

PRESUPPOSITIONAL COMPOSITIONALITY WITH JAPANESE *MO*

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Chierchia (2004) argues that scalar implicature computation is part of function compositional process of a sentence interpretation. In this talk I will discuss a set of data from Japanese which indirectly support this hypothesis. The data involve a numeral quantifier (NQ) and *mo*. An NQ is a combination of a numeral and a classifier, and *mo* is a presuppositional element similar to English *even*. The data show there to be strict correlations between syntactic structure and presuppositional meaning. I argue that these correlations can only be explained satisfactorily if presupposition is locally computed during semantic interpretation via function composition.

The relevant set of data is shown in (1)-(3), where boldfacing shows focus stress and square brackets indicate syntactic constituents. In (1) NQ-*mo* is in an adverbial position modifying a VP. In (2) *mo* is attached to a nominal constituent of the form [NQ-*no* NP]. In (3) NQ-*mo* is embedded in a DP as [[NQ-*mo*]-*no* NP]<sub>DP</sub>. The different interpretations corresponding to the different syntactic structures in positive and negative contexts are indicated on the right in parentheses.

(1) NQ-*mo*

- a. *gakusei-ga* [**20-nin-mo** *shiken-ni gookaku shita*].  
 student-NOM 20-CL -MO exam -in pass did  
 ‘As many as 20 students passed the exam. (high)
- b. *gakusei-ga* [**20-nin-mo** *shiken-ni gookaku shinakatta*].  
 student-NOM 20-CL -MO exam -in pass didn’t  
 ‘As many as 20 students didn’t pass the exam.’ (high)  
 ‘Not even 20 students passed the exam.’ (low)

(2) [NQ-*no* NP]-*mo*

- a. #**[20-nin-no** *gakusei*]-*mo* *shiken-ni gookaku shita*.  
 20-CL -GEN student-MO exam-in pass did  
 #‘As many as 20 students passed the exam. (#high)
- b. **[20-nin-no** *gakusei*]-*mo* *shiken-ni gookaku shinakatta*.  
 20-CL -GEN student-MO exam -in pass didn’t  
 #‘As many as 20 students didn’t pass the exam.’ (#high)  
 ‘Not even 20 students passed the exam.’ (low)

(3) Embedded NQ-*mo*

- a. **[[20-nin-mo]-no** *gakusei*]-*ga* *shiken-ni gookaku shita*.  
 20-CL -MO-GEN student-NOM exam-in pass did  
 ‘As many as 20 students passed the exam. (high)
- b. **[[20-nin-mo]-no** *gakusei*]-*ga* *shiken-ni gookaku shinakatta*.  
 20-CL -MO-GEN student-NOM exam-in pass didn’t  
 ‘As many as 20 students didn’t pass the exam.’ (high)  
 #‘Not even 20 students passed the exam.’ (#low)

The respective interpretations can be described as follows: With adverbial NQ-*mo* in (1), the positive sentence in (1a) yields an ‘as many as n’ reading of the numeral. I dub this the ‘high reading’. (The number expressed is regarded as higher than expected by the speaker.) On the other hand, the negative sentence in (1b) is ambiguous between the high reading and the ‘low reading’. (The number expressed is regarded as lower than expected.) With [NQ-*no* NP]-*mo* in (2), the positive sentence in (2a) cannot yield the high reading. (The only possible reading is an

‘also’ reading of *mo* with an unstressed NQ.) The negative sentence in (2b) can yield only a low reading. With embedded NQ-*mo* in (3), the positive sentence in (3a) yields a high reading just like (1a). The negative sentence in (3b), however, is not ambiguous, unlike (1b), but rather yields only a high reading. In sum, (1) yields ambiguity, (2) allows only a low reading, and (3) allows only a high reading. This exhibits clear correlations between syntactic structure and presuppositional interpretation.

The interpretations described above can be accounted for as follows. First, in (1a) NQ-*mo* leads to a high reading, because *mo* invokes a less-likelihood presupposition in the sense of Karttunen and Peters (1979) (cf. English *even*) and this interacts with Horn’s (1989) number scale (cf. Nakanishi 2007). The negative sentence (1b) yields not only the reverse low reading but also the high reading, because NQ-*mo* might take a position that is structurally higher or lower than the negative morpheme, just like an ordinary adverbial element (Hasegawa 1993) or an ordinary Japanese floated NQ. The ambiguity is due to the scope of NQ-*mo* relative to negation.

Second, in (2), [NQ-*no* NP] forms a DP. (This is apparent from the fact that this form can be postpositioned by a case marker.) Following Kobuchi-Philip (2006), I assume that this DP is associated with a null indefinite determiner roughly equivalent to English *a*, whereby [NQ-*no* NP] yields ‘a sum of n-number of NP’. Specifically, [20-*nin-no gakusei*] in (2a) yields the interpretation ‘a sum of 20 students’. However, this singularity, i.e. ‘a sum’, directly conflicts with the high presupposition of *mo*, yielding the anomalous reading ‘as many as a sum of 20 students’. ‘As many as’ requires a high number but ‘a’ fails to satisfy this requirement by being the lowest possible number, namely 1. This makes a high reading of (2a) impossible. In the negative sentence in (2b), while the high reading is impossible for exactly the same reason as for (2a), the low reading fits perfectly. With the same assumption of a null indefinite determiner, (2b) yields ‘not even a sum of 20 students VP’. Here, ‘not even’ requires a low number, and ‘a’ (=1) satisfies this requirement. Hence, the structure in (2) allows only the low reading.

Finally, in (3), [[NQ-*mo*]-*no* NP] contains *mo* directly associated with NQ. [NQ-*mo*] gives rise to a high reading as in (1a). Thus, [20-*nin-mo-no gakusei*] in (3a) yields the interpretation ‘as many as 20 students’. However, this forms a DP, thus a null indefinite determiner is associated with this DP as a whole, yielding the interpretation ‘a sum of as many as 20 students’. Because ‘as many as’ is embedded inside the DP, it has no possible interaction with negation in (3b). Consequently, only the high reading is possible.

The account provided here demonstrates that the presuppositional effect of *mo* is processed in accordance with its syntactic structure. It is locally computed during interpretation calculation via function composition, providing a piece of evidence for Chierchia’s argument.

## REFERENCES

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