

## Quantifying over alternatives with Toba Batak *manang*

I report on the use and distribution of *manang* in Toba Batak, a language of northern Sumatra, Indonesia. *Manang* is used to form logical disjunctions (1a), alternative questions (1b), *wh*-Negative Polarity Items (NPIs) (2a), and *wh*-Free Choice Items (FCIs) (2b), and also appears optionally on embedded questions. It does not, however, form simple *wh*-indefinites (2c).

- (1) Manuhor buku i [ho manang ahu] . / ?  
 buy book that you MANANG me  
 a. With declarative intonation, logical disjunction: ‘Either you or I bought the book.’  
 b. With question intonation, alternative question: ‘Was it you or me that bought the book?’
- (2) Poltak (dang) mangallang [manang aha].  
 Poltak (NEG) eat MANANG what  
 a. With *dang* NEG, negative polarity item: ‘Poltak doesn’t eat anything.’  
 b. Without *dang* NEG, free choice item: ‘Poltak eats anything.’ (generic statement)  
 c. \* Simple indefinite: ‘Poltak ate / didn’t eat something.’  
 d. \* *Wh*-question: ‘What did / didn’t Poltak eat?’ (Toba Batak allows *wh*-in-situ.)

I propose to analyze *manang* as an existential quantifier. I explain the inability of *manang* to form ordinary *wh*-indefinites, as in (2c), as the result of an interaction with Rooth’s (1992) Focus Interpretation Principle (FIP). In order to avoid this issue, *manang wh* as in (2) is either interpreted by a alternative-sensitive modal operator, resulting in the free choice reading, or an overt or covert EVEN is invoked, leading to the NPI in (2) based on the logic of Lee and Horn (1994); Lahiri (1998). This paper contributes to the growing literature on the cross-linguistic distribution and functions of logical particles (see e.g. Hagstrom, 1998; Kratzer and Shimoyama, 2002; Szabolcsi, to appear). (In the talk, I also discuss *manang* in embedded polar questions, as noted by Percival (1981).)

**Background:** I adopt the two-dimensional semantics for focus and interrogatives originally developed by Hamblin (1973) and Rooth (1985); the notation and assumptions here follow Rooth (1992), Beck (2006), Kotek (2014), and Uegaki (2016). Each node  $\alpha$  in the syntax has an ordinary semantic value  $\llbracket \alpha \rrbracket^o$  and a set of alternatives  $\llbracket \alpha \rrbracket^{alt}$ . Regular, unfocused lexical items have the singleton set of its ordinary value as its alternative set (3); focused lexical items have contextually salient alternatives in the alternative set (not shown); and *wh*-phrases bear their domain as their alternative value, but do not have ordinary values (4). Alternative sets for complex structures are interpreted compositionally using a rule of Pointwise Functional Application.

- (3)  $\llbracket buku\ i \rrbracket^o = \text{that book}; \llbracket buku\ i \rrbracket^{alt} = \{\text{that book}\}$   
 (4)  $\llbracket aha\ \text{‘what’} \rrbracket^o$  undefined;  $\llbracket aha\ \text{‘what’} \rrbracket^{alt} = \{x : x \text{ inanimate}\}$

Rooth (1992) proposes the following constraint, as part of his Focus Interpretation Principle:

- (5) When interpreting an assertion  $\alpha$ ,  $\llbracket \alpha \rrbracket^o \in \llbracket \alpha \rrbracket^{alt}$ .

**A unified semantics for *manang*:** Suppose *manang* takes  $n$  arguments  $x_i$  of type  $\sigma$ . Let  $O = \bigcup_i \{\llbracket x_i \rrbracket^o\}$ , the set containing all ordinary values of the arguments, and  $F = \bigcup_i \llbracket x_i \rrbracket^{alt}$ , the union of the arguments’ alternative sets. I propose the denotation of the *manang* phrase as follows:

- (6)  $\llbracket \text{MANANGP} \rrbracket^o = \exists(O \parallel F); \llbracket \text{MANANGP} \rrbracket^{alt} = (O \parallel F) \cup \{\exists(O)\}$

...where  $(A \parallel B)$  is the set  $A$  if  $A$  is nonempty and  $B$  otherwise, and  $\exists(A_\sigma) := \lambda P_{\langle \sigma, t \rangle} . \exists x \in A . P(x)$ .

Let's consider what this denotation predicts for the bolded phrases in (1–2) above. Consider [*ho manang ahu*] in (1). *Ho* and *ahu* have ordinary values defined, so  $O = F = \{\text{you, me}\}$ .

- (7) a.  $\llbracket [\textit{ho manang ahu}] \rrbracket^o = \lambda P_{\langle e,t \rangle} . P(\text{you}) \vee P(\text{me})$   
 b.  $\llbracket [\textit{ho manang ahu}] \rrbracket^{alt} = \{\text{you, me, } \lambda P_{\langle e,t \rangle} . P(\text{you}) \vee P(\text{me})\}$

Composing with additional material in the clause, we yield the following semantics for (1). Notice that these meanings satisfy Rooth's Focus Interpretation Principle as stated in (5).

- (8) a.  $\llbracket (1) \rrbracket^o = \text{you bought the book or I bought the book}$   
 b.  $\llbracket (1) \rrbracket^{alt} = \{\text{you bought the book, I bought the book, you or I bought the book}\}$

In order to yield the alternative question denotation as in (1b), I propose that there is an alternative, simpler denotation for *manang*:  $\llbracket \text{MANANG}'\text{P} \rrbracket^o$  undefined;  $\llbracket \text{MANANG}'\text{P} \rrbracket^{alt} = O \parallel F$ . Clauses with no ordinary semantic value are interpreted as question acts; see Beck (2006); Kotek (2014) for details.

Now consider *manang aha* in (2). The *wh*-phrase *aha* lacks an ordinary semantic value, so  $O = \emptyset$  and  $F = \{x : x \text{ inanimate}\}$ . This results in the following denotations for *manang aha*:

- (9) a.  $\llbracket [\textit{manang aha}] \rrbracket^o = \lambda P_{\langle e,t \rangle} . \exists x : x \text{ inanimate} . P(x)$   
 b.  $\llbracket [\textit{manang aha}] \rrbracket^{alt} = \{x : x \text{ inanimate}\}$

This denotation composes with material above (modulo negation) to yield the following:

- (10) a.  $\llbracket (2) \rrbracket^o = \text{Poltak eats something}$   
 b.  $\llbracket (2) \rrbracket^{alt} = \{\text{Poltak eats } x : x \text{ inanimate}\}$

Notice here that this denotation of (2) violates Rooth's Focus Interpretation Principle. I will sketch two possible repairs below, which result in the *manang wh* behaving as an NPI or FCI. This end result is that (2) does not have a straightforward *wh*-indefinite reading (2c), even though the semantics of *manang* is that of a (particular kind of) existential quantifier.

Repair 1: EVEN One solution is to add a covert or overt EVEN ( $=pe$ ) to associate with the indefinite. EVEN “resets” the alternative set (Beck, 2006), resolving the Focus Interpretation Principle issue.

EVEN introduces a scalar inference that the prejacent (ordinary) value is less likely than all other alternatives. When the scalar semantics of EVEN associates with an indefinite, it leads to an unsatisfiable inference (Lee and Horn, 1994; Lahiri, 1998), requiring in (10) that ‘Poltak eats something’ be less likely than any alternative in (10b). This scalar inference is however unproblematic with the addition of a downward-entailing operator, deriving the NPI use of *manang aha* in (2a).

“Repair” 2: association with alternative-sensitive modal Work such as Aloni (2007) propose that many modals are inherently alternative-sensitive, for example in order to explain the apparent wide-scope universal interpretation of disjunctions under modals. For example, *You may drink tea or coffee* entails *You may drink tea* is true and *You may drink coffee* is true. I propose to adopt this association with alternative-sensitive modals as a second type of repair. This explains the free choice reading in (2b), given a covert generic modal to yield the generic rather than episodic reading.

Blocking the *wh*-question reading: The use of MANANG' as in the alternative question derivation of (1) is blocked in (2) as the meaning of MANANG' applied to a *wh*-phrase is equivalent to the corresponding *wh*-phrase without *manang*, in both dimensions of meaning. This explains the lack of a straightforward *wh*-question reading with *manang* (2d).

**Selected references:** Beck 2006. Intervention effects follow from focus interpretation. *NLS* 14 • Lahiri 1998. Focus and negative polarity in Hindi. *NLS* 6 • Rooth 1985. Association with focus