Ignorance and indifference in *-ever* free relatives

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0 Overview

- Multiple readings in "-ever" free relatives (Tredinnick 1994; Iatridou and Varlakosta 1996; Dayal 1997; von Fintel 2000; Condoravdi 2005a; Tredinnick 2005; Vlachou 2007; Rawlins 2008a; Lauer 2009):

  (1) Whatever Mary is cooking uses onions. (Dayal 1997 ex. 28a)
  ⇒ Speaker does not know what dish M. is cooking. (*Ignorance* reading)

  (2) Alfonso grabbed whatever tool was handy. (after von Fintel 2000 ex. 17)
  ⇒ Alfonso didn't care what kind of tool he grabbed. (*Indifference* reading)

  (3) Whatever exit you take will get you onto MLK Blvd. (Condoravdi 2005a ex. 9)
  ⇒ Any exit will do. (*Free choice* / *Universal* reading)

- Three questions (focus here on *ignorance vs. indifference*):
  - (i) Why are there multiple readings? Why ambiguity?
  - (ii) How to derive the different readings? (The obvious question)
  - (iii) What is the role of "-ever"?
- Some answers to (i): (square brackets mark extrapolation)
  - von Fintel 2000 v.1: "-ever" and/or FRs involve some lexical ambiguity.
  - [Dayal 1997], von Fintel 2000 v. 2, Caponigro 2003, Tredinnick 2005: A single (underspecified) denotation can account for multiple readings.
  - Condoravdi 2005a: Different readings determined by stage in composition where alternatives discharged.
  - Rawlins 2008a, Lauer 2009: Explain away indifference readings as bad data and/or FR-independent phenomena.
- Underspecification accounts don't really predict ambiguity. Still involve lexical ambiguity in the sense that they involve e.g. choice between epistemic or counterfactual modal base (Tredinnick 2005).
- Fourth question (for some theories): (iv) Why can't the readings co-exist? Why don't we get mixed indifference/ignorance?[1]
- Proposal:
  - "-ever" is a relatively underspecified marker of "intensional domain widening": even the least likely alternative has to be taken into consideration. Intensional "even"-like item.
  - "-ever" within FR (and question, unconditional) leads to ignorance reading.
  - Indifference readings involve an independent phenomenon (attributive readings of descriptions) but one that can interact with "-ever".
  - "-ever" scoping out of FR forces indifference reading.
  - "-ever" is alternative sensitive – point in composition where it interacts with alternatives determines reading.

[1] Condoravdi 2005b presents the following example:

(i) I will vote for whoever ends up at the bottom of the list.

This certainly conveys both ignorance and indifference. However, the ignorance component is entirely due to the future modal, and "ends up"; it is still present without a free relative, and absent without either of these components.

1 On the distribution of readings

- Will ignore many complex distributional facts (see Tredinnick 2005).
- Background assumption: free relatives are definites (Jacobson 1995). (Or at least the ones discussed here.)

  (4) Alfonso read what Joanna read.

  (5) Alfonso read the thing(s) that Joanna read.

1.1 Basic diagnostics

- Simple deniability tests in root contexts:

  (6) # Whatever Arlo is cooking has a lot of onions in it, and I know exactly what he's cooking.

  (7) # Zack (simply) voted for whoever was at the top of the ballot, and he chose his vote very carefully based on his many criteria.

- Dayal's "namely" test for ignorance:

  (8) # Whatever Arlo is cooking, namely ratatouille, has a lot of garlic in it.

  (9) ✓ Alfonso voted for whoever was at the top of the ballot, namely Joanna.

- The counterfactual nature of indifference:

  (10) # I grabbed whatever tool was handy, but if a hammer had been there, I would have grabbed that.

1.2 Evidence from other "-ever" constructions

- Three other constructions with "-ever":

  (11) Whatever happened to Alfonso? (*extreme ignorance question*)

  (12) Whoever comes to the party, it will be fun. (*unconditional*)

  (13) Alfonso meets with whoever. (*bare wh-ever*)

- (Desiderata: a unified analysis of "-ever")
- (English) unconditionals do not involve adjoined free relatives. (Zaefferer 1990, 1991; Izvorski 2000a,b; Gawron 2001; Grosu 2002; Rawlins 2008b,a)
- Main claim: no indifference readings for non-DP "-ever" constructions. (Rawlins 2008a)
- Easy to see for "-ever" questions:

  (14) Whoever is at the top of the ballot?

- Unconditionals – get a sort of indifference-like reading, but Rawlins 2008a argues that it is distinct from FR-indifference.

(15) Whoever is at the top of the ballot, Alfonso will win decisively.

(16) No matter who is at the top of the ballot, Alfonso will win decisively.

- Not agent oriented.
- Not counterfactual (without counterfactual/subjunctive marking):

(17) # Joanna is at the top of the ballot. But whoever is at the top of the ballot, Alfonso will win decisively.

(18) # Joanna is at the top of the ballot. But whoever was at the top of the ballot, Alfonso would win decisively.

(19) ✓ Joanna is at the top of the ballot, but Alfonso will vote for whoever is at the top of the ballot.

- Our best shot is an unconditional that binds a pronoun in the main clause:

(20) Whoever is at the top of the ballot, Alfonso will vote for them.

- However:

(21) # Joanna is at the top of the ballot. But whoever is at the top of the ballot, Alfonso will vote for them.

- We do want to explain relation between two types of indifference, but I will not do that here.
- In contrast, ignorance is baseline in all "-ever" constructions.

1.3 Indifference by description

- Main claim: indifference readings can appear generally in DPs.
- Some selected indifference examples from the literature:

(22) Zack simply voted for whoever was at the top of the ballot. (von Fintel 2000 ex. 18)

(23) Unless Zack simply voted for whoever was at the top of the ballot, he must have spent at least 5 minutes in the voting booth. (von Fintel 2000 ex. 27)

(24) I didn't (just) vote for whoever was at the bottom of the list. (Condoravdi 2005a ex. 33a)

- Q: what is the role of "just"/"simply" in the above examples?
  - Claim: they play a general role in licensing indifference/indiscriminacy readings in DP, and can facilitate such readings in free relatives. (Rawlins 2008a; Lauer 2009)
- Diagnostic for indifference? Standard deniability test in root contexts:

(25) Zack voted for whoever was at the top of the ballot, and he chose his vote very carefully based on his many criteria.

- This example is felicitous *only on a speaker ignorance* reading. (Indifference blocked.)
- Plain definite description: compatible with indifference, again blocked by continuation.
  - That is, definite description with content like "the tool that was handy" typically triggers same counterfactual inference.
  - By default, inference that Alfonso would have grabbed a different tool if it had been handy.

(26) Alfonso grabbed the tool that was handy.

(27) Alfonso grabbed the tool that was handy, but he chose it very carefully based on many criteria.

- In certain contexts, reading forced even for plain definite description:

(28) A: (to B and C) What tool did Alfonso grab?
B: He grabbed the hammer.
C: Well, he grabbed the tool that was handy.

- Presence of "just"/"simply" forces indifference in FR or plain definite description, incompatible with continuation:

(29) Zack simply voted for whoever was at the top of the ballot, # and he chose his vote very carefully based on his many criteria.

(30) Zack simply voted for the person at the top of the ballot, # and he chose his vote very carefully based on his many criteria.

- Three main points:
  - Have to be careful with FR examples that involve "simply"/"just". Its presence goes beyond just helping bring out the reading...
  - Can use these particles as a probe into the nature of indifference/indiscriminacy in FRs.
  - Want an account of indifference that generalizes to other types of descriptions.

2 Analysis

2.1 Ignorance readings

- Basic proposal: "-ever" as an *intensional domain widener*.
  - Background goal is to account for "-ever" across constructions.
- Hamblin indefinitist account of "wh"-items, Hamblin account of questions:
  - "Wh"-items denote alternative sets of individuals.
  - Compose via "pointwise" function application with other alternative sets, building sets of higher and higher types.
  - Denotation of a question: set of propositions corresponding to the set of possible answers.
- Notational assumption: I will use 'Dom(c)' to refer to the domain of the context, i.e. a Stalnakerian context set representing public mutual beliefs.
- My proposal for "-ever"/"on earth" questions (Rawlins 2008a):

(31) c + [whatever/on earth [α]] = c + [what [α]]
defined only if
(wideness) $\mathrm{Dom}(c) \supseteq \{w \mid \exists p \in [\![[\textbf{what } [\alpha]]]\!]^c : p \text{ is a slight possibility in } w \text{ relative to } f_c \text{ and } g_c\}$
(variation) $\exists p, q \in [\![[\textbf{what } [\alpha]]]\!] : p \neq q \wedge p \cap \mathrm{Dom}(c) \neq \emptyset \wedge q \cap \mathrm{Dom}(c) \neq \emptyset$
where f_c is a speaker-oriented epistemic modal base and g_c a circumstantial ordering source.

- Variation presupposition gives same result as condition in von Fintel's 2000 analysis I. (See also Lauer's 2009 analysis of variation.)
  - (Note: elsewhere I have proposed to derive variation from pragmatics of questioning, following e.g. Beck and Kim 2006, or possibly as a property of Hamblin alternatives themselves.)
- Wideness presupposition inspired by den Dikken and Giannakidou 2002 account of "the hell" questions – but needs to be intensional, as opposed to extensional (Rawlins 2008a). "Quodlibetic" account in the sense of Horn's 2000b account of FRs.
- Paraphrase I: the domain of the context (context set) includes worlds where alternative propositions are a slight possibility.
- Paraphrase II: even the least likely alternative in $[\![\textbf{what } [\alpha]]\!]$ has to be taken into consideration.
  - Background assumption (cf. Lewis 1979 ex. 6): at any time we are typically ignoring or setting aside possibilities that are remote, unlikely, or plain forgotten. Various ways of making such possibilities salient; amounts to accommodating assumptions about the context.
  - Use of "even" in paraphrase intentional – this is basically an intensional variety of "even", with alternatives ranked by epistemic likelihood. (Cf. Lee and Horn 1994; Lee 1996; Lahiri 1998; Abrusan 2007 a.o. on "even" in free choice items)
- How to import analysis into free relatives?
  - Basic technical challenge: hard to get propositional alternatives in FR.
  - We need to derive a property, not a set of propositions to supply the restrictor for covert definite operator.
  - Caponigro 2003: "wh"-items in FRs aren't Hamblin indefinites, but simple property-denoting items; combine with content of clause via intersection as in standard analysis of restrictive relatives.
  - I will not resolve problem until §3.1).
  - Temporary assumption: composition internal to FR involves Hamblin alternatives as in questions. Get converted to property denotation in order to combine with definite operator.
  - Why go to all this trouble? (E.g. could implement a version of the idea without propositional alternatives.) Goal is uniform kind of alternative for "-ever" to compose with wherever it appears.
  - See also Izvorski 2000b: some kinds of free relatives cross-linguistically act much more CP-like than you might expect.

(32) $[\![[\textbf{whatever}_{\textbf{FR}}\ [\alpha]]]\!] = \iota x\,.\,[\text{property}([\![\textbf{what } [\alpha]]\!])](x) = 1$
defined only if
(wideness) $\text{Dom}(c) \supseteq \{w \mid \exists p \in [\![[\textbf{what } [\alpha]]]\!]^c : p \text{ is a slight possibility in } w \text{ relative to } f_c \text{ and } g_c\}$
(variation) $\exists p, q \in [\![[\textbf{what } [\alpha]]]\!] : p \neq q \wedge p \cap \text{Dom}(c) \neq \emptyset \wedge q \cap \text{Dom}(c) \neq \emptyset$

- What does this do? Raises to salience alternatives that might have been ignored because they would seem unlikely.
  - Speaker cannot even begin to narrow down alternative set.
  - Can lead to "extensional" domain widening a la Kadmon and Landman 1993, den Dikken and Giannakidou 2002 (for "the hell" questions), if presupposition accommodated.
  - (Need some more technical stuff to get the details to work out, i.e. connect domains of questions to what is possible. See Rawlins 2008a ch. 4. Basically, need a Karttunen-style "wh"-item.)

2.2 A sketch of *just* & *simply*

- Goal of section: explain interaction of "just"/"simply" with regular definite descriptions.
- Indifference readings in definite descriptions are attributive readings in the sense of Donnellan 1966.
  - Involve use of a definite description to provide information about choice of referent.
  - This kind of attributive reading arises via (neo-Gricean) pragmatic reasoning about scalar alternatives to the chosen description.
  - "Just"/"simply" sensitive to alternatives in question.
  - Account resembles account of indifferent indefinites in
- I will basically follow Horn's 2000a analysis of "just" (see also Horn 2000b):

(33) "S is just P" asserts: S is not ranked above P on the appropriate scale
presupposes: that S is ranked as at least P.

- (Difference from "only", according to Horn: presupposes instead that S is P.)
- What about in our examples?

(34) Alfonso simply grabbed the tool that was handy.

- Complications: non-copular structure, distance between "simply" and associate "the tool that was handy".
  - Are "just"/"simply" focus sensitive? Maybe, but unclear that that is what is going on here.
- I will simply assume that all definite description can make salient certain alternatives.[2]
  - In particular: *Alternative ways of describing the same individual.*
- For example, assuming the actual tool grabbed was a blue ball-peen hammer that was the only tool handy:

(35) Where i is the discourse referent of the DP in question:[3]
$[\![\textbf{the tool that was handy}]\!] \rightsquigarrow$
$$\left\{\begin{array}{l} \lambda w\,.\,\text{speaker identifies } i \text{ with } (\lambda y\,.\,\lambda w'\,.\,y \text{ is handy in } w') \text{ in } w, \\ \lambda w\,.\,\text{speaker identifies } i \text{ with } (\lambda y\,.\,\lambda w'\,.\,y \text{ is a hammer in } w') \text{ in } w, \\ \lambda w\,.\,\text{speaker identifies } i \text{ with } (\lambda y\,.\,\lambda w'\,.\,y \text{ is a blue hammer in } w') \text{ in } w, \\ \lambda w\,.\,\text{speaker identifies } i \text{ with } (\lambda y\,.\,\lambda w'\,.\,y \text{ is a ball-peen hammer in } w') \text{ in } w, \\ \ldots \end{array}\right\}$$

- Alternatives ranked according to how specifically they individuate the tool that was grabbed from other tools.

[2] Actually, we get similar effects independent of the definiteness or even referential nature of the DP:

(i) Alfonso simply grabbed a tool that was handy.

(ii) Alfonso simply grabbed every tool that was handy.

I will not attempt to handle such examples here.

[3] Nothing crucial hinges on the use of the notion 'discourse referent' here or below. The discourse referent i in formulas can be straightforwardly replaced with $\iota x\,.\,P(x)(w)$ where w is bound at the propositional level and P is the restriction of the definite description as uttered. This follows on standard accounts of discourse referents. The way I do it here does simplify defining the ordering over alternatives.

  - E.g. the first alternative most likely doesn't – contains no specific information that would allow us to identify the individual. Any tool might have been handy.
  - See also the scalar analysis of referring expressions in Heller 2005.
- I will refer to these as "descriptive alternatives" – correspond to different ways of describing while assuming fixed referential intent.
  - Note: assumption of fixed referential intent is the opposite of Condoravdi's 2008 requirement that alternatives be individuated by incompatible properties.
- In practice, need to do this when identity of referent publicly unknown.
  - I assume this variety of alternatives can be totally ordered only relative to a choice of referent.
  - Form only a partial order over all referents.
  - E.g. "handy"-alternative ranked over "hammer"-alternative and "screwdriver"-alternative, but "hammer"-alternative and "screwdriver" alternative unranked – cannot identify same referent.
- What is the nature of these alternatives? Are they present when "just"/"simply" aren't?
- Start by considering attributive example where referential intent *is* known:

(36) A: (to B and C) What tool did Alfonso grab?
B: He grabbed the hammer.
C: Well, he grabbed the tool that was handy.

- Recall: obligatory indifference-like reading.
- C does not disagree with B truth-conditionally, just suggests a more appropriate way of identifying the tool.
  - Here we consider alternative descriptions such as "hammer" & related possibilities, made salient by B.
- Pragmatic reasoning: (basically, neo-Gricean quantity reasoning)
  1. C had the option to accept B's characterization of the tool as "the hammer", but did not.
  2. Instead, C described the tool as the one that was handy.
  3. Furthermore, C's description is weaker, in the sense that it is would be less effective at allowing a hearer to identify the individual in question.
  4. C must have had some reason for choosing this other, weaker, description.
  5. C must have chosen it because it was the strongest appropriate way of identifying the referent – it doesn't matter that it is a hammer for the purposes at hand. It just matters that it was handy.
- Main differences from standard neo-Gricean scalar reasoning: (i) ordering is not determined by entailment, (ii) we do not learn that stronger alternatives are false; they are just less appropriate.
- In other uses of similar definite descriptions, pragmatic reasoning optional.
- A major open problem: how to derive the right set of descriptive alternatives?
  - Problem is general (see footnote 2), not specific to definite descriptions.
  - Will simply assume here that this kind of alternative *is* generated.
  - Will also assume that descriptive alternatives are always ranked in this particular way.

- What determines ordering? Will use the following rather simplistic measure of reduction of public epistemic uncertainty:[4]

(37) Properties P and Q are ordered iff $\exists x : \exists w \in \mathrm{Dom}(c) : P(x)(w) \wedge Q(x)(w)$

(38) Given two ordered properties (in $D_{\langle e\langle st\rangle\rangle}$) P, Q in a context c:
$P \leq_x Q$ iff $\left|\{w \in \mathrm{Dom}(c) \mid P(x)(w)\}\right| \geq \left|\{w \in \mathrm{Dom}(c) \mid Q(x)(w)\}\right|$

(39) A descriptive alternative p for a discourse referent i is determined by a property P iff $p = \lambda w\,.$ speaker identifies i with P

(40) Given two descriptive alternatives p, q determined by ordered properties P, Q respectively, and a property D representing knowledge about the identity of the referent:
$p \leq q$ iff $\forall x : (\exists w \in \mathrm{Dom}(c) : D(x)(w) \wedge P(x)(w) \wedge Q(x)(w)) \rightarrow P \leq_x Q$

- Example: suppose we know that the tools were a hammer (property: H), a screwdriver (property: S), and a wrench (property: W). The description used was "the tool that was handy", ($R = \lambda x\,.\,\lambda w\,.\,\mathrm{tool}'(x)(w) \wedge \mathrm{handy}'(x)(w)$) but we don't know which one that was, so each tool is a possible referent.
  - So $D = \lambda x\,.\,\lambda w\,.\,H(x)(w) \vee S(x)(w) \vee W(x)(w)$.
  - Relative to $\mathrm{Dom}(c)$, $D = R$.
  - S, W, and H are not ordered relative to each other. (There is no individual that satisfies any combination of these properties in the domain.)
  - R is ordered relative to S, W, H. (Can find individuals that satisfy R and any one of the other three.)
  - Each of the three tool-name properties is a stronger description than R – true in fewer worlds in $\mathrm{Dom}(c)$ than R. (I.e. would have reduced public epistemic uncertainty more.)
- What about case above where identity known?
  - Need to assume that the context used is the one prior to the corrected utterance.
  - May need better theory (not specific to particular scenario) of measuring reduction in epistemic uncertainty.
- What does "simply"/"just" do?

(41) "Alfonso simply grabbed the$_i$ tool that was handy", contribution of "simply":
Where $p = \lambda w\,.$ speaker identifies i with ($\lambda y\,.\,\lambda w'\,.\,y$ is handy in w') in w,
asserts: the most appropriate way of identifying the referent is not ranked above p on the scale imposed by $\leq$ in this context.
presupposes: the most appropriate way of identifying the referent is ranked as at least p on the scale imposed by $\leq$ in this context.

2.3 Indifference readings in free relatives

- Claim: if you put together the denotation for "-ever" I have already given, with the kind of alternatives independently needed to account for "just"/"simply", you get the right result.

[4] I am making the (probably false) assumption that the sets of worlds in question will be finite. Comparison of set cardinalities can be replaced with the subset relation for at least the examples I discuss here; I do not yet know how generally this can be done. (Alternatively we might consider a different measure of set size than cardinality.)

- Recall paraphrase II from ignorance analysis: "even the least likely alternative in $[\![\textbf{what } [\alpha]]\!]$ has to be taken into consideration."
  - Paraphrase we will derive for indifference: even the least likely alternative description of the intended referent is a possible description, as far as the speaker is concerned.
  - Where ignorance reading involves salience of epistemic alternatives, indifference reading involves salience of metalinguistic alternatives.
- The full set of descriptive alternatives introduced:

(42) A definite description with index i can introduce a set of alternatives of the form:
$\{p \mid \exists Q \in D_{\langle e\langle st\rangle\rangle} : (\exists w \in \mathrm{Dom}(c) : \exists x : Q(w)(x)) \wedge p = \lambda w\,.$ speaker identifies i with Q in $w\}$

- *Variation* presupposition forces us to assume that there is more than one descriptive alternative (something not generally necessary with definite descriptions).
- *Wideness* presupposition forces us to consider that the speaker might have chosen descriptions that include very unlikely possibilities.
- Together: these force enough salient descriptive alternatives to form a scale of the type discussed in the previous section!
  - I.e. in definite description, attributive reading optional because alternative may not be salient.
  - If "-ever" receives descriptive alternatives, forces scale to be salient.

3 Details

- Pre-theoretic proposal: "-ever" can scope over or under definite operator, interacts with different alternatives depending.
- Still have to show how to implement the idea compositionally (and that it can be implemented).
- Ancilliary goal: unified compositional account of "wh"-items in free relatives and questions (Caponigro 2003).

3.1 "Wh"-items in questions and free relatives

- Up until now, assuming Hamblin-style "wh"-items:

(43) $[\![\textbf{who}]\!] = \{x \mid x \text{ is human}\}$ (Hamblin)

- Will not work in FRs – leads to propositional alternatives.
  - Need something like a property for the FR's definite operator. No easy way to get this with fully saturated propositional alternatives.
- Caponigro 2003: "wh"-items in FRs denote properties, compose with sister (property-denoting due to λ-abstraction) via predicate modification.

(44) $[\![\textbf{who}]\!] = \lambda x\,.\,x$ is human (Caponigro)

- Caponigro's proposal for questions: property combines with question operator that introduces existential quantification, leading to a Karttunen-style alternative set.
  - Not useable for present purposes; no alternative set present at all in FRs.

  - How to capture the intuition that (43) and (44) are really very similar?
- I will do this in a multi-dimensional way, following analysis of disjunction in von Stechow 1991; Beck and Kim 2006
  - Ordinary meaning of a disjunction: classical.
  - Focus meaning: alternative set containing disjuncts. (Cf. Hamblin account: Alonso-Ovalle 2005, 2006; Simons 2005)
  - I would prefer a non-multi-dimensional account, but don't have one.
  - See also the alternative-denotations in Chierchia 2006.
- Following definitions assume standard typed lambda calculus.

(45) **Hamblin Pointwise FA**: (Hamblin 1973; Kratzer and Shimoyama 2002, Rawlins 2008a appendix 3-A)
If X is an element of type $\langle\sigma\, t\rangle$, and Y is an element of type $\langle\langle\sigma\tau\rangle\, t\rangle$, then
$X \times Y \underset{\text{def}}{=} \lambda a \in D_\tau\,.\,\exists b \exists c[X(b) \wedge Y(c) \wedge a = c(b)]$
$PFA(X,Y) = X \times Y$ or $Y \times X$ if one of these is defined, undefined otherwise.

(46) $FA(X,Y) = X(Y)$ or $Y(X)$ if one of these is defined, undefined otherwise.

(47) $PM(X,Y) = \lambda x_e\,.\,X(x) \wedge Y(x)$ if this expression is defined, undefined otherwise.

(48) $COMP(X,Y) = FA(X,Y)$ if this is defined, $PM(X,Y)$ if this is defined, and undefined otherwise.

(49) $ALTCOMP(X,Y) = PFA(X,Y)$ if this is defined, $FA(X,Y)$ if this is defined, and undefined otherwise.

(50) **Application**
Where α and β are sisters with mother γ, unless otherwise specified:
$[\![\alpha]\!]^o = COMP([\![\alpha]\!]^o, [\![\beta]\!]^o)$
$[\![\alpha]\!]^f = PFA([\![\alpha]\!]^f, [\![\beta]\!]^f)$

(51) for any item α of type τ, unless specified in the lexicon, $[\![\alpha]\!]^f = \lambda a_\tau\,.\,a = [\![\alpha]\!]^o$.

- This gets static composition going in the ordinary meanings, Hamblin-style composition going in the focus meanings.
  - Note that unless some lexical item introduces alternatives, focus value isomorphic to ordinary value and needn't be computed. (Singleton set containing ordinary value.)[5]

(52) $[\![\textbf{who}]\!]^o = [\![\textbf{who}]\!]^f = \lambda x\,.\,x$ is human (lexically specified)

(53) a. $[\![\textbf{who comes to the party}]\!]^o = \lambda x\,.\,\lambda w\,.\,x$ is human in $w \wedge x$ comes to the party in w
b. $[\![\textbf{who comes to the party}]\!]^f = \lambda p_{\langle st\rangle}\,.\,\exists x : p = \lambda w\,.\,x$ comes to the party in w

(54) Question operator puts focus value in ordinary denotation (Beck and Kim 2006).
a. $[\![\textbf{iQ } [\alpha]]\!]^o = [\![\alpha]\!]^f$
b. $[\![\textbf{iQ } [\alpha]]\!]^f = [\![\alpha]\!]^f$

(55) FR operator keeps ordinary denotation.
a. $[\![\textbf{iFR } [\alpha]]\!]^o = [\![\alpha]\!]^o$

[5] Instead of computing both in parallel, we might imagine branching only when the alternative denotation is non-trivially distinct from the ordinary denotation.

b. $[\![\textbf{iFR}\ [\alpha]]\!]^f = [\![\alpha]\!]^f$

(56) $[\![\delta]\!]^o = \lambda P.\lambda w.$the unique maximal sum x s.t. $P(x)(w) = 1$ (following Jacobson 1995; Caponigro 2003)

- So, $[\![\delta\ [\textbf{iFR}\ [\textbf{who comes to the party}]]]\!]^o = \lambda w.$ the unique maximal sum x s.t. x comes to the party in w
- $[\![\textbf{iQ}\ [\textbf{who comes to the party}]]\!]^o = \lambda p_{\langle st\rangle}.\exists x : p = \lambda w_s.x$ comes to the party in w

3.2 *-ever*

- Can now give a compositional denotation for "-ever" (presuppositions same as earlier):

(57) a. $[\![\textbf{-ever}]\!]^o = \lambda P.P$

b. $[\![\textbf{-ever}]\!]^f = \lambda a_{\langle\langle st\rangle t\rangle}.a$
defined only if (wideness, variation over a) (lexically specified)

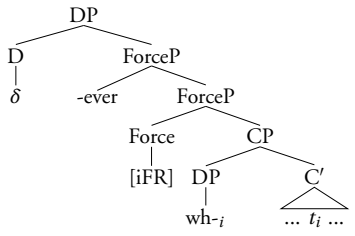
- Assume further that the focus denotation for a definite description is the set of descriptive alternatives.
  - Obviously not so straightforward in bigger picture – not all items sensitive to this type of alternative (e.g. "only").
  - But, we do know that "only" and focus interact with scalar implicatures (Rooth 1996; Chierchia 2006 a.o.):

(58) Well, I [passed]$_F$. (Rooth)

(59) Alfonso only/just/simply [passed]$_F$.

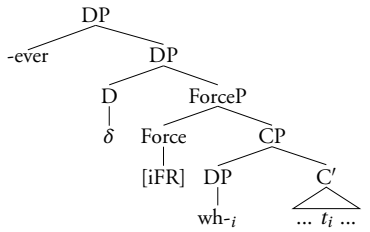
  - Chierchia 2006 uses a multi-dimensional system to account for scalar implicature calculation, in a very similar way.
  - Need to differentiate different kinds of alternatives – lots more empirical work needed here.
  - "-ever" as indiscriminate about its alternatives – doesn't care what kind it gets.
- LF scope of "-ever" determines reading (inspired by von Fintel 2005).
- LF for ignorance reading (order w.r.t. iFR doesn't matter):

(60)



- LF for indifference reading:

(61)



3.3 Predictions about projection

- von Fintel 2000; Condoravdi 2005a, 2008: understanding the projection behavior of ignorance/indifference implications is crucial to understanding FRs.
- Ignorance/indifference asymmetry (Condoravdi):
  - Ignorance projects, but is not filterable.
  - Indifference does not project.
- I predict projection of ignorance. Unclear what the prediction is about indifference.
  - Straightforward – wideness presupposition on context set about alternatives individuated by possible identities for the "wh"-item – projects.
  - "-ever" does not convey indifference – forces salience of alternatives that lead to pragmatic reasoning. Conclusion of reasoning is indifference.
- Indifference should consequently show projection behavior paralleling scalar implicatures?
- Prediction of equating indifference with attributive readings – should show same projection behavior.
  - Seems to be right!
- Following examples equally good (my '?'):

(62) ? Unless Alfonso votes for whoever is at the top of the ballot, he will be in there all day.

(63) ? Unless Alfonso votes for the person at the top of the ballot, he will be in there all day.

- Can each be made perfect with "just"/"simply" – also predicted.
- Embedded indifference readings in FRs are generally not perfect without "just"/"simply", but their acceptability tracks that in plain definites.
- For instance, challenging to get under negation:

(64) ?? Alfonso didn't vote for whoever was at the top of the ballot. (Ok on ignorance)

(65) ?? Alfonso didn't vote for the person at the top of the ballot. (Ok on referential)

(66) ✓ Alfonso didn't simply vote for whoever was at the top of the ballot.

- Tredinnick 2005 discusses such examples extensively as good, but always with much contextual support.
- Can also license with RFR intonation on free relative.
- Failure of filtering? Presupposition isn't by itself ignorance; wideness hard to paraphrase.

4 Conclusions

- An analysis in multiple layers:
  1. Empirical conclusions: indifference should not be absolutely tied to "-ever", should be tied to descriptions. Ignorance should be tied to "-ever".
  2. Proposal that indifference in general derives from pragmatic reasoning about alternative descriptions that the speaker could have chosen. (Explains interaction with "just"/"simply"
  3. Proposal that "-ever" indiscriminately combines with various types of alternatives, same denotation no matter which it takes.
  4. Analysis (building on von Fintel) of "-ever" as an intensional "even"-like item.
  5. Particular analysis of pragmatic reasoning involved in indifference.
  6. Particular implementation of indiscriminate "-ever", deriving different readings as a matter of LF scope of "-ever".
- Further benifit of analysis: extends to other "wh-ever" constructions.
- Many unanswered questions:
  - Full distribution of readings? (Cf. Tredinnick 2005) Does my account overgenerate? Universal readings?
  - Full account of projection behavior (Cf. Condoravdi 2005a, 2008)
  - Do we need a different theory of identification? (Heller and Wolter 2008)
  - Presupposition or postsupposition? Accept Lauer's 2009 arguments for the latter, but not implemented here.
- Connection with indefinites?
  - We get both indifference and ignorance readings with indefinites.
  - Is there any connection in terms of analysis? (Cleo: yes.)
  - For both ignorance/indifference, far from obvious that analysis should carry over to all FC indefinites...
  - But may carry over to some. Pragmatic reasoning I have invoked resembles that seen in accounts of modal indifference readings in indefinites (See Kratzer and Shimoyama 2002; Alonso-Ovalle and Menéndez-Benito 2003; Aloni and van Rooij 2007; Alonso-Ovalle and Menéndez-Benito 2010 a.o.)
- Lee and Horn 1994: free choice indefinites as Heimian indefinites + "even".
  - I would not want to claim that all indefinites work this way...
- Haspelmath 1997 §7.1, Lahiri 1998; Abrusan 2007: many languages have free choice items that morphologically involve an "even"-like item. (Some langs use other scalar items.)
- Hindi: "bhii" is "even"-like, attaches to indefinites:

  (67) koii bhii aadmii is mez-ko uThaa letaa hai (Lahiri 1998 ex. 35a)
  any man this table lifts
  'Any man lifts this table.'

- Srivastav 1991; Dayal 1995, 1996: "bhii" marks correlative structures as well.

- Proposal for English "wh-ever" indefinites: "-ever" is serving the same function as "bhii" in Hindi:

  (68) Alfonso reads whatever.

  (69) (compare) Alfonso reads anything.

- Triggers agent indifference (not obligatory with "any").
- Can my analysis of "-ever" generalize to this case? Not yet...

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Bibliography

Abrusan, Marta. 2007. *Even* and free choice *any* in Hungarian. In *Proceedings of SuB 11*, ed. E. Puig-Waldmüller.

Aloni, Maria, and Robert van Rooij. 2007. Free choice items and alternatives. In *Cognitive foundations of interpretation*, ed. G. Bouma, I. Kraemer, and J. Zwarts. Edita KNAW.

Alonso-Ovalle, Luis. 2005. Distributing the disjuncts over the modal space. In *Proceedings of the North East Linguistics Society 35*, ed. Leah Bateman and Cherlon Ussery. University of Massachusetts, Amherst: GLSA.

Alonso-Ovalle, Luis. 2006. Disjunction in alternative semantics. Ph.D. dissertation, University of Massachusetts at Amherst.

Alonso-Ovalle, Luis, and Paula Menéndez-Benito. 2003. Some epistemic indefinites. In *Proceedings of NELS 33*.

Alonso-Ovalle, Luis, and Paula Menéndez-Benito. 2010. Modal indefinites. *Natural Language Semantics* 18:1–31.

Beck, Sigrid, and Shin-Sook Kim. 2006. Intervention effects in alternative questions. *Journal of Comparative Germanic Linguistics* 9:165–208.

Caponigro, Ivano. 2003. Free not to ask: On the semantics of free relatives and wh-words cross-linguistically. Ph.D. dissertation, UCLA.

Chierchia, Gennaro. 2006. Broaden your views: Implicatures of domain widening and the "logicality" of language. *Linguistic Inquiry* 37:535–590.

Condoravdi, Cleo. 2005a. Not knowing or caring who. Paper presented at the MIT/Harvard LSA Summer Institute.

Condoravdi, Cleo. 2005b. Why free choice items are modal (when they are). Paper presented at Language Under Uncertainty workshop, Kyoto University.

Condoravdi, Cleo. 2008. *Whatever*: Free choice and uncertainty. Talk at informal formal semantics group, Stanford.

Dayal, Veneeta. 1995. Quantification in correlatives. In *Quantification in natural languages*, ed. Emmon Bach, Eloise Jelinek, Angelika Kratzer, and Barbara Partee, volume 1, 179–205. Kluwer Academic Publishers.
Dayal, Veneeta. 1996. *Locality in WH quantification: Questions and relative clauses in Hindi*. Studies in Linguistics and Philosophy. Kluwer Academic Publishers.
Dayal, Veneeta. 1997. Free relatives and *ever*: Identity and free choice readings. In *Proceedings of SALT 7*, 99–116.
den Dikken, Marcel, and Anastasia Giannakidou. 2002. From *Hell* to polarity: "aggressively non-d-linked" *Wh*-phrases as polarity items. *Linguistic Inquiry* 33:31–61.
Donnellan, Keith S. 1966. Reference and definite descriptions. *The Philosophical Review* 281–304.
von Fintel, Kai. 2005. Postscript to "whatever" (comments on condoravdi). Commentary at LSA workshop on context and content.
von Fintel, Kai. 2000. Whatever. In *Proceedings of SALT 10*, 27–40.
Gawron, Jean Mark. 2001. Universal concessive conditionals and alternative NPs in english. In *Logical perspectives on language and information*, ed. Cleo Condoravdi and Gerard Renardel de Lavalette. CSLI Publications.
Grosu, Alexander. 2002. Strange relatives at the interface of two millenia. *Glot International* 6:145–167.
Hamblin, C. L. 1973. Questions in montague english. *Foundations of Language* 10:41–53.
Haspelmath, Martin. 1997. *Indefinite pronouns*. Oxford University Press.
Heller, Daphna. 2005. Identity and information: Semantic and pragmatic aspects of specificational sentences. Ph.D. dissertation, Rutgers.
Heller, Daphna, and Lynsey Wolter. 2008. Identity and indeterminacy in *-ever* free relatives. In *Proceedings of SALT 18*, ed. T. Friedman and S. Ito. Cornell University.
Horn, Laurence. 2000a. Pick a theory (not just any theory). In *Negation and polarity*, ed. Laurence Horn and Yasuhiko Kato, 147–192. Oxford University Press.
Horn, Laurence. 2000b. *any* and *(-)ever*: Free choice and free relatives. In *IATL 7: Proceedings of the fifteenth annual conference*, ed. Adam Wyner, 71–111.
Iatridou, S., and S. Varlakosta. 1996. A crosslinguistic perspective on pseudoclefts. In *Proceedings of NELS 26*.
Izvorski, Roumyana. 2000a. Free adjunct free relatives. In *WCCFL 19*, 232–245. Cascadilla Press.
Izvorski, Roumyana. 2000b. Free relatives and related matters. Ph.D. dissertation, University of Pennsylvania.
Jacobson, Pauline. 1995. On the quantificational force of English free relatives. In *Quantification in natural languages*, ed. Emmon Bach, Eloise Jelinek, Angelika Kratzer, and Barbara Partee, 451–486. Kluwer Academic Publishers.
Kadmon, Nirit, and Fred Landman. 1993. Any. *Linguistics and Philosophy* 16:353–422.
Kratzer, Angelika, and Junko Shimoyama. 2002. Indeterminate pronouns: The view from japanese. In *Proceedings of the 3rd Tokyo conference on psycholinguistics*, ed. Yukio Otsu, 1–25. Hituzi Syobo.
Lahiri, Utpal. 1998. Focus and negative polarity in Hindi. *Natural Language Semantics* 6:57–123.
Lauer, Sven. 2009. Free relatives with *-ever*: Meaning and use. Stanford Qualifying Paper.
Lee, Chungmin. 1996. Negative polarity items in English and Korean. *Language Sciences* 18:505–523.
Lee, Young-Suk, and Laurence Horn. 1994. *Any* as indefinite+*Even*. Manuscript, Yale University.
Lewis, David. 1979. Scorekeeping in a language game. *Journal of Philosophical Logic* 8:339–359.
Rawlins, Kyle. 2008a. (Un)conditionals: an investigation in the syntax and semantics of conditional structures. Ph.D. dissertation, UC Santa Cruz.
Rawlins, Kyle. 2008b. Unifying *if*-conditionals and unconditionals. In *Proceedings of SALT 18*. CLC Publications.
Rooth, Mats. 1996. Focus. In *Handbook of contemporary semantic theory*, ed. Shalom Lappin. Blackwell.

Simons, Mandy. 2005. Dividing things up: The semantics of *or* and the modal/*or* interaction. *Natural Language Semantics* 13:271–316.
Srivastav, Veneeta. 1991. Wh dependencies in Hindi and the theory of grammar. Ph.D. dissertation, Cornell University.
von Stechow, Arnim. 1991. Focusing and backgrounding operators. In *Discourse particles*, ed. W. Abraham. John Benjamins.
Tredinnick, Victoria. 1994. On the interpretation and distribution of -ever in English free relatives. In *Proceedings of Console II*.
Tredinnick, Victoria. 2005. On the semantics of free relatives with -ever. Ph.D dissertation, University of Pennsylvania.
Vlachou, Evangelia. 2007. *Free choice in and out of context*. LOT.
Zaefferer, Dietmar. 1990. Conditionals and unconditonals in universal grammar and situation semantics. In *Situation theory and its applications 1*, ed. Robin Cooper, Kuniaki Mukai, and John Perry, 471–492. CSLI.
Zaefferer, Dietmar. 1991. Conditionals and unconditionals: Cross-linguistic and logical aspects. In *Semantic universals and universal semantics*, ed. Dietmar Zaefferer. Foris Publications.