Ignorance and *wh-ever*

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0   OVERVIEW

- Some terminology for English constructions:

(1)   *'-Ever' free relative*: Whatever Mary is cooking uses onions.   (Dayal 1997 ex. 28a)

(2)   *Unconditional*: Whatever Mary is cooking, dinner will be tasty.

> **The puzzle**
>
> (Episodic) "-ever" free relatives and unconditionals both give rise to *ignorance implications*.

(3)   (1, 2) ⤳ Speaker does not know what dish Mary is cooking.

- On ignorance in FRs: Dayal 1997, von Fintel 2000, Horn 2000b, Tredinnick 2005, Giannakidou and Cheng 2006, Condoravdi 2008 a.o.
- On ignorance in unconditionals: Dayal 1997, Gawron 2001, Rawlins 2008a

Why is this a puzzle?

- Doesn't it just mean that "-ever" has a uniform (or nearly uniform) semantics in both constructions? (as in Dayal 1997)
- No: unconditional adjuncts are interrogative clauses, not free relatives. (Zaefferer 1990, Izvorski 2000a,b, Grosu 2003, Rawlins 2008a)
- (Especially puzzling for Rawlins 2008a.)
- "-Ever" in root questions:

   (4)   *'-Ever' question*: Whatever happened to Joanna?
                    ⤳ speaker (very much) does not know what happened to Joanna.

   (5)   Whatever are you doing? (Jacobson 1995 ex. 83)
                    ⤳ speaker very much does not know what you are doing.

- Here "-ever" functions to intensify pre-existing ignorance implication.
- Compositional source of ignorance is "-ever" but compositional environment in FRs and interrogative clauses is different.
- A further complication: unconditional-like constructions in many languages do involve an adjoined free relative! (Dayal 1995, Haspelmath and König 1998, Izvorski 2000b)[1]
- End goal of talk: unified analysis of "-ever" in both contexts.
- Corrolary: unified account of "wh"-items in "-ever" FRs and questions (building on Caponigro 2003, Aloni 2007)
   - Plain free relatives as less question-like than "-ever" FRs?

Proposal: calculation of ignorance is constant across the three constructions.

- All three constructions involve calculation of Hamblin/Roth-style propositional alternatives. (Following Condoravdi 2008 on FRs.)

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[1]Thanks to Sabine Iatridou for discussion on this point that basically led to this talk.

- "-ever" contributes an intensional *wideness* constraint over alternatives. (Cf. Chierchia's 2006 qualitative widening.)
- General non-singleton requirement on alternatives (Beck and Kim 2006) leads to a *variation* constraint on alternatives.
- Wideness + variation (in episodic contexts) = ignorance implication. Speakers signal that they are considering very unlikely ways of identifying the true alternative.
- Compositional Hamblin semantics happens in a Rooth-style alternative dimension; constructions differ in how ordinary meaning works.

0.1   Indifference readings

- "-Ever" FRs are complicated. Further readings (Tredinnick 1994, Iatridou and Varlakosta 1996, Dayal 1997, von Fintel 2000, Condoravdi 2005, Tredinnick 2005, Giannakidou and Cheng 2006, Vlachou 2007, Rawlins 2008a, Lauer 2009):

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

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

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

- In this talk, I set aside indifference readings. (Discussed briefly in appendix.)
   - Rawlins 2008a: indifference readings are specific to free relatives among "-ever" constructions.
   - Not strictly about "-ever", but rather, about attributive readings of definite descriptions in general. Ignorance is the common denominator across "-ever" constructions.
   - (Hybrid of Dayal's proposal: ignorance readings are not attributive readings per se, but indifference readings are.)
   - Much more to say here....

0.2   Roadmap

- §1 Properties of ignorance implication, FRs, unconditionals.
- §2 Analysis: what is needed for a uniform account of "-ever"?
- §3 Further issues: explaining the parallels and differences between FRs and unconditionals, the nature of plain free relatives (and English "wh"-pronouns), projection.

1   ANALYTICAL CONSIDERATIONS

Empirical phenomena that motivate analysis: properties of ignorance, the nature of unconditionals and FRs.

1.1 The nature of the ignorance implication

- Dayal's "namely"-test:

  (9) a. # Whatever Mary is cooking, namely ratatouille, uses onions.

      b. # Whatever mary is cooking (namely, ratatouille), dinner will be tasty.

  (10) ✓ What Mary is cooking, namely ratatouille, uses onions.

- A species of cancellation test, using an appositive – ignorance implication is non-cancellable in core examples.
- Ignorance projects like a presupposition (von Fintel 2000, Condoravdi 2005).
  - Complication: Condoravdi 2005 demonstrates that the implication is not filterable. Will set this aside.
- Ignorance is inability to identify referent, or sort of referent (Condoravdi 2008, Heller and Wolter 2008).
- The role of episodicity (Dayal 1997, Giannakidou and Cheng 2006, Reynolds 2007):

  (11) **Reynold's generalization**
  If an "-ever" free relative has an ignorance reading, it is either in an episodic context or necessarily has a singleton/atomic referent.

- Extends to unconditionals (Rawlins's 2008a "single occasion puzzle").

  (12) Non-episodic ⇒ ignorance not necessary. (get "free choice" or universal readings.)

      a. (Suppose that Alfonso met with every colloquium speaker about his research this quarter.) Whoever Alfonso met with, he had an interesting discussion. (Rawlins 2008a ex. 627)

      b. (Same scenario) Whoever Alfonso met with (over the quarter) gave him good advice.

  (13) Episodic ⇒ ignorance.[2]

      a. (Suppose that Alfonso met with someone yesterday about his research, and tells you about what he learned. You say to someone else:) Whoever Alfonso met with, he got good advice. (Ibid. ex. 628)

      b. (same scenario) Whoever Alfonso met with gave him good advice. (Ibid. ex. 630)

1.2 English unconditional adjuncts are interrogative

Note: all bets are off in other languages! Four arguments in order of least compelling to most compelling:

Argument 1: co-distribution with alternative unconditionals, headed unconditionals.

(14) Whoever comes to the party, it will be fun.

(15) No matter [Q who comes to the party], it will be fun.

(16) Whether Alfonso or Joanna comes to the party, it will be fun.

Argument 2: multiple-"wh". (Izvorski 2000b, Gawron 2001)

(17) Alfonso knows who said what.

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(18) * Alfonso talked to who(ever) said what. (*free relative*)

(19) Whoever buys whoever's property, the town council will still grant a building permit. (Gawron)

(20) ? Whoever said what to whom, we've got to put this incident behind us and work together as a team. (CGEL)

- Impossible in argument position FRs of all types.[3]

Argument 3: "What were they doing" construction. (Pullum 1973, Kay and Fillmore 1999, Huddleston and Pullum 2002)

(21) What were they doing reading her mail?

(22) * She didn't complain about whatever they were doing reading her mail.

(23) Whatever they were doing reading her mail, it didn't lead to any legal problems.

- Construction usable only in interrogative clauses.

Argument 4: "wh"-pronoun licensing in echoing of unconditionals. (Rawlins 2008a)

- Most complicated argument.
- Three facts:
  - Echo questions formed by replacing interrogative clause with pronoun: must use "what" regardless of clause. (Same for other abstract entities; see Artstein 2002.)

    (24) A: Alfonso knows who Joanna talked to.
        B: What does Alfonso know? / Alfonso knows WHAT?
        B': # Who does Alfonso know? / Alfonso knows WHO?

  - When replacing FR clause, must use pronoun that matches FR pronoun.

    (25) A: Alfonso talked to whoever Joanna did.
        B: # What did Alfonso talk to? / Alfonso talked to WHAT?
        B': Who did Alfonso talk to? / Alfonso talked to WHO?

  - Can echo "-ever" unconditionals with headed unconditionals.

- The argument:

  (26) A: Whoever Joanna talked to, Alfonso will be jealous.
      B: Alfonso will be jealous regardless of WHAT?
      B': # Alfonso will be jealous regardless of WHO?

- First pass prediction of adjoined FR account: should be "who" in B.
  - More refined prediction: should actually just be bad, given that headed unconditionals take only interrogative clauses.

Conclusion: unconditional adjuncts are interrogative clauses.

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[2]Indifference readings are also available in episodic contexts, so episodicity is not a sufficient condition.

[3]There is an interesting flaw in this argument: at least some relative-clause-based correlative constructions allow multiple-wh-analogues in adjunct position. (Srivastav 1991a, Dayal 1996, Bhatt 2003)

1.3 Plain free relatives are different

- Previous section: unconditional adjuncts are different from "-ever" FRs. This section: they are the same in some way.
- Discussion framed around Gawron 2001. (Gawron: "-ever" free relatives are question-like.)[4]
- Plain FRs incompatible with "else", but questions and "-ever" FRs license it (Baker 1968, 1970).

  (27) a. Alfonso talked to who (*else) came to the party.
       b. Alfonso talked to whoever (✓else) came to the party.
       c. Alfonso knows who (✓else) came to the party.
       d. Whoever (✓else) comes to the party, it will be fun.

- Plain FRs incompatible with "wh"-epithets (den Dikken and Giannakidou 2002), but "-ever"-FRs and questions license them (Baker 1968, 1970).

  (28) a. Alfonso talked to who (*the hell) came to the party.
       b. Alfonso talked to whoever (✓the hell) came to the party.
       c. Alfonso wondered who (✓the hell) came to the party.[5]
       d. Whoever (✓the hell) comes to the party, it will be fun.

- Plain FRs have a different, more restricted, set of "wh"-pronouns than the other constructions. (Richardson)
  - Normal plain FRs ban "how many", "how much", "which+NP", and "what+NP". Allowed in other constructions.
  - (Amount FRs allows "what+NP", meaning "what few NP"; Grosu and Landman 1998)
  - (Further difference: "why" allowed only in regular interrogatives, not FRs or unconditionals. See Caponigro 2003, Rawlins 2008a for discussion.)

  (29)   * Alfonso talked to how many people came to the party.
  (30)   ✓ Alfonso talked to however many people came to the party.
  (31)   ✓ Alfonso knows how many people came to the party.
  (32)   ✓ However many people come to the party, it will be fun.

- Plain FRs disallow "it"-clefts, allowed elsewhere (Richardson).

  (33)   * Alfonso talked to who it was that Joanna talked to.
  (34)   ✓ Alfonso talked to whoever it was that Joanna talked to.
  (35)   ✓ Alfonso knows who it was that Joanna talked to.
  (36)   ✓ Whoever it was that Joanna talked to, she got some interesting details.

- Summary: several reasons to believe that the syntax(/compositional semantics) of plain and "-ever" FRs isn't as alike as typically assumed.
  - End goal: an actual explanation of the Richardson data.

1.4 If widening, what kind of widening?

- Domain widening in general: Kadmon and Landman 1993, Krifka 1995, Kratzer and Shimoyama 2002, Chierchia 2006 (among many others)
- Widening in "-ever" FRs: Jacobson 1995, Dayal 1995, Horn 2000b.[6]
- Starting point for widening/wideness: Jacobson's 1995 suggestion for "-ever" FRs and root questions: broaden domain of atoms. "the speaker's motivation for broadening the domain is to indicate that the domain of relevant atoms is sufficiently broad that s/he does not know or cannot imagine the identity of the particular atom in question." (p. 481)
- den Dikken and Giannakidou 2002 on "wh"-epithets.

  (37)   Who on earth could Alfonso be talking to?

  (38)   Whoever could Alfonso be talking to?

- D&G's domain extension: "When attached to a "wh"-word, the modifier "the-hell", we argue, extends the domain of quantification to include familiar and novel values." (p. 43)
- A problem: "reality show" scenarios: (Rawlins 2008a)

  (39) Scenario: A reality show is down to the finale with the last three contestants. Competition is fierce, and the judges have given high praise to every contestant. It is very difficult to tell who they might pick as the winner.
       a. Who on earth will they pick?
       b. Whoever will they pick?
       c. Whoever they pick, it will be a difficult decision.
       d. Whoever they pick will not win by much.

- The problem: extensional domain fixed, but constructions still contribute ignorance.[7]
  - Arregui 2008 on widening accounts of "any": regular indefinites prefer wide (extensional) domains – not actually distinct from FC "any" in context.
- Should we abandon a 'quodlibetic' analysis?
- **Claim 1**: what is widened is the set of epistemic possibilities, not the set of possible witnesses.
  - Reality show scenario: speakers are considering unlikely ways of differentiating the candidates, not unlikely identities for the winner.
  - Chierchia 2006 – "qualitative domain widening".
- Is it really widen*ing*?
  - No: can fix epistemic possibilities as well. (Example after exx. of Condoravdi's 2008.)
  - "ever"/epithet questions behave differently in this context – will set aside. (Difference: question already conveys ignorance.)

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[4]Gawron attributes the discussion and many of the observations additionally to unpublished work by John Richardson, which I do not have access to. Note that this data does not support the strong claim that "-ever" FRs and unconditionals are interrogatives, only the weak claim that these latter two constructions are different from plain FRs in some consistent way.

[5]The licensing facts here are complicated by "wh"-epithets acting as polarity items; see den Dikken and Giannakidou 2002. I take this to be an orthogonal issue.

[6]A number of authors cite unpublished work by John Richardson as an earlier antecedent to this idea.

[7]Note that den Dikken and Giannakidou 2002 have an additional modal presupposition that contributes some negative attitude towards the true answer to the question, and this is how they derive the "surprise" effect. This is clearly on the right track for "the hell" questions in at least some contexts, but is not consistent with speaker judgments for "on Earth" and "-ever" questions; a point supported by recent large-scale corpus work on expressive content in Potts 2010. In fact, in this particular context, it isn't even clear that a "who the hell" version would contribute the necessary expressive content.

(40) Scenario: Alfonso said earlier that he would cook either a lasagna, a risotto, or french toast for dinner. Several hours later, he is in the kitchen.
  a. ✓ Whatever Alfonso is cooking, dinner will be delicious.
  b. ✓ Whatever Alfonso is cooking uses onions.

- Can't widen beyond already present epistemic possibilities! [TODO: EIQs??]
- **Claim 2**: "-ever" marks wideness, not widening – domain of epistemic possibilities is as wide as possible (but no wider).

2   ANALYSIS

Plot: wideness in root questions. How to extend it to FRs? What "-ever" looks like compositionally.

2.1   Ignorance readings via wideness

- Basic proposal: "-ever" as a marker of *intensional domain wideness*.
  - Signals that the epistemic possibilities under consideration are wide (in a sense to be made precise).
- 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):

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

- Slight possibility: two version in Kratzer 1981, 1991
  - ("at least slight possibility" in Kratzer 1981 reduces to classical singly-relative epistemic possibility. Different in Kratzer 1991.)
- Variation presupposition gives same result as presupposition in von Fintel's 2000 analysis I, descendent of Dayal's 1997 quantification over i-alternatives. (Will return to this.)
- 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 $[\![\mathbf{what}\ [\alpha]]\!]$ has to be taken into consideration.
  - Background assumption (cf. Lewis 1979 ex. 6, Rawlins to appear): 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 similar to 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)
  - Accommodation of presupposition ⇒ widen*ing*.
- "-ever" draws attention to remote possibilities, indicating degree to which speaker is willing to consider unusual alternatives.
  - Assumption: set of focus alternatives does not come with an extensional domain at all!
  - Domain inherited from Dom(c).
  - Mechanism below (in FR section).
- Example (assume: top chef):
  - Suppose that contestant A wins at w_1, w_2, contestant B at w_3, w_4, and contestant C at w_5, w_6.
  - In odd-numbered worlds, the contestant who wins does so because their food was much better than everyone else.
  - In even-numbered worlds, the contestant who wins does so only because their plating was slightly better than everyone else.
- Dom(c) = $\{w_1, w_2, w_3, w_4, w_5, w_6\}$
- Suppose someone hearing the question is implicitly assuming a way of making the context precise that excludes the unlikely worlds, i.e. they are assuming Dom(c) = $\{w_1, w_3, w_5\}$, a more normal course of events on top chef.
  - They are not actually assuming that propositions true at the even worlds are false, just setting aside their possibility as a matter of convenience. (Cf. circumscription in the AI sense; McCarthy 1980.)
  - See Rawlins to appear for a technical implementation of this idea in an entirely different empirical domain.
- The wideness presupposition forces them to attend to the even-numbered worlds.
  - I.e. back off of their implicit way of making the context precise.
  - The non-precisified context set represents a hard limit for this kind of backing off – won't abandon publicly settled facts (at least for "-ever").

2.2   Free relatives

- FRs are definite (Jacobson 1995).
- 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, in order to supply the restrictor for covert definite operator.
- Up until now, assuming Hamblin-style "wh"-items:

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

- Caponigro 2003: "wh"-items in FRs denote properties, compose with sister (property-denoting due to λ-abstraction) via predicate modification.

(43) $[\![\mathbf{who}]\!] = \lambda x . x \text{ is human}$ (Caponigro)

(44) $[\![$**who came to the party**$]\!] = \lambda x \,.\, x$ is human $\wedge\, x$ came to the party

- 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 (42) and (43) 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. (However, see Aloni 2007.)
  – See also 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
  $X \times Y \underset{\text{def}}{=} \lambda a \in D_\tau \,.\, \exists b \exists c[X(b) \wedge Y(c) \wedge a = c(b)]$
  $\mathrm{PFA}(X, Y) = X \times Y$ or $Y \times X$ if one of these is defined, undefined otherwise.

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

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

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

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

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

  (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.)[8]

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

  (53) a. $[\![$**who comes to the party**$]\!]^o = \lambda x \,.\, \lambda w \,.\, x$ is human in $w \wedge x$ comes to the party in w
  b. $[\![$**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).

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

Rawlins – Ignorance in free relatives

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a. $[\![\mathrm{iQ}\,[\alpha]]\!]^o = [\![\alpha]\!]^f$
b. $[\![\mathrm{iQ}\,[\alpha]]\!]^f = [\![\alpha]\!]^f$

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

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

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

2.3 *-ever*

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

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

- LF for ignorance reading (order w.r.t. iFR doesn't matter):

  (58)
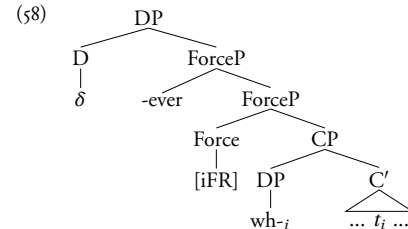
(59) $[\![\lambda$ **comes to the party**$]\!]^{f,c} = \lambda P_{\langle e\langle st\rangle\rangle} \,.\, P = \lambda x \,.\, \lambda w \,.\, x$ comes to the party in w

(60) $[\![$**who λ comes to the party**$]\!]^{f,c} = \mathrm{ALTCOMP}([\![$**who**$]\!]^{f,c}, [\![$**comes to the party**$]\!]^{f,c})$
$= \lambda p_{\langle st\rangle} \,.\, \exists x : x$ is human $\wedge\, p = \lambda w \,.\, x$ comes to the party in w (using PFA)

(61) $[\![$**iFR who λ comes to the party**$]\!]^{f,c} = [\![$**who λ comes to the party**$]\!]^{f,c}$

(62) $[\![$**-ever iFR who λ comes to the party**$]\!]^{f,c} = \mathrm{ALTCOMP}([\![$**-ever**$]\!]^{f,c}, [\![$**iFR who λ comes to the party**$]\!]^{f,c})$
$= \lambda p_{\langle st\rangle} \,.\, \exists x : x$ is human $\wedge\, p = \lambda w \,.\, x$ comes to the party in w (using FA)
defined only if wideness and variation presuppositions hold over above alternative set.

- Mechanism for relating extensional domain for "wh"-items to epistemic possibilities.

  (63) $[\![\textsc{DomClose}]\!]^{o,g,c} = \lambda P \,.\, P$
  $[\![\textsc{DomClose}]\!]^{f,g,c} = \lambda a_{\langle\langle st\rangle t\rangle} \,.\, \lambda p_{\langle st\rangle} \,.\, a(p) \wedge \exists w \in \mathrm{Dom}(c) : p(w)$

- Scope above "-ever" (to prevent circularity).
- Derive extensional domain from epistemic possibilities in context set. Intensional wideness can trigger extensional wideness/widening, but doesn't have to.

- Domain in ordinary meanings? Current assumption: supplied by maximalization operator, not "wh"-item.
- Episodicity effects:
  - In episodic/singleton contexts, variation presupposition forces multiple alternative propositions describing referent of FR.
  - Wideness presupposition draws attention to unlikely ways of individuating them.
  - Context set must be compatible with a wide range of potentially unlikely individuals as the referent of the FR.
  - But if epistemic or individual possibilities are already constrained, wideness will respect that.
- Non-episodicity effects:
  - Multiple possible referents: variation does not force us to look across multiple potential referents corresponding to a single proposition alternative.
  - Wideness can draw attention to unlikely ways of individuating alternative identities for referent on particular occasion, but need not do so.
- Variation constraint is general to propositional alternative sets? (Beck and Kim 2006, Biezma and Rawlins 2010)
- Condoravdi 2005: a set of i-alternatives on Dayal's analysis amounts to a partition on the set of possible worlds (i.e. an equivalence relation).
- Mission accomplished! A uniform denotation for "-ever" across constructions.

3 Further issues

Return to unconditionals, FRs, and Richardson's data.

3.1 Unconditional and FR parallels

- Unconditionals and "-ever" FRs are syntactically and semantically distinct in the end; similarities most prominent in compositional semantics.
- "what were they doing" construction, multiple "wh": keyed on feature in Force.
- Choice of pronoun when echoing: keyed on final ordinary denotation, which differs for FRs and unconditionals.
- Main difference in ordinary meaning: FR alternatives closed off by maximalization, unconditional/question alternatives passed to main clause (pointwise), embedding verb, or pragmatics.
  - (Probably would need PFA in ordinary COMP to important Rawlins, Rawlins's 2008b, 2008a analysis of unconditionals.)

3.2 Plain free relatives and Richardson's data

- Plain free relatives: no ignorance.
  - Follows from lack of "-ever" – no variation/wideness.
- Richardson's data:
  - "else", wh-epithets, it-clefting allowed in "-ever" constructions but not in plain free relatives.

- Proposal for "else"/epithets: interact with focus meaning only.
  - No focus meaning calculation for plain FRs.
  - "-ever" forces "wh"-item to have a focus meaning. Does not otherwise.
  - "else"/epithets unable to trigger focus meaning in "wh"-item. (Why? see below.)
- "It"-clefts are trickier – unclear at present. But von Fintel 2000 notes an affinity with ignorance readings in particular that surely plays a role.
- Final complicating piece of data: different inventory of "wh"-items in three constructions. Set 0: root/embedded questions; Set 1: unconditionals and "-ever" FRs, set 2: plain FRs.

Set 0:	*who, what, what+*NP, *which, which+*NP, *whose(+*NP)*, when, where, why, what for, how, how+*AP, *how many/much*
Set 1:	*who, what, what+*NP, *which, which+*NP, *whose(+*NP)*, when, where, what for, how, how+*AP, *how many/much*
Set 2:	*who, what,* *when, where*

Table 1: *wh*-items across constructions.

- Corner we are backed into: at least two distinct series of "wh"-items; (i) property+alternative set-denoting items in questions, unconditionals, "-ever" FRs. (ii) property-only items in plain FRs.
  - Technically in the present system: "property-only" means that the focus denotation is supplied by the default rule in (51), not the lexicon.
- (Extra possibility: non-compositional "wh-ever" series; easiest way to explain the "why" gap in present terms. See Caponigro 2003 for extensive discussion of the "why" gap.)

3.3 Predictions about projection

- von Fintel 2000, Condoravdi 2005, 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.
  - 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.
- Failure of filtering? Presupposition isn't by itself ignorance; wideness hard to paraphrase.

4 Conclusions

- Uniform ignorance implications across constructions with "-ever".
- Proposal: they result from a uniform compositional semantics for "-ever".
  - "-Ever" introduces wideness presupposition over focus alternatives determined by the "wh"-item in a compositional Hamblin semantics.
  - Hamblin alternatives generated in focus dimension; ordinary dimension preserves differences between constructions.

- Izvorski 2000a,b: unconditional FRs are bare CPs. My proposal: unconditional FRs have a focus denotation that is the same as that of a question.

- Many unanswered questions:

  - Full distribution of readings? Indifference? Does my account overgenerate? Universal readings?
  - Full account of projection behavior (See Condoravdi 2005, 2008)
  - Do we need a different theory of identification? (Heller and Wolter 2008)

- Connection with indefinites/FCIs?

  - We get both indifference and ignorance readings with at least some indefinites.
  - Is there any connection in terms of analysis? (Condoravdi: 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.)
  - Wideness machinery obviously often proposed...

- 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:

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

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

- English "-ever" indefinites/indiscriminatives:

  (65) Alfonso ate whatever.

  (66) Anything Mary cooks – ratatouille, latkes, whatever – uses onions. (Horn 2000b, due to John Richardson)

  (67) Anything Mary cooks – whatever recipe she ends up using – has onions in it.

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Appendix: indifference readings

- Rawlins 2010: "-ever" scopes above maximalization operator in free relatives, and interacts with a different kind of alternative.

- (Maximalization operator blocks projection of focus alternatives from inside FR.)

- Descriptive alternatives: alternative ways of describing the referent.

- Evidence: indifference readings independently triggered by "simply", "just". Indifference readings available in all definite descriptions.

  - Without "-ever", "simply", "just": indifference is at best implicated.
  - With one of these, it is entailed/presupposed, can be embedded, etc.

- Scalar analysis of "just"-type indifference in descriptions a la Horn 2000a independently requires the right kind of alternatives.

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