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Title	Generics and Topicality
Author(s)	Ohkawa, Yuya
Citation	Osaka Literary Review. 2004, 43, p. 1-11
Version Type	VoR
URL	https://doi.org/10.18910/25217
rights	
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Generics and Topicality

Yuya Ohkawa

1 Introduction

This article clarifies the validity of exploration into English generic sentences on the basis of Fauconnier's (1997) mental space theory. Generic sentences are generally defined as "sentences with kind-reading, which mention general traits in terms of a particular thing." (1) shows that a bare plural noun phrase is most commonly exploited as a subject but other types of noun phrases can be allowed:

(1) a. Birds fly. (Cohen 1999: 2)
b. Dogs are mammals. (ibid.)
c. The potato was first cultivated in South America. (Krifka et al. 1995: 2)
d. A potato contains vitamin C, amino acids, protein and thiamine. (ibid.: 3)
e. John smokes a cigar after dinner. (ibid.)

The crucial point to make in this article is that the subject of a generic sentence upholds topicality. In view of this, we shall discuss how generic sentences are to be semantically described by building particular mental spaces rather than conforming to the conventions assumed in formal semantics. We are concerned only with English copular generic sentences with a plural indefinite noun phrase as a subject (*NPs are*...), as in (1b).

2 Formal Semantic Approach to Generics

2. 1 G Operator

In general, the logical form of a generic sentence like (2) is not properly depicted either with a universal or with an existential quantifier. (3a) implies that every entity that belongs to whales should be intelligent, which does not fit the genericity (2) intends. Likewise, neither is (3b) considered appropriate because it is supposed to be true with only one intelligent individual that belongs to the category of whales. Taking this into consideration, Carlson (1977) et al. propose the G operator, which raises stage-level predicates (e. g. events) to individual-level (e. g. habits) as in (4):

(2) Whales are intelligent.
(3) a. $\forall x$ [whales(x) $\rightarrow$ intelligent(x)]
b. $\exists x$ [whales(x) & intelligent(x)]
(4) G (intelligent) (whales)

Unfortunately, it is not clear what condition makes predicates rise to individual-level. If the total number of individuals is to be involved in the truth condition of generic sentences, can this operation present a necessary and sufficient number for their license?

2. 2 The Total Number of Cases

According to Cohen (1999), the truth condition of generic sentences is concerned with whether more than half of the total number of cases can be approved in some particular context. This condition seems to apply in (5). (6), however, evidently illustrates that generic sentences show themselves when more than half of the total number of instances fails to be verified:

(5) a. Birds fly. (=1a)

b. Dogs are mammals. (=1b)

(6) a. The platypus lays eggs. (Cohen 1999: 2)

b. Bulgarians are good weightlifters. (ibid.)

The entire number of platypuses with the ability to lay eggs is believed to be quite small. Equally, there seem to be only a few good Bulgarian weightlifters compared to the whole population of Bulgarians. Accordingly, the total number of cases has nothing to do with the truth condition of generic sentences.

3 Background: Mental Space Theory (Fauconnier 1994, 1997)

As the previous section revealed, generic sentences have been mainly analyzed in the framework of formal semantics. Mental space theory, advocated by Fauconnier (1994, 1997), is designed to elucidate, from the viewpoint of our cognition, a number of problems that formalists should figure out but shares the course or target of analysis with formal semantics. This article bears out this standpoint, sheds light on the advantages of mental space theory, which necessitates no intervention of quantifiers and effectively identifies elements included in different spaces by ID Principle (see Fauconnier 1994: 3 in detail), and seeks to examine English generic sentences relying on matching operation.

We have to clarify the concept of matching, which is a cognitive operation employed in such sentences as *when*-clauses and *if*-clauses and causes a similar deduction to Modus Pones. Suppose that the following conditional sentence is introduced at some stage in the discourse construction, relative to a space M in focus:

(7) If A, then B.

A foundation space F subordinate to the space M is

constructed by applying the instruction of language expression *A*. An expansion space E subordinate to the foundation space F is constructed by applying the instruction of *B* to a copy of the foundation space F. Moreover, if the structure of the foundation space F is a substructure of the space M, namely, if the foundation space F matches the space M, the structure of the expansion space E will be projected onto the space M by means of the matching condition in (8), yielding the correct inference:

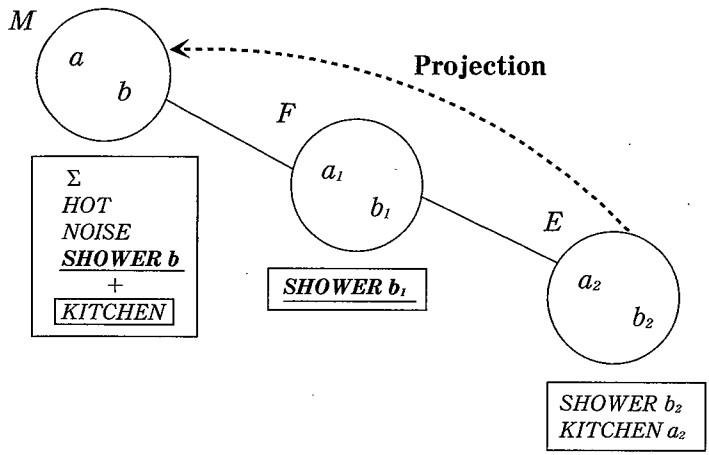
(8) Matching Condition
Spaces of domain type D, which are matched by the Foundation, can be expanded by projection of the Expansion. (Fauconnier 1997: 140)

Let us consider the subsequent examples to see how this operation works:

(9) a. If Olga is in the shower, Paul is in the kitchen. (ibid.: 132)
b. It's hot. There's noise in the street. Paul is unhappy. Olga is taking a shower. (ibid.)

(9a) occurs at some stage of the discourse, relative to a space M, simultaneously building both a foundation space F and an expansion space E. The space M at that point has some structure $[a, b, \ldots]\{\Sigma\}$, with a and b the elements corresponding to "Paul" and "Olga." Then, provided that (9b) elaborates the space M, the foundation space F can be a substructure of the space M, in other words, the foundation space F matches the space M, because b_1 is a counterpart of b. It follows by (8) that the structure of the expansion space E can be projected onto the space M. Finally, we have the proper inference relative to M that Paul is in the kitchen, as (10) demonstrates.

(10)



4 Analysis

4. 1 Topicality and the Function of Generic Sentences

"Topic," which has been widely touched on in functionalism, refers to "something" when we mention something in an ongoing discourse and often conveys given information. One of the functions of generics (NPs are...) is obviously "to mention something," and "something" serves as the subject of a generic sentence. Consider (2) again:

(11) Whales are intelligent. (=2)

Given that the function involved is "to mention x," x refers to whales, with its attribute described as intelligent. Thus, the subject of a generic sentence maintains topicality.

4. 2 The Subject of a Generic Sentence

First, let us look at an example in which the subject is previously mentioned:

(12) As I entered the woods at the crossing of a dry creek, I noticed that my horse was nervous. I knew that **horses** are quick to discover animals or men by scent, and I became nervous, too.

(HTI; henceforth, the underline and boldface are my own.)

([*M*]*y*) *horse* in (12) is noticeably the horse that has emerged in the speaker's real world; on the other hand, *horses* refers to general horses widely accepted in the actual world. From this speculation, we are in a better position to say that the referent in the speaker's real world does not completely correspond to that of the subject of a generic sentence. What matters here is that these two referents are relevant as regards topicality, which is enlightened by the use of phrases with similar meanings, such as *horse* and *horses*.

How about the instance in which the subject is not previously mentioned?

(13) I don't want anything but food, lodging, clothes, and now and then a railway fare. I haven't any tastes. I don't collect anything or play games. **Books** are nice to have, but after all there is Mudie's, or if it comes to that, the Free Library. (ibid.)

Books in (13) is not previously mentioned or the referent in the speaker's real world and transmits what is called new information. The discourse, however, usually proceeds in accordance with the speaker's real world. This being the case, *Books* is not the referent in the speaker's real world but relevant to the speaker's real world with regard to topicality.

4. 3 Application of Matching Operation to English Generic Sentences

The present study focuses on the matching operation by which English generic sentences are to be semantically represented. Let us here assume the following:

(14) Let the space M in focus be the space of the speaker's real world.
(15) While there are not any concrete space builders in the form "NPs are...," generic adverb phrases such as *usually* and *in generic* show up non-phonetically, which serves to build a foundation space F.
(16) The subject of a generic sentence (role) is introduced into the foundation space F.
(17) The subject and its attribute are represented in the expansion space E.

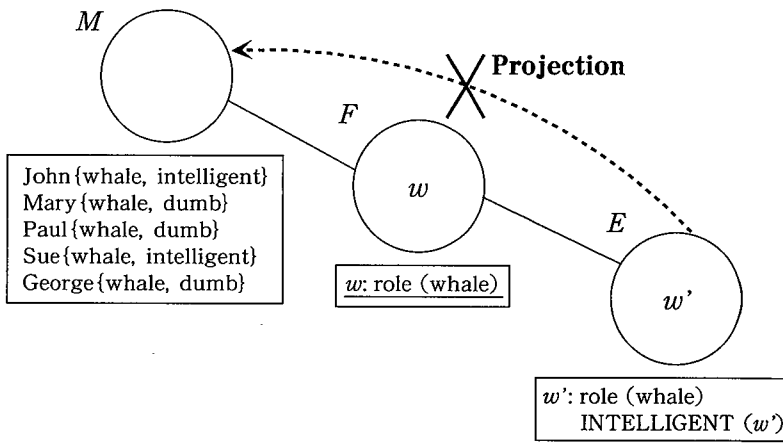
Based on the assumptions above, we shall now look more closely at generic sentences in standard space building. As for (18), we regard (19) as the content of the speaker's real world and expect the role of "whale" not to remain in it. The function of generic sentences in itself does allow (18) to be acceptable as a generic sentence even if a speaker does not deem every whale to be intelligent:

(18) Whales are intelligent. (=2)
(19) John{whale, intelligent}
Mary{whale, dumb}
Paul{whale, dumb}
Sue{whale, intelligent}
George{whale, dumb}

First, by (16), the role (whale) is introduced in the foundation space F. Then, by the matching condition in (8), if the structure of the foundation space F is a substructure of the space

M, that of the expansion space E can be projected onto the space M. However, as (20) indicates, we cannot find the role of "whale" in the space M, deducing that the foundation space F does not match the space M, which hinders the projection of the expansion space E onto the space M. Much still remains to be done on regular space building.

(20)



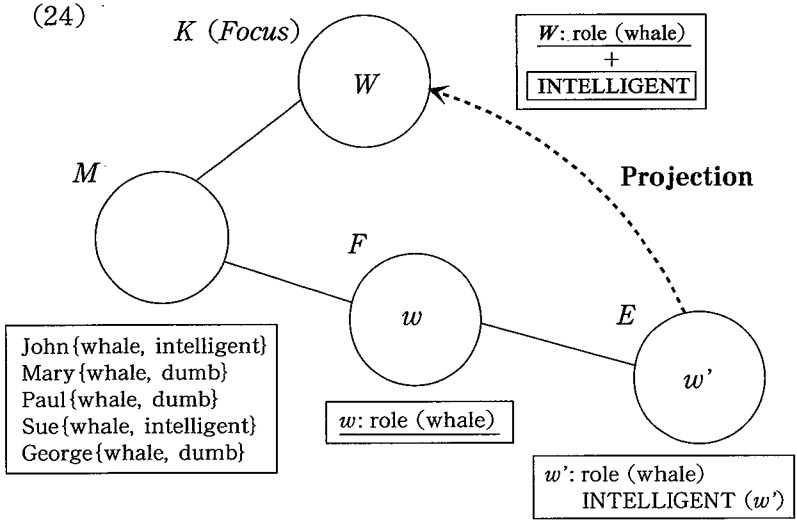
Then, we must provide new assumptions to depict generics properly and are reminded that "the subject of a generic sentence maintains topicality," mentioned above:

(21) The topicality shared by the subject of a generic sentence builds a new space K, subordinate to the space M.
(22) The focus is shifted from the space M onto the space K.
(23) The space K contains roles of every noun phrase.

Let us reconsider (18). By (16), the role (whale) is introduced in the foundation space F, and (21) leads to building a new space K. Then, by the matching condition in (8), if the

structure of the foundation space F is a substructure of the space K, that of the expansion space E can be projected onto the space K in focus. (23) guarantees that the foundation space F matches the space K because of the roles of every noun phrase in the space K. As (24) shows more succinctly, in the phase of the matching between the space K and the foundation space F and the projection onto the space K, every whale in the real world should be intelligent. Be that as it may, in the space M (the space of the speaker's real world) every whale is not intelligent. This structural discrepancy between the space M and the space K, thus, causes the sentence concerned to be a generic sentence; in contrast, it should be a universal sentence (e. g. Every whale is intelligent) rather than a generic without this discrepancy.

(24)



5 Summary

I have pointed out through this study that generic sentences are space-built in the same way conditional sentences are.

Assuming the topicality of the subject of a generic sentence, I have made obvious that the topicality functions as a space builder of a space K, which contains roles of every noun phrase. Only with the matching between the space K and the foundation space F and the projection onto the space K, the sentence concerned can be looked upon as a universal sentence. However, the space M (the space of the speaker's real world) has no roles of noun phrases in it, so that the space M is totally non-identical to the space K as to the structure. This structural disparity results directly in different semantic descriptions between generic sentences and universal sentences.

Acknowledgements

In writing this article, I have incurred many debts. Let me thank my fellow students of English linguistics and English and American literature at Osaka University for constructive comments and encouragement. My thanks go to Paul A. Harvey for stylistic improvements. Remaining inadequacies, of course, belong to me.

Finally, for help in editing *Osaka Literary Review* vol. 43, let me thank Saori Tanaka for generous assistance.

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