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

1 Introduction

Background

- What does a speaker suggest by using a *wh-ever* free relative (FR) over a plain (in)definite description?

(1) {Whichever | The | A} student who arrived first opened the window.

- An influential perspective on *wh-ever* FRs: they give rise to an implication that the speaker is unable or unwilling to uniquely identify the referent.

(2) Whatever Kim is cooking smells delicious.

\[ \Rightarrow \text{Sp. unable/unwilling to specify what Kim is cooking.} \]

- Since Dayal 1997, these modal meanings are often analyzed as part of the FR’s conventional meaning.
- But such accounts are challenged by data demonstrating that FRs have non-modal readings.
- We argue this suggests the implication in (2) arises pragmatically.

Our case study

- Tagalog allows FRs comprised of a *wh*-word plus *man* (henceforth *man*-FRs).
- Parallel to English FRs, the *man*-FR in (3) triggers a modal inference: speaker ignorance.

(3) binili ni-Maria [ang-anoman-g libro-ng nasa-lamesa]

\[ \text{TT.buy NS-Maria S-WH.man-LK book-LK on-table} \]

‘Maria bought whatever book was on the table’

\[ \Rightarrow \text{Sp. cannot identify the book} \]

- However, we find that in downward entailing (‘negative’) contexts (4-a), and in quantificational contexts (4-b) (see Lauer 2009 on English), such modal inferences fail to arise.

(4) a. hindi ko sinisi [ang-sinuma-ng tumulong sa-akin]

\[ \text{Not NS.1sg TT.blame S-WH.man-LK AV.help OBL-1sg} \]

‘I didn’t blame anyone that helped me’

\[ \Rightarrow \text{Sp doesn’t know who helped her.} \]

b. binili ng-*hawat isa* [ang-anoman-g libro-ng nasa-harap niya]

\[ \text{TT.buy NS-everyone S-WH.man-LK book-LK in-front GEN.3sg} \]

‘Everyone bought whatever book was in front of them’

\[ \Rightarrow \text{Sp. doesn’t know what book each person bought.} \]

- Such cases suggest that the modal implication in (3) is not conventionalized, but arises pragmatically.

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2. The scalar particle *man* means ‘even’ or ‘despite’ in isolation (cf. Collins 2016 on Ilokano)
• *man*-FRs give rise to alternatives fully specifying the referent (see Abenina-Adar (2018) on English).

• The ignorance inference emerges pragmatically via general principles of interactional reasoning.

• Thus, non-modal readings (4) provide evidence against competing accounts of FRs which encode modal meanings directly (e.g., Hirsch (2016)).

2 A non-modal semantics of *man* free relatives

2.1 Modal accounts of FRs

• We take *man*-FRs to be semantically ambiguous between:
  – A definite reading: (5-a)
  – An indefinite reading: (5-b)

(5) \textit{hindi ko sinisi [ang-sinuma-ng tumulong sa-akin]}
Not NS.1sg TT.blame S-WH.man-LK AV.help OBL-1sg
  a. ‘I didn’t blame the person helped me.’
  b. ‘I didn’t blame \textit{a(ny) person who helped me’}.

• The analysis we will pursue is that the grammatical meaning of *man*-FRs does not involve modality

• Compare, for instance, Hirsch’s 2016 analysis of English \textit{wh-ever}. Hirsch is informed by the following generalization (following Dayal (1997); von Fintel (2000), and others):

  “Wh-ever FRs obligatorily license modal inferences of ignorance or indifference” 2016:p341

• Applying Hirsch’s analysis to (5-a) would produce a meaning like:

(6) \textbf{Hirsch (2016) on ‘\textit{wh-ever}’}:

\begin{align*}
\text{I believe} & \text{ that if only } \underline{\text{Anna}} \text{ helped me, then I didn’t blame who helped me.} \\
\land & \text{I believe} \text{ that if only } \underline{\text{Barbara}} \text{ helped me, then I didn’t blame who helped me.} \\
& \text{I believe} \text{ that if only } \underline{\text{Choi}} \text{ helped me, then I didn’t blame who helped me.}
\end{align*}

• In order to derive the apparent modal inference, Hirsch argues that:
  – \textit{whatever} introduces an implicit belief predicate (underlined in (6)).
  – Following Rawlins 2013, the belief predicate has a \textit{non-triviality presupposition}.
  – Thus, each conditional antecedent in (6) must be compatible with the speaker’s beliefs.

• The end result: a \textit{wh-ever} expression hard codes a modal inference.
  – In (6), for each relevant individual \(x\), the speaker entertains the possibility that \(x\) helped her.
2.2 Are free relatives always modal?

- Under Hirsch’s analysis, *wh-ever* introduces a silent operator, quantifying over speaker beliefs. But is this justified?
- von Fintel and Condoravdi point out that ignorance inferences need not be tied to speaker beliefs.

(7) Context: you are trying to guess (and I know) what’s behind the door
Whatever is behind that door has two legs. Condoravdi 2015:p222

(8) A: Jim came in first.
   B: No! Josh came in first!
   A: Well, whoever came in first saw what happened. Condoravdi 2015

- Moreover, Lauer 2009 points out that under quantification, modal implications vanish.

(9) a. Context: Every test eater was randomly assigned one of the dishes. Each of them gave the highest mark to whatever he was eating.
   b. (In those days,) whatever Parker wrote was violent. Lauer 2009:p8

2.3 The Tagalog perspective on FR modality

- We put forward Tagalog *man*-FRs as an argument that FRs need not directly encode modality.

(10) Observation N:

   *man*-FRs in downward entailing contexts (e.g., negation) are non-modal if interpreted as indefinites.

- Reading (5-b) is an example demonstrating Observation N

(11) hindikosinisi[ang-sinuma-ng tumulong sa-akin]
Not NS.1sg TT.blame S.WH.man-LK AV.help OBL-1sg
‘I didn’t blame any person who helped me.’ (≠ I don’t know who helped me.)

   not NOM.2SG AV.PROG.go where even.
   You don’t go anywhere. Schachter and Otanes 1982
   
   b. Hindi siya ginigising ng anuman.
   Not NOM.3SG PV.PROG.awake GEN what.even
   Nothing wakes him up. Schachter and Otanes 1982

- The second observation follows from Lauer’s observation about English *wh-ever*.³

(13) Observation Q:

   *man*-FRs are non-modal if distributed under a universal quantifier.

(14) binili ng-bawat isa[ang-anoman-g libro-ng nasa-harap niya]
TT.buy NS.everyone S.WH.man-LK book-LK in-front NS.3sg
‘Everyone bought whatever book was in front of them’

³Hirsch does address Lauer’s ‘food critic’ type sentences in (9), but claims that only a doxastic modal reading is ruled out, but a counterfactual reading is indeed permitted. It is unclear how this analysis derives the observed non-modal readings.
• Observations N/Q are evidence against modal implications (e.g., ignorance) being part of the hard-coded, conventionalized meaning of FRs, leading us to conclude:

  
  modal implications of FRs are not part of the semantics of FRs.

• Given this conclusion, the goal is to provide a non-modal semantics for FRs which derives observed modal implications pragmatically.

• Our starting point is the definite reading (5-a).

3 Deriving ignorance

3.1 The semantics of man-FRs

• We propose the semantics for definite man-FRs, following Abenina-Adar’s 2018 analysis of wh-ever.

• man-FRs are anaphoric to a set of relevant individuals $A$.

$\begin{equation}
\text{J}_{\text{wh-man}}(X)_K^A = \text{the unique } X
\end{equation}$

where defined, $\text{J}_{\text{wh-man}}(X)_K^A = \text{the unique } X$

• For example:

$\begin{equation}
\text{J}_{\text{wh-man}}(\text{book on the table})_K^{\{a,b,c\}} = \text{the unique book on the table}
\end{equation}$

Thus we analyze definite readings of wh-man FRs as a referring expression.

• So, why would a speaker use a wh-man FRs instead of just a plain definite?

• We argue that wh-man FRs pragmatically compete with alternative expressions which fully specify the referent of the FR: the speaker identifies the FR with Anna Karenina or some other book in $A$.

$\begin{equation}
\text{J}_{\text{wh-man}}(X)_K^{\text{alt}} = \{\lambda P : \text{J}_{\text{wh-man}}(X)_K^A = a | a \in A\}
\end{equation}$

For example

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4cf. Condoravdi’s notion of atomic members of contextually supplied individuation schemes.

5$[\text{wh-man}]_A^A = \lambda P : A(t[P]) \cdot t[P]$

6cf. Abenina-Adar 2018 which instead assumes the referent is a sole instantiator of some sub-property of X. We don’t employ the intermediary notion of sub-property, but it could be easily incorporated into the analysis.

7$[\text{wh-man}]_{\text{alt}}^A = \{\lambda P : t[P] = a \cdot a | a \in A\}$
(18) \[ [\text{wh-man(book on the table)}]_{alt}^{\{a,b,c\}} \] is a set of pragmatic alternatives. If \( M \in [\text{wh-man(book on the table)}]_{alt}^{\{a,b,c\}} \), then \( M \) is only defined if, for some \( a \in A \) (say Anna Karenina),

- there is a unique book on the table
- the unique book on the table = Anna Karenina

where defined, \( M = \text{Anna Karenina} \)

- The upshot: \textit{man}-FRs are referring expressions which don’t fully specify the referent, and moreover, pragmatically compete with alternative expressions which \textit{do} fully specify the referent.

3.2 Maximize Presupposition

- Following Heim 1991, several theories of (in)definites make reference to a pragmatic principle \textit{Maximize Presupposition} (see Chemla 2008; Schlenker 2012; Collins 2017; Lauer 2016, and others).

(19) \textit{Maximize Presupposition (informal)}:

All else being equal, interlocutors prefer pragmatic alternatives with stronger presuppositions.

- \(\text{MP} \) is used to explain why (20-a) implies there is more than one bathroom.

(20) a. I’m renovating a bathroom in my apartment. \hspace{2cm} \text{presupposes nothing}  

b. I’m renovating the bathroom in my apartment. \hspace{2cm} \text{presupposes a unique bathroom}

- A speaker of (20-a) is at risk of violating \(\text{MP} \), as the alternative (20-b) has a stronger presupposition.

- In order to explain the speaker of (20-a)’s choice, interlocutors reason that the uniqueness presupposition of (20-b) must be false. \(\sim\) i.e., the speaker has more than one bathroom.

- How does this apply to \textit{man}-FRs? Crucially, \textit{man}-FRs \textit{under-determine} reference.

- Speakers reason about alternatives to \textit{man}-FRs, i.e., why didn’t the speaker fully specify the referent?

(21) \textbf{Presupposition of \textit{man}-FR}:

a. there is a unique \( X \)  
b. the unique \( X \) is one of the individuals in \( A \) under specified

(22) \textbf{Presupposition of alternatives to \textit{man}-FR}:

a. there is a unique \( X \)  
b. the unique \( X \) is a (for some \( a \in A \)) fully specified

- Given (21), a speaker should be at risk of violating \(\text{MP} \) on uttering a \textit{man}-FR.

- The \textit{under specified} presupposition (21) is \textit{weaker} than the \textit{fully specified} presupposition (22)

- Therefore, interlocutors reason about why the speaker chose the potentially \(\text{MP} \)-violating utterance.
3.3 Deriving ignorance

- Our hypothesis is that the observed ignorance implication is an implicature arising through the interaction of Gricean maxims and MP.

(23) **Ignorance Hypothesis:**

An utterance \(U\) containing a definite man-FR implicants that the speaker is unwilling to fully specify the referent, i.e., she does not endorse any presupposition of the form (22-b).

- To spell this out, we extend Schwarz’s 2016 procedure for scalar implicatures to generate MP-based implicatures.\(^8\)

(24) **Results of MP-based reasoning:**

a. **Step 1:** the speaker endorses the presupposition \(p\) of the utterance \(U\).

b. **Step 2:** the speaker does not endorse \(q\), such that

   i. \(q\) is presupposed by some alternative to \(U\), and
   ii. \(q\) is strictly stronger than \(p\).\(^9\)

- We apply these general principles of interactional reasoning to man-FRs, given the semantics in §3.1.

(25) 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’

\[\sim \text{Sp endorses that there is a unique book on the table and it is in A} \sim \text{via Step 1}\]

\[\sim \text{Sp doesn’t endorse that Maria bought Anna Karenina} \sim \text{via Step 2}\]

\[\sim \text{Sp doesn’t endorse that Maria bought Bleak House} \sim \text{”}\]

\[\sim \text{Sp doesn’t endorse that Maria bought Crime and Punishment} \sim \text{”}\]

- The implication we predict for man-FRs is a lack of endorsement for each stronger alternative.

- The lack of endorsement may be due to, e.g.,

  - The speaker’s uncertainty as to the identity of the referent (ignorance)
  - The speaker’s unwillingness to identify the referent (guessing games)
  - The interlocutors do not agree on the identity of the referent (disagreements)

4 Ambiguities under negation

- In the scope of negation, we observe two readings of man-FRs:

(26) hindi ko sinisi [ang-sinuma-ng tumulong sa-akin]

Not NS.1sg TT.blame S-WH.man-LK AV.help OBL-1sg

a. ‘I didn’t blame the person who helped me’ (whoever it was . . . )  definite, modal

b. ‘I didn’t blame any person who helped me.’  indefinite, non-modal

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\(^8\)This places our theory of MP within a broader class of theories which align MP as a sub-category or analogue of the maxim of quantity (Chemla 2008; Schlenker 2012; Leahy 2016; Collins 2017, contra, e.g., Lauer 2016)

\(^9\)Schwarz 2016(p35) incorporates a third step, in which the speaker denies the truth of \(q\) if it is ‘innocently excludable’. This step is vacuous here, so it’s excluded for simplicity. Though in quantificational examples, this extra step derives the right result.
The definite modal reading (a) is explained via MP-based reasoning. The implication persists given that presuppositional content survives negation (Karttunen 1973).

The second reading requires a different account:
   a. There is no uniqueness presupposition in (b)
   b. There is no implication in (b) that the speaker won’t narrow down to individual reference.

The indefinite reading is unavailable in upward entailing (i.e. positive) contexts

(27) sinisi ko [ang-sinuma-ng tumulong sa-akin]
   TT.blame NS.1sg S-WH.man-LK AV.help OBL-1sg
   a. ‘I blamed the person who helped me’
   b. Unattested: ‘I blamed someone that helped me’

We pursue an ambiguity-based analysis: man-FRs have an indefinite interpretation which is licensed only in downward entailing contexts.

4.1 The semantics of indefinite FRs

Like definite man-FRs, indefinites are anaphoric to a set of individuals \( A \).

Indefinite man-FRs are simple existential quantifiers, whose domain \( P \) is restricted by \( A \).

(28) \( [\exists \text{wh-man}(P)(Q)]^A \) asserts the existence of some individual \( a \) s.t., \( a \) is an \( P \), \( Q \), and an \( A \).

(29) \( [\text{hindi}(\exists \text{wh-man}(P)(Q))]^A \) denies the existence of some individual \( a \) s.t., \( a \) is an \( P \), \( Q \), and an \( A \).

Just like the definite man-FR, each alternative is a full specification of some individual.

(30) \( [\exists \text{wh-man}(P)(Q)]^A_{alt} \) is a set of pragmatic alternatives.\(^{12}\)
   if \( M \in [\exists \text{wh-man}(P)(Q)]^A_{alt} \), then \( M \) is an assertion that for some \( a \in A \), \( a \) is a \( P \) and \( Q \).

For example,

(31) \( [\exists \text{wh-man}(\text{help})(\text{blame})]^{A,\{a,b,c\}}_{alt} = \{ \begin{array}{l}
\text{Anna is a person who helped me that I blamed} \\
\text{Barbara is a person who helped me that I blamed} \\
\text{Carla is a person who helped me that I blamed}
\end{array} \}
\)

The ordinary meaning in (32) is just the disjunction of the alternative meanings in (31).

(32) \( [\exists \text{wh-man}(\text{help})(\text{blame})]^{A,\{a,b,c\}} = \bigvee \{ \begin{array}{l}
\text{Anna is a person who helped me that I blamed} \\
\text{Barbara is a person who helped me that I blamed} \\
\text{Carla is a person who helped me that I blamed}
\end{array} \}
\)

Each alternative for the definite man-FR is presuppositionally stronger than the ordinary meaning.

Whereas for the indefinite man-FR, each alternative is a stronger assertion than the ordinary meaning.

\(^{10}\)The indefinite meaning of man-FRs can be derived from the definite meaning by (a) applying Partee’s 1986 operator LIFT to \( \text{wh-man}(P) \), then (b) suspending the uniqueness presupposition, and (c) accommodating the presupposition that \( A \) and \( P \) have a non-empty intersection.

\(^{11}\)\( [\exists \text{wh-man}]^A = \lambda P.\lambda Q. \exists x [P(x) \land A(x) \land Q(x)] \)

\(^{12}\)\( [\exists \text{wh-man}]^{A,alt} = \{ \lambda P.\lambda Q. \exists x [x = a \land P(x) \land Q(x)] \mid a \in A \} \)
4.2 Deriving polarity sensitivity

- To account for the observed polarity sensitivity, we appeal to theories of NPIs employing alternatives (e.g., Krifka 1995; Chierchia 2013).

- Krifka proposes that NPIs fall under the scope of a *Scalar Assertion* operator (labelled $O_{krifka}$ below).

\[
\begin{array}{c}
\text{ForceP} \\
\text{Force} \quad \text{CP} \\
O_{krifka} \quad \exists \text{man-FR...}
\end{array}
\]

- Contra Krifka’s original proposal, $O_{krifka}$ is distinct from general mechanisms responsible for scalar implicatures (see, e.g., Spector 2016:§1). Under our analysis it is part of “what is said”.

- $O_{krifka}$ checks that its scope has the strongest assertive meaning among its alternatives.

\[
\begin{align*}
\text{33) } & \quad [O_{krifka}(\text{CP})]^{13} \\
& \quad \begin{cases} 
\text{a. asserts the ordinary meaning } [\text{CP}] \\
\text{b. denies any alternative in } [\text{CP}]_{\text{alt}} \text{ which is assertively stronger than } [\text{CP}].
\end{cases}
\end{align*}
\]

- In an upward entailing context, each alternative to a *man-FR* is strictly stronger than the *man-FR*.

- Each alternative is denied by $O_{krifka}$, creating a contradictory meaning.

\[
\begin{align*}
\text{34) } & \quad [O_{krifka}(\exists \text{wh-man}(\text{help})(\text{blame}))]^{[a,b,c]}_{\text{alt}} \\
& \quad \begin{cases} 
\text{a. asserts that there is some } a \in A \text{ that is a person who helped me that I blamed} \\
\text{b. for any } a \in A, \text{denies that } a \text{ is a person who helped me that I blamed} \quad \text{Contradiction}
\end{cases}
\end{align*}
\]

- This accounts for the impossibility of indefinite *man-FR* readings in upward entailing contexts.

- In a negative context, the indefinite *man-FR* has the strongest assertion among its alternatives; since $O_{krifka}$ negates only stronger alternatives, its application is vacuous and no contradiction arises.

\[
\begin{align*}
\text{35) } & \quad [hindi(\exists \text{wh-man}(\text{help})(\text{blame}))]^{[a,b,c]}_{\text{alt}} = \\
& \quad \begin{cases} 
\text{Anna isn’t a person who helped me that I blamed} \\
\text{Barbara isn’t a person who helped me that I blamed} \\
\text{Carla isn’t a person who helped me that I blamed}
\end{cases}
\end{align*}
\]

\[
\begin{align*}
\text{36) } & \quad [hindi(\exists \text{wh-man}(\text{help})(\text{blame}))]^{[a,b,c]}_{\text{alt}} = \\
& \quad -\left(\begin{cases} 
\text{Anna is a person who helped me that I blamed} \\
\text{Barbara is a person who helped me that I blamed} \\
\text{Carla is a person who helped me that I blamed}
\end{cases}\right)
\end{align*}
\]

\[
\begin{align*}
\text{37) } & \quad [hindi(\exists \text{wh-man}(\text{help})(\text{blame}))]^{[a,b,c]}_{\text{alt}} = \\
& \quad \begin{cases} 
\text{Anna isn’t a person who helped me that I blamed} \\
\text{Barbara isn’t a person who helped me that I blamed} \\
\text{Carla isn’t a person who helped me that I blamed}
\end{cases}
\end{align*}
\]

\[
\begin{align*}
\text{38) } & \quad [O_{krifka}(hindi(\exists \text{wh-man}(\text{help})(\text{blame})))]^{[a,b,c]}_{\text{alt}} \\
& \quad \begin{cases} 
\text{a. asserts (37), that there is no } a \in A \text{ that is a person who helped me that I blamed} \\
\text{b. no alternative in (36) is denied.}
\end{cases}
\end{align*}
\]

- Thus, the indefinite reading of *man-FRs* becomes available in DE contexts.
(39)  hindi ko sinisi [ang-sinuma-ng tumulong sa-akin]
       Not NS.1sg TT.blame S-WH.man-LK AV.help OBL-1sg
   a. ‘I didn’t blame the person who helped me’
   b. ‘I didn’t blame anyone that helped me’

   - Does the $O_{krifka}$ operator interact with the alternatives of definite $man$-FRs?
   - No. $O_{krifka}$ interacts only with asserted content, ensuring its scope is assertively as strong as possible.
   - The ordinary and alternative meanings of definite $man$-FRs differ in terms of presuppositional strength, not assertive strength, so the application of $O_{krifka}$ is vacuous.

5 Conclusion

   - 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.
   - A single grammatical ingredient (anaphoricity to a salient set $A$ that triggers alternatives) can interact with (in)definite semantics to produce varying effects (ignorance, polarity sensitivity)
   - Our analysis obviates the need for DPs with specialized modal meanings.

References


