

Negative Polarity Items in Malay: An Exhaustification Account

This paper considers the distributional and interpretational facts of Negative Polarity Items (NPIs) in Malay, and proposes an analysis involving a grammatical strengthening process using the exhaustification mechanism, *Exh*, proposed by Fox (2007). Malay NPIs are constructed with a reduplicated wh-word followed by the particle *pun* (which depending on context, has an additive interpretation, similar to English *also, too* or a scalar interpretation, similar to English *even*). Malay NPIs are licensed by sentential negation. Without negation, the reduplicated wh-word + *pun* becomes Free Choice Items.

The Puzzle: Malay NPIs appear to have two meanings: (A) a narrow scope existential interpretation, or (B) a wide scope universal interpretation. (A) is illustrated in (1) in which the NPI occurs syntactically below negation. (B) occurs in (2) and (3), where the NPI occurs above negation. Note: the NPI is the subject in (3).

- (1) Ali tak beli apa-apa pun
 Ali NEG buy what-what PRT
 ‘There does not exist an x , such that Ali buys x ’ (Ali did not buy anything)
- (2) Ali siapa-siapa pun tak nampak
 Ali who-who PRT NEG see
 ‘For all x , Ali did not see x ’ (Ali did not see anyone)
- (3) siapa-siapa pun tak datang
 who-who PRT NEG come
 ‘For all x , x did not come’ (Nobody came)

In the literature, NPIs have been argued to be interpreted as a narrow scope existential with respect to negation. However, recent work by Shimoyama (2008) on Japanese argues that some NPIs have to be interpreted as a wide-scope universal. In this paper, I provide evidence that Malay NPIs have an existential interpretation when they appear syntactically below negation and a universal interpretation when they appear syntactically above negation.

Evidence for Universal Interpretation: Distinguishing between universal and existential interpretation for NPIs is difficult as sentential negation denotes an anti-additive function (see Zwart 1998), which satisfies the equivalence: $\neg(P \vee Q) \Leftrightarrow \neg P \wedge \neg Q$. The anti-additive function allows for the equivalence between an existential in the scope of negation and a universal scoping above negation: $\neg\exists x. P(x) \Leftrightarrow \forall x. \neg P(x)$. However, non-anti-additive contexts (see Shimoyama 2008) on NPIs force a wide scope universal interpretation. The quantificational adverb *biasanya* ‘usually’, which is interpreted outside negation, is used to create a non-anti-additive environment.

- (4) Ali siapa-siapa pun biasanya tak sambut
 Ali who-who PRT usually NEG greet
 ‘Ali usually does not greet anyone’

Interpretation: i. $\forall x[[Person(x)] \rightarrow \text{USUALLY } \neg[\text{Ali greets } x]]$
 Everyone is such that it is usually not the case that Ali greets him.
 ii. $\text{USUALLY } \neg\exists[Person(x) \wedge \text{Ali greets } x]$
 ?It is usually not true that there is someone whom Ali greets.

The combination of *biasanya* and sentential negation creates the non-anti-additive function $Q\neg$, which does not validate the equivalence of the anti-additive function. Thus, the availability of the wide scope interpretation in (4) is evidence that the NPI that appears above negation has to be interpreted as a wide scope universal.

Evidence for Existential Interpretation: Evidence for existential interpretation of Malay NPIs comes from the scope of negation and long distance licensing. Malay allows for long distance licensing of NPIs as seen in (5).

- (5) Siti tak kata Ali beli apa-apa pun
 Siti NEG say Ali buy what-what PRT
 ‘Siti did not say that Ali bought anything’

Interpretation: i. Siti did not say that there exists a thing such that Ali buys it.
 ii. *Siti did not say that everything is such that Ali buys it

In (5), the NPI is unable to scope above the negation in the matrix clause and the only interpretation that it can have is existential. Another piece of evidence comes from minimizer NPIs such as *even*. The minimizer NPI is required to be under the scope of negation but a wide scope universal cannot be interpreted under the scope of negation. Thus, the grammaticality of the sentence below is evidence that the NPI under the scope of negation is interpreted as a narrow scope existential.

- (6) tiada satu orang pun yang beri apa-apa pun datang
 NEG one person even REL give what-what PRT come
 'Not even one person who gave anything came' (*No one who gave everything came)

Analysis: The interpretation of Malay NPIs can be obtained from surface scope. When they appear before negation, they have a universal interpretation; otherwise, they have an existential interpretation. Given the mutually exclusive relation between the two interpretations, I argue that Malay NPIs are inherently existential and that the universal interpretation is derived through exhaustification, an operation of grammatical strengthening.

- (7) $[[wh - word + pun]](p)(q) = \exists x(p(x) \wedge q(x))$ (for any p, q of type $\langle e, t \rangle$)

This approach follows closely to that of Bar-Lev and Margulis' (2013) analysis of Hebrew *kol*, which is argued to be inherently an existential quantifier but can be strengthened to a universal quantifier.

Universal and existential quantification form a scale (over non-empty domains) according to entailment relations where universal quantification is the logically stronger member. Putting existential quantification in terms of disjunction $p \vee q$, I adopt Sauerland's (2004) proposal that the set of alternatives for an English disjunctive statement (or in the case at hand, existential quantification) is $\{p, q, p \vee q, p \wedge q\}$. Although I have assumed that Malay NPIs have the semantics of an existential, a crucial claim I am making for this proposal is that the scalar alternative ($p \wedge q$) is not included in the set of alternatives for Malay NPIs. Hence the set of alternatives for Malay NPIs is $\{p, q, p \vee q\}$. The exclusion of the scalar alternative from the set of alternatives is necessary to prevent it from being negated by the exhaustification operator, *Exh*. This claim has been proposed in the literature for child acquisition (Singh et al. 2012) and Hebrew *kol* (Bar-Lev and Margulis 2013). I claim that the lack of the scalar alternative in the set of alternatives of Malay NPIs is because of the lexical items available to speakers. Malay NPIs are composed of *wh*-words, which are inherently indefinites, thus the scalar alternative is not included in the set of alternatives.

Strengthening Mechanism: According to Fox (2007), the exhaustification operator, *Exh*, is a covert counterpart of *only* which yields a pragmatically strengthened meaning of an assertion. *Exh* is a syntactic operator which is optionally present in the syntax and has the ability to recursively apply to its own output. I use *Exh* as a tool to account for Malay NPI data. The derivation of (2) is illustrated with a toy model of two items:

- (8) a. *Exh Exh* Ali who-who PRT see
 b. Domain = {person1, person2}
 c. $p = \text{Ali sees person1}$ $q = \text{Ali sees person2}$
 d. $[[\text{Ali who} - \text{who PRT} \neg \text{see}]] = \exists x(\text{person}(x) \wedge \text{Ali} \neg \text{see}(x)) \equiv \neg p \vee \neg q$
 e. Set of alternatives of d. = $\{\neg p, \neg q, \neg p \vee \neg q\}$
 f. First application of *Exh* to d. = $\neg p \vee \neg q$
 g. Set of alternatives of f. = $\{\neg p \wedge q, \neg q \wedge p, \neg p \vee \neg q\}$
 h. Second application of *Exh* to g. = $\neg p \wedge \neg q$

Thus two applications of *Exh* results in the strengthened conjunctive meaning of $\neg p \wedge \neg q$, which has a wide scope universal interpretation. When the NPI appears below negation, it retains its existential interpretation as any number of operations of *Exh* will not change it.

References: Bar-Lev, M. and Margulis, D. (2013). Hebrew *kol*: a universal quantifier as an undercover existential. In *Proceedings of Sinn und Bedeutung*, volume 18, pages 60-76. Fox, D. (2007). Free choice and the theory of scalar implicatures. In *Presupposition and implicature in compositional semantics*, pages 71-120. Springer. Sauerland, U. (2004). Scalar implicatures in complex sentences. *Linguistics and philosophy*, 27(3):367-391. Shimoyama, J. (2008). Indeterminate NPIs and scope. In *Semantics and Linguistic Theory*, volume 18, pages 711-728. Singh, R., Wexler, K., Astle, A., Kamawar, D., and Fox, D. (2012). Children's interpretation of disjunction and the theory of scalar implicatures. *Carleton University, ms.* Zwarts, F. (1998). Three types of polarity. In *Plurality and quantification*, pages 177-238. Springer.