

Plurality and Distributivity in Yaeyaman Wh-Questions

Introduction: In Yaeyaman, a critically endangered Japonic language of the Southern Ryukyus, there is a distinction made between singular and plural wh-words, with plurality indicated by reduplication. I argue that reduplicated forms are strictly plural, denoting only non-atomic sums, while non-reduplicated forms are compatible with both atomic and non-atomic individuals. I then show that reduplicated wh-subjects can be interpreted distributively, while reduplicated wh-objects cannot. I attribute this fact to an optional distributivizing operator that can attach to VPs, but not to Vs.

Strong Plural, Weak Singular: The following multiple-wh question meaning ‘who brought what’ has wh-words in both subject and object position (this and subsequent data come from fieldwork by the author on the Taketomi dialect of Yaeyaman):

- (1) *taa(+taa)=du noo(+noo)=ju mucikee-rijaa.*
 who(+who)=FOC what(+what)=ACC brought-Q

This sentence has four variants, depending on whether either or both of the subject and object wh-words are reduplicated. The difference in meaning between these four possibilities is made clear by their acceptability in each of the four contexts illustrated below. The version of the sentence with non-reduplicated wh-words in both subject and object position was accepted in all four contexts. The acceptability of the other three variants, in which one or both of the wh-words is reduplicated, is summarized in the following chart (a star * represents unacceptability in the given context).

* who	what+what		who	what+what	
* who+who	what		* who+who	what	
* who+who	what+what		* who+who	what+what	
* who	what+what		who	what+what	
who+who	what		who+who	what	
* who+who	what+what		who+who	what+what	

The upper left context, in which it is given that only one person brought one thing, is unacceptable with any reduplication at all. Reduplication of the object is acceptable in those contexts on the right, where it is given that a plurality of items was brought. Reduplication of the subject is acceptable in those contexts on the bottom, where it is given that a plurality of people brought something together. These facts show that non-reduplicated forms are semantically weak, compatible with contexts assuming either atomic and non-atomic sums of individuals in the answer, while reduplicated forms are strong, incompatible with contexts that assume atomic individuals.

Semantics of Plural Wh: My analysis of this contrast is situated within a Hamblin (1973) question semantics as developed by Kratzer and Shimoyama (2002). The facts discussed above suggest that Yaeyaman *taa* and *noo* denote alternative sets of not only atomic human and inanimate individuals respectively, but also all plural sums thereof (Link 1983), since they can be used in contexts that assume a plural answer. The reduplicated forms denote the subset of the non-reduplicated form minus all atomic individuals, since they are incompatible with contexts assuming a non-plural answer. This is spelled out for *taa* as follows:

- (2) a. $\llbracket taa \rrbracket = \{ x \mid *human(x) \}$ b. $\llbracket taa+taa \rrbracket = \{ x \mid *human(x) \ \& \ \neg ATOM(x) \}$

Distributivity Contrasts: Turning now to contexts requiring a pair-list answer, we find a contrast between reduplicated subject and object wh-words, illustrated by the felicity patterns for the two contexts below (as before, the variant in which both subject and object wh-words are non-reduplicated is felicitous in all contexts).

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*	who	what+what		who	what+what	
	who+who	what		who+who	what	
*	who+who	what+what		who+who	what+what	

The context on the left requires a pair-list answer in which each pair consists of an atomic agent and theme. In such a context, the reduplicated subject is felicitous, while the reduplicated object is not. If we change the context so that the theme in each pair is a non-atomic plurality, then reduplication of the object wh-word becomes felicitous. This contrast points to a difference in the availability of a distributive reading for plural wh-words in subject versus object position. In subject position, the plural wh-word can distribute over pairs, while in object position it cannot.

Analysis and Comparison to English: Given that reduplicated wh-words denote sets of non-atomic sums of individuals, the distributive interpretation of the subject can be derived by attaching an optional distributive operator D to the VP, the semantics of which is characterized as follows, following Lasersohn (1998):

- (3) For any (one-place) predicate P and sum of individuals x : ${}^D P$ holds of x iff P holds of each individual part of x .

Attaching D to the VP in (1) gives a distributive interpretation of the subject, deriving the felicity of reduplicated subjects in the two contexts above. Lasersohn discusses a widely-remarked upon problem for this kind of analysis of distributivity, namely that it (falsely, in the case of English) seems to predict that *only* subjects should allow for a distributive interpretation, since it is defined only for one-place predicates, and thus cannot apply to a transitive verb which has not yet taken an object argument. Lasersohn seeks to remedy the situation by generalizing the semantics of the distributive operator to all n -place predicates, while in Roberts (1987) distribution over objects is done by lambda-abstraction over the object position of a saturated predicate, deriving a one-place predicate which can yield a distributive reading for plural objects.

While the predicted asymmetry in the availability of distributed readings of plural subjects and objects is problematic for English, the prediction is just what we want for plural wh-words in Yaeyaman, since it directly derives the fact that reduplicated objects cannot be interpreted distributively. Thus the data from Yaeyaman suggests that there is an underlying asymmetry in the availability of distributivity to subjects versus objects, derivable from the semantic type of the distributivity operator itself. This in turn suggests that generalized distributivity operators (as in Lasersohn) or lambda abstraction over object positions (as in Roberts) are not available to all languages.

Conclusion: Reduplicated wh-words in Yaeyaman lead to an analysis of plurality that differs from common approaches to plural nouns in English in two respects. First, while a large amount of research on plurals in English and other languages supports a weak plural (consistent with both atomic and non-atomic sums of individuals) and a strong singular (consistent only with atomic individuals), I have argued that Yaeyaman wh-words exhibit a strong plural and weak singular. Second, distributive interpretations are available to subjects but not to objects in Yaeyaman, giving support to the idea that distributivity operators are underlyingly limited to appearing with VPs.

Selected References: Hamblin, C. 1973. Questions in Montague Grammar. Kratzer, A. & J. Shimoyama. 2002. Indeterminate pronouns: The view from Japanese. Link, G. 1983. The Logical Analysis of Mass Nouns. Lasersohn, P. 1998. Generalized Distributivity Operators. Roberts, C. 1987. Modal Subordination, Anaphora, and Distributivity.