

Denotational Semantics for Interrogative Sentences in Japanese

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Abstract

We present a new approach to a sentence of interrogative form in Japanese within the framework of Montague Grammar. The possibility of various uses of an interrogative sentence; uses as a question, an exclamation, a rhetorical question, a demand and a recommendation is explained based on the same denotation for the sentence. The denotation which is neutral for all possible uses is defined in terms of a new modal operator in the formal language level, and of possible world semantics in the denotational level. Our interpretation of the Japanese end marker particle “ka” also explains some other usages of the same particle “ka” in a uniform way; especially, “ka” as the parallel listing (disjunctive) particle, which is another important usage of “ka”, is explained uniformly with the interrogative “ka”. This uniform interpretation in the denotational semantics level will be supported by the historical development of usages of “ka”, as briefly explained. Some part of our new approach for the Japanese interrogative forms can be, in our opinion, generalized to many other languages, although there are also some part particular to Japanese.

1 Introduction

A sentence of interrogative form usually gives several different uses and meanings depending on a situation of utterance, besides the literal use of interrogatives. In Japanese, a sentence of interrogative form may express;

- (1) a. question
- b. exclamation
- c. rhetorical question
- d. ordering
- e. recommendation

For example, the following Japanese sentence has a), b), c) of the above depending on situations of utterance.

- (2) Mari ga kita ka.
 Mari NOM came Q
 ‘Did Mari come?’

Before going into a specific discussion, let us explain briefly a notational convention we employ in this paper. To each example sentence of Japanese, we append a gloss which shows the corresponding English expression to each Japanese word and an English translation. Within our examples of Japanese, there are expressions which lack corresponding English expressions. For these

items, we use the following symbols: for *ga* (which stands for nominative case marker in Japanese), we use *NOM*, for *ka* (which stands for modal particle in Japanese), we use *Q*, and for *wa* (which stands for topic marker in Japanese), we use *TOP*¹.

At first sight, it seems to be very difficult to build a Montague type denotational semantics for interrogatives since the denotational semantics should have a unique interpretation for each sentence while an interrogative form actually has many different meanings depending on situations of utterance. Here, the uniqueness of denotation for a sentence is driven from the principle of compositionality of the translation, which is the essential basis for the denotational semantics in general. At first look, this observation seems to lead us to realize the limitation of expressive power of the Montague's theory, or of the denotational semantics in general. However, a more careful observation would provide us with another possibility: first of all, we can ask ourselves what is the meaning of interrogative form itself from the semantic point of view, instead of asking what is the meaning of each use (a)–(e) of the interrogative. In other words, we can ask ourselves whether it is possible to characterize the basic meaning of an interrogative form which should be the basis for many different usages (a)–(e) and from which the different meanings of (a)–(e) are driven. In this paper, we show that there is a basic and common meaning of the interrogative sentence by providing a translation rule and a denotation in the framework of Montague Grammar, with the help of a new modal operator.

Through our interpretation of the interrogative form, it turns out that the interrogative end marker “*ka*” (in Japanese) and the parallel listing particle “*ka*” can be translated in the same manner, hence have the same denotation. This uniform translation of ours seems to be supported by the historical fact on the usage of “*ka*”. The modal operator used in the translation of “*ka*” defines, roughly speaking, a set of possible worlds in the denotational semantics level. The different meanings (a)–(e) which depend their interpretation on situations of utterances are explained by how to focus on the possible worlds (based on the situation) from the original denotation.

Our approach to sentences of interrogative form in Japanese can cast a light to the analysis of interrogative sentences in general. The semantic nature of interrogative sentences in general has been one of the most mysterious things in the literature². Especially, within truth conditional semantics, it is not easy to deal with an interrogative sentence because it is not clear whether we can define truth condition for it. Although there has been no real solution that reveals the nature of interrogative sentences in natural language, there are several works that try to remove the complexity of it. There are two major approach to interrogatives. The first approach tries to relate an interrogative sentence with a declarative one. For example, in Lewis[6]'s theory, the following example sentences are semantically equivalent:

- (3) a. Is it raining?
- b. I ask you (to tell me) whether it is raining.

In this approach, an interrogative sentence is understood to be a statement of the desire to know, i.e., an epistemic request. Although this approach succeeds in defining truth conditions for interrogatives in the same way as for declaratives, it also has a problem raised by a feel of counterintuitivity, i.e., the result of