'Fake Indexicals' are not so fake: on the grammar of variable binding[*]

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1 Background and Roadmap

1.1 The phenomenon

- Partee (1989) discovered that 1st/2nd person pronouns can be interpreted as bound variables:

(1) *I am the only one who submitted **my** paper.*　　　　　　　(based on Partee 1989)
      <u>bound reading</u>: For no x, x ≠ me, x submitted **x**'s paper

(2) *you are the only one who submitted **your** paper.*
      <u>bound reading</u>: For no x, x ≠ you, x submitted **x**'s paper

- This is surprising: 1st/2nd person pronouns are usually 'indexicals', they have a fixed reference to the speaker/addressee. How come they can function as bound variables?

> **Question 1**:
> What is the grammatical mechanism that allows an indexical pronoun to be interpreted like a bound variable (i.e., be a 'fake' indexical)?

- The construction in (1) is not the only construction that hosts fake indexicals. Another one:

(3) *only I submitted my paper*
      <u>bound reading</u>: For no x, x ≠ me, x submitted **x**'s paper

- Call (1)-(2) the **Relative Clause (RC)** construction, and (3) the **Focus** construction.

- **Today: the RC construction.** But the analysis will make use of previous proposals about the focus construction.

- There's also interesting cross-linguistic variation in this domain:

  - For example, English and German strikingly differ (Kratzer, 2009):

(4) I am the only one who takes care of my children   (✓ bound)

(5) *German does not allow fake indexicals in the singular* (Kratzer, 2009)

Ich	bin	die	einzige	die	**meine**	Kinder	versorg-t	(✗ bound)
I	am.1st	the.sg.fem	only	who.sg.fem	**my**	children	takes.care.of-3sg	

'No one$_i$ other than the speaker takes care of the speaker's/*their$_i$ children'

- Wurmbrand (2017) presented more data from Icelandic and Dutch, showing that with respect to this construction Icelandic works like German and Dutch works like English.

Question 2:
What might account for the cross-linguistic variation in the domain of fake Indexicality?

1.2 Plan for the talk

Roadmap:

- In section 2 I present my answer to question 1, putting aside cross-linguistic variation: What in principle allows an indexical (in the RC construction) to be 'fake'? My answer: it has to do with **properties special to focus constructions**.

- In section 3 I will turn to the cross-linguistic issue. I'll spresent novel data from French and Italian that again shows an interesting cross-language split. Building on previous ideas in Wurmbrand (2017) as well as a novel observation about English, I will propose a way to understand what underlies the variation.

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2 The mechanism behind Fake Indexicals

(6) *I am the only one who submitted **my** paper.*
     <u>bound reading</u>: For no *x*, where *x* ≠ me, *x* submitted ***x***'s paper

2.1 Overview of proposal

- What this section is ***not*** claiming:

    - ... That fake indexicals are underlyingly *nothing more than* bound variables, i.e. that the person information of the indexical is not semantically interpreted at all (this is the '**mininal pronoun**' approach; see Kratzer 1998, von Stechow 2003, Schlenker 2003, Heim 2008, Kratzer 2009, Landau 2016, Wurmbrand 2017, a.o.)

    - See **Appendix A for arguments** in favor of current approch over the minimal pronoun approach.

- What this section ***is*** claiming:

    - Indexicals are *always* interpreted as referring to the speaker/addressee. Their bound-variable behavior is due to a special mechanism that kicks in in constructions that activate focus altenatives, namely that **certain presuppositions don't contribute to focus alternatives**. This mechanism is operative in the RC construction.

2.2 The Focus construction

- The focus construction again:

(7) *only I submitted my paper*
     <u>bound reading</u>: For no x, x ≠ me, x submitted **x**'s paper

(8) LF: only [I$_F$ λ_x submitted my$_x$ paper]

- Focus constructions invoke two tiers of interpretations (Rooth 1985): (a) the '**ordinary dimension**'), and (b) the '**alternative dimension**', representing the set of (possibly trivial) alternatives activated by focused phrases.

(9) I$_F$ left
     a. <u>Ordinary dimension</u>: the speaker left
     b. <u>Alternative dimension</u>: {the speaker left, John left, Claudia left...}
        = {x left: x is some individual}

- The idea regarding (7) is that pronouns have different contributions in the two levels: ϕ**-features are interpreted in the ordinary dimension, but not at the alternative dimension** (see Bruening 2018 (in prep.), Bassi and Longenbaugh (2017), Sauerland (2013), Jacobson (2012), Spathas (2010) for advocates of this idea).

- – Assuming (as I do) that ϕ-features are presuppositional, this amounts to the hypothesis that **the presuppositions invoked by ϕ-features are active only in the ordinary dimension**:

(10) *Hypothesis: φ-features aren't interpreted at the alternative dimension*[1]

  a. Interpretation of $\underbrace{[x \text{ 1ST-SG}]}_{\textbf{my}}$:

    i. <u>Ordinary dimension</u>: the individual x, presupposing that x is **the speaker**

    ii. <u>Alternative dimension</u>: the individual x, who **can be anyone**

  b. Interpretation of $\underbrace{[y \text{ FEM-SG}]}_{\textbf{her}}$:

    i. <u>Ordinary dimension</u>: the individual y, presupposing that y is **female**

    ii. <u>Alternative dimension</u>: the individual y, who **can be anyone**

- This derives the correct reading of (8) because it has the effect that any pronoun bound by a focused phrase will behave semantically just like the focused phrase itslef: it will take on different values across the alternative dimension that don't match the ϕ-information it was born with:

(11) I_F λ_x submitted my$_x$ paper

  a. <u>Ordinary dimension</u>: the speaker submitted the speaker's paper

                                    (ϕ-features on the possessive are interpreted)

  b. <u>Alternative dimension</u>: {x submitted x's paper: x **can be anyone**}

                                   (ϕ-features on the possessive are **not** interpreted)

- This theory doesn't need to assume that Fake Indexicals are feature-less at LF, only that they don't 'project' their interpretaion to the dimension of alternatives.

- Finally, focus-sensitive operators like *only* quantify over the alternatives of their syntactic sister. Since the alternatives are not restricted by ϕ-information, the correct result is derived.

(12) *'only p' is True iff the ordinary dimension of 'p' is True, and all the alternatives in the alternative dimension of 'p' are False*

  - Hence:

(13) *'only [I_F λ_x **submitted my$_x$ paper**]' is True iff the speaker submitted the speaker's paper, and all the alternatives to the speaker did not submit their own paper*

Intermediate Summary:

In the focus construction, fake indexicals ae "fake" because ϕ-features are interpreted only at the ordinary dimension but not at the alternative dimension.

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[1]Why ϕ-features have this property is a question I defer to another occasion. See Sauerland (2013) for an idea.

- A strong argument that ϕ-features - at least gender features - can be semantically inert in focus alternatives is given in (14).[2]

(14)   Context: John is a school teacher who happens to teach a class consisting only of girls. The other teachers teach mixed classes, some even all-male classes. John is a strong believer of free speech, and he encourages open discussion in the classroom. But his colleagues are no way near that; they don't care that much about what their students feel.
*(in this school,) only John$_F$ wants every one of his students$_y$ to express **her**$_y$ thoughts about the class.*

- In (14), *her* is bound by *every student of John* and gives rise to the inference (appropriate in the context) that all of John's students are female. The source of that inference is plausibly the gender feature on the bound pronoun, as gender is not marked on English nouns.

- Crucially, however, this inference **does not project to the dimension of alternatives**, since (14) is felicitous in the context given, in which the other professors (= alternatives to the speaker) have mixed-gender classes.

- The conclusion is that gender features - by extension, ϕ-features - need to have the option to be semantically-inert in alternatives, which is predicted by (10).

  - Arguably, then, (7) is just a particular instance of this general phenomenon.

  - See Sauerland (2013) for further evidence that ϕ-features in general do not have to be intepreted in focus alternatives.

2.3   Extending to the RC construction

- My core proposal here is to extend this analysis to the RC construction (see appendix B for full details).

(15)   *I am the only one who submitted **my** paper.*

- Specifically, I argue that:

  - Adjectival *only* is a focus-sensitive operator, on a par with superlatives (see appendix C).

  - It associates with focus-alternatives activated by the relative pronoun *who*.

  - The Relative Clause is thus an environment in which the dimension of focus alternatives is activated (at least optionally).

  - As before, ϕ-features on the bound *my* are semantically interpreted but only at the dimension of the ordinary meaning of the RC and not at its alternative dimension.

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[2]I thank Luka Crnič for pointing out the importance of examples like (14) to me. Several speakers confirmed the reported judgment.

- I propose, then, that syntactically and compositionally the focus construction and the RC construction are **much more tightly related** than appears.

- Schematically (**see appendix B for formal and technical implementation**):

(16) LF: I am the only one [$_{RC}$ who$_F$ λ_x submitted my$_x$ paper]

(17) [$_{RC}$ who$_F$ λ_x submitted my$_x$ paper]

    a. Ordinary dimension: [λx : $\underbrace{\textbf{\textit{x} is the speaker}}_{\textbf{presupposition}}$. $\underbrace{x \text{ submitted } x\text{'s paper}}_{\textbf{assertion}}$]

                                      (ϕ-features on the possessive are interpreted)

    b. Alternative dimension: [λx : $\underbrace{\textbf{\textit{x} can be anyone}}_{\textbf{presupposition}}$. $\underbrace{x \text{ submitted } x\text{'s paper}}_{\textbf{assertion}}$]

                                    (ϕ-features on the possessive are **not** interpreted)

- The interpretation of the whole construction makes reference to both dimensions:

(18) 'x is the only one RC' is True iff the *ordinary* dimension of 'RC' is True for x, and the *alternative* dimension of 'RC' is False for everyone else.

- Hence:

(19) '**I am the only one** [$_{RC}$ **who**$_F$ λ_x **submitted my**$_x$ **paper**]' is True iff the *ordinary* dimension of '[$_{RC}$ who$_F$ λ_x submitted my$_x$ paper]' is True for the speaker, and the *alternative* dimension of '[$_{RC}$ who$_F$ λ_x submitted my$_x$ paper]' is False for everyone else.
iff **the speaker submitted the speaker's paper, and no one else submitted their own paper.**

2.4 Presupposition projection derives 'agreement' with matrix subject

- Even though the features on the possessive are ignored in the alternatives, they still have an important role to play in the ordinary dimension:

- The presupposition they contribute projects up the structure, like presuppositions usually do, and this will effectively restrict the range of possible matrix subjects: the subject will have to refer to the speaker because it will have to match the presuppositions contributed by *my* (the gory details are in the appendix, but this is nothing more than standard presupposition projection).

  - Since the relative clause is only defined for the speaker in the ordinary dimenstion, the subject will have to refer to the speaker in order not to lead to presupposition failure.

  - This is what achieves the necessary **formal identity ('agreement') between the matrix subject and the fake indexical**. No syntactic dependency is required; the issue is taken care of by the mechanism of presupposition projection (but see footnote 12 for an interesting complication).

> **Summary of Proposal in this section**:
>
> - In Fake Indexical constructions, the indexical is "fake" because it does not project its semantic contribution to the level of focus alternatives.
>
> - The RC construction is a focus construction, where adjectival *only* associates with focus on the relative pronoun.[3]

3 Cross-linguistic variation in Fake Indexicals

- I now turn to some cross-linguistic issues. This part reports on work in preliminary stages.

- My goal here is rather modest: I will first present facts (some new, some old) from a few indo-european languages that exhibit variation with respect to licensing fake indexicals, then I'll offer a new (though perhaps specultive) way to uderstand the underlying source of the variation.

3.1 Initial data, and Wurmbrand's gender generalization

- Recall the difference between English and German (I'm focusing here on singular pronoun; plural indexicals show a somewhat different behavior):

(20)   I am the only one who takes care of my children   (✓ bound)

(21)   *German does not allow fake indexicals (in the singular)* (Kratzer, 2009)[4]

    Ich bin   die   einzige die   **meine** Kinder   versorg-t   (✗ bound)
    I   am.1st the.sg.fem only   who.sg.fem **my**   children takes.care.of-3sg
    'No one$_i$ other than the speaker takes care of the speaker's/*their$_i$ children'

- Wurmbrand (2017) showed that Icelandic works like German, whereas Dutch works like English with resepct to Fake Indexicals.

> **Question 2**:
> What accounts for the cross-linguistic variation in the domain of fake Indexicality?

- <u>Wurmbrand's (2017) insight</u>: this has something to do with how the languages mark **gender on the relative DP**.

  - Specifically, the languages that license fake indexicals do not mark gender on the relative DP, and those that don't license them do mark it.

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[3] Hulsey and Sauerland (2006), citing Sharvit (2003), claim that the idea that adjectival *only* is a focus-sensitive operator is problematic since it wrongly predicts that *only* can associate with other material inside the RC in addition to the trace/relative pronoun. Sharvit's criticism does not apply to the formal system here (see appendix B). In a nutshell, in the present system it is guaranteed that *only* cannot bind any other focus but the focus on the relative pronoun.

[4] This is the reported judgment in the literature. One speaker I asked didn't find the bound reading of (21) so bad, and assigned it a question-mark. Two other speakers rejected it. I'll proceed on the assumption that it's bad.

(22) *Gender on the relative DP* (Wurmbrand, 2017):

    a. <u>No gender distinction:</u>

        i. **English**: *the one who*   for both genders

        ii. **Dutch**: *de enige*   for both genders

    b. <u>Gender distinction:</u>

        i. **German**: ***der** einzige **der*** for MASC; ***die** einzige **die*** for FEM

        ii. **Icelandic**: *sá eini* for MASC; *sú eina* for FEM

- There's a split also within Romance, although the correlation with gender is not so smooth

  - Italian does not allow fake indexicals in this construction, and it marks gender on *only* as expected; but French allows them, and it also marks gender, on the determiner.

(23) ***Italian*** *doesn't allow fake indexicals*
    Sono l'unic**a**   che ama   **mio** marito qui   (??/✗ bound)
    be.1sg the'only.**fem** that loves.3sg **my** husband here
    'I am the only one here who loves my husband'

(24) ***French*** *allows fake indexicals*
    Je suis **la**   seule qui est   partie de   chez **moi**   (✓ bound)
    I be.1sg the.**fem** only who be.3sg left   from house of.**me**
    'I am the only one who left from (my) home'

- On first look, it then seems that the gender generalization fails for French.

- However, a further fact reveals there still might be something to it, and it has to do with the adjectival modifier:

- *seule* 'only' does not distinguish gender (in the pronunciation), but when we change it to **première** 'first', which does distinguish gender, fake indexicals become bad in French:

(25) *French does not allow fake indexicals with* first
    Je suis **la**   **première** qui est   partie de   chez **moi**   (?? bound)
    I be.1sg the.**fem** first.**fem** who be.3sg left   from house of.**me**
    'I am the first one who left from (my) home'

- This might suggest that a gender distinction just on the determiner 'does not matter' for the purposes of interferring with fake indexicals.

3.2 New observation: intervention by noun

- There's another factor that blocks licensing of fake indexicals, independently of gender, and I would like to put on the table the suggestion that it provides an important piece towards understanding the cross-linguistic difference.

- **Whenever there's lexical noun in the head DP, fake indexicals are never allowed**, even in languages that should allow them (this observation has gone unnoticed in the published literature as far as I know):

(26) I am the only **student** who submitted my paper   (??/✗ bound)

(27) Je suis   la   seule **étudiante** qui est   partie de   chez **moi**   (✗ bound)
      I be.1sg the.fem only student   who be.3sg left   from house of.**me**
      'I am the only student who left from (my) home'

- Call this fact **'Intervention-by-Noun'**:

(28) **Intervention-by-Noun** generalization:
      Whenever there's lexical noun in the head DP, fake indexicals are never allowed[5]

- Since English does not mark gender on the noun, (or on anything else in 26), (28) does not seem to be reducible to Wurmbrand's gender generalization.

- The excursus below offers an explanation for the intervention-by-noun generalization, within my analysis in section 2. However, for the main purpose of this section the reason for the generalization is not crucial; all that matters is that it exists. The excursus can be thus skipped without affecting the rest of the section.

Excursus: a theory of intervention-by-noun

- Recall that the RC on my analysis is defined only for the speaker, in the ordinary meaning; it is a property that can describe at most one individual.

(29) $[_{RC}$ who$_F$ λ_x submitted my$_x$ paper$]$ = $[\lambda x : \underbrace{\textbf{\textit{x} is the speaker}}_{\textbf{presupposition}}. \underbrace{x \text{ submitted } x\text{'s paper}}_{\textbf{assertion}}]$

                                                                    (in the ordinary dimension)

- I propose then that (28) can be explained within my semantic analysis of Fake Indexicals by the following semantic/pragmatic principle:

(30) **Ban on Redundant Modification** (BRM):
      Intersecting two predicates is disallowed if one of the predicates can only describe at most one individual.

  - This derives that 'student' interferes with licensing fake indexicals, because the BRM in (30) bans it from intersecting with (29).

- Why should the BRM hold? as the title of (30) suggests, the logic here is that of a **ban against redundancy**. Normally a predicate is intersected with another in order to narrow down the set of individuals referred to; but here intersecting the RC with 'student' would be vacuous - in the ordinary dimension - since the relative clause is already restricted to a singleton and cannot be narrowed down.

  - The logic is thus reminiscent of Schlenker's (2005) *Minimize Restrictors!*.

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[5]I did not check Dutch for this, but I bet the facts there are the same.

- If this kind of redundancy is not tolerated by the semantic component of grammar, we can make sense of the difference between (26) with *student* and the base case with *one*.

- On this analysis, English 'one' does not intervene in licensing fake indexicals simply because it is not interpreted by intersective modification.

  - Perhaps 'one' is a dummy element that isn't interpreted at all and is present for syntactic reasons, since English cannot have an adjective directly attaching to a relative clause for one reason or another.

  - Yet another possibility is that 'one' attaches directly to *only* and is the element in English which realizes *only*'s domain variable (which is resolved to the alternative dimension of the RC).

- End of excursus

3.3 The connection to the gender realization

- I would like to speculate that **the gender generalization is reduced to the Intervention-by-N generalization**.

- Specifically, I propose that gender on the relative DP in languages that show them is really **gender agreement with an abstract noun**, maybe an elided noun. That noun intervenes with licensing fake indexicality (in conformity with (28)).

- For example, gender on the German relative pronoun (cf. 21) is a reflex of agreement with an abstract noun whose meaning is "person" (or what have you). Similarly, gender on the adjective *l'unic.a* 'only.fem' in Italian (cf. 23), and *première* 'first' in French (cf. 25), marks agreement with this abstract noun.

- And whenever there's no gender distinction, this indicates that the language doesn't (have to) have a noun there (at least not one that's interpreted by modification; see excursus above), so there is no intervention.

- Finally, to explain why French allows fake indexicals with *seule* 'only' even though there's gender marking on the determiner (cf. 24), I resort to a stipulation which I cannot at the moment justify independently: this gender marking is base-generated separately and isn't a result of agreement with a noun. This would account for why gender just on the determiner is not an intervener.[6]

- Whether this idea is on the right track in explaining the cross-linguistic variation with fake indexicals is something I leave for future research.

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[6]Although, a fact that seems to go against this stipulation is that French has a few nouns that show mismatch between their semantic and grammatical gender, and with those nouns the determiner must agree with the grammatical, not semantic, gender on the noun.

Appendix A - the Minimal Pronoun approach and its problems

The idea in this approach

- <u>Prevailing approach</u> (Kratzer 1998, von Stechow 2003, Schlenker 2003, Heim 2008, Kratzer 2009, Landau 2016 Wurmbrand 2017, a.o.): a bound pronoun doesn't (always) have ϕ-features at LF at all. It is a **minimal pronoun**.

    - Specifically for the RC construction, it is the only approach I'm aware of for which there has been concrete analyses up to now (Kratzer 2009; Wurmbrand 2017).

- On this approach the LF of (31) (repeated from (1)) is something like (32), where $\emptyset$ means no ϕ-features generated.

(31)   *I am the only one who submitted **my** paper.*
       $\checkmark$ <u>bound reading</u>: For no x, x ≠ me, x submitted **x**'s paper

(32)   I am the only one who $[\lambda_7 \ t_7 \ \text{submitted} \ \underbrace{[\mathbf{\emptyset_7}]}_{\mathbf{my}} \ \text{paper}]$

- The truth conditions come out fine now, with a simple LF, without any complications involving focus, alternative dimension etc.

- But the question of course is **how to explain the surface realization** of these empty features?

- Answer: bound variables start the derivation feature-less but enters into syntacitc dependency/ies with their antecedent; the dependencies results in spell out of the antecedent's base-generated features on the bound pronoun at PF. Call this 'Feature Transmission'.[7]

- Intuitively, the antecedent of a fake indexical (e.g. *my*) in our test sentences is the matrix subject (*I*). Problem: the relationship between them is very non-local (it even spans an island), whereas syntactic agreement usually requires local dependencies.

- The challenge, then, is how to syntactically link the matrix subject to the variable, through its binder perhaps, in a syntactically plausible way.

(33) $\underbrace{[\mathbf{I}]}_{antecedent}$ am the only one $\underbrace{[\mathbf{who}]}_{binder}$ $[\lambda_7 \ t_7 \ \text{submitted} \ \underbrace{[\mathbf{\emptyset_7}]}_{variable} \ \text{paper}]$

> **Question**: On minimal pronoun approaches, how to establish feature transmission from the matrix subject onto a pronoun embedded in a relative clause (on syntactically defendable assumptions)?

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[7]Not all proponents of the minimal pronoun approach assume a feature transmission mechanism at PF; von Stechow (2003) and Reuland (2010) assume the reverse, namely that the features are base-generated and get deleted at LF before interpretation. For the purpose of this paper I believe this difference between the version doesn't matter.

Kratzer 2009

- Kratzer (2009): **The antecedent plays no role in the transmission**; **the base-generated features that initiate transmission are merged RC-internally** (say, on the relative pronoun[8]), and they are transferred onto the minimal pronoun under variable binding. For example, in (32) the relative pronoun would enter the derivation with [1st-sg] and transfer down to the minimal pronoun.

- But **what is the nature of those base generated pronouns**, and in particular, **are they semantically interpreted or not?**

- Kratzer stops short of providing an answer to this question and leaves it unresolved, but it is an important piece of the puzzle:

  - If the base-generated features on the relative pronoun are interperted, then how exactly?
  - If the base-generated features on the relative pronoun are *not* interperted, then how not to overgenerate many unattested bound readings for indexicals in which they don't match the matrix subject, such as in (34)?

    * After all, the RCs in (34) should be able to denote the property *[λx : x **can be anyone**. x submitted x's paper]*, and (34) are predicted to have a bound reading, contrary to fact.

  (34)   a. ***Ann** is the only one who submitted **my** paper.*
             ✗ bound reading: For no x, x ≠ Ann, x submitted **x**'s paper
          b. ***Ann** is the only one who submitted **your** paper.*
             ✗ bound reading: For no x, x ≠ Ann, x submitted **x**'s paper

Wurmbrand 2017

- Wurmbrand develops an account where the transmission is directly from the antecedent, but it is conditioned by local dependencies.

- There are three local dependencies that transitively link the matrix subject to the minimal pronoun: ***predication***, ***relativization*** and ***binding***.

  (35)   I am the only one who (only one) who$_7$ submitted $\emptyset_7$ paper
          └──predication──┘ └────relativization────┘ └────binding────┘

- Each of the dependencies is translated to 'Reverse Agree' (or 'downward valuation'), in which the c-commanding item (potentially) values a matching feature on the c-commanded one. The valued features are spelled out at PF, but not at LF.

- The fact that the matrix subject is transitively linked to the pronoun allows the former, under certain morpho-syntactic conditions (some general, some vary from language to language), to share its features to the latter. This is what happens in the English example:

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[8]This is not actually what Kratzer assumes; she takes the featues to start on the embedded little *v* which introduces the relative pronoun. This detail is immaterial here.

(36) I am the only one who (only one) who$_7$ submitted $\emptyset_7$ paper
               └──┘   └──────────┘   └─────────┘
      predication   *relativization*   *binding*
      └──────────────────────────────────────┘
            sharing of 1st *person*

- The relationship between the matrix subject and the pronoun is thus indirect and mediated by these three dependencies.

- To summarize, on minimal pronoun approaches, Fake Indexicals enter the derivation ϕ-feature-less, are interpreted as feature-less variables, and their PF realization is a result of syntactic agreement with their antecedent; On Wurmbrand's account, antecedents must be transitively linked to their minimal pronoun through predication, relativization and binding.

An overgeneration problem for Wurmbrand

- In all of our examples until now the DP that hosted the relative clause (henceforth 'the *only* DP') was in a post-copular position.

- When it's in the object of a lexical verb, a bound Indexical reading is not possible:[9]

(37) *I admire* [$_{DP}$ *the only one who submitted **my** paper*]   (✗ bound, ✓ strict)
    a. ✗ bound reading: I admire the only x such that x submitted **x**'s paper
    b. ✓ strict reading: I admire the only x such that x submitted **my** paper

- The question, though, is why the possessive can't be a minimal pronoun, and transitive linking take place by applying predication twice - from the subject to the VP and from the V to the object, as follows:

(38) I admire the only one who (only one) who$_7$ submitted $\emptyset_7$ paper
         └─┘   └───┘   └──────────┘   └────────┘
    predica' *predica'*   *relativization*   *binding*
    └──────────────────────────────────────┘
            sharing of 1st *person??*

- If the definition of "predication" is semantic predication (functional application), it's not clear what would block recursive application of it and establish an undesired link from the matrix subject onto the head of the relative clause.

  - After all, on standard assumptions a lexical transitive verb is semantically predicated over its object, and the result is predicated over the subject.

- Wurmbrand's account then must have a way to apply predication only in the post-copular cases, perhaps by prividing a syntactic notion of "predication" distinct from the semantic one. Alternatively, perhaps predication cannot apply more than once, for some reason.

- My analysis explains the ungrammaticality of (37) in a way that crucially relies on the inter-pretability of the person feature on *my*. The explanation is presented in Appendix B.

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[9]I thank Danny Fox for pointing out this data point to me.

Appendix B - the formal details

Syntax

- I assume the following LF for our RC construction:

(39) <u>LF</u>: I am the only one ~~who~~ λ_{7,F_i} [WHO_{7,F_i} λ_{7,F_i} WHO_{7,F_i} submitted [7 **1ST-SG**] paper]
$$\underbrace{\qquad}_{\mathbf{my}_7}$$

- The syntax incorporates the following ingredients:

  1. The role of focus:
     (a) The relative pronoun activate alternatives, like focused phrases. It is therefore marked by a F(ocus)-index. It also has a regular index.
     (b) F-marked DPs that move give rise to abstraction over not just their normal index but also their focus index. This is why the λ-operators are F-marked.
     (c) Adjectival *only* is a focus-sensitive operator[10]: it operates over the alternatives triggered by the relative pronoun (this idea has a precedence in Bhatt (2002), p.86).
  2. The relative pronoun binds the possessive *my*, as indicated with them being co-indexed.
  3. Crucially, the ϕ-features on the possessive are present at LF and are semantically interpreted (only they won't project to the level of alternatives; see the semantics part below).

- Here's a syntactic derivation in the framework of the copy theory of movement + deletion of material at LF (bolded material marks the change relative to the preceding step):

(40) *Derivation of post-copular DP*

  a. <u>Base generate TP</u>:

   WHO_{7,F_i} submitted [7 **1ST-SG**] paper
   $$\underbrace{\qquad}_{\mathbf{my}_7}$$

  b. <u>Bind pronoun</u> (=move and insert abstractor):

   $\mathbf{WHO_{7,F_i}}$ $\boldsymbol{\lambda_{7,F_i}}$ [WHO_{7,F_i} submitted my_7 paper]

  c. <u>Move DP</u>:

   $\mathbf{WHO_{7,F_i}}$ $\boldsymbol{\lambda_{7,F_i}}$ WHO_{7,F_i} λ_{7,F_i} [WHO_{7,F_i} submitted my_7 paper]

  d. <u>Delete higher copy at LF</u>:

   ~~$\mathbf{WHO_{7,F_i}}$~~ λ_{7,F_i} WHO_{7,F_i} λ_{7,F_i} [WHO_{7,F_i} submitted my_7 paper]

  e. <u>Merge *one*, then adjectival *only*, then *the*</u>:

   the [**only** [**one** λ_{7,F_i} WHO_{7,F_i} λ_{7,F_i} [WHO_{7,F_i} submitted my_7 paper]

---

[10]perhaps on a par with other adjectival quantifiers like superlatives. See e.g. Rooth 1985; Heim 1999.

Semantics

- I adopt the semantic framework of focus from Kratzer (1991) (see also Beck 2016), where apart from the normal interpretation function $[\![\,]\!]^g$ there's another one $[\![\,]\!]^{g,h}$.

- h is a special assignment function that's responsbile for interpreting Focus-indices.

- An F_i-marked phrase is assigned interpretation by h. In $[\![\,]\!]^g$ focus-marking is "switched off":

  (41) a. $[\![\alpha_{F_i}]\!]^g = [\![\alpha]\!]^g$
          b. $[\![\alpha_{F_i}]\!]^{g,h} = h(F_i)$, if $F_i \in dom(h)$; $[\![\alpha_{F_i}]\!]^g$ otherwise

- wh-elements, being pronouns, are ordinarily interpreted like pronouns - relative to g. But since they are also inherently F-marked, their h-sensitive interpeteration makes reference to the F-index:

  (42) a. $[\![\text{wh}_{n,F_i}]\!]^g = [\![n]\!]^g = g(n)$
          b. $[\![\text{wh}_{n,F_i}]\!]^{g,h} = [\![F_i]\!]^{g,h} = h(F_i)$

- When wh-elements move they form abstraction, as standardly assumed. I take it that since they are F-marked, abstraction involves also abstraction over the F-index.

- For this, of special importance is the composition rule for **Focus-sensitive λ-abstraction** in the h-sensitive denotation:

  (43) a. $[\![\lambda_{n,F_i}\,\psi]\!]^g = [\![\lambda_n\,\psi]\!]^g = \lambda x.\,[\![\psi]\!]^{g[n\to x]}$ (as usual)
          b. $[\![\lambda_{n,F_i}\,\psi]\!]^{g,h} = {}^{11}$ $\lambda x.\,[\![\psi]\!]^{g[n\to x],\,h[F_i\to x]}$

- If a phrase is not F-marked, the h is idle:

  (44) $[\![\alpha]\!]^{g,h} = [\![\alpha]\!]^g$

- ...Except for ϕ-features; they differ in the two levels even if not being F-marked:

  > Hypothesis: ϕ-features are interpreted in the ordinary level but not at the level of alternatives.

  - I assume that ϕ-features are interpreted as presupposition triggers (Cooper, 1979) - but only in the ordinary level, in conformity with our hypothesis.

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[11]Following Wold (1996), to avoid potential problems in cases of multiple foci, the official version for foci binders is given below (ii is the familiar squiggle operator of Rooth 1985). It incorporates a definedness condition that foci binders always quantify over novel indices. Effectively, this makes sure that adjectival *only* can only ever 'associate' with alternatives activated by the relative pronoun, thus avoiding the problem mentioned briefly in footnote 3.

  (i) $[\![\lambda_{n,F_i}\,\psi]\!]^{g,h}$ **is only defined if $F_i \notin dom(h)$**. If defined, $= \lambda x.\,[\![\psi]\!]^{g[x/n],\,h[x/F_i]}$

  (ii) $[\![\sim_{F_i}C\,\psi]\!]^{g,h}$ **is only defined if $F_i \notin dom(h)$** and $C \subseteq \left\{[\![\psi]\!]^{g,h'} : h' \text{ is identical to } h \text{ except that } F_i \in dom(h')\right\}$

– For example:

(45)   a. $[\![\text{1st-sg}]\!]^{g_c} = \lambda x : \underbrace{x \text{ is the speaker in } c}_{\text{presupposition}} . x$

   b. $[\![\text{1st-sg}]\!]^{g_c,h} = \lambda x. x$ (no presupposition)

- Finally, Focus-sensitive operators like *only* 'bind' foci in their scope; I assume that adjectival *only* is one such operator, and is defined as follows:

(46) $[\![_{adj}\text{only } P_{\langle et \rangle}]\!]^{g,h} = \lambda x_{\langle e \rangle} : \underbrace{[\![P]\!]^g(x) = TRUE}_{\text{presup'}} . \underbrace{\forall y \neq x, [\![P]\!]^{g,h}(y) = FALSE}_{\text{assertion}}.$

- Here's a semantic derivation for some of the crucial parts of the relative clause:

(47)
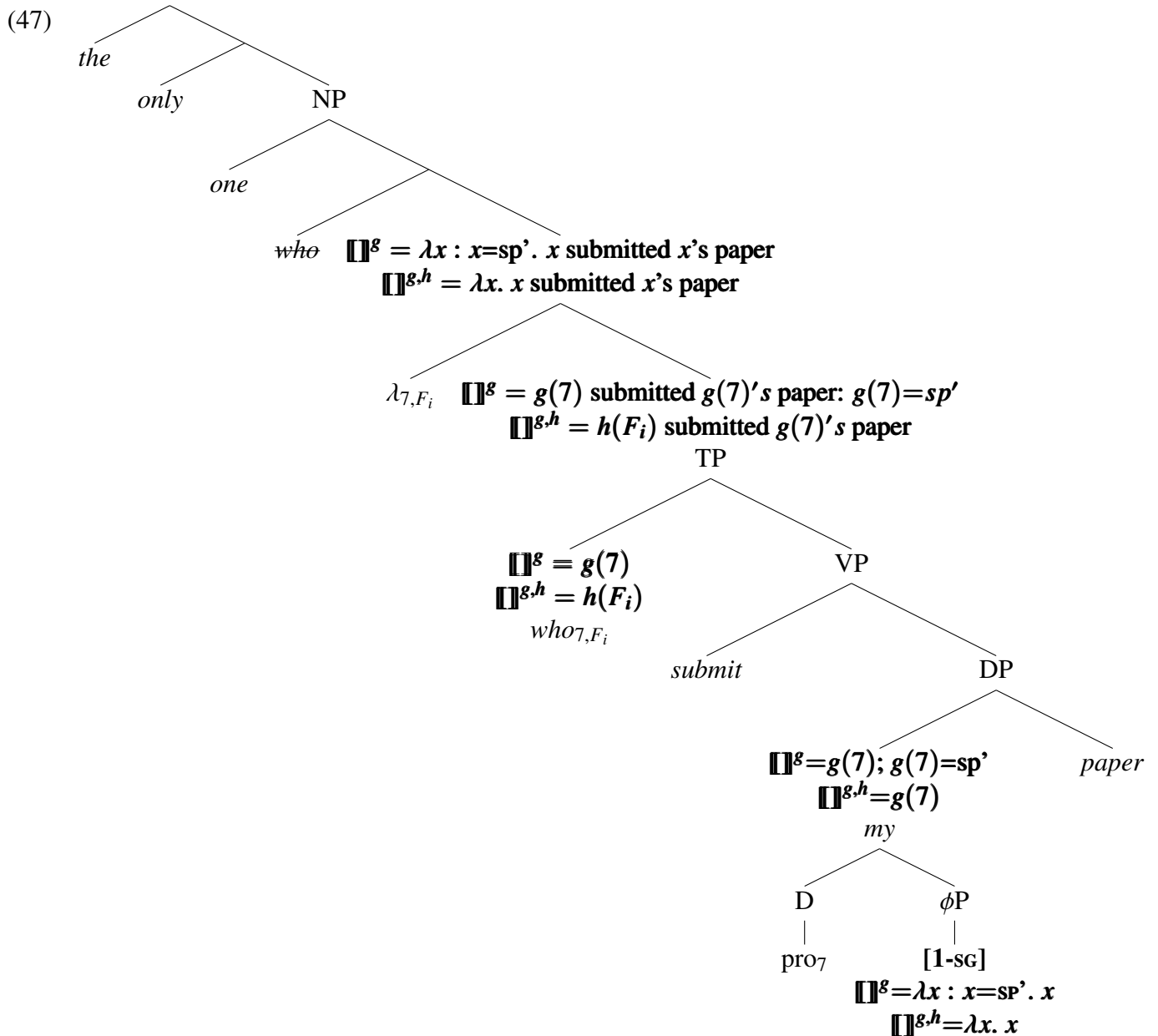
- The composition of *only* with its sister in (47) is in (48).

(48) $[\![$only NP$]\!]^{g,h} = \lambda x : [\![NP]\!]^{g}(x) = TRUE. \forall y_{\neq x}, [\![NP]\!]^{g,h}(y) = FALSE$ 　　(cf. 46)

$= \lambda x : x$ **is the speaker** and x submitted x's paper. 　　(presupposition)

$\forall y_{\neq x}$, where y **can be anyone**: y did not submit y's paper 　(assertion)

= "a predicate that can only apply to the speaker and only if the speaker submitted their paper. If applies, returns TRUE iff no one other than the speaker submitted their paper".

- We now need to combine this with *the*, whose basic denotation I assume is in (49) (following Coppock and Beaver 2015).

(49) $[\![$the$]\!]^{g,h}_{\langle et, et\rangle} = \lambda P_{\langle et\rangle} : |\{x : P(x)=TRUE\}| \leq 1. P$ 　　(Coppock and Beaver 2015)

- I.e., *the* is a filter on predicates. It checks that the predicate it applies to is true of at most one individual (possibly zero), and if so returns that predicate.

- It turns out that when combining this entry with (48) the result is the same as (48) itself, because the presupposition of *the* is satisfied: indeed, there can be at most one individual that satisfies the "only NP" predicate, depending on whether the speaker submitted their paper or not. (see Coppock and Beaver (2015) for more on this effect of combining *the* with *only NP*).

(50) $[[\![$the$]\!]_{\langle et, et\rangle}](48) = (48)$

$= \lambda x : x$ **is the speaker** and x submitted x's paper. 　　(presupposition)

$\forall y_{\neq x} : y$ **can be anyone**: y did not submit y's paper 　　(assertion)

- This predicate now applies to the matrix subject - *I* - to yield the right meaning.

  - Indeed, it can *only* apply to the the speaker - anything else would result in a presupposition failure.

  - This correctly restricts the range of antecedents of the bound pronoun. The mechanism of presupposition projection makes sure that the bound pronoun and the antecedents co-refer.[12] No special *syntactic* dependency is required to be postulated.

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[11]Remember for section 3 that I should not be committed to assuming that *one* combines intersectively with the relative clause. Perhaps *one* is not an interpreteable node, ir perhaps it attaches directly to *only* and serves as its domain variable. This does not matter much here.

[12]One might wonder whether this semantic proposal predicts a fake indexical reading for an imposter in the matrix subject, such as: *Yours truly is the only one who can take care of my children* (on imposters see Collins & Postal 2012). At first glance it seems it does predict it, which is problematic since that reading is absent. However, there is reason to believe that this doesn't have anything to do with fake indexicals, as this sentence is ungrammatical even if *my* is read as a strict pronoun. Following Heim (2008), a plausible explanation for the ungrammaticality is that a register in which one can refer to oneself with an imposter is a dialect in which there are no personal pronouns, and mixing this dialect with the normal one within the same sentence is not allowed. This is supported by the fact that, for example, Nina cannot say "Nina's mother likes me", even if she can say "Nina$_i$'s mother likes her$_i$". The prediction for plural imposters might be different (Collins & Postal 2012), and I leave it for the future to spell it out and to test for it.

Overcoming the overgeneration problem

Recall the problem for Wurmbrand from appendix A (repeated from 37):

(51) *I admire* [$_{DP}$ *the only one who submitted **my** paper*]   (✗ bound, ✓ strict)
    a. ✗ bound reading: I admire the only x such that x submitted **x**'s paper
    b. ✓ strict reading: I admire the only x such that x submitted **my** paper

- I argue that the present account can explain (51) in a principled way, which crucially **relies on the hypothesis that the features on *my* are always interpreted (in the ordinary semantics).**

- The explanation builds on the fact that there's a semantic difference between predicative DPs and argumental ones, together with an independently well-motivated constraint that applies only to argumental ones.

- Let's carefully see what is predicted on my account if *my*'s variable is bound by the relative pronoun (for the purpose of this part the dimension of alternatives $[\![\,]\!]^{g_c,h}$ is irrelevant, so we only discuss the ordinary dimension).

- Recall I assume following Coppock and Beaver (2015) that the basic meaning of a definite DP is predicative - describes a property. If *my* is bound, the property we get is the one we saw in (50) and is repeated in (52):

(52) $[\![$the only one who...$]\!]^{g_c} = $ (repeated from 50)
    $\lambda x : x$ **is the speaker in *c*** and x submitted x's paper.   (presupposition)
    $\forall y_{\neq x} : y$ **can be anyone**: y did not submit y's paper   (assertion)

- In (51), this DP is in argument position. When integrated into an argumental position, the DP needs to transform into an individual-denoting phrase. Following Coppock and Beaver (2015), I assume that this is done by a type-shift that applies to a predicate and returns *the unique individual that satisfies that predicate (if there is one)*. This type-shift, call it 'ι', achieves the familiar Fregean analysis of definite descriptions.

- When applied to (52), the result would be a referring expression that **necessarily picks out the speaker**, given the definedness condition of (52):[13]

(53) $\iota([\![$the only one who...$]\!]^{g_c}) = $ **the speaker in *c***, if the speaker submitted their paper and no one else submitted their own paper; undefined, otherwise.

- So the DP in (53) is presupposed to pick out the speaker, and it **properly dominates** another DP (i.e. *my*) which is also presupposed to pick out the speaker.

- This configuration is known to be deviant; it is a violation of the ***i-within-i* constraint**:[14]

---

[13]So on the bound reading, (51) would basically assert 'the speaker voted for the speaker'. It might be tempting then to explain the unavailability of this reading in terms of a condition C violation, but this strategy would not generalize: a bound reading for *my* in (51) is absent also if the subject is not 1st person, removing condition C configuration.

[14]see Marty (2017) for a recent theory of what explains the *i-within-i* constraint.

(54) _i-within-i_ constraint: A referential DP α properly dominating a DP β cannot be co-valued with β.

- The formulation in (54) captures the classical _i-within-i_ configurations such as the lack of intended co-reference in *[$_{DP}$ _the boss of John's_$_1$ _brother_]$_1$. Crucially for us, it also rules out a bound reading in (51).

- To see more precisely that the intended bound reading in (51a) is a violation of (54), we employ Heim's (2007:ex.12) explication of the notion of 'co-valuation' as **'presupposed coreference'**: coreference in any world in the context set c and under any variable assignment that extends the original assignment given by c:

(55) Co-valuation ('Presupposed Coreference'):
α and β (occurences of DPs of type $\langle e \rangle$) are co-valued w.r.t context c iff for all w in c and all $g' \supseteq g_c$, $[\![\alpha]\!]^{g',w} = [\![\beta]\!]^{g',w}$ (based on Heim 2007:ex.12)[15]

- **The object DP and the _my_ it dominates are co-valued** in this sense, as they both denote the speaker under any extension of the original assignment; **the interpretation of the person feature on _my_, together with the projection mechanism of presuppositions**, make sure of that. The _i-within-i_ then correctly rules out a bound reading in (51).

- The strict reading of (51), in which _my_'s variable is free throughout the derivation, is possible because in such a case the object DP can pick out any individual, so there won't be presupposed coreference and no _i-within-i_ violation.

  - This predicts correctly that **'accidental (=non-presupposed) coreference' is possible**, but only on the strict reading of _my_. In other words, the object DP in (51) can in fact refer to the speaker, but only if it is not presupposed in the context that it refers to the speaker.

  - And this is correct: _John saw the only one who likes my parents_ can mean that John saw me, but it cannot _presuppose_ that the object refer to the speaker. Rather, this identity must be asserted explicitly with a continuation sentence (e.g. "...who is in fact myself").

  - This is also the correct prediction not only for objects but for any argument position, including our copular construction if the two DPs are inverted, as in (56):

(56) The only one who submitted my paper is me (✗ bound, ✓ strict)

  - Assuming that in (56) the subject is an argument, not a predicate, a bound reading is out because of _i-within-i_, and only the strict reading is possible, as predicted.

- Finally, recall that in the post-copular position the DP isn't referential but predicative; therefore (54), which only regulates referential DPs, is irrelevant to DPs in post-colupar positions.

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[15]The formulation of co-valuation in (55) is a slightly different than Heim's own, but the spirit is the same. It relies on the idea that assignment functions provided by context map indices to individual _concepts_ rather than individuals.

Appendix C - Adjectival *only*: a focus-associating operator?

- Adjectival *only* is not the only adjective that can host Fake Indexicals in the RC constructions. Other superlative or superlative-like elements do so too (although for some reason they seem to strongly favor an infinitival RC):

(57)   a. *I was the **first** one to reveal my cards*

        b. (Context: Me and my other rich friends are bragging about how young we were when we became rich.)
           We all became rich at a young age, but *I was the **youngest** one to buy a Yacht for my family.*

        c. (Context: we are a group of people doing exercise in the gym. I look around and say:) we're all very flexible, but *I'm the **tallest** one here who can reach my toes with my fingers.*

- Why is this important? Answer: superlatives have been argued to associate with focus (Jackendoff, 1972; Szabolcsi, 1986; Heim, 1999):

(58)   John put the tallest plant on the TABLE
      $\rightsquigarrow$ the tallest plant John put somewhere was the plant he put on the table

(59)   JOHN put the tallest plant on the table
      $\rightsquigarrow$ the tallest plant someone put on the table was the plant that John put there

- Maybe adjectival *only* is itself a superlative modifier, as has been suggested by Bhatt (1999); Sharvit (2015).[16]

- In fact, it has been suggested that at least some focus-sensitive operators - those that are not "conventional" associators but "free" associators (using Beaver and Clark (2008)'s terminology), can appear to associate with traces of relative clauses:[17]

(60)   a. The book I always buy
           $\rightsquigarrow$ The book such that whenever I buy something, I buy that book

        b. The boy that Mary gave the biggest flower to
           $\rightsquigarrow$ The boy such that Mary gave that boy a flower bigger than the flower she gave to any other boy

- Beaver and Clark (2008), p. 117: "sometimes the interpretational effects normally attributed to focus sensitivity are found even without (prosodic - I.B) focus marking."

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[16]But Sharvit (2015) also points out some challenges for the view that *only* is a superlative.

[17]If the RC is a focus construction and the relative pronoun is focused, why the absence of any prosodic prominence which focus usually requires? I assume that as opposed to normal lexical items, wh-elements/relative pronouns are *inherently* focused, i.e. they come from the lexicon as activating alternatives. Plausibly, prosodic prominence is not present on these elements because it isn't needed; they are already identified as activating alternatives.

The assumption that prosodic prominence is not obligatorily present on elements that are inherently F-marked as part of their lexical nature seems to be independently needed on many theories of scalar implicatures: to capture the implicature 'some'→'not-all', for example, it is sometimes assumed that scalar items such as 'some' inherently invoke their stronger counterparts such as 'all' as *focus* alternatives (see e.g. Fox and Katzir 2011), although this implicature normally doesn't require any prosodic prominence on 'some'.

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