bleached meaning explains why some languages use a single copula (be) for attribution and relational predication and why in some languages no copula is used at all (Doron 1983). The hypothesis that a zero element is associated with a bleached meaning seems more accurate than assuming that it can typeshift and be the expression of several (contentwise-heavy) semantic relations.
The main issue becomes how to characterize the emergence of a relation between subject and object and why this relation is sometimes characterizing or essential and sometimes it is not. Let us consider the following examples:

(27) Peter has two cousins.

(28) Peter has a headache.

(29) a. ?? Peter has a tear.
    b. Peter has a tear in his eye.

(30) a. ?? Peter has an apple.
    b. Peter has an apple in his pocket.

In (27) the relation established between the subject and the object is that of kinship. If somebody is a cousin, he necessarily has to be somebody’s cousin. Similarly, in (28) for something to be a headache it has to be a physiological process undergone or experienced by an individual. In other words, there is no headache if no individual is experiencing it. In (29) and (30) a coda is needed to establish the proper relation. The role of have (or of be // 0) is to connect the two terms of a relation, but the nature of such a relation is given by the object. The relationship that associates the object and the subject has to be one that is essentially/contingently associated with the object. In sum, a sentence of the form [NP have ES NP] establishes an essential relation between the two NPs: kinship, inalienable possession, etc. When the relation is not essential, the context or the XP modifier can supply the relevant relation.

We can say that ‘to be in a kinship relation with Peter’ is an essential property of two cousins in (27); and ‘being experienced by Peter’ is an essential property of a headache in (28). In general, [NP have ES NP] is True iff one of the essential properties of NP is to be in an essential relation R with NP. Formally, for arbitrary quantifiers Q and numbers i, let QNP be the generalized quantifier denoted by the noun phrase NP, and ES(QNP) the set of essential properties of QNP.

The issue of what counts as an ‘essence’ or, putting it differently, of which requirements have to be satisfied by a property in order to count as essential has been the subject of an extensive philosophical debate. Here I will adopt Leibniz’s criterion that there is no essence without existence (Plantinga 1974; Zalta 2000). A property of an individual can be considered essential for that individual iff that individual cannot exist without such property. If this property were lacking, the individual in question would be a different one. Generalizing, we say that a property P is essential for a generalized quantifier Q iff P is a requirement for the existence of Q. In other words, P is an essential property of a generalized quantifier Q iff P is a member of Q iff the property of existence is a member of Q. Formally, let QNP be the generalized quantifier denoted by NP, and ES(QNP) the set of essential properties of QNP. Then,

\[ QNP(A) \in QNP \]

The following can be stated:

(32) P is an essential property of QNP (P \in ES(QNP)) iff P \in QNP iff E \in QNP.
From this characterization, it would follow that those sentences where the attribution of an essential property takes place satisfy the definiteness restriction and, in the case of have-sentences, Keenan’s generalization also holds. Let us see why. Only existential generalized quantifiers (those for which $E \in Q$) occur in existential constructions. Given that a quantifier has to be existential for an essential property to be one of its members, if $P$ is essential for $Q$, then $Q$ has to be a (generalized) existential quantifier. Stating it differently, only generalized existential quantifiers have essential properties as members. The intuition behind this hypothesis seems clear. For example, it would be an essential property of a cousin to be in the kinship relations with someone. On the other hand, the same could not be said of this particular cousin, of every cousin etc. since $E$ is not a member of these quantifiers in every model. This is so either because non-existential quantifiers are partial or not defined in some models (such is the case of definites) or because they are vacuously true in empty universes (such is the case with universal quantifiers). From the above discussion, the following semantic characterization of have emerges:

(33) $\text{have}_{ES}$ denotes the function $f$ such that for any generalized quantifiers $Q_1$, $Q_2$, $f(Q_2)(Q_1) = \text{True}$ iff $\exists P \in \text{ES}(Q_2)$ such that $Q_2(P) \in Q_1$.

It follows as a theorem that $Q_2$ is existential. Let us consider sentence (34):

(34) The house has four windows.

This sentence establishes an essential predication relation: being in a part-whole relation. It is an essential property of windows to be part of a building, i.e. the range of the whole-part relation (or its “passivization”, Keenan and Faltz 1985):

(35) $\text{RG}(\lambda y(\lambda x[\text{WHOLE-PART}(x,y)])) = \lambda y \exists x[\text{WHOLE-PART}(x,y)]$

Let $Q_1$ be the denotation of the house. Then, the house has the property ‘be in a whole-part relation with four windows’, i.e. the generalized quantifier $\text{THE}_\text{HOUSE}$ has as a member the set $\text{FOUR}_\text{WINDOWS}(\lambda y(\lambda x[\text{WHOLE-PART}(x,y)]) = \lambda x \exists y[\text{WHOLE-PART}(x,y) & \text{HOUSE}(y)]$. In general, let $Q_1, Q_2$ be generalized quantifiers, $R$ a relation, and $\text{ES}(Q)$ the set of essential properties of $Q$. Then,

(36) $\text{have}_{R,ES}$ (have $R$ essentially) denotes the function $f$ such that $f(R)(Q_2)(Q_1) = \text{True}$ iff $\text{RG}(R) \in \text{ES}(Q_2) & Q_2(R) \in Q_1$.

Consider now the following examples:

(37) a. Peter has a house.
   b. Peter has a house in the Bahamas.
(38) Peter has my pencil in his pocket.

The essential property $P$ for a house in (37a) is ‘being owned by somebody’, i.e. the range of the possession/ownership relation: $\text{RG}(\lambda y(\lambda x[\text{OWN}(x,y)])) = \lambda y \exists x[\text{OWN}(x,y)]$. Let $\text{PETER}$ be the denotation of Peter, (the individual generated by Peter; Keenan 1995). Then, Peter has the property ‘own a house’, i.e. $\text{A}_\text{HOUSE}(\lambda y(\lambda x[\text{OWN}(x,y)])) = \lambda x \exists y[\text{OWN}(x,y) & \text{HOUSE}(y)]$. Sentence (37a) is only a statement about home-ownership. On the other hand, (37b) and (38) are slightly different. (37b) is also a statement about home-ownership, but restricted to a particular location. Since the definiteness restriction is satisfied (‘Peter
have the house in the Bahamas), we conclude that what is being predicated is an essential (characterizing) property, namely, ownership. Although structurally similar, sentence (38) is very different from a semantic point of view. The speaker only states the location of a particular pencil inside his pocket. As a matter of fact, (38) does not entail or implicate that Peter owns my pencil now, quite the contrary. What we can infer from the above contrasts is that we have to distinguish the notions of essence, restricted essence and location. All of them can be expressed with have-sentences, but their semantic ingredients are distinct.

The transition from one reading to another is a matter of degree, and it is also a by-product of contextual restriction: restriction to a (context) set. The role of the modifying adjunct is to introduce a context set restricting the predicated property. When the restricted property is still an essential property (the property is still in the set ES), then the ’restricted essence’ reading arises. When the property is no longer essential (it is not in ES), we get the locative reading. Context can be treated as a set-theoretical parameter (Peters and Westerståhl 2006). The notion of restricted essence or of a restricted essential property is defined as follows: Let Q be a generalized quantifier, R the property of existence and C a context set (usually expressed by the XP adjunct). Then, for any property P \in Q,

(39) \begin{align*}
P \text{ is an essential property of } Q \text{ in } C (P \in \text{ES}^C(Q)) \text{ iff } \nonumber 
P \in \text{Q iff } (\text{E} \cap C) \in \text{Q iff } C \in \text{Q}.
\end{align*}

When have is the copula used in restricted essential predication, nothing changes in the characterization of have. The only difference is that the relation attributed to the object quantifier is an essential property restricted to a context set. Formally, let Q_1, Q_2 be generalized quantifiers, R a relation, and for any quantifier Q, ES(Q) the set of essential properties of Q. Then,

(40) \begin{align*}
\text{have } R - \text{ES} - C (\text{have } R \text{ essentially in } C) \text{ denotes the function } f \text{ such that } 
f(R)(C)(Q_2)(Q_1) = \text{True iff } RG(R) \in \text{ES}^C(Q_2) \land Q_2(R) \in Q_1.
\end{align*}

Let us see how this would work in a concrete example. In sentence (41), a birthmark is in an essential part-whole relation with John.

(41) Peter has a birthmark on his left leg.

The predicative relation expressed here is not merely between John and his birthmark. The adjunct on his left leg situates the appropriate whole where the birthmark is. In our terms, the relevant essential relation is ’whole-part’ restricted to ’left leg’. The adjunct PP on his left leg determines the relevant context: The property of having a birthmark is an essential property of Peter’s leg (i.e. it is an essential property of Peter “restricted” to his leg):

(42) \begin{align*}
\text{have-on-his-left-leg (a birthmark) (Peter) = True iff } 
RG(\text{whole-part}) \in \text{ES}^\text{left-leg}(a \_ birthmark) \land 
a \_ birthmark(\text{whole-part}) \in \text{Peter}.
\end{align*}

In the locative reading, the relevant relation is not an essential property of the object (neither properly nor in a restricted sense). No restriction is imposed with respect to the relation associating subject and object. Formally, let Q_1, Q_2 be generalized quantifiers, and R a relation. Then,

(43) \begin{align*}
\text{have-on-loc denotes the function } f \text{ such that } f(R)(Q_2)(Q_1) = \text{True iff } 
RG(R) \in Q_2 \land Q_2(R) \in Q_1.
\end{align*}

Have: An Essentialist Semantics
References


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