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How modal and non-modal implications of Tagalog free relatives emerge

The standard perspective on *wh-ever* free relatives (e.g., [*NP whatever Mary is cooking*]) is that they give rise to an implication that the speaker is unable or unwilling to uniquely identify the referent. Since Dayal 1997, von Fintel 2000 *et cetera*, these modal implicatures have been analyzed as being hard-coded into the lexical semantics of *wh-ever* free relatives (FRs). But such accounts are challenged by data demonstrating that *wh*-free relatives have readings with no modal implications.

We present a case study from Tagalog, which allows non-interrogative nominals comprised of *wh*-expressions and a scalar particle *man*, meaning 'even' or 'despite' in isolation (cf. Collins 2016 on Ilokano). (1-a) demonstrates a definite FR which implies speaker ignorance. When *man*-FRs scope under negation or universals (cf. Lauer 2009 on English), they don't imply ignorance (1-b,c).

- a. binili ni-Maria [ang-anoman-g libro-ng nasa-lamesa] TT.buy NS-Maria S-WH.man-LK book-LK on-table
 'Maria bought whatever book was on the table' → Sp. cannot identify the book
 b. hindi ko sinisi [ang-sinuma-ng tumulong sa-akin]
 - Not NS.1sg TT.blame S-WH.man-LK AV.help OBL-1sg 'I didn't blame anyone that helped me' $\not\rightarrow$ Sp doesn't know who helped her.
 - c. binili ng-lahat [ang-anoman-g libro-ng nasa-lamesa]
 TT.buy NS-all S-WH.man-LK book-LK on-table
 'Everyone bought whatever book was on the table (in front of them)'

 $\not\rightarrow$ Sp. doesn't know what book each person bought.

We argue that such cases provide evidence that the modal implications of FRs emerge pragmatically. Following the general approach of Abenina-Adar 2018, FRs are conventionally associated with a set of more specific alternatives which interact with generalized pragmatic reasoning, as well as scope-taking operators, which can either block or give rise to modal implications. Tagalog non-modals FRs are handily incorporated into the general account, but are problematic for competing contemporary accounts which encode modality directly (e.g., Hirsch 2017).

Account: Under our account, FRs are interpreted have an indefinite GQ as their ordinary meaning $(\rightsquigarrow_{Ord.})$. FRs also give rise to Roothian alternatives $(\rightsquigarrow_{Alt.})$, each of which fully specifies the existential witness as an individual from the relevant domain. This corresponds to the intuition that the speaker used an under-informative expression but *could have* fully specified the referent.

(2) a. (1-a) $\rightsquigarrow_{Ord.} \exists x [\mathbf{book}(x) \land \mathbf{bought}(x)(\mathbf{m})]$

b. (1-a)
$$\rightsquigarrow_{Alt.} \{ \exists x [\mathbf{book}(x) \land x = y \land \mathbf{bought}(x)(\mathbf{m})] : y \in D_e \}$$

The key implications of the FR arise via pragmatic reasoning. We follow the neo-Gricean account of implicature calculation outlined in Schwarz 2016. In Step 1, interlocutors infer the speaker believes expression's the ordinary meaning via the *maxim* of *quality* (speaker belief of p is notated Bp). In Step 2, interlocutors infer that the speaker is not certain that any non-weaker alternative to p holds. In Step 3, interlocutors infer that the speaker disbelieves any *innocently excludable* alternative (see Fox 2007). Steps 2-3 are motivated by the *maxim of quantity*.

(3) a. Step 1:
$$O_p = \{Bp\}$$

b. Step 2: $1_{p,ALT} = O_p \cap \{\neg Bq : q \in ALT \& p \not\subset q\}$
c. Step 3: $2_{p,ALT} = 1_{p,QLT} = O_p \cap \{\neg Bq : q \in ALT \& p \not\subset q\}$

c. <u>Step 3</u>: $2_{p,ALT} = 1_{p,ALT} \cap \{B \neg q : \neg Bq \in 1_{p,ALT} \& q \text{ is innocently excludable wrt } 1_{p,ALT}\}$

Deriving ignorance: We take the definite reading of (1-a) to be a special case of the indefinite semantics in (2-a), in which the description is pragmatically presupposed to be uniquely instantiated.

In fact, ignorance always arises in such cases. We observe that when the description is signalled to be uniquely instantiated (e.g., if it contains a cleft), the ignorance reading is obligatory.

In such cases, in Step 1 (via quality) the speaker believes the ordinary meaning in (2-a) (abbreviated $\exists [\mathbf{buy}]$ below). In Step 2 (via quantity), the speaker is not certain that Maria bought Anna Karenina (**a**), Bleak House (**b**), or Crime and Punishment (**c**). If the speaker had been certain of any of these alternatives, she would have used the uniquely identifying expression instead. Following the definition in Schwarz 2016, no proposition $B \neg q$ is innocently excludable, so Step 3 is vacuous here. The end result is the set of inferences listed in (4-b), i.e, Maria book a book, and for each book x in the domain, the speaker is not certain that Maria bought x: an ignorance reading.

(4) a. $\underbrace{\text{Step 1: } O_p = \{B \exists [\mathbf{buy}]\}}_{b. \quad \overline{\text{Step 2: } 1_{p,ALT} = \{B \exists [\mathbf{buy}]\}} \cap \{\neg B[\mathbf{buy}(\mathbf{a})], \neg B[\mathbf{buy}(\mathbf{b})], \neg B[\mathbf{buy}(\mathbf{c})]\}}_{c. \quad \overline{\text{Step 3: } 2_{p,ALT} = 1_{p,ALT}}}$

Deriving non-modal readings under negation: Non-modal readings arise when the FR scopes underneath negation (or any downward entailing operator), as in (1-b). The ordinary meaning is thus a negated existential, abbreviated $\neg \exists [\mathbf{blame}]$. In Step 1, the speaker believes this negated proposition. However, in Step 2, via (3-b), the speaker is not certain of any alternative *not* entailed by the ordinary meaning. In this case, each alternative meaning ($\neg [\mathbf{blame}(\mathbf{a})], \neg [\mathbf{blame}(\mathbf{b})]$, and $\neg [\mathbf{blame}(\mathbf{c})]$) *is* entailed by the ordinary meaning. Thus Step 2 is vacuous here. Unlike in (4), we do not see the ignorance reading emerge in Step 2. Likewise, in Step 3 nothing satisfies the first conjunct in (3-c), so Step 3 is vacuous as well.

- (5) a. Step 1: $O_p = \{B \neg \exists [\mathbf{blame}]\}$ b. Step 2: $1_{p,ALT} = O_p = \{B \neg \exists [\mathbf{blame}]\}$
 - c. <u>Step 3</u>: $2_{p,ALT} = 1_{p,ALT} = O_p = \{B \neg \exists [blame]\}$

The result is an ordinary non-modalized negative existential, predicting the judgement in (1-b). Note that standard accounts which bake epistemic modality into the lexical semantics of FRs (von Fintel 2000, Hirsch 2017) predict the unattested reading in (1-b).

Deriving non-modal readings under universals: Finally, non-modal readings emerge when the FR scopes under a universal as in (1-c). Intuitively, (1-c) implies that there was variation amongst the books the customers bought (i.e., not everyone bought *Anna Karenina*). This is predicted under our account. NB: $\forall \exists [\mathbf{buy}]$ abbreviates $\forall x [\mathbf{person}(x) \rightarrow \exists y [\mathbf{book}(y) \land \mathbf{buy}(y)(x)]]$.

In Step 1, the speaker believes the ordinary meaning: 'everyone engaged in book-buying'. As with ($\overline{4}$), the alternatives are *not* entailed by the ordinary meaning ('everyone bought a book' $\not\models$ 'everyone bought Bleak House'). Thus in Step 2, the speaker is not certain that everyone bought the same book. This is still too weak. In Step 3 however, we calculate that the speaker *disbelives* each alternative, as each alternative in Step 2 is innocently excludable. The end result conforms to the intuitive understanding of (4) (and its English translation), that everyone bought a book, and there is no one particular book that everyone bought. Again, standard accounts of FRs with modal semantics do not derive this reading correctly.

(6) a. $\underbrace{\text{Step 1: } O_p = \{B \forall \exists [\mathbf{buy}]\}}_{b. \quad \mathbf{Step 2: } 1_{p,ALT} = \{B \forall \exists [\mathbf{buy}]\} \cap \{\neg B \forall [\mathbf{buy}(\mathbf{a})], \neg B \forall [\mathbf{buy}(\mathbf{b})], \neg B \forall [\mathbf{buy}(\mathbf{c})]\}}_{c. \quad \mathbf{Step 3: } 2_{p,ALT} = 1_{p,ALT} \cap \{B \neg \forall [\mathbf{buy}(\mathbf{a})], B \neg \forall [\mathbf{buy}(\mathbf{b})], B \neg \forall [\mathbf{buy}(\mathbf{c})]\}}$

Thus the Tagalog case study leads us to a non-modal semantics for FRs. Modal readings are derived by a generalized approach to pragmatic inference and how interlocutors reason about alternatives.