Fake Indexical licensing in Relative Clauses is sensitive to focus: Implications for the theory of binding *

Itai Bassi, MIT

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1. Introduction and overview

- In sentences like (1-2) the pronoun *my* has a bound-variable ('**sloppy**') interpretation, on which the sentences entail that everyone but me got **their** paycheck.

(1) Only I didn't get **my** paycheck yet **(Focus)**

(2) I am the only one who didn't get **my** paycheck yet **(Relative Clauses)**

- What makes these **'Fake Indexicals' (FIs)** possible?
- **'Minimal Pronoun'** theory:[1]
  - At the input to semantic intepretation, *my* in (1-2) is **not an indexical** at all, but rather a **bare (feature-less) variable**;
  - Grammar has a mechanism that allows bare variables to surface with the same features as their antecedent, as a result of **agreement between the two**.
- On a Minimal Pronoun view, (2) and (3) below have the **exact same logical form** (LF) and only differ in phonological form (PF).

(3) I am the only one who didn't get **his(/their)** paycheck yet

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[1] Advocates include, but are not limited to: Kratzer 1998, 2009, von Stechow 2003, Schlenker 2003, Heim 2008, Wurmbrand 2017a.

- **Focus-based** theories (Jacobson 2012; Sauerland 2013; Bassi and Longenbaugh 2018):
  - FI are **real indexicals** - they always have semantically-contentful ϕ-features;
  - But grammar has a mechanism that allows ϕ-features to be **deleted in Focus Alternatives**.
- On a focus-based view, (2) and (3) do **not share** the same LF.
- Goals of Today's talk:
  - Present **novel data** that argue **in favor of the focus-based approach**, and against the minimal pronoun approach, to FIs in **relative clauses** (RCs) like (2)-(3).
  - Build an **alternative theory** on which the data are explained.
- Preview of the empirical argument:
  - **Generalization**: if adjectival *only* is removed from RCs like (2), FI readings are possible only under certain discourse conditions: namely, only when there is **contrastive focus on the matrix subject**.
- Consider first a case where contrastive focus is *not* on the matrix subject

(4) *Context: I stop by at the HR lady's office. She doesn't recognize me (she's new) and asks 'who are you?' I reply:* I'm the one who didn't get **his/#my** paycheck yet.

- Intuition: *my* is odd in (4) because it only has a strict reading (i.e., it is a true indexical), on which the sentence says that the speaker is the only one who didn't get the speaker's paycheck, which is false in normal contexts.
- **Why isn't a bound reading available with *my*?** If (2) and (3) share an underlying semantics and the only difference between them reduces to the different agreement operations that they exploit at PF between *I* and the variable, **why should the absence of *only* matter?**
- Now consider a case where there *is* contrastive focus on the matrix subject.
- Imagine that John and Bill are complaining about how the company's financial troubles affect them. Then (5) can be used to entail/imply that John and Bill did get their last paycheck (Focus prosody is henceforth marked with underlines):

(5) (Why are they complaining?) I'm the one who didn't get **my** paycheck yet.

- Here I develop a focus-based theory of FI in RCs that will explain the generalization about the correlation between FI licensing and contrastive focus.

Roadmap:

- Section 2 presents my new theory of FI in focus consructions (e.g. 1) and RCs (2).
- Section 3 shows how the theory accounts for the new empirical generalization, and discusses a phenomenon in Hebrew I call **fake indexical traces**, which is subject to the same focus-sensitivity generalization as in English.
- Section 4 presents new data about FI, and shows that the cross-linguistic picture is more complicated than previously thought.

Key parts of the proposal:

- ϕ-agreement between binders and bindees involves a syntactic dependency
- ...but one that operates at LF, not at PF

2. A Theory of Fake Indexicals

- This section first presents my analysis of the Focus construction (2.1), and then extends it to the RC construction (2.2).

2.1 The Focus construction

- 'Tanglewood' Sentences (Kratzer, 1991) like (6a) show **co-variance** berween two phrases **across focus alternatives**. Normal binding is implausible, as the phenomenon isn't island-sensitive.[2]
- Kratzer (1991)'s analysis: a new binding mechanism, **F(ocus)-coindexation**, (6b).[3]

(6) a. I only went to Tanglewood because you did.
$\rightsquigarrow$ *Tanglewood is the only place x such that I went to* $\boldsymbol{x}$ *because you went to* $\boldsymbol{x}$.
b. LF: I only$_i$ [[$_{\text{VP}}$ went to Tanglewood$_{\boldsymbol{F_i}}$] because you [$_{\text{VP}}$ went to Tanglewood$_{\boldsymbol{F_i}}$]]

(7) FOCUS ALTERNATIVES (*simplified version based on Fox and Katzir 2011*)
a. The Focus Alternatives of an LF α is the set of all LFs α' arrived at by replacing F-indexed constituents in α with constituents of the same syntactic category.
b. Occurrences of the same F-index in α are replaced **uniformly** across the alternatives of α.

[2]The particular example in (6a) is not island-inseisitive, but other examples are. See Kratzer (1991) and Bassi and Longenbaugh (to appear in LI).

[3]See Sauerland (2007) for a different though closely connected proposal.

- Given (7), the scope of *only* in (6b) has the desired set of focus alternatives:

(8) {I went to ***x*** because you went to ***x***: x is a DP}.

Core Proposal:
In focus constructions, indexicals can be "fake" due to the F-coindexation mechanism.

- The LF of *only I did my homework* is in (9a):

(9) a. LF: only [I_{Fi} did my_{Fi} homework]
b. Alternatives: {x did x's homework: x is a DP}

- In (9), *my* is a real indexical, i.e. the **person feature is interpreted**.

- At the same time it is **understood as a variable**, because in the focus alternatives it is replaced with another DP - co-varying with its antecedent *I*.

- I assume a more-or-less standard entry for *only*, in (10):

(10) ⟦only α⟧ presupposes that ⟦α⟧ is true, and asserts that for all (relevant) alternatives α' of α, ⟦α'⟧ is false.[4]

- Success? almost...

- Kratzer (1991) observed: **overtly pronouncing** the elided VP in (6b) (with or without focus prosody on the second 'Tanglewood') does **not have a co-variation reading**.

- ⇒ F-coindexation must be restricted: any **non-first element** in an F-coindexation chain **must be phonologically elided**.

- This makes the proposal in (10a) look like a **non-starter**.
  - *my* is obviously **not** phonologically elided!

- But there's a way out that allows us to maintain both (10a) and Kratzer's ellipsis condition, and it is in fact **welcome anyway**.
  - Much recent cross-linguistic research has converged on the idea that pronouns are syntactically complex, and specifically that **ϕ-features are introduced by separate functional heads** along the pronominal spine (a.o. van Urk 2018, Moskal 2015, Harbour 2016, Déchaine and Wiltschko 2002).

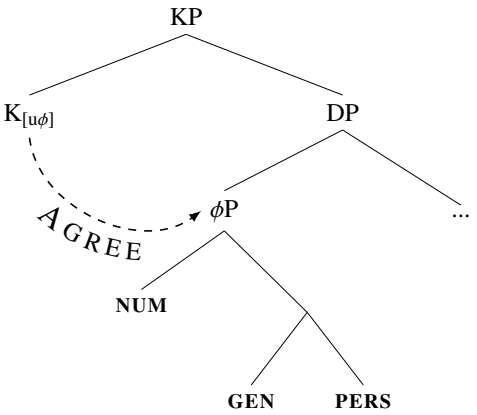
[4] On this analysis *only* is a propositional operator. Evidence for this is that clause-initial *only* can associate with focus in the VP, as long as it also associates with focus in the subject (or more generally, it can associate with focus in its intuitive scope as long as it associates with focus in its intuitive restrictor): *there was almost no couple dancing at the party; Only SUE danced with JOHN.*

– Following the logic in Danon 2011, in order for these DP-internal ϕ-features to be accessible to clausal agreement (and perhaps case-)relationships with material outside of the DP, they **eventually need to be collected by the highest head** in the projection of the pronoun.[5]

– Crucially, I assume, the phonological exponence of the semantically active ϕ-feature is **determined on this highest head**, not where they are generated.

- Implementation (for concreteness the highest head is labeled 'K', following van Urk 2018 and Moskal 2015)):

(11) **Syntax of Pronouns**:



- K carries carries an uninterpretable **[uϕ]** probe, and it **Agrees** with the interpretable features introduced in its c-command domain

- Agree leads to **Feature Sharing** (Pesetsky and Torrego 2007) between ϕP and K.

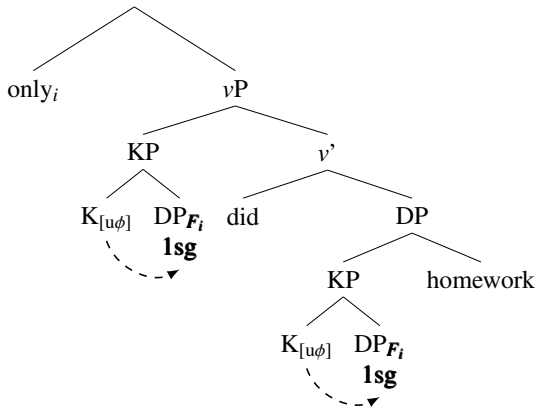
- This results in K having valued – but semantically uninterpreted – ϕ-features.

- Morpho-phonological rules then determine **phonological exponence of the ϕ-features on K.**

- A more elaborate structure of (9a):

[5]Danon (2011) is concerned with non-pronominal DPs, but his claims carry through to pronouns under the view that also in pronouns ϕ-feature are generated DP-internally.

(12) Only I did mt my homework:



- The fact that F-markings dominate the interpretable ϕ-features ensures that the semantic content of *my* – its reference to the speaker – is overwritten in the focus alternatives, deriving a sloppy reading.

- The features are shared with theier respective K head in, and ultimately get phonologically exponed there.

- The second DP gets 'deleted' at PF, but this deletion is vacuous since the features will get spelled-out on K.

- The analysis covers co-variation cases in which the antecedent is a **full DPs**, i.e. *only Mary did her homework*, with the structure in (13).

(13) only $\Big[[_{\text{DP}}\ \text{Mary}]_{F_i}$ did $[_{\text{KP}}\ \text{K}_{u\phi}\ \sout{[_{\text{DP}}\ \text{Mary}]_{F_i}}]$ homework$]\Big]$

- The alternatives activated by *Mary* are any DP, i.e. **not gender-restricted**

  – Which is welcome because the sentence can be used to say something about **non-female** alternatives to Mary.

- The presence of K, the feature-colloector, ensures that a pronoun appears in the second position of 'Mary' in (13) even though 'Mary' is deleted at PF (as required by Kratzer's condition on F-coindexation).[6]

- This is a case where, unlike (9a), deletion is not vacuous.

- And given Kratzer's ellipsis condition we correctly rule out a bound reading for (14):

(14) Only Mary did Mary's homework. (✗ sloppy)

[6]The presence of K is efectively forced in (13) since English doesn't normally tolerate full ellipsis of arguments, for some independent reason. Languages that do (freely) allow argument ellipsis are expected to allow full ellipsis in (13).

- F-coindexation is **not subject to locality** constraints;

- This explains why a reading with co-variation between *I* and *my* is possible even **from outside of islands**.[7] The following is from Bassi and Longenbaugh 2018:

(15) a. Only if I misbehave does the teacher call my parents (✓sloppy)
b. Only [if I_{F_i} misbehave does the teacher call my_{F_i} parents]

Intermediate summary of proposal:

- Indexicals are always underlyingly referring; they are not minimal pronouns.
- In focus structures, indexicals can be 'fake' due to the F-coindexation mechanism.
- That is, their semantic content is obliterated in focus alternatives because they are silently F-marked along with their antecedent.
- Even though F-coindexation requires phonological deletion of the second F-marked element, focus-bound pronouns nevertheless get spelled out due to a need for DP(/KP)-internal features to occupy a position higher than where they are generated (Danon, 2011).

- Postulating F-coindexation structures raises the question of how they are syntactically derived, and what constraints they are subject to. I assume the following (cf. Sauerland 2007 for a different execution):

(16) a. F-indices are features that are generated on expressions in the syntax.
b. F-**co**indexation between two (or more) phrases can obtain only if the expressions are syntactically identical.
c. Given a chain of F-coindexed phrases, the phonological content of each but the linearly-first one must be deleted at Phonological Form (PF).

- (16c) is Kratzer's ellipsis condition; (16b) is arguably needed in order to prevent a sentence like *Only Mary talked to her mom* to have the LF in (17), which would derive an unattested reading.

(17) only $\Big[[_{\text{DP}}\ \text{Mary}]_{F_i}$ talked to $[_{\text{KP}}\ \text{K}_{u\phi}\ [\sout{_{\text{DP}}\ \text{Sue}}]_{F_i}]$ mom$\Big]$

2.2 The RC construction

(18) I am the only one who didn't get **my** paycheck

- Extending the analysis to this construction requires postulating that **here too there is computation of focus** alternatives. There is some evidence for this, specifically:

[7] See McKillen 2016 for a parallel observation about gender features.

– Adjectival *only*, like superlative adjectives, can take scope outside of its containing DP (a.o. Sharvit 2015; Bumford 2017); and

– **The choice of *only*'s 'associate'** is in many cases **constrained by focus** placement (Bhatt 1999). Example by Bumford (2017:70):[8]

(19) a. John bagged the only deer in July.
⇝***no one other than John*** *bagged a deer in July*
b. John bagged the only deer in July.
⇝***In no time other than July*** *did John bag a deer* (Bumford 2017:70)

- I take this as evidence that the intuitive 'associate' of adjectival *only* always activates alternatives, even if this isn't always signaled by contrastive focus prosody.[9]

- I thus propose the LF in (20):

(20) LF: only [I$_{\boldsymbol{F_1}}$ am ~~the~~ one who λ_x [$_{\text{RC}}$ $\emptyset_x$ didn't get **my**$_{\boldsymbol{F_1}}$ paycheck]]

– *only* moves up and associates with F-marked, activating alternatives.[10]

– *the* is deleted at LF, an ugly assumption but one that is routinely made in scope-taking accounts of superlatives/*only* (Heim 1999; Sharvit 2015 a.o.).[11]

– The relative clause is formed by movement of *who* + Trace Conversion that inserts a bound variable (Fox, 2002).

– F-coindexation between *I* and *my* delivers co-variation, as illustrated in (21).

(21) *Set of Alternatives of the sister of only in (20)*:
{**John** is ~~the~~ one who λ_x $\emptyset_x$ didn't get **John**'s paycheck,
Bill is ~~the~~ one who λ_x $\emptyset_x$ didn't get **Bill**'s paycheck, ...}

[8] In general, Superlative/Ordinal adjectives associate with (overt) focus perhaps more easily than adjectival *only* does. Note that they too license Fake Indexical readings in RCs:

(i) a. *I was the **first** one to reveal my cards.*
b. (We all became rich at a young age, but) *I was the **youngest** one to buy a Yacht for my family.*
c. (Context: at the gym, doing exercises. Looking around, I say:)
we're all very flexible, but *I'm the **tallest** one here who can reach my toes with my fingers.*

[9] But see Beaver and Clark (2008) for a dissenting view. According to them the lack of (cosistent) prosodic signature in the case of superlatives (and *only*) suggests that focus-sensitivity is not hard-coded in their lexical meaning, as opposed to adverbial *only* and *even*.

[10] I assume the meaning of adjectival *only* is exactly like the adverbial one in (10).

[11] As those accounts note, when *only*/*est* evacuates a DP, *the* is not intetpreted as imposing uniqueness as it normally does. Hence the stipulation that it is deleted in these cases. But see Bumford (2017) for an alternative that doesn't require this stipulation. In general, any compositional theory of *the only/adj-est* has to say something non-standard about what *the* is doing (see Coppock and Beaver 2015 for a thorough discussion).

- Another LF that would derive identical results to (20) is in (22):

(22) LF: only $\mathrm{I}_{\boldsymbol{F_1}}$ am ~~the~~ one who λ_x [$_{\mathrm{RC}}$ **[1sg$_{\boldsymbol{F_1}}$]$_{\boldsymbol{x}}$** did **my$_{\boldsymbol{F_1}}$** homework]

- Where the only difference from (20) is that here the (trace of the) *wh*-operator is also part of the F-coindexation chain.
  - Note also that the (trace of the) *wh*-operator bears generated 1sg features. This *must* be so if it participates in the chain, because the syntax rule in (16b) says that F-coindexation requires structural identity.

(23) *Set of Alternatives of the sister of only in (22):*
{**John** is ~~the~~ one who λ_x **[John]$_{\boldsymbol{x}}$** hasn't gotten **John**'s paycheck,
Bill is ~~the~~ one who λ_x **[Bill]$_{\boldsymbol{x}}$** hasn't gotten **Bill**'s paycheck, ...}

- If wh-operators can be generated with (non-trivial) features, (22) must be available.
- Its availability doesn't generate new readings for this particular case. But we will see soon that a representation with features on the trace like (22) might be necessary in some cases, specifically if *the* is **not** deleted.

Intermediate summary:

- FI in Relative Clauses are possible due to essentially the **same F-coindexation** mechanism in Focus constructions:
  - Adjectival *only* is a focus-sensitive operator;
  - Which associates with focus on the matrix subject;
  - The matrix subject is F-coindexed with the indexical in the embedded clause.
- Once again, this focus-based analysis does away with minimal pronouns.

Open Question - Rule H ('Have Local Binding!') decides in favor of (22) over (20)?

- As for the availability of sloppy readings with the 3rd person version (cf. (3)), this is simply because the pronoun can be bound by the relative pronoun, which presumably can bear either no features or just gender feature:

(24) LF: only I_{F_1} am ~~the~~ one who λ_x [$_{\mathrm{RC}}$ $\emptyset_x$ did his$_x$ homework]

2.3 Minimal Pronoun analysis

- 'Minimal Pronoun' analyses (Kratzer 2009; Wurmbrand 2017a; Ivan and Mirrazi 2019) don't have to invoke such heavy LF assumpions as the current analysis.
- In very broad strokes, simplifying considerably, Minimal Pronoun analyses say that:
  - *my* can start its derivation feature-less, and get valued for features **at PF** by the matrix subject *I*, on certain conditions.[12]
  - There's no special **semantic** difference between *his* and *my* - both are bare variables.

(25) LF (with *his*/*my*) : I am the only one who λx. *x* didn't get ***x***'s paycheck

  - There's no special reason why removing *only* should make any difference to the binding possibiliies of *my* and *his*, nor to the PF feature transmission process.

3. An argument for the focused-based analysis of FI

- Recall the data from section 1 repeated in (26)-(27), and the generalization it motivated (28):

(26) Context: *I stop by at the HR lady's office. She doesn't recognize me and asks 'who are you?' I reply:* I'm the one who didn't get his/#my paycheck yet. (=4)

(27) (Why are they complaining?) I'm the one who didn't get my paycheck yet. (=5)

(28) **Generalization**: Without adjectival *only*[13] modifying the relative clause, FI readings in RCs are possible only if contrastive focus is on the antecedent of the FI.

3.1 The 'Minimal Pronoun' approach against the data

- Minimal Pronoun analyses as characterized above cannot explain this generalization.
  - If FIs are semantically just like 'normal' (3rd person) bound variables they should also in principle have a bound reading without *only* in **every** case in which a 3rd person version is ok, and there shouldn't be correlation with focus, contrary to facts.

[12] Actually this isn't true for Kratzer's (2009) minimal pronoun analysis, which denies that *I* has any role in the transmission of the PF features to *my*. But this runs into even bigger problems, as Kratzer herself admits. I'm illustrating the approach with Wurmbrand (2017a)'s version.

[13] Or another adjectival quantifier like superlatives and ordinals, cf. footnote 8.

(29) *Predictions of the Minimal Pronoun approach for only-less RCs*

a. LF : I am the one who $\lambda x.\ x$ didn't get $\boldsymbol{x}$'s paycheck
b. Interpretation: I am the unique individual x such that x didn't get x's paycheck

3.2 The current Focus-based analysis against the data

- Now lets see what the predictions of the current account is.
- Starting with (26), the *his* and the *my* versions are associated with two different logical forms:

(30) LF of (26), *his* version: I am the one who $\lambda_x\ t_x$ hasn't gotten $\textbf{his}_x$ paycheck

(31) LF of (26), *my* version: I am the one who $\lambda_x\ t_x$ hasn't gotten **my** paycheck

- The *his* LF in (30) is ok because, *his* being bound by *who*, we derive the appropriate presupposition (contributed by *the*) that there's only one individual who hasn't gotten **their** paycheck, and the sentence asserts that the speaker is that person.
- The *my* LF in (31) is unacceptable because *my* is a real indexical
- Since *my* is a real indexical, the **only deriveable reading for *my* is strict**, and then the presupposition we derive is **inappropriate in normal contexts**:

(32) ⟦(31)⟧ #presupposes that there is only one individual who hasn't gotten the speaker's paycheck. Asserts that the speaker hasn't gotten the speaker's paycheck.

- Crucially, since there is no F-marking on *I* in (31) (neither context nor prosody supports it), F-coindexation is irrelevant.[14]
- Turning now to (27), here *I* is contrastively focused, so it gets to be F-marked.
- F-coindexation between it and *my* is possible.
- (The trace of) *who* is also F-coindexed with the two. This in turn must mean, under present assumptions, that *who* starts the derivation with a 1sg feature. Thus ***I, who* and *my* form an F-coindexation chain**.
- The relevant LF is in (33a), and the alternatives are in (33b).

(33) a. $\textbf{I}_{\boldsymbol{F_1}}$ am the one who λ_x $\textbf{[1sg}_{\boldsymbol{F_1}}\textbf{]}_{\boldsymbol{x}}$ hasn't gotten $\textbf{my}_{\boldsymbol{F_1}}$ paycheck

b. {**John** is the one who λ_x $\textbf{[John]}_{\boldsymbol{x}}$ hasn't gotten **John**'s paycheck,
Bill is the one who λ_x $\textbf{[Bill]}_{\boldsymbol{x}}$ hasn't gotten **Bill**'s paycheck, ...}

[14] Whether there is F-marking on the whole post-copular phrase in (31) doesn't affect the explanation.

- I'm assuming that (27) is a type of cleft sentence, and clefts contribute the enriched meaning (presupposition, perhaps) that all the alternatives of the utterance are false.
- So, the alternatives in (33b) are rendered false (at a presupposition level).
- I'm also assuming a Coppock and Beaver (2015)-style interpretation for *the* (recall that with adjectival *only* we stipulated that *the* gets LF-deleted).
- According to Coppock and Beaver, *the P* is a predicate denoting exactly what *P* denotes, presupposing uniqueness but not existence, i.e. there is at most one (rather than exactly one) individual that satisfies *P*:

(34) $[\![\text{the P}]\!]_{\langle et\rangle} := \left|\{x : [\![\text{P}]\!](x)\}\right| \leq 1.\ [\![\text{P}]\!]$
(i.e., *the P* presupposes that *P* is true of at most one individual, and returns *P*.)

- The reader can verify that all this package of assumptions correctly derives that the sentence in (27) entails that speaker didn't get their paycheck, but all the other people did get theirs.

3.3 Closing a loophole

- When we explained the unacceptability of (31), where *I* is not focused, we explained it on the basis of the following LF, which exhibits a feature-less variable in the trace position of *who*, and a variable-less 1sg possessive pronoun:

(35) I am the one who $\lambda_x\ t_x$ hasn't gotten my paycheck (=31)

- But given that we decided that *wh*-elements can in principle start the derivation with 1sg features, we have to wonder what is predicted if the wh-element carried those features, i.e. for the following LF (again with no focus on *I*):

(36) I am the one who $\lambda_x\ [1\text{sg}]_x$ hasn't gotten my paycheck

- I've assumed a predicative semantics for *the* which furthermore imposes a uniqueness- but not existence presupposition.
- This means that (36) is predicted to mean the following:

(37) [[(36)]] presupposes that there is at most one individual who is both the speaker and hasn't gotten the speaker's paycheck **(tautologous)**.
Asserts that the speaker hasn't gotten the speaker's paycheck.

- (37) seems like a fine meaning, equivalent to 'I haven't gotten my paycheck'. The presupposition is a tautology (equivalent to 'either the speaker got his paycheck or not'), so we cannot appeal to a bad presupposition or anything like that here.

- This is unfortunate - the sentence is intuitively unacceptable in the context of (26) so this configuration needs to be ruled out.

- My response is this: I contend that (37) is simply not an appropriate answer to the question under discussion in (26). For some reason I don't know, if someone asks for your identification, i.e. "who are you?", it is infelicitous to reply with a predication statement about yourself - you need an identity statement. So, whatever explains why you can't answer "who are you?" with "I didn't get my paycheck", will explain why this LF is ruled out in this context.[15]

3.4 'Fake Indexical traces' in Hebrew show the same behavior

- In this section I present a phenomenon in Hebrew I call **fake indexical traces**, which behaves exactly the same as overt Fake Indexicals in being subject to the same discourse conditions.

- Hebrew, along with many other languages including French, Greek, Icelandic and Farsi, allows for **1st(/2nd) person agreement on the embedded verb** in RCs:

(38) ani ha-yaxid Se- *t* katav-{∅/ **ti**} mixtav (Hebrew)
I the-only that- *t* wrote-{3sg/ **1sg**} letter
'*I'm the only one who wrote a letter*'

- In (38), both 3sg and 1sg are possible on the embedded verb.

- I assume that when the verbal agreement is 1st person, the silent subject trace in the RC has underlyingly 1st person value.

- That is, in Narrow syntax we have something like this:

(39) I am the only one who [$_{RC}$ **1sg** wrote a letter]

- This trace, then, is also a FI: it is marked as 1st even though it is interpreted as a bound variable that isn't restricted to the speaker. Hence '**fake indexical traces**'.

- Hebrew, thus (along with the other languages mentioned above), shows more overtly what we hypothesized happens covertly in English (cf. (33).

[15] Although this might not be a general-enough solution. What are our other options? one option is to deny that wh-elements can start the derivation with 1sg features. But then we would lose explanation, within the current theory, of what makes (27) good - which relies on that assumption. Another option is to deny that *the* impose only uniqueness; if it also imposed existence presupposition, (36) would turn out to derive a vacuous assertion ('the speaker is identical to the speaker'). But again, we would lose explanation of what makes (27) good. Perhaps this latter option is nevertheless the right way to go, pending a good theory telling us in which contexts *the* is obligatorily intepreted with an existence presupposition and which contexts not.

- The crucial observation is that, in Hebrew, this phenomenon shows the **same sensitivity to focus** as in English.

- I.e., In some copular constructions where adjectival *only* is absent, FI traces are possible, but only if there's contrastive focus is on the antecedent (the matrix subject).

- The following constrast, which only manipulates placement of focus, is very sharp.

(40) a. ani$_F$ ze$_i$ Se- t_i katav-**ti** et ha-mixtav ha-ze (Hebrew)[16]
I$_F$ FR$_i$ that- t_i wrote-**1sg** ACC the-letter the-this
'*I$_F$ am the one who wrote this letter*'
(it wasn't someone else who wrote it)

b. *ani ze$_i$ Se- t_i katav$_F$-**ti** et ha-mixtav ha-ze
I FR$_i$ that- t_i wrote-**1sg** ACC the-letter the-this
'I'm the one who wrote$_F$ this letter'
(not the one who sent it/ received it/ etc.)

- The meaning indicated in (40b) can be expressed only with 3rd marking on the verb.

- The explanation for (40) is reduced to the explanation of the English facts above, on the assumption that in Hebrew, when there is no 1sg on the embedded verb, the trace can**not** be generated with 1sg features (as opposed to English, see next section).

Summary of this section:

- FIs in relative clauses without *only* are possible only if contrastive focus is on the matrix subject, but not otherwise.
- This is mysterious on account that don't take focus into account in explaining the phenomenon of fake indexicality.
- But it is deriveable on a focus-based account.

[16]The post-copular phrase is a light headed free relative. Its head *ze* is glossed 'FR', for Free Relative.

4. Remarks on the Cross-linguistic picture

- There's a surprisingly wide cross-lingustic variation w.r.t Fake Indexicality in relative clauses. Furthermore, speakers within the same language often disagree.
  - In fact, sometimes it's not clear to what extent the variation is cross-linguistic or inter-sepaker.
- In this section I will discuss data from 10 languages (most of which is new).
- I have not been able so far to find one clean generalization that will predict whether a language will license FI in RCs from independent properties of that language.
- However, there are some detectable patterns that might allow us to be (cautiously) optimistic looking forward.

4.1 Languages with Fake Indexical Traces

- We saw that some languages differ from both English and German in allowing FI traces.
- It is an open question as to why e.g. English doesn't allow such locutions as *I'm the only one who **am***..., whereas Hebrew, French, Greek a.o do allow it.
- Given that there is this split, I propose to divide the landscape along this dimension: whether a language in principle allows Fake Indexical Traces or not, i.e. whether *I'm the only one who **V.1sg*** is possible.
- Depending on this we can examine whether such languages allow overt FI as well
- Data from 7 languages that allow FI traces reveal the following picture:[17]

[17]Thanks to Keny Chatain, Vincent Reuillard, Paul Marty, Ezer Rasin, Daniel Margulis, Sabine Iatridou, Filipe Hisao Kobayashi, Stan Zompí, Enrico Flor, Dóra Takács for providing judgments. Farsi and Romanian data are from Ivan and Mirrazi 2019, Icelandic data are from Wurmbrand (2015, 2017b)

(41) *Languages that allow embedded 1sg verbal agreement ('FI trace')*

Language	**v:3sg, pro:3sg**	**v:1sg, pro:1sg**	**v:3sg, pro:1sg**	**v:1sg, pro:3sg**
French[18]	✓	✓	✓	✓
Romanian	✓	✓	✓	✗
Hebrew[19]	✓	✓	✓	✗
Greek	✓	✓	✗	✗
Brazilian Portuguese	✓	✓	✗	✗
Icelandic	✓	✓	✗	✗
Farsi	✓	✓	✗	✗

- Here's an illustration from French about what the table represents:

(42) Je suis la seule qui **est/suis** partie de chez **ellle/moi** (French, ✓all 4)
I be.1sg the.f only who be.**3/1sg** left from house of.**her/me**
'I am the only one who left from (my) home'

- From the table we can draw the following tentative generalizations (keeping in mind that the sample size is pretty small):

(43) a. All languages that allow FI Traces allow in principle overt Fake Indexicals.
b. All of them allow a **match** between the verb and the pronoun, and some (French, Romanian, Hebrew) allow a **mismatch** as well.
c. There's an **implication** relation in the **mismatch-allowing** languages: if a language allows *v-1;pro-3* mismatch, it allows *v-3;pro-1* mismatc, but not vice versa

- Except for French, the generalizations can be explained on the following assumptions:
  - In these languages, whether there's 1st or 3rd agreement on the verb reflects what are the base-generated features on the *wh*-phrase.
  - Have Local Binding! (Rule H) will predict the **match** data (columns 1-2).
  - Some languages (Romanian, Hebrew) also allow violation of Have Local Binding! (Rule H), i.e. can also do non-local binding.

[19]There's variation in French. 2 speakers I asked converged on the picture reported in the table. Another did not accept the *pro:1sg* condition, in either version of the verb. Ivan and Mirrazi (2019) provide judgments from a speaker who accepted all conditions but *v:1sg, pro:3sg*, making French like Romanian and Hebrew.

[19]Two Hebrew speakers I asked did not like 1st marking on the verb or on the pronoun. I did not represent their judgments in the table.

(44) LF: only $\mathbf{I}_{\boldsymbol{F_1}}$ am ~~the~~ one who λ_x [$_{\text{RC}}$ $\mathbf{[1sg}_{\boldsymbol{F_1}}\mathbf{]}_{\boldsymbol{x}}$ did $\mathbf{my}_{\boldsymbol{F_1}}$ homework]
(Rule H respecting)

(45) LF: only [$\mathbf{I}_{\boldsymbol{F_1}}$ am ~~the~~ one who λ_x [$_{\text{RC}}$ $\emptyset_x$ didn't get $\mathbf{my}_{\boldsymbol{F_1}}$ paycheck]]
(Rule H violating)

- This predicts that languages will not be able to show *v-1;pro-3*, since no 3sg binder is available in this configuration to bind the pronoun:

(46) *LF: only [$\mathbf{I}_{\boldsymbol{F_1}}$ am ~~the~~ one who λ_x $\mathbf{[[1sg}_{\boldsymbol{F_1}}\mathbf{]}_{\boldsymbol{x}}$ didn't get $\mathbf{her}_{\boldsymbol{x}}$ paycheck]] (??)

- I don't have an explanation for why some French speakers allow *v-1;pro-3*.

4.2 Languages that don't allow FI traces

- Here, the picture is more messy. I have data from 4 languages:

(47) *Languages that don't allow embedded 1sg verbal agreement in the RC*

Language	**FI possible?**	**Gender on the RC head?**
German	✗	yes
Italian	only in infinitival RCs	yes (on adjectival 'only')
Hungarian	✗	no gender in the language
English	✓	no

- Data that shows that German differs from English (Kratzer 2009):

(48) Ich bin die einzige die **meine** Kinder versorg-**t** (German, ✗)
I am the.fsg only who.fsg **my** children take.care.of-**3sg**
'I'm the only one who takes care of my children'

- It is possible that Wurmbrand (2017a) is right that the difference between German and English reduces to the morphology on the head noun; this, however, will fail to generalize to Hungarian.

References

Bassi, Itai, and Nick Longenbaugh. 2018. Features on bound pronouns: an argument against syntactic agreement approaches. In *NELS 48: Proceedings*. Pre-print: https://ling.auf.net/lingbuzz/004056.

Beaver, David Ian, and Brady Clark. 2008. *Sense and sensitivity: How focus determines meaning*. Wiley-Blackwell.

Bhatt, Rajesh. 1999. Covert modality in non-finite contexts. Doctoral dissertation, University of Pennsylvania.

Bumford, Dylan. 2017. Split-scope effects in definite descriptions. *New York, NY: New York University PhD dissertation* .

Charnavel, Isabelle. 2017. Presupposition failure and intended pronominal reference: Person is not so different from gender after all. LingBuzz MS.

Cooper, Robin. 1979. The interpretation of pronouns. In *Selections from the Third Groningen Round Table, Syntax and Semantics*, ed. F. Heny and H. Schnelle, volume 10, 61–92. New York: Academic Press.

Coppock, Elizabeth, and David Beaver. 2015. Definiteness and determinacy. *Linguistics and philosophy* 38:377–435.

Danon, Gabi. 2011. Agreement and dp-internal feature distribution. *Syntax* 14:297–317.

Déchaine, Rose-Marie, and Martina Wiltschko. 2002. Decomposing pronouns. *Linguistic Inquiry* 33:409–422.

Fox, Danny. 2002. Antecedent-contained deletion and the copy theory of movement. *Linguistic Inquiry* 33:63–96.

Fox, Danny, and Roni Katzir. 2011. On the characterization of alternatives. *Natural Language Semantics* 19:87–107.

Harbour, Daniel. 2016. *Impossible persons*. Linguistic Inquiry Monograph 74. MIT Press.

Heim, Irene. 1999. Notes on superlatives. MIT lecture notes.

Heim, Irene. 2008. Features on bound pronouns. *Phi theory: Phi-features across modules and interfaces* 35–56.

Ivan, Rodica, and Zahra Mirrazi. 2019. Farsi fake indexicals and embedded t agreement: Predication matters! (in prep.). In *Proceedings of the Linguistic Society of America 4 (LSA)*, ed. Patrick Farrell.

Jacobson, Pauline. 2012. Direct compositionality and 'uninterpretability': The case of (sometimes) 'uninterpretable' features on pronouns. *Journal of Semantics* 29:305–343.

Kratzer, Angelika. 1998. More structural analogies between pronouns and tenses. In *Proceedings of SALT*, volume 8, 92–110.

Kratzer, Angelika. 2009. Making a pronoun: Fake indexicals as windows into the properties of pronouns. *Linguistic Inquiry* 40:187–237.

Kratzer, Angelike. 1991. The representation of focus. In *Semantik: Ein internationales handbuch der zeit-genössischen forschung*, ed. Arnim von Stechow and Dieter Wunderlich, 825–834. Walter de Gruyter.

McKillen, Alanah. 2016. On the interpretation of reflexive pronouns. Doctoral dissertation, McGill University.

Moskal, Beata. 2015. Limits on allomorphy: A case study in nominal suppletion. *Linguistic Inquiry* 46:363–376.

Pesetsky, David, and Esther Torrego. 2007. The syntax of valuation and the interpretability of features. *Phrasal and clausal architecture: Syntactic derivation and interpretation* 262–294.

Sauerland, Uli. 2003. A new semantics for number. In *Semantics and Linguistic Theory*, volume 13, 258–275.

Sauerland, Uli. 2007. Focus dependency as structure sharing. In *Proceedings of Sinn und Bedeutung*, volume 11, 525–539.

Sauerland, Uli. 2013. Presuppositions and the alternative tier. In *Semantics and Linguistic Theory*, volume 23, 156–173.

Schlenker, Philippe. 2003. Indexicality, logophoricity, and plural pronouns. *Amsterdam Studies in the Theory and History of Linguistic Science Series 4* 409–428.

Sharvit, Yael. 2015. The onliest np: Non-definite definites. *Proceedings of WCCFL 32. Cascadilla Proceedings Project, Somerville, MA* 171–190.

von Stechow, Arnim. 2003. Feature deletion under semantic binding. In *Proceedings of North East Linguistic Society (NELS) 33*, ed. Makoto Kadowaki and Shigeto Kawahara, 377–403. University of Massachusetts, Amherst.

van Urk, Coppe. 2018. Pronoun copying in Dinka Bor and the Copy Theory of Movement. *Natural Language & Linguistic Theory* 36:937–990.

Wurmbrand, Susi. 2015. Fake indexicals, feature sharing, and the importance of gendered relatives. MIT Colloquium, November 2015.

Wurmbrand, Susi. 2017a. Feature sharing or how I value my son. *Claire Halpert, Hadas Kotek & van Urk (eds.), The Pesky Set: Papers for David Pesetsky* 173–182.

Wurmbrand, Susi. 2017b. Icelandic as a partial null subject language: Evidence from fake indexicals. In *Order and structure in syntax: Subjecthood and argument structure*, ed. Michelle Sheehan & Laura R. Baile, volume II, 339–345. Berlin: Language Science Press.

Itai Bassi
itaibassi@gmail.com