Fake Indexicals in Relative Clauses and their sensitivity to focus[*]

Itai Bassi

MIT

1.   Introduction and overview

In the sentences in (1) the pronoun *my* has a bound-variable ('sloppy') reading, on which the sentences entail that everyone but me got their paycheck. How can 1st person pronouns, which normally have a fixed reference to the speaker, have a life as bound variables?

(1)   a.   Only I didn't get my paycheck yet   **(Focus)**
        b.   I am the only one who didn't get my paycheck yet   **(Relative Clauses (RCs))**

    Recent theories (Jacobson 2012, Sauerland 2013, Bassi and Longenbaugh 2018) have imputed the existence of these 'Fake Indexicals' (FIs) to a special property of focus constructions. These theories stand in contrast to the 'minimal pronoun' approach (Heim 2008, Kratzer 2009 a.o.), on which focus plays no role in licensing FIs. At the heart of Focus-based theories is the stipulation in (2):

(2)   **Focus-based theories**: ϕ-features on pronouns are always semantically interpreted as expected at the level of the uttered sentence (the 'prejacent'), but their content doesn't have to project to the level of focus alternatives of the prejacent.

My goal in this paper is threefold. First, I propose to improve on existing focus-based theories by deriving the stipulation in (2) from more basic mechanisms arguably needed in grammar independently (section 2). Second, within the focus-based approach a formal analysis has so far been given only for structures like (1a); here I extend it to deal with RCs as in (1b) (section 3). The extension is possible primarily due to the observation that adjectival *only* is – like its adverbial counterpart – a focus-sensitive operator (Bumford

2017; Bhatt 1999). Third and most important, I provide a novel empirical argument that supports the focus-based view over current 'minimal pronoun' approaches (section 5). Here I give a preview of the argument.

The argument is based on the behavior of RC sentences that are like (1b) except that adjectival *only* has been removed from them, as in (3).

(3)   I am the one who didn't get my paycheck yet.

These *only*-less RCs, I observe, allow a sloppy reading for the indexical only if there is contrastive focus on the indexical's antecedent, the matrix subject (where focus placement is detected by the prosody and by features of the discourse context). To see this, consider first an instance of (3) where contrastive focus is placed on the subject. This typically requires a context where the subject is compared to other salient individuals. Imagine we know that Mary and Bill always complain about how the company's financial troubles affect them; then (4) below can be used to convey that Mary and Bill did get their paycheck already (Focus prosody is henceforth marked with underlines):

(4)   (Why are they complaining?) I'm the one who didn't get **my** paycheck yet.[1]

Now cosider the exact same sentence, but where prosody and context do *not* support contrastive focus on the subject, i.e. the subject is not contrasted with anyone. Since we're dealing with a copular sentence (*I am the P)*, a suitable context is one where the speaker is asked to identify themselves. (5) is a case in hand:

(5)   *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.

The intuition is that *my* in (5) only has a strict reading (i.e., it is a true indexical), on which the sentence says that the speaker is the unique person who didn't get the speaker's paycheck. This has an odd presupposition, and the sentence is not helpful as means to identify who the speaker is. Why is a FI reading available for *my* in (4) but not in (5)? I will try to show that it falls out from the focus-based system I develop in section 3, but it is surprising for any theory that doesn't take focus into account in explaining the distribution of FIs in RCs. Other data from Hebrew will support the same conclusion.

In section 6 I briefly discuss the puzzling cross-linguistic variation in the availability of FIs in RC constructions, bringing so far undiscussed data from various languages.

2.   A Theory of Fake Indexicals in Focus Constructions

In this section I present my theory of FI, concentrating for the moment just on sentences like (1a). As stated earlier, my goal here is to derive the stipulation in (2).

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[1] Sloppy (FI) readings in these configurations are perhaps more easily accessible if there is negation in the matrix: *I'm not the one who talks to my parents evey day* (it is Bill who calls his parents).

My proposal builds on the mechanism devised by Kratzer (1991) to deal with so-called 'Tanglewood' sentences. I thus give a brief overview of this mechanism. In Tanglewood sentences, a focused phrase co-varies in interpretation with a copy of it in an elided VP, e.g. in (6a). As Kratzer notes, deriving the co-variation using standard LF-movement + λ-binding is problematic, since raising *the Zoning Board* in (6a) to a position from which it can bind into the ellipsis site would violate island constraints. Instead, Kratzer (1991) proposed the LF in (6b) using an *in situ* mechanism where F(ocus) features are indexed, and other material in the sentence can carry the same F-index as the focused phrase. F-coindexation translates to co-variance across the focus alternatives, which is ensured given the definition of focus alternatives in (7).

(6)   a.   I only talked to the person who chairs the Zoning Board before you did.
         $\rightsquigarrow$ *The Zoning Board is the only x such that I talked to the person who chairs **x** before you talked to the person who chairs **x**.*

      b.   <u>LF</u>: I only$_i$ $\left[_{\text{VP}} \text{ talked to the person who chairs [the Zoning Board]}_{F_i} \right]$
         before you $\left[_{\text{VP}} \text{ talked to the person who chairs [the Zoning Board]}_{F_i} \right]$

(7)   FOCUS ALTERNATIVES   (*modified version based on Fox and Katzir 2011*)[2]

      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.

Given (7), the scope of *only* in (6b) has the set of focus alternatives {talked to the person who chairs x before you talked to the person who chairs x: x is a DP}, as desired. I will refer to the mechanism of F-coindexation by the name of **focus binding**. Sauerland (2007) applied focus binding to explain other ellipsis-related phenomena.[3] I will assume that F-coindexation is only possible if the F-coindexed phrases are structurally identical, though I won't try to derive that. It is needed in order to avoid overgenerating certain structures.

My core proposal is that the focus binding mechanism is the source of Fake Indexicality. The LF of *only I did my homework* is in (8a), which generates (8b) as the focus alternatives that *only* operates over. I assume a standard semantics for *only*, in (9).

(8)   a.   only [I$_{F_i}$ did my$_{F_i}$ homework]   b.   {x did x's homework: x is DP}

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

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[2]I chose a syntactic characterization of focus alternatives for presentation purposes only. A semantic definition, as in Kratzer (1991) and most of the literature, would have also been possible.

[3]Sauerland (2007) cashed out focus binding in terms of structure sharing rather than co-indexation. My proposal as far as I can see is compatible with Sauerland's conceptualization but I will keep to F-coindexation.

[4] *only* is defined as a propositional operator. It would also be possible, with necessary technical amendments, to make it a dyadic operator with a restrictor and scope (see e.g. Wagner 2006). But in that case it

On this analysis *my* is a true indexical – it refers to the speaker of the utterance – but at the same time it behaves like a variable because, being F-marked, it is replaced with another DP in the focus alternatives and co-varies with its antecedent. We now derived (2) from the focus binding system, and it doesn't need to be stipulated separately.

By assumption, coindexation is not subject to island constraints (cf. 6). This explains why a reading with co-variation between *I* and *my* is possible even in (10), where *I* is trapped inside a conditional island (data from Bassi and Longenbaugh 2018).

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

A similar account can be given for uninterpreted *gender* features in similar configurations. (11a) below not only has a co-variation reading, but also the gender feature on *her* doesn't restrict the range of alternatives to Sue (McKillen 2016), since (11a) can convey something about non-females too. The focus-binding analysis accounts for this using the structure in (11b), which assumes Elbourne (2005)'s theory of pronouns as having silent lexical material, in conjunction with the idea that gender on *her* is not actually interpreted, but arises from DP-internal agreement with the elided part (see more below).[5]

(11)   a.   Only if <u>Sue</u> misbehaves does the teacher call **her** parents.   (Tomioka 1999)
           b.   Only [if Sue_{F_i} misbehaves does the teacher call [her ~~Sue_{F_i}~~] parents]

Pronouncing *Sue* instead of *her* in (11a) is grammatical, but loses any co-variation reading that (11a) has. This means, as Kratzer (1991) already noted in connection to data like (6a), that F-coindexation needs to be constrained: it is only possible if every element in the F-coindexation chain except for the first one undergoes ellipsis. This ellipsis condition works fine in (11), if 3rd person pronouns can always spell out Elbourne-style representations like [*her* ~~Sue~~]. But it raises a problem for the attempt to explain FI within the focus binding system, since in (8a) and (10a) nothing seems to be elided, even though *my* is (by hypothesis) F-coindexed with its antecedent. If *my* participates in the F-coindexation chain, what allows it to escape ellipsis?

To reconcile the ellipsis condition with my account of FI, I employ a slightly more sophisticated analysis of pronouns than I thus far assumed. In particular, I generalize the analysis given in (11) for gender on *her*, and assume that the overtness of *all* pronouns, including 1st/2nd person, is a result of DP-internal agreement with lower ϕ-heads that introduce the relevant features. The hypothesis of pronoun-internal ϕ-agreement finds some independent support in the literature. Recent cross-linguistic work (van Urk 2018, Moskal 2015, Harbour 2016, Déchaine and Wiltschko 2002) has converged on the idea that ϕ-features, including person, are introduced by separate functional heads along the pronom-

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would have to be made sure that *only* has access to the alternatives of its scope, not just its restrictor. Evidence for this is that clause-initial *only* can associate with focus in the scope, as long as it also associates with focus in the restrictor: *there was almost no couple dancing at the party; Only SUE danced with JOHN.*

[5]Sauerland (2007) already proposed to derive co-variation in sentences like (11) with focus-binding, but he did not attempt to explain the non-interpretedness of the gender feature on the pronoun.

inal spine. Following the logic of Danon (2011), these DP-internal ϕ-features need to per-colate to the highest head in the projection of the pronoun in order for them to be acces-sible to agreement- and case-relationships with material outside of the DP.[6] Crucially, I assume, the phonological exponence of the ϕ-features is determined on this highest head, not where they are generated. This resolves the tension with the ellipsis requirement on F-coindexation, because the position that determines spell-out of *my* in (8a) and (10a) is distinct from the position that participates in the F-coindexation chain.

I implement this technically in (12-13). Pronouns are maximal projections of a head la-beled K (following van Urk 2018 and Moskal 2015) and they embed a DP. As (13) shows, the interpretable ϕ-features are introduced in the DP (their exact DP-internal distribution is not crucial for our purposes), and they Agree with K. Agree leads to Feature Sharing (Pesetsky and Torrego 2007) between ϕP and K, which results in K having valued – but se-mantically uninterpreted – ϕ-features.[7] Morpho-phonological rules then determine how the ϕ-feature bundle on K will get phonologically exponed. This takes care of the morphology. What takes care of the semantics is that F-markings are on the DP level (see (12)), which dominates the interpretable ϕ-features; this ensures that the semantic content of *my* – its reference to the speaker – is overwritten in the focus alternatives, deriving a sloppy read-ing. The ellipsis condition is not violated, since the second member in the F-coindexation chain is not what gets phonological interpretation.

(12)

(13)
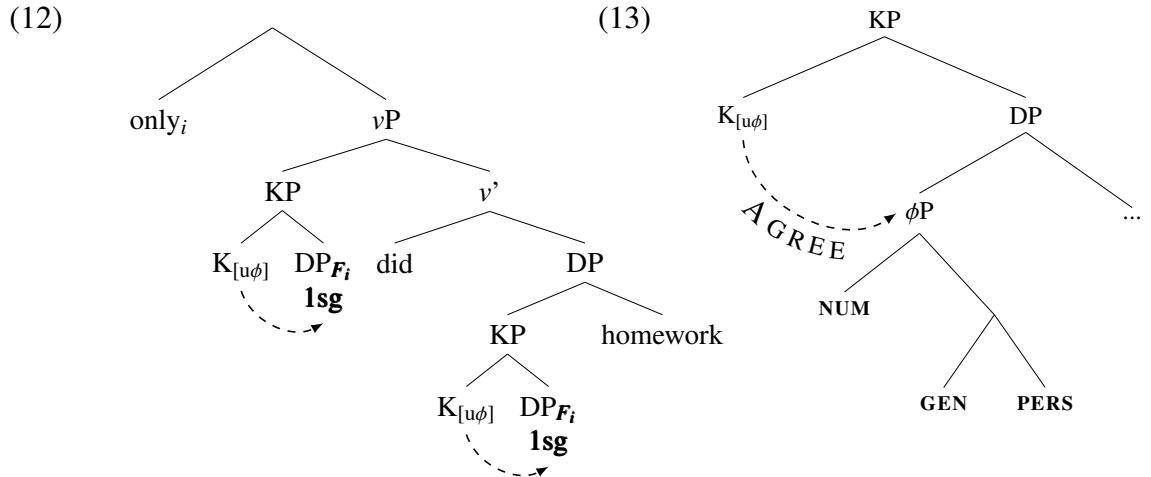
For the rest of the paper I will ignore K heads and use simplified representations like (8a) as shorthands for representations like (12).

3.   Fake Indexicals in Relative Clauses

I now turn to the RC construction, exemplified in (14).

(14)   I am the only one who did my homework   ($\checkmark$ sloppy)

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[6]Danon (2011) is concerned with non-pronominal DPs, but his logic carries through to pronouns under the view that also in pronouns ϕ-features (including person) are generated DP-internally.

[7]It is important that this feature sharing applies at a stage of derivation that doesn't feed the semantics.

Since the analysis above relied on mechanisms that interpret focus, an extension of it to (14) requires postulating that here too there is computation of focus alternatives. There is little evidence from prosody for the presence of focus in this construction (though see Jacobson 2012, fn.9). Nevertheless, such an analysis is possible, and can be motivated by two observations. First, like superlative adjectives more generally, the choice of what adjectival *only* quantifies over has been argued to be constrained by focus placement (Bumford 2017; Bhatt 1999). Below is an example by Bumford (2017:70) illustrating this focus-sensitivity.[8]

(15)   a.   <u>John</u> bagged the only deer in July.
            $\leadsto$***no one other than John*** *bagged a deer in July*

        b.   John bagged the only deer in <u>July</u>.
            $\leadsto$***In no time other than July*** $\overline{\textit{did}}$ *John bag a deer*   (Bumford 2017:70)

Second, Bhatt (2002:86) suggested that adjectival quantifiers that modify RCs can reconstruct into an RC-internal position and associate with focus on the trace of the RC.[9]

Adopting this suggestion, the LF of (14) is in (16). Adjectival *only* reconstructs and associates with focus on the trace of *who*, and F-coindexation between the trace and *my* proceeds, delivering co-variation in the scope of *only*. The trace position undergoes Trace Conversion (Fox 2002), which I'm implementing with the insertion of an indexed determiner ($\textsc{the}_x$) in the base position, co-indexed with a λ-operator in the landing site of *who*. Finally, recall that F-coindexation by assumption requires structural identity (see section 2), so the trace must underlyingly have 1sg features in order for F-coindexation to be possible here.[10] I thus assume that relative operators, or in any case their traces, can be generated with non-trivial person features.[11] This will play some role later in the paper.

(16)   <u>LF</u>: I am the ~~only~~ one who $\lambda_x \left[\text{only}_i \left[{}_{vP} [\textsc{the}_x \textbf{ 1sg}]_{F_i} \text{ did my}_{F_i} \text{ homework} \right] \right]$

The RC-internal syntax of (16) thus closely matches the syntax assumed in the previous section, except that here the associate of the focus-associating operator is a silent trace, and modulo independent mechanisms operative in the derivation of RCs.

The semantics is more or less straightforward. The interpretation of the converted trace is in (17). The interpretation of the *v*P is in (18) ((18b) follows the recipe in (7)).

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[8]In general, Superlative/Ordinal adjectives associate with (overt) focus perhaps more easily than adjectival *only* does. Observe 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]See Romero (2013) fn.8 and references therein for more on focus-association with silent elements.

[10]So strictly speaking *my* has the same underlying structure as the DP in the trace position, having an indexed $\textsc{the}$. I've chosen the simple representation to make the LF less obscure than it has to be.

[11]The verbal agreeement in English doesn't indicate that, but in other languages it does. See section 6.

(17)   a. $[\![\mathrm{THE}_x]\!]^g = \lambda P_{\langle e,t \rangle} : P(g(x)). \; g(x)$
         b. $[\![\mathrm{THE}_x \; \mathbf{1sg}]\!]^g = : g(x)$ is the speaker. $\; g(x)$

(18)   a. $[\![v\mathrm{P}]\!]^g =$ True iff $g(x)$, the speaker, did $g(x)$'s homework
         b.   Focus Alternatives of vP: $\{y$ did y's homework: y is a DP$\}$

For the next node up, adjectival *only* is assumed to be interpreted like its adverbial coun-
terpart (cf. 9), presupposing (18a) and asserting the negation of (relevant) alternatives in
(18b). After the λ-operator abstracts over the variable x, the result is (19).[12]

(19) $[\![\lambda_x \, [\text{only } v\mathrm{P}]]\!] = \lambda x : x$ is the speaker and x did x's homework. For all $y \neq x$, y
         didn't do y's homework.

In words, the function in (19) is defined only for the speaker and only if the speaker did their
homework, and returns True (when defined) iff no one but the speaker did their homework.
This function combines with the head NP *one* and then with the definite article *the*. Both
can be glossed over, since they don't fundamentally alter the interpretation of (19). In par-
ticular, regarding the latter, I accept Coppock and Beaver's (2015) arguments that the basic
interpretation of a definite DP is a uniqueness-denoting predicate, at least in post-copular
positions. Leaving out the details, Coppock and Beaver's analysis entails that in the case
under discussion *the* is semantically vacuous. So (19) will be taken as the interpretation of
the whole post-copular phrase. I will discuss *the* some more in section 5.

    Finally, (19) applies to the denotation of the matrix subject of (16), the speaker, to
derive the final interpretation of the LF. In fact, (19) can apply *only* to the speaker, due of
the function's definedness conditions; this predicts correctly that if the matrix subject is not
I, a sloppy reading of *my* is out (but a strict reading would be ok, again as predicted).

    The same sloppy interpretation that (14) has is also available in (20a), with a 3rd person
pronoun instead of *my*. On the present analysis, one way to derive (20a) is simply to let the
trace position carry the same features as the pronoun (20b), and the rest proceeds as above.

(20)   a.   I am the only one who did his homework   (✓ sloppy)
         b.   <u>LF:</u> I am the ~~only~~ one who $\lambda_x \left[\text{only}_i \left[{}_{v\mathrm{P}} \, [\mathrm{THE}_x \, \mathbf{m.sg}]_{F_i} \text{ did his}_{F_i} \text{ homework} \right] \right]$

4.   Comparison with 'Minimal Pronoun' approaches

The focus-based approach I presented in the last two sections incorporates a quite different
view of the grammar of variable binding than the view taken by 'minimal pronouns' ap-
proaches (a.o. Kratzer 1998, 2009; von Stechow 2003; Heim 2008; Wurmbrand 2017a). I
summarize the relevant points of divergence in (21)-(22), with an eye towards what comes
next.

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[12](19) is derived by the Predicate Abstraction rule of Heim and Kratzer 1998. Following their notation,
the statement between the colon and the dot defines the domain of the function and is meant to capture
presuppositional content that projects from the scope of the λ-operator.

(21) *Analysis in this paper*

    a.   The syntactic and semantic make-up of bound pronouns is exactly the same as referential pronouns.

    b.   In particular, ϕ-features are semantically interpreted on bound pronouns, just like they are on referential pronouns.

    c.   There is a distinct binding mechanism in grammar that operates in focus dependencies; that mechanism underlies the reason that ϕ-features seem not to be interpreted on focus-bound pronouns.

    d.   (14) (on the sloppy reading) differs from (20a) not only at PF, but also at LF (a consequence of (21b).

(22) *'Minimal Pronoun' approaches*

    a.   The syntactic and semantic make-up of bound pronouns is not the same as those of referential pronouns. While referential pronouns have their ϕ-features semantically interpreted, bound pronouns are underlyingly bare, featureless variables.

    b.   Bare variables surface with the same features as their antecedent, as a result of morpho-syntactic agreement between the two.

    c.   Focus plays no role in licensing this morpho-syntactic agreement.

    d.   (14) (on the sloppy reading) does not differ from (20a) a LF, but only at PF.

5.   *Only*-less RCs: an argument for the focused-based approach

Crucial to my account of FIs in RCs was the presence of adjectival *only*: it is the fact that *only* uses up the alternatives triggered by RC-internal F-marking that gave rise to sloppy readings of indexicals. It's time to go back to the data from section 1 about RCs without *only*. The data is repeated in (23)-(24), and the generalization it motivated is stated in (25):

(23) (Why are they complaining?) I'm the one who didn't get **my** paycheck yet.   (=4)
    ⤳ *everyone but me got their paycheck*   (✓ sloppy)

(24) *Context: I stop by at the HR lady's office. She doesn't recognize me and asks 'who are you?' I reply:*   (=5)

    a.   I'm the one who didn't get **#my** paycheck yet.   (✗ sloppy)
    b.   I'm the one who didn't get **his** paycheck yet.   (✓ sloppy)

(25) **Generalization**: Without adjectival *only* (or another adjectival quantifier, cf. footnote. 8) modifying the relative clause, sloppy readings for indexicals are not possible (=24), unless contrastive focus is on the antecedent, the matrix subject (=23).

(25) is surprising for current Minimal Pronoun approaches, since they don't take focus sensitivity into account of FI licensing (see 22c). And the contrast in (24) is additionally problematic for the analyses in Kratzer (2009) and Wurmbrand (2017a) as they do not predict any difference in the binding possibilities between *his* and *my* in RCs (see 22d).

One way to update minimal pronoun approaches in light of the data is to constrain the mechanism responsible for morpho-syntactic agreement between variables and their antecedents (cf. 22c) by letting it apply only if the antecedent is focused. While this could derive the data, it would not be independently motivated. The present account, however, bases FI off of the independent mechanism of focus binding of Kratzer (1991) and Sauerland (2007), and as I now try to show, can explain the data within that system.

Let us start with (23). Here *I* is contrastively focused, so it gets to be F-marked. F-coindexation between *I* and *my* is possible. This is not quite enough in order to derive the sloppy reading – it is also necessary to F-coindex the RC trace. The relevant LF of (23) is then in (26a), where *I*, the trace and *my* form an F-coindexation chain. This in turn must mean, under present assumptions, that underlyingly *who*/its trace has a 1sg feature, which I have already assumed is possible.[13] The LF triggers focus alternatives which are structures like those in (26b).[14]

(26)   a. $\mathbf{I}_{F_i}$ am the one who λ_x [THE$_x$ $\mathbf{1sg}$]$_{F_i}$ didn't get $\mathbf{my}_{F_i}$ paycheck

       b.   {$\mathbf{Bill}$ is the one who λ_x [THE$_x$ $\mathbf{Bill}$] didn't get $\mathbf{Bill}$'s paycheck,

          $\mathbf{Mary}$ is the one who λ_x [THE$_x$ $\mathbf{Mary}$] didn't get $\mathbf{Mary}$'s paycheck, ...}

How does this represenation give rise to the sloppy inference of (23)? I explain this in two steps. First step: I show that (26a) is equivalent in meaning to *I didn't get my paycheck*, and each alternative in (26b) is equivalent in meaning to a proposition of the form *y didn't get y's paycheck*. This is due to a confluence of two things: (i) the lexical entry of *the*, given in (27a) (adopted from Coppock and Beaver 2015; see section 3), says that *the P* is a predicate denoting exactly what *P* denotes, presupposing that P is true of at most one individual; (ii) the interpretation of *the*'s sister in (26) is a predicate that can be true of at most one individual, since it is defined for just one individual (due to the make-up of the trace) – this is shown in (27b)-(27c). The reader can verify for herself that these two facts yield (28) as the meaning of (26a), and (29) as that of (26b).

(27)   a. $[\![\text{the P}]\!]_{\langle et \rangle} = : \left| \{x : [\![\text{P}]\!](x)\} \right| \leq 1. [\![\text{P}]\!]$ (Coppock and Beaver 2015)
          (*the P* presupposes that *P* is true of at most one individual, and returns *P*.)

       b.   In (26a), $[\![\lambda_x ...]\!] = \lambda x : x$ is the speaker. x didn't get x's paycheck.

       c.   In (26b), $[\![\lambda_x ...]\!] = \lambda x : x$ is Bill. x didn't get x's paycheck.   ...etc.

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[13]Technically it must be assumed then that all the participants in the F-coindexation chain have the same underlying structure, and should all be represented as [THE$_x$ $\mathbf{1sg}$]. See footnote 10.

[14](26b) incorporates the idea that proper names are (at least optionally) analyzed as predicates that combine with a definite determiner. See Elbourne (2005) and Matushansky (2006) for arguments. In English, this determiner is obligatorily silent, but in many languages it can be realized overtly, as in German *der Hans*.

(28)   I didn't get my paycheck   (29) $\{y$ didn't get y's paycheck: $y \in D_e\}$

Second step: contrastive focus is often associated with an exhaustivity inference. I take it that an utterance of (23) signals that all the (relevant) alternative meanings in (29) are rendered false (probably by way of some presupposition, as in many theories of cleft sentences e.g. Büring and Križ 2013), and this derives the sloppy inference felt in (23). This can be implemented in a number of ways, for instance by appending a silent exhaustivity/Cleft operator to (26a). For reasons of space I leave out the details.

Turning to (24), here the context and prosody do not support F-marking on *I* (the subject is not contrasted with anyone), and since *I* is not F-marked the whole F-coindexation process that drove the account of (23) is irrelevant here.[15] One would hope that this would be enough to explain the impossibiliy of a sloppy reading for *my* in (24a). I will show that it is indeed enough, but there is a complication that should be addressed first.

One has to not only explain why the sloppy reading is impossible in (24a), but also how it does arise with the *his* version in (24b). But in order to derive the correct reading for (24b) in the first place, we need to make a small revision to the semantics assumed so far. (24b) is felt to presuppose that there is one, and only one, person who didn't get their paycheck. In other words, the post copular definite DP carries both existence and uniqueness presupposition. However, earlier I assumed following Coppock and Beaver (2015) that *the* introduces only a uniqueness presupposition (cf. 27a).[16] What is needed, then, is a way to strengthen the presupposition induced by *the* here. Again following Coppock and Beaver, we can implement this with an ι-Type Shift in (30) that applies to *the P* and adds the existence presupposition (note the change from '$\leq$' to '$=$' in the presupposition part).

(30) $[\![\iota(\text{the P})]\!] = : \left|\{x : [\![P]\!](x)\}\right| = 1.$ the individual x s.t. $P(x)$.

With this caveat, we can generate the correct reading of (24b) with the LF in (31a), which is assigned the interpretation in (31b).

(31)   a.   <u>LF of (24b)</u>: I am ι the one who λ_x [THE$_x$ 3sg] didn't get his$_x$ paycheck

         b.   (31a) presupposes that there is exactly one individual x such that x didn't get x's paycheck. Asserts that the speaker is identical to that individual.

Note that without the ι-operator, (31a) would have generated the inference that there is *at most* one individual who didn't get his paycheck; but, to repeat, that is too weak. The intuition is that prior to a felicitous assertion of (24b) the common ground between the speaker and the secretary must entail that someone didn't get their paycheck. I am not sure why the existence presupposition is obligatorily present in this particular context; perhaps this is in general the case for definites in copular sentences that are uttered in response to

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[15]There might be F-marking on the post-copular phrase in (24), but that doesn't affect anything I say here.

[16]The uniqueness-only semantics of *the* (in post-copular positions) was a necessary ingredient in deriving the correct result for (26). Independent evidence for it are sentences like *you are not the queen of the world* (Coppock and Beaver 2015:385) which are felicitous but wouldn't be if existence was presupposed.

identity-seeking questions. In any case, as a way to derive it I will simply assume that (in the context in (24)) both (24b) and (24a) are obligatorily parsed with ι-Type Shift.[17]

This much in place, now it is time to return to (24a) and show that it can't generate the sloppy reading in (31b). The LF that comes closest is in (32a), which is just like (26a) except for the absence of F-marking (and the presence of ι). The λ-abstract then has the same interpretation given in (27b). But what (32a) produces, in (32b), is very wrong.

(32)   a.   I am ι the one who λ_x [THE$_x$ **1sg**] didn't get my$_x$ paycheck

       b.   (32a) presupposes that there is exactly one individual x who is **both the speaker and** didn't get their paycheck. #Asserts that the speaker is identical to that individual.

Not only does (32b) not express the sloppy reading (it only presupposes that the speaker didn't get his paycheck, without entailing that other people did get theirs), the presence of the 1st person feature brings it about that the assertion part is redundant given the presupposition part, and that is generally forbidden for pragmatic reasons.

The strict reading (which is attested of course, but pragmatically odd) is generated with an LF in which the trace is 3rd person and *my* is not co-indexed with it:

(33)   <u>Strict LF for (24a)</u>: I am ι the one who λ_x [THE$_x$ 3sg] didn't get my$_y$ paycheck

To sum up, we've explained the generalization in (25), as well as the difference between (24a) and (24b), using the focus-binding hypothesis of FI and the idea that ϕ-features are always interepreted on pronouns. Even if the nitty-gritty details will turn out to be wrong (especially concerning the interpretation of the definite article), I believe that whatever is their fix won't affect the main claims.

Before leaving this section, I mention a closely related fact in Hebrew that gives further support to the account presented here. Hebrew, along with many other languages including French, Greek, Icelandic and Farsi, optionally allows for 1st(/2nd) person agreement on the embedded verb in subject RCs:

(34)   ani ha-yaxid Se- katav-**ti**   la   mixtav   (Hebrew)
        I   the-only that- wrote-**1sg** to.her letter
        '*I am the only one who wrote her a letter*'

Suppose this verbal agreement indicates that the silent subject trace of the RC has 1st person feature. Call it a '**FI trace**'. In fact since the present account holds that underlyingly traces can be marked for 1st person even in English, we would expect that some languages would show this overtly on the verb.

Strikingly, at least in Hebrew, FI traces also adhere to the generalization in (25); in some copular constructions without *only*, they are licensed only under contrastive focus on

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[17]Also in cases like (23) an existence presupposition seems present, but there it is plausibly due to the effect of exhaustive focus. See Križ (2016) for arguments that clefts have an existence presupposition.

the antecedent, as shown in (35) ('FR' = Free Relative marker). You should imagine (35b) uttered in a response to an identity-seeking question like *'which one are you?'* ((35b) does become good with 3rd marking on the verb).

(35) a. $\underline{\text{ani}}_F$ ze$_i$ Se- t_i katav-**ti** et ha-mixtav ha-ze   (Hebrew)
         $\underline{\text{I}}_F$ FR$_i$ that- t_i wrote-**1sg** ACC the-letter the-this
         '$\underline{I}_F$ am the one who wrote this letter'
         (inference: it wasn't someone else who wrote it)

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

Because (35a) and (35b) induce different focus structures, an account of the contrast between them along the lines of the focus binding analysis suggests itself. Here too, however, there's a complication similar to the English case. A compete explanation within the present system would in addition require assuming that the post-copular free relative in (35a) imposes only a uniqueness presupposition, and the one in (35b) also an existence presupposition (for reasons of space I cannot show this, and hope the reader can recover the details). Perhaps here too this is due to independent restrictions imposed on copular sentences that are uttered in response to an identity-seeking question. I leave a detailed analysis of the issue for another occasion.

6.   Remarks on cross-linguistic variation

There is a striking cross-lingustic variation regarding FI licensing in RCs. Kratzer (2009) noted that German does not allow (singular) FIs in RCs:

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

Wurmbrand (2017a) points out that the relevant difference between German and English is gender morphology on relative pronouns; only German overtly marks gender on them. She further argues that this explains the difference in FI licensing, on the hypothesis that in these languages gender marking on pronouns is not compatible with person specification.
     Wurmbrand's insight meshes well with the present theory, which requires feaure identity between elements that participate in focus binding. My hypothesis is that the LF in (37) (based on (16)) is not a legitimate LF because person and gender cannot co-exist on pronouns (in English and German).

(37)   *$\underline{\text{German LF}}$: I am the ~~only~~ who λ_x only$_i$ $\left[_{vP}\ [\text{THE}_x\ \textbf{1sg.fem}]_{F_i}\ \text{did my}_{F_i}\ \text{work}\right]$

For German this is detrimental, because on the one hand the trace of *who* must start with 1st person (for FI to be possible), and on the other hand it also must start with a gender feature (required for the morphology of the relative operator that moves from that position).

Yet another dimension of variation is revealed when 'FI-trace' languages are considered (see previous section). Neither English nor German are such languages, since they never allow overt 1st(/2nd) person marking on the embedded verb.[18] But languages who do, vary internally with respect to whether a FI pronoun requires also a FI trace or not. Data from seven such languages is summarized in the table in (38). 'v' stands for the morphology on the verb, 'pro' stands for the morphology on a downstream pronoun, and '✓'/'✗' represents whether the configuration allows for a sloppy reading for the pronoun or not.

(38)   *Languages that allow embedded 1sg verbal agreement ('FI-trace' languages)*[19]

Language	v:3sg, pro:3sg	v:1sg, pro:1sg	v:3sg, pro:1sg	v:1sg, pro:3sg
French[20]	✓	✓	✓	✓
Romanian	✓	✓	✓	✗
Hebrew[21]	✓	✓	✓	✗
Greek	✓	✓	✗	✗
Brazilian Portuguese	✓	✓	✗	✗
Icelandic	✓	✓	✗	✗
Farsi	✓	✓	✗	✗

The present theory only predicts the patterns in which the verb and the pronoun obligatorily match, i.e. the bottom four languages. I leave a resolution of the other three patterns to future research.[22]

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[18]A question I do not have an answer to is why English has FI pronouns but not overt FI traces, i.e. why it doesn't allow sentences like **I am the only one who am happy*.

[19]Thanks to Keny Chatain, Vincent Reuillard, Paul Marty, Ezer Rasin, Daniel Margulis, Danny Fox, 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

[21]There's variation in French. Two 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.

[21]Two Hebrew speakers I consulted with only accepted the *v:3sg, pro:3sg* condition.

[22]It is interesting to note that from this small sample there is no language where FI readings arise in the *v:1sg, pro:3sg* configuration but not in the *v:3sg, pro:1sg* one.

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Itai Bassi
itaibassi@gmail.com