
DISSERTATION ABSTRACT

The Acquisition of the Body-part Noun Object Construction in English and Japanese: From the Viewpoints of Economy Principles and Parametric Variation in Nominal Phrases

Terue Nakato
Kitasato University

nakato@kitasato-u.ac.jp

Ph.D. Received: University of Tokyo, 2015

This dissertation investigates the acquisition of constructions with a body-part noun object (the BPN object construction) in Japanese and English within the framework of generative grammar, especially using the principles-and-parameters approach. The BPN object construction is potentially associated with two interpretations as in (1): an inalienable interpretation and an alienable interpretation. In the inalienable interpretation, the object is interpreted as denoting an inseparable body-part of an entity denoted by the subject. In the alienable interpretation, on the other hand, the object is interpreted as denoting a body-part of some entity other than the subject.

- (1) Taro-ga kao-o arat-ta.
Taro-Nom face-Acc wash-Past
i. Taro washed his face. (inalienable interpretation)
ii. Taro washed someone's face(s). (alienable interpretation)

This ambiguity is observed in many languages. With respect to the availability of the inalienable interpretation, the BPN object construction in Romance languages shows similar syntactic and semantic properties to the construction with a reflexive expression in Germanic languages (e.g. *himself* in English). Focusing on such similarities, an analysis has been proposed which uniformly explains the properties of these constructions in terms of the principles which license reflexivity of predicates (Reinhart and Reuland (1993), Reuland (2011)). However, no analyses have been proposed for the BPN object construction in Japanese or in English. With respect to the acquisition of the BPN object construction, some studies have been conducted in English (Pérez-Leroux et al. (2002), Foley et al. (2003)), but no studies have focused on morpho-syntactic differences between these two languages. In order to make a cross-linguistic study of the acquisition of the construction, further investigation is required.

One of the basic tenets of generative grammar is that children are equipped with a device which enables them to acquire any natural language (Language Acquisition Device: LAD). The LAD is considered to involve universal principles (Universal Grammar: UG), principles which guide children to successfully choose their target grammar in the course of language acquisition, and parameters which are responsible for cross-linguistic variation.

With this theoretical and empirical background, this dissertation addresses the following questions about adult and child grammar of English and Japanese.

- (2) a. Do the BPN object construction in adult grammar of Japanese and that of English show syntactic and semantic properties similar to the BPN object construction in Romance languages and/or the construction with a reflexive anaphor in Germanic languages?
- b. Are properties of the BPN object construction in these two languages also explained in terms of the principles which license reflexivity of predicates?
- (3) What kind of principles need to be available in the LAD for the acquisition of the BPN object construction by English and Japanese children?
- (4) a. Do the predictions made by the analyses of adult grammar hold in the acquisition of the BPN object construction?
- b. Is there any difference observed (i) between adult grammar and child grammar or (ii) between child grammar of English and that of Japanese?
- c. If any difference is observed, does the analysis of adult grammars provide a natural explanation for it?

Except for the introduction (Chapter 1) and the conclusion (Chapter 9), the body of this dissertation consists of three parts. Part I (Chapter 2 and Chapter 3), Part II (Chapter 4) and Part III (Chapter 5, Chapter 6, Chapter 7 and Chapter 8) consider the questions in (2), (3) and (4) respectively from theoretical and empirical perspectives. In the Appendix, the materials used in the experiments presented in this dissertation are provided. Each chapter is briefly summarized as follows.

Chapter 1 specifies the scope of this dissertation. After briefly introducing constructions and languages closely investigated in this dissertation, this chapter presents basic theoretical assumptions and mechanisms. In addition to the assumption about the LAD, assumptions concerning principles and parameters given in the LAD are provided. Particularly, following Reuland (2011), three possible ways to encode a referential dependency between the BPN object and the subject NP are introduced as computational systems allowed in UG: Agree in narrow syntax, logical binding at the C-I interface, and (accidental) coreference in the discourse component. Among these, Agree in narrow syntax is of particular importance because it is responsible for the inalienable interpretation of the BPN object.

Another important assumption concerns the hierarchical structure within DP. Following the basic tenet of the Minimalist Program (Chomsky (1995)), this dissertation attributes the locus of parameters to the features in heads of functional projections. It is assumed that a lexical projection NP has a layered structure of functional projections, and among these are, at least, NumP and DP. Each functional projection hosts a parameter, and parameters associated with projections within DP play an important role in explaining the acquisition of the BPN object construction in Japanese and English. Based on the overview of cross-linguistic variation of the BPN object constructions, the questions in (2)-(4) are specified as issues to be discussed in this dissertation.

Chapter 2 and Chapter 3 in Part I closely investigate and consider properties of adult grammar of Japanese and that of English respectively. With respect to the questions in (2a), the following conclusions are reached:

- (5) The BPN object construction in Japanese and English shows similar syntactic and semantic properties to the BPN object construction in Romance languages and/or the construction with a reflexive anaphor in Germanic languages. However, morphological variation is observed within a BPN phrase and on a BPN itself: (i) within a BPN phrase, variation is observed with respect to the overt realization of a possessive pronoun; (ii) on a BPN, variation is observed with respect to the morphological realization of number-marking on a head noun.

The BPN object construction in Romance languages has the following syntactic and semantic properties. It

allows a possessor of the BPN to occur outside of the BPN phrase: The BPN in the object position can be interpreted as being in an inalienable possessive relationship with an NP in the subject position. However, such an interpretation is possible only with a limited semantic class of predicates such as ‘raise (one’s/a) hand.’ Furthermore, in this construction, the singular object is interpreted distributively when it occurs with a plural subject. Consider, for example, the French sentence *Les enfants ont levé la main* (‘The children raised the hand.’). This sentence does not have any possessive phrase within the BPN phrase or a plural marking on the BPN object. Instead, it has a singular definite object. Nevertheless, the singular BPN object ‘the hand’ can be distributively interpreted as being in a part-whole relation with the plural subject: The sentence has the meaning of ‘Each child raises one of his/her hands.’

The French sentence, *Les enfants ont levé la main*, and the Japanese sentence in (1) are similar in that they allow a possessor of the BPN to occur outside of the BPN phrase. However, they are morpho-syntactically different: the Japanese sentence in (1) does not have a definite determiner or number morphology on the head noun.

Further cross-linguistic variation in morpho-syntactic properties of the BPN object construction is observed when English is taken into consideration. Unlike French, the inalienable interpretation is not available in English when the object has the definite determiner *the*. Instead, a form with a possessive pronoun within the BPN object phrase is preferred. In addition, number morphology is realized on head nouns and plural forms are preferred when the subject is plural. Thus, the inalienable interpretation is not available for the English sentence, *The children cleaned the face*. Rather, the sentence with a plural object and a possessive pronoun is preferred: *The children cleaned their faces*.

Based on these observations, Part I reaches the following conclusion for the question (2b).

- (6) Although it is possible to explain the semantic and syntactic properties of the BPN object construction in Japanese and English in terms of the principles which license reflexivity of predicates, slight modification is necessary to explain the cross-linguistic variation in (5i-ii).

In order to explain the syntactic and semantic properties of the BPN object construction in Japanese and English, this dissertation proposes a noun-incorporation analysis (NIA) (Nakato (2009)), based on the predicate-centered approach to the theory of binding (Reinhart and Reuland (1993), Reuland (2011)) and the Minimalist Program (Chomsky (1995 and later work)): Under this analysis, a BPN in the object position is incorporated into a predicate and makes a complex predicate with it. If the complex predicate is considered to be appropriate to express a reflexive situation, the derivation is licensed. An inalienable interpretation is derived as a result of Agree between a possessor-argument which the BPN takes and the subject of the sentence.

With respect to the difference (5i), it is claimed that a parameter associated with the A-P interface is responsible for the difference: English does not allow the edge of a nominal projection to be unpronounced, but Japanese does. With respect to the difference (5ii), this dissertation argues that an implicature related to number interpretation needs to be computed in English in order to choose an appropriate form of nominals in a given context. It is also claimed that the computation is carried out at the DP-level, which is the maximal level of nominal projections.

Chapter 4 in Part II introduces two economy principles: Economy of Encoding (Reuland (2011)) and Economy of Representation (Pérez-Leroux and Roeper (1999)). Economy of Encoding has been proposed as a principle responsible for the choice of alternative anaphoric forms in adult grammar. According to this principle, the dependency resulting from Agree in narrow syntax is considered to be the most economical. Economy of Representation, on the other hand, has been proposed as a principle which determines the initial state of child grammar and possible developmental paths to an adult grammar of a particular language.

Experimental results in previous studies have shown that English children acquire the projections of nominals in a stepwise manner: They start with the smallest projection, NP, and extend functional projections above it based on language-particular evidence.

Part III presents the results of five experiments conducted on Japanese and English children and considers how children attain adult-like knowledge of the BPN object construction in their target languages. Chapter 5 shows the results of an experiment conducted on Japanese children (Nakato (2014a)). This experiment compared the interpretation of the BPN object construction and that of the construction with a non-BPN object (non-BPN object construction) in order to see the effect of semantic properties of head nouns in child grammar. Chapter 6 provides the results of three experiments conducted on English children (Nakato (2013, 2014b)). The main concern of each of the three experiments is summarized in (7).

(7) Experiment 1: The effect of semantic properties of head nouns on the interpretation

Experiment 2: The effect of number information of head nouns and possessive pronouns on the interpretation

Experiment 3: The effect of gender information of possessive pronouns on the interpretation (and the effect of semantic properties of head nouns)

Chapter 7 shows the results of a follow-up study on Japanese children, which investigated the effect of gender information in Japanese. The experiment presented in Chapter 5 and Experiment 1 in Chapter 6 focused on the acquisition of properties related to lexical categories and universal principles. Experiment 2 and Experiment 3 in Chapter 6 and the experiment presented in Chapter 7 investigated the acquisition of properties related to functional projections.

Through these experiments, the following findings were obtained. The effect of semantic properties of head nouns was observed in both child grammar of Japanese and that of English. Between the two interpretations available with the BPN object construction, a preference for the inalienable interpretation was observed more strongly in children than in adults. The effect of number and gender information, on the other hand, was not observed in child grammar of English: English children cannot use number and gender information of nominals and possessive pronouns in an adult-like manner at the earlier stages of acquisition. These findings provide the following answer to the question in (4b).

(8) With respect to the interpretation of the BPN object construction, differences are observed between adult grammar and child grammar both in Japanese and English. Particularly, child grammar of English is quite different from adult grammar of English. Rather, child grammar of English is similar to that of Japanese.

Based on the findings, Chapter 5 and Chapter 8 consider why such differences are observed and discuss how children attain an adult grammar of Japanese or English. The discussion leads us to the following conclusions with respect to the questions in (3), (4a) and (4b).

(9) The noun-incorporation analysis of adult grammar can provide a natural explanation for the differences if the two economy principles are available as guiding principles in child grammar or in the LAD.

The strong preference for the inalienable interpretation in Japanese children is explained as follows: The interpretation is expected to be the easiest for children by the NIA and Economy of Encoding because it is the most economical derivation, resulting from Agree in narrow syntax. Its early acquisition is also expected in terms of Economy of Representation because children only have to learn lexical information of head

nouns to derive that interpretation. The BPN phrase in Japanese does not have gender or number information within its projection. It only has a lexical projection, which is assumed to be projected without any triggering information. Once Japanese children identify a referent of some noun as a body-part, its inalienable interpretation is derived.

The similarity between child grammar of English and that of Japanese is not surprising if the two economy principles are available in the LAD. At the initial stage of acquisition, both English children and Japanese children start with the minimal projection, NP. At this stage, only the properties related to head nouns should be observed in child English as well as in child Japanese: The inalienable interpretation of the BPN object construction is available because it is preferred interpretation by the NIA and Economy of Encoding. Then, being guided by Economy of Representation, English children start to extend functional projections above NP.

The difference between child English and adult English is attributed to the late acquisition of properties related to functional projections. Number or gender information is not necessarily an intrinsic property of lexical items and can be inserted as features of functional heads projected above NP. The features on functional heads are considered to be a locus of parameters and children have to set parameters based on evidence available in their target language. Initial child grammar has a minimal projection, NP, and children extend functional projections in the course of acquiring a particular language. In the process of the extension, children set the values of parameters and associate these functional heads with morphemes. It is no wonder that English children cannot use number and gender information in an adult-like manner even at later stages (7 or 8 years old) because it might take a long time to set these values on functional heads. In order to give a fully adult-like number interpretation to nominals, DP is necessary because it is the projection where implicature associated with number interpretation is computed (Nakato and Roeper (2014)). Before reaching this maximal projection, children have to learn the semantics of gender, number, and definiteness and associate them with morphemes in their language. They also have to acquire the way implicature is computed based on pragmatic information as well as morpho-syntactic and semantic information.

Chapter 9 presents the answers obtained in Part I through Part III to the questions raised in Chapter 1 and concludes the dissertation.

References

- Chomsky, Noam (1995) *The Minimalist Program*, MIT Press, Cambridge, MA.
- Foley, Claire, Zelmira Núñez del Prado, Isabella Barbier, and Barbara Lust (2003) "Knowledge of Variable Binding in VP-Ellipsis: Language Acquisition Research and Theory Converge," *Syntax* 6:1, 52-83.
- Nakato, Terue (2009) "Reconsidering Syntactic Reflexive-Markers and 'Reflexive-Marking' Systems: from a Typological Point of View," *Linguistic Research* 25, 57-70, The University of Tokyo English Linguistics Association, Tokyo.
- Nakato, Terue (2013) "Number Agreement between Possessive Pronouns and Head Nouns: Agree or not?" *Online Proceedings of Generative Linguistics in Old World (GLOW) in Asia IX*. (http://faculty.human.mie-u.ac.jp/~glow_mie/IX_Proceedings_Poster/11Nakato-Miyashita.pdf)
- Nakato, Terue (2014a) "The Economy of Encoding and Anaphoric Dependency with Relational Nouns: Evidence from Child Grammar," *CLS* 47, 153-167.
- Nakato, Terue (2014b) "Gender Information of Possessive Pronouns: How Does It Work in Child English?" poster presented at the 39th Annual Boston University Conference on Language Development held at Boston University on November 7-9, 2014.
- Nakato, Terue and Thomas Roeper (2014) "Implicature for Plurals in Child Grammar," *JELS* 31, 366-372, Kaitakusha, Tokyo.

- Pérez-Leroux, Ana Teresa and Thomas Roeper (1999) "Scope and the Structure of Bare Nominals: Evidence from Child Language," *Linguistics* 37, 927-960.
- Pérez-Leroux, Ana Teresa, Cristina Schmitt, and Alan Munn (2002) "The Development on Inalienable Possession in English and Spanish," *Romance Languages and Linguistic Theory: Selected Papers from 'Going Romance,' Groningen, 28-30 November 2002*, ed. by Reineke Bok-Bennema, Bart Hollebrandse, Brigitte Kampers-Manhe, and Petra Sleeman, 199-216, John Benjamins Publishing Company, Amsterdam/Philadelphia.
- Reinhart, Tanya, and Eric Reuland (1993) "Reflexivity," *Linguistic Inquiry* 24, 657-720.
- Reuland, Eric (2011) *Anaphora and Language Design*, MIT Press, Cambridge, MA.