
DISSERTATION ABSTRACT

The Acquisition of English and Japanese Measure Phrase Comparatives

Tomoe Arii
University of Tokyo
allie522@gmail.com

Ph.D. Received: March 22, 2018, University of Tokyo

This thesis investigates the acquisition of the interpretation of Measure Phrase (MP) modification in order to explore the learning mechanism for acquiring the form-meaning mapping. I especially focus on English and Japanese, because these two languages exhibit variation in the range of possible interpretations when an MP modifies a gradable adjective (GA). In English, MPs have different interpretations depending on the construction where they appear. For example, the MP in (1a) (i.e., *10 meters*) expresses a **differential measurement**, and the sentence indicates that the height of X exceeds that of Y *by 10 meters*. On the other hand, the MP in (1b) expresses an **absolute measurement** of X.

- (1) a. X is 10 meters taller (than Y). (differential measurement)
 b. X is 10 meters tall. (absolute measurement)

Thus, the interpretation of MPs in English corresponds to whether or not the comparative morpheme *-er* is present. On the other hand, Japanese does not have such comparative morphology. Moreover, the construction which corresponds to the English constructions in (1) only expresses a differential measurement as shown in (2). (Hayashishita, 2009; Kennedy, 2007; Kikuchi, 2002; Kubota, 2011; Nakanishi, 2007; Schwarzschild, 2005; Snyder et al., 1995).

- (2) X-wa (Y-yori) 10-meetoru takai. (differential measurement)
 X-TOP Y-than 10-meter tall
 ‘X is 10 meters taller (than Y).’

Given the cross-linguistic variation, children learning English and Japanese have to learn which interpretations are possible and which are impossible for the combination of a GA and an MP. As for the different range of possible interpretations between English and Japanese, previous theoretical studies presented various theoretical models. In the study of language acquisition, however, children’s

interpretation of MP constructions represented in (1) and (2) has never been studied. This thesis investigates how children learning these language interpret such constructions and acquire the language-specific knowledge.

I examined their interpretation of *MP comparatives* as in (1a) and (2) through five kinds of experiments. Previewing the results, the experiments showed that children learning these languages consistently assign a non-adult, absolute interpretation to the construction. For example, they interpret (1a) as ‘X is 10 meters tall.’ Therefore, we have to explain how children acquire the correct, differential interpretation and unlearn the absolute interpretation.

After confirming that their absolute interpretation is not due to extra-grammatical factors by conducting two kinds of follow-up experiments, I explained the experimental findings, adopting a theoretical model proposed in formal semantics. Arguing that children cannot access the negative evidence that the absolute interpretation is not possible for MP comparatives, I concluded that the acquisition cannot be explained with a conservative learning model. I then proposed a learning model in which children learn the differential interpretation, and as a consequence, unlearn the absolute interpretation based on positive evidence alone.

Chapter 1 specifies the scope of this thesis. We first examine the cross-linguistic variation between English and Japanese in the range of possible interpretations of the MP+GA constructions and then briefly preview that both English and Japanese children cannot correctly interpret MP comparatives. We then confirm that the theory of language acquisition has to explain the acquisition of the construction. Next, arguing that children cannot access the negative evidence that the absolute interpretation is not possible for MP comparatives, I conclude that we cannot explain the acquisition with a conservative learning model. In order to explore the possible explanations, we then review how previous studies of language acquisition dealt with children’s non-adult behavior. One strategy that studies of language acquisition first adopt is to examine the design of the experiments in which children performed in a non-adult-like way. By doing so, we sometimes find a flaw of the design or find that the previous findings have been misinterpreted. In these cases, it is possible that a modified experiment can extract children’s adult-like performance. When the children’s non-adult behavior proves to be robust, two types of approaches have been generally taken in order to explain how children finally acquire the target grammar: *the maturational approach* and *the grammatical approach*. The maturational approach attributes the non-adult performance either to children’s developing processing or to grammatical knowledge. In order to achieve adult-like performance, then, children do not have to learn anything, and need only wait for a responsible component to mature. On the other hand, the grammatical approach is built on a grammatical model in which the target grammar is a consequence of another grammatical property observable in the input, and explains the acquisition of the target grammar on the basis of positive evidence alone. This thesis proposes a grammatical account of the acquisition of MP comparatives and a maturational account of the delay in acquisition.

Chapter 2 reviews previous theoretical studies of comparatives. We first review analyses of comparative constructions in general. Next, we review analyses of MP comparatives. Here, we review three kinds of analyses: the lexical analysis (Beck, 2011; Beck et al., 2004; Kikuchi, 2002; Oda, 2008) and those of Schwarzschild (2005) and Sawada and Grano (2011). Chapter 3 reviews the previous literature on the developing comprehension and production of each part of MP comparatives: GAs, comparatives without an MP, and MPs. Here, we confirm that English and Japanese children may possess a command of the components of MP comparatives at least by five years of age.

Chapter 4 presents seven experiments investigating English and Japanese children's interpretations of MP comparatives. These experiments show that children consistently and robustly interpret MP comparatives absolutely in both English and Japanese regardless of the presence or absence of the standard phrase, and they do so regardless of the kind of GAs or the polarity. This non-adult-like pattern of response appears to persist well into five to six years of age. On the other hand, they are also able to correctly interpret comparatives without an MP (e.g., X is taller than Y). This suggests that it is the presence of the MP that hinders their performance. Moreover, their non-adult interpretation of MP comparatives cannot be attributed to extra-grammatical factors (i.e., incremental processing; arithmetical ability), nor to a non-compositional interpretation.

Chapter 5 proposes a grammatical account whereby children learn the differential interpretation, and as a consequence, unlearn the absolute interpretation, based on positive evidence alone. In this account, children's absolute interpretation is attributed to their wrong setting of the standard of comparison. When interpreting the MP comparative *X is MP taller (than Y)*, they set the standard as the absolute zero by default, and interpret the comparative as 'X is MP taller than the absolute zero.' This is the underlying representation of their absolute interpretation. In this case, when they come to be able to correctly set the standard, they can correctly take the MP as a differential measurement rather than an absolute one. This account is possible when there is a grammatical model that regulates the setting of the standard. For such a model, this thesis adopts the theoretical device proposed by Sawada and Grano (2011), who proposed that MPs are introduced by null Deg head *Meas*. *Meas* imposes a selectional restriction on the GA with which it is combined. Assuming that children and adults share the same Degree Phrase structure, I propose that children's absolute interpretation is attributed to the lexical entry of *Meas* in child grammar, which is slightly different from that in adult grammar. In order to acquire the correct, differential interpretation, then, children have to revise the lexical entry of *Meas*. I argue that children can achieve this on the basis of positive evidence alone. Moreover, I propose a maturational account of the fact that it takes a long time to acquire MP comparatives, a delay that I argue is due to their immature processing capacity.

Chapter 6 summarizes the findings of the series of experiments reported in this thesis and the proposals concerning the acquisition on MP comparatives. Based on these, I suggest that when acquiring form-meaning correspondence in general, children assign meaning to subparts, which are

then composed to yield a whole construction in the syntax and semantics.

References

- Beck, Sigrid (2011) "Comparison constructions," *Semantics: An international handbook of natural language meaning*, ed. by Claudia Maienborn, Klaus von Heusinger, and Paul Portner, 1341-1389, De Gruyter, Berlin.
- Beck, Sigrid, Toshiko Oda and Koji Sugisaki (2004) "Parametric variation in the semantics of comparison: Japanese vs. English," *Journal of East Asian Linguistics* 13, 289-344.
- Hayashishita, J. R. (2009) "Yori-comparative: A reply to Beck et al. (2004)," *Journal of East Asian Linguistics* 18, 65-100.
- Kennedy, Christopher (2007) "Modes of comparison," *Proceedings of the 43th Annual Meeting of the Chicago Linguistic Society*, 141-165, Chicago Linguistic Society, Chicago, IL.
- Kikuchi, Akira (2002) "On the interpretation of measure phrases in English and Japanese," *Proceedings of Linguistics and Phonetics*, 971-980, Karilinum Press, Prague.
- Kubota, Yusuke (2011) "Phrasal comparatives in Japanese: A measure function-based analysis," *Empirical issues in syntax and semantics* 8, ed. by Oliver Bonami and Patricia C. Hofherr, 267-286.
- Nakanishi, Kimiko (2007) *Formal properties of measurement constructions*, de Gruyter, Berlin.
- Oda, Toshiko (2008) *Degree constructions in Japanese*. Doctoral dissertation, University of Connecticut, Storrs, CT.
- Sawada, Osamu, and Thomas Grano (2011) "Scale structure, coercion, and the interpretation of measure phrases in Japanese," *Natural Language Semantics* 19, 191-226.
- Schwarzschild, Roger (2005) "Measure phrases as modifiers of adjectives," *Recherches Linguistiques de Vincennes* 34, 207-228.
- Snyder, William, Ken Wexler, and Dolon Das (1995) "The syntactic representation of degree and quantity: Perspectives from Japanese and child English," *The Proceedings of the 13th West Coast Conference on Formal Linguistics*, 581-596, CSLI, Stanford, CA.