

Interpreting Bare Nouns: Type-Shifting vs. Silent Heads

Introduction Bare nouns (BNs) in articleless languages such as Chinese and Japanese can express four different types of meanings: individual-reference, existential quantification, generic quantification, and kind-reference. There are two approaches to this interpretive variability where the attested meanings don't map onto overt syntactic elements. One is to posit some type-shifting rules that derive different interpretations from one and the same lexical item (Chierchia, 1998; Dayal, 2004). The other is to posit unpronounced syntactic heads that encode various interpretive features (Cheng and Sybesma, 1999; Watanabe, 2006). This paper presents an objection to the second, silent-head approach based on the behaviors of the phonetically unrealized arguments in Japanese that take BNs as their antecedents. I examine four possible analyses of such null arguments in logical space. I argue that the silent-head approach has difficulty in explaining the data, whichever analysis of null arguments turns out to be on right track. The type-shifting approach has a clear advantage over the silent-head approach.

Data The interpretation of a null argument in Japanese doesn't have to match that of its antecedent. While the preceding BN is kind-referring, the following null arguments *e* can yield a kind, existential (1) or individual-referring reading. When the BN is existential, *e* can also express a kind (2), existential, or individual reading. When the BN is individual-referring, *e* can yield a kind, existential, or individual reading.

- (1) *Americajin-ga cola-o hatumeisi, Doitujin-ga [e] syohisita.*
 American-NOM **cola**-ACC invented-and, German-NOM [e] consumed.
 'An American invented cola; Germans consumed it' [kind (*cola*) - existential (*e*)]
- (2) *Aru Portugaljinno funanori-ga dodo-o saisyoni tabe, Olandajin-ga notini [e] zetumetusa-se-ta.*
 a-certain Portuguese sailor-NOM **dodo**-ACC first eat, Dutch-NOM later [e]
 go-extinct-force-past.
 'A Portuguese sailor ate a dodo first, and the Dutch people later exterminated them.' [existential (*dodo*) - kind (*e*)]

Analyses of null arguments There are broadly two syntactic approaches to null arguments in 'radical' pro-drop languages like Japanese, where an argument can be omitted without an overt agreement marking. One is to consider a null argument *e* to be an ellipsis of some sort. The other is to consider it to be a pro of some sort. The silent-head approach cannot account for (1-2) under either approach. If one adopts the first approach, then there are three possible analyses of *e* (i-iii). (i) The silent head \emptyset that is responsible for the interpretation of the antecedent BN is contained inside the elided constituent. For example, in (1), if the antecedent *cola* has the structure [XP ... [NP ... N] \emptyset_k], where \emptyset_k determines its kind-reading, then *e* would be [e ... [XP ... [NP ... N] \emptyset_k]]. (i) cannot explain why *e* can have a different interpretation than that of its antecedent BN because they have one and the same syntactic and semantic profile. (ii) The silent head \emptyset in the antecedent is not contained in the elided constituent. (1) is possible either if there is another silent head under \emptyset_k that has existential import, or the embedded NP by default has existential import. *e* is either [e [NP] \emptyset_{\exists}] or [e NP], which can yields an existential reading. However, (ii) cannot handle (1) and (2) at the same time. To explain (2), we would also have to say either that two silent heads can freely line up or that the embedded NP is ambiguous between a kind and existential reading. (iii) *e* is the maximal projection of any given silent head whose constituent NP gets deleted (or unpronounced); whatever functional structure the antecedent BN has, *e* can be any one of [e [NP] $\emptyset_{k/\exists/\prime}$], where \emptyset yields a referential reading. However, the NP deletion in Japanese is not generally allowed, but observed in a limited number of cases (e.g., genitive constructions). When a modifier in an argument is overt, the NP deletion is impossible (3). Perhaps, it is permitted only when the Spec position is filled (Saito et al., 2008). So we have no reason to assume that the NP deletion could be done when a covert determiner is present.

- (3) *Taro-wa korerano kuruma-o katta. Hanako-wa *ano/*arerano/*subeteno [e]-*(*)o katta.*
 Taro-TOP **these car**-ACC bought. Hanako-TOP **that/those/every** [e]-(ACC) bought.

'Taro bought these cars. Hanako bought that/those/every one/ones.'

The last possible analysis (iv) identifies *e* to be a pro of some sort, not an ellipsis. Indeed, English pronouns have a range of uses as the translations in (1-2) indicate. However, as Carlson (1977) points out with respect to English bare plurals, the silent-head/ambiguity approach forces us to give up a unified analysis of pronominals. Under (iv), we have to posit three different pros to account for the interpretive variability above and the E-type use of a null argument, which Tomioka (2003) observes in Japanese. The kind-referring reading of *e* in (2) and any referential reading of a null argument can be accounted for by positing a small *pro* that is semantically translated as a bindable variable whose value is determined by a variable assignment. Existential readings such as in (1) can be accommodated by an indefinite pro that is an existentially quantified NP whose predicative content is contextually provided. Something like the following would suffice: $\lambda P_{\in D\langle e,t \rangle}.\exists x[\Pi(x)\&P(x)]$, where Π is a contextually salient property. However, a quantificational pro is problematic because *e* cannot produce an intermediate scope reading unlike an overt quantificational term *dareka* ('someone'):

- (4) *Sorezoreno sensei-wa seito no dareka-ga okorareta to kiita.*
 Each teacher-TOP student of **someone**-NOM scold-passive-past COMP heard

(4) has three different readings, i.e., 'Each teacher heard that there is some student who was scolded'; 'For each teacher, there is some student such that the teacher heard of him that he was scolded'; 'There is some student such that each teacher heard of him that he was scolded'. By contrast, the null object *e* in (5b) doesn't have the reading parallel to the second reading (italized), which is predicted by the posited indefinite pro. So the silent-head approach is problematic under any analysis of *e* (i-iv).

- (5) a. *Sorezoreno sensei-wa seito ga okorareta to kiita.*
 Each teacher-TOP **student** NOM scold-passive-past COMP heard
 'Each teacher heard that some student was scolded.'
- b. *Sikasi sorezoreno oya-wa [e] nagurareta to kiita.*
 But each parent-TOP [e] beat-passive-past COMP heard
 'But each parent heard that some student was beaten.'

Type-shifting approach The type-shifting approach is superior to the silent-head one that multiplies the ambiguities in both BNs and silent pronouns. I argue that a semantics involving type-shifting along the lines suggested by Dayal (2004) explains all relevant cases of Japanese null arguments in a simpler manner, whatever syntactic analysis of *e* is on right track. If the null arguments in (1, 2, and 5b) shall be analyzed as ellipses of simple NPs, then the derivations of their interpretations are equivalent to those for overt BNs. If the empty pronominal approach turns out to be correct for the null arguments, then we can introduce, following (Tomioka, 2003), variable assignments that are type-neutral and can assign a small *pro* a function of type $\langle e, t \rangle$. For example, in (5b), *e* means a free variable whose value is contextually fixed ' $\lambda x. \text{student}(x)$ '. A type-shifting rule then applies to the value to determine its propositional contribution, as it does so for overt BNs. That's why (5a-b) have the exact same range of interpretations. So one and the same set of unary type-shifting operations explain the interpretive variability of BNs and silent arguments at the same time.

Selected References Carlson, G. N. (1977). Reference to Kinds in English. PhD thesis, Linguistics Department, University of Massachusetts, Amherst, Massachusetts. Cheng, L. L.-S. and Sybesma, R. (1999). Bare and not-so-bare nouns and the structure of NP. *LI*, 30(4):509–542. Chierchia, G. (1998). Reference to kinds across languages. *NLS*, 6(4):339–405. Dayal, V. (2004). Number marking and (in)deniteness in kind terms. *L&P*, 27(3):393–450. Saito, M., Lin, T.-H. J., and Murasugi, K. (2008). N'-ellipsis and the structure of noun phrases in Chinese and Japanese. *JEAL*, 17:247–271. Tomioka, S. (2003). The semantics of Japanese null pronouns and its crosslinguistic implications. In Schwabe, K. and Winkler, S., editors, *The Interfaces: Deriving and Interpreting Omitted Structures*. John Benjamins Publishing Company, Amsterdam, The Netherlands. Watanabe, A. (2006). Functional projections of nominals in Japanese: Syntax of classiers. *NL<*, 24:241–306.