

New Evidence for the Structural Realization of the Implicit External Argument in  
Nominalization

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1. Implicit External Arguments in Nominalization

The cross-linguistic optionality of the realization of external arguments in nominalizations has led many to the conclusion that they are not arguments and that when implicit they are not syntactically realized (for a variety of related views, see Williams 1987, Dowty 1989, Grimshaw 1990, Kratzer 1996, Engelhardt 2000, Alexiadou 2001, Culicover & Jackendoff 2001). Since only arguments can be structurally realized when covert, a decisive argument in favor of the structural realization of the implicit agent makes a particularly strong case for its status as an argument. While the implicit agent in nouns and nominalizations has been studied extensively, a firm conclusion still seems to be pending, due, to a significant extent, to disagreement regarding the syntactic status of the diagnostics which have been used.<sup>1</sup> In support of previous claims for a structurally realized implicit agent (Roeper 1987, 1993, 2004; Giorgi & Longobardi 1991; Longobardi 2001; Sichel 2009), it is argued here that it also acts as an A-binder for null R-expressions and that these disjointness effects must have a syntactic source. Principle C effects with overt R-expressions, for example, are amenable to a pragmatic analysis along the lines of The Coreference Rule (Reinhart 1983; Grodzinsky & Reinhart 1993), and are therefore susceptible to the objection that the diagnostic does not necessarily track a syntactic relation. In contrast, it is argued below that Principle C effects induced by an empty category must be syntactic. It follows that the implicit binder is structurally realized.

The argument developed here focuses on null impersonal subjects in Hebrew, in finite clauses embedded within nominalizations. The diagnostic capitalizes on the

partial pro-drop paradigm attested in Hebrew, and in this respect the conclusions reached are construction-specific and language-particular. However, given the generality of the claim that external arguments in the verbal domain are never true arguments in the nominal domain, it is sufficient that some construction in some language shows clear syntactic effects, consistent with the view that this may not be a universal property of all nominals derived from transitive verbs (see Alexiadou, Anagnostopoulou and Schäfer (2007) for recent discussion). Section 2 sets up the argument from Principle C by motivating the analysis of impersonal null subjects as null R-expressions. Section 3 shows that Principle C effects persist in nominalizations with implicit external arguments and argues for the structural representation of the latter as a pronominal empty category.

## 2. Null impersonal subjects as null R-expressions

Null impersonal subjects are found in finite clauses in fully pro-drop languages such as Spanish (Suner 1983; Jaeggli 1986) and Italian (Cinque 1988), and also in Hebrew (Shlonsky 1997; Borer 1998). They induce 3<sup>rd</sup> person plural agreement on the verb, and in episodic contexts such as the following, may receive an existential interpretation:

- (1) a. Llaman a la puerta (Spanish)  
       call-PL at the door  
       'Someone is calling at the door.'
- b. Prima, hanno telefonato: mi pareva tua sorella (Italian)  
       earlier have-PL telephoned: me seems your sister  
       'There was a phone call earlier: I think it was your sister.'
- c. dafku ba-delet (Hebrew)

knocked.PL.M at.the-door

'Someone knocked at the door.'

Borer (1998) demonstrates that the distribution of interpretations associated with the null impersonal subject in Hebrew is similar to its distribution in Italian and Spanish. The existential interpretation is restricted to null subjects which are external arguments and the generic interpretation is available for all argument types, including the null impersonal subjects of passives, unaccusatives, and raising predicates. The argument developed below focuses on the existential impersonal subject. Borer (1998) observes that when an existential null subject is embedded under another one, the result is grammatical only if the two existential interpretations are not identical.<sup>2</sup> The non-identity associated with the existential null subject in the embedded clause sharply contrasts with obligatory control when the complement is an infinitive, in (2b), on a par with English, in (2c). Further examples of existential non-identity are given in (3).<sup>3,4</sup>

(2) a. omrim Se-potxim et ha-Sa'ar be-arba

say.M.PL that-opening.M.PL ACC the-gate at-four

'It is said that they'll open the gate at four.'

b. hexlitu [PRO liftoax et ha-Sa'ar be-arba]

decided.M.PL to.open ACC the-gate at-four

c. It was decided [PRO to open the gate at four]

(3) a. hivtixu Se-potxim et ha-Sa'ar be-arba

promised.M.PL that-open.M.PL ACC the-gate at-four

'It was promised that they'll open the gate at four.'

b. hodi'u Se-sogrim et ha-maxsom ba-xag

announced.M.PL that-close.M.PL ACC the-checkpoint on.the-holiday

'It was announced that they're closing the checkpoint for the holiday.'

While Spanish and Italian share with Hebrew the impersonal construction, the binding properties of the impersonal null subject are better observed in Hebrew, where referential 3<sup>rd</sup> person null subjects are severely restricted. In embedded clauses, referential 3<sup>rd</sup> person null subjects are excluded in the present tense (Borer 1989, Landau 2004), a restriction which isolates the existential reading and the non-identity effect in the embedded present tense configurations in (2a) and (3). In fully pro-drop languages like Italian or Spanish, the non-identity effect, though probably present, will typically be masked by the availability of a definite null pronoun interpreted as bound by the matrix subject (Monatalbetti 1984, Larson & Lujan 1989).

The bound reading is clearly absent in (2a) and (3), commensurate with the unavailability of a null definite pronoun in this context. Condoravdi (1989) and Borer (1998) propose that arbitrary null subjects in finite clauses are represented as 'indefinite pro', a null pronominal counterpart to bare plurals in a language like English. The representation as a null bare plural accounts for the plural agreement and also captures the interpretive variability of the null subject as either generic or existential, on a par with overt bare plurals.

Building on this, it is proposed here that the null existential subject functions as an R-expression with respect to the binding theory. That a characterization as indefinite is insufficient is revealed by a closer look at their referential distribution. Assuming that the distribution of indefinites is constrained by the Novelty Condition (Heim 1982), each occurrence of an indefinite introduces a new discourse referent. This can explain the pattern above, since the null embedded subject is precluded, as an indefinite, from referring to the same entity as the previous NP, the matrix null indefinite. An analysis in

terms of the Novelty Condition predicts, however, that the null impersonal subject should always resist an interpretation which is identical to another existential antecedent, which I will call a 'co-existential' interpretation. Alternatively, the non-identity effect is structurally conditioned, due to a Principle C violation produced by A-binding by the null impersonal matrix subject. On this analysis, co-existential readings should be possible in the absence of c-command. The examples below favor the latter approach, since here neither null subject binds the other one, and the co-existential reading becomes possible (though not necessary). As a scenario for (4), imagine the arrest of a group of activists waiting to be interrogated at the police station.<sup>5</sup>

(4) a. et dina xakru                      Sa'a ve-et      rina xakru                      Sa'atayim  
 ACC Dina interrogated.M.PL hour and-ACC Rina interrogated.M.PL two hours  
 'Dina, they interrogated for one hour and Rina, they interrogated for two hours.'

b. [zot                      [Se-xakru                      ota Saa]] kivta Se-et                      ha-axerot  
 The.one.F.S that-interrogated.M.PL her hour hoped that-ACC the-others  
 yaxkeru                      paxot  
 FUT.interrogate.M.PL less  
 'The one who they interrogated for an hour hoped that the others, they would interrogate less.'

The coordination and relative clause configurations in (4) allow a co-existential construal of the two null impersonal subjects. Co-existential construal in the absence of c-command is unexpected if the null impersonal subject is represented simply as a null indefinite pronoun, and suggests that it is classified as an R-expression for the binding theory, especially if overt existential bare plurals are also R-expressions. Overt bare plurals do appear to differ from singular indefinites in allowing co-existential readings

in the absence of c-command.<sup>6</sup> The unavailability of the co-existential reading in (5a) contrasts with the availability of co-reference with an embedded pronoun in (5b), showing that the situation described is in principle compatible with a co-existential reading. While it may seem that repetitions of bare plurals are infelicitous, (5c) shows that it is possible to repeat a bare plural on the co-existential reading, provided that neither c-commands the other. This suggests a Principle C effect in (5a).<sup>7</sup>

- (5) a. Seventh graders wrote on the blackboard that seventh graders broke the window  
b. Seventh graders wrote on the blackboard that they broke the window  
c. If seventh graders broke the window on Tuesday, then on Wednesday seventh graders raked the yard

The behavior of overt bare plurals further supports the R-expression analysis of null existential subjects. I assume for the argument to follow that null existential subjects are not null pronouns (they are not the null counterpart of "corporate they") but bare plurals with the descriptive content suppressed. With respect to the binding theory they are null R-expressions not bound by a quantificational operator, on a par with the null epithets discussed in Lasnik & Stowell 1991 and Huang 1991.<sup>8</sup>

### 3. Null R-expressions and Principle C in Nominalizations

Impersonal subjects in finite clauses can be embedded within nominalizations, and as such they provide a good test for Principle C effects and the binding potential of the implicit external argument. To the extent that we find a Principle C violation in nominalizations with implicit agents, we gain strong support for its structural realization. Unlike previous binding phenomena used to diagnose the structural realization of the implicit agent (such as Principle A and C effects with overt anaphors and R-expressions, respectively; see Ross 1969 and Longobardi 2001), Principle C

effects induced by a null R-expression must have a syntactic source. This sort of violation will be immune to a pragmatic analysis in terms of The Coreference Rule (Reinhart 1983; Reinhart and Grodzinsky 1993) which says, roughly, 'use a bound variable if you intend to corefer'. The Coreference Rule excludes overt R-expressions in bound positions, most notably names and definite descriptions, but it doesn't seem relevant to null bare plurals. This is because whatever sort of representation the Coreference Rule is understood to apply to, semantic or syntactic, it fails to correctly exclude them. Understood as applying to semantic representations, the Coreference Rule would be hard-pressed to rule out c-commanded null bare plurals since bare plurals introduce a variable in the semantic representation (Krifka 1987; Diesing 1992). Understood as applying to syntactic representations, the candidate which a null bare plural might plausibly be said to lose out to would be a null syntactic variable, on a par with the way that overt R-expressions lose out to pronouns. But that won't do, because a null syntactic variable is an A-bar bound empty category which independently would trigger a Strong Crossover violation. Therefore, the ungrammaticality of a null co-existential bare plural couldn't be made to follow from its standing as a less good candidate, and the Principle C effect discussed in section 2 must have a structural, not pragmatic, source. This implies that the binder is a structurally realized DP, and forms the basis of the argument for the structural representation of the implicit agent.

The following examples demonstrate non-identity effects in a nominal context, when the impersonal finite clause (in the present tense, in keeping with the exclusion of null referential subjects) is embedded within a nominalization. When the nominalization contains an overt agent, the embedded subject is interpreted as existential in the episodic

context given in (6). This shows that null impersonal subjects within nominalizations are identical to those embedded under verbs.

- (6) ha-te'ana Sel ha-morim [ Se-potxim et ha-Sa'ar be-arba] icbena otanu  
the-claim of the-teachers that-open.M.PL ACC the-gate at-four annoyed us  
'The teachers' claim that the gate will be opened at four annoyed us.'

Turning now to nominalizations with implicit agents, note that in the absence of a discourse antecedent, the implicit agent is interpreted as 'arbitrary', generic or existential (similar to 'the attempt to leave' where attempter and leaver are interpreted existentially). In this respect nominalizations containing an implicit agent are similar to clauses with a matrix impersonal subject, since both contain an arbitrary argument in a higher position which could, potentially, function as a binder. Nevertheless, a co-existential construal of the null embedded subject and the null agent of the nominalization is just as difficult as it is in (3). The clausal structures are repeated, for comparison, in (7a) and (8a). (7b) and (8b) give the nominalizations.

- (7) a. ta'anu Se-potxim et ha-Sa'ar be-arba  
claimed.M.PL that-open.M.PL ACC the-gate at-four  
'It was claimed that they're opening the gate at four.'
- b. ha-te'ana [ Se-potxim et ha-Sa'ar be-arba] icbena otanu  
the-claim that-open.M.PL ACC the-gate at-four annoyed us  
'The claim that they're opening the gate at four annoyed us.'
- (8) a. hodu [Se-sogrim et ha-maxsom ba-xag]  
Admitted.M.PL that-close.M.PL ACC the-checkpoint on.the-holiday  
'It was admitted that they're closing the checkpoint for the holiday'
- b. ha-hoda'a [Se-sogrim et ha-maxsom] icbena otanu



the-admission      that-close.M.PL ACC the-checkpoint annoyed us

'The admission that they're closing the checkpoint annoyed us.'

The co-existential interpretation is blocked in (7b) and (8b), just as it is in (7a) and (18a). It appears, therefore, that the null existential subject, which functions as a null R-expression, induces a Principle C violation in nominalizations as well. Since a pragmatic explanation along the lines of the Coreference Rule couldn't be extended to these cases, (7b) and (8b) provide direct evidence for binding which is necessarily syntactic, and by extension, for the structural representation of the implicit argument.

A possible objection to this account might be that the preference for disjointness between two existential implicit arguments is merely pragmatic. That this cannot be correct is shown by the comparison of the above, in which the existential subject is embedded under a nominalization, with reverse structures, in which the nominalization and implicit agent are embedded under an existential subject. This pattern of embedding easily allows a co-existential construal of the implicit agent and the existential subject:

(9) ta'anu      [Se-[ ha-ptixa      Sel ha-Sa'ar] hayta mesukenet]

claimed.M.PL that-the-opening of    the-gate was    dangerous

'It was claimed that the opening of the gate was dangerous'

(10) hodu      [Se-[ha-sgira      Sel ha-maxsom]    hayta meyuteret

admitted.M.PL that-the-closing of    the-checkpoint was    unnecessary

'It was admitted that the closing of the checkpoint was unnecessary'

The possibility for a co-existential construal in (9)-(10) shows, first, that the non-identity effect observed throughout, and especially in (7) and (8), cannot simply be a pragmatic preference for non-identity among multiple instances of null existential arguments. If it were, it shouldn't matter which existential constituent is high and which

is low, and similar effects should obtain in (9) and (10). The asymmetry in the availability of the co-existential reading suggests, furthermore, that the null agent in nominalization is not itself an R-expression. Combined with the results of previous studies, that it can serve as a binder for overt NPs (Giorgi & Longobardi 1991 among others), can license depictive modifiers (Safir 1987), and can be identified by referential NPs which are non-c-commanding and non-local (Sichel 2009), the null agent in nominalization must be represented as a null pronoun.

Consider finally the compatibility of the conclusion about the structural representation of the external argument with an independent test designed to diagnose the presence of Voice<sup>o</sup>, the head which introduces the external argument (Kratzer 1996, 2002). Building on Baker, Johnson & Roberts (1989), Kratzer (2002) notes that adjectival passives in German are compatible with reflexive interpretation, while verbal passives are not, and takes this to suggest that the external argument is present only in the latter. Alexiadou, Anagnostopoulou and Schäfer (2007) apply this diagnostic to nominalizations to show that some nominalizations include the external argument while others do not. In German, for example, nominalizations with the *-ung* suffix are compatible with reflexive interpretation, like adjectival passives, and nominalizations marked with the *-en* suffix are like verbal passive in excluding reflexive interpretation:

- (11) a.    das Ameldung    der    Gäste                   (agent = / ≠ theme)  
           the announcement the.gen guests  
           'the announcement of the guests'
- b.    das Amelden    der    Gäste                   (agent ≠ theme)  
           the announcing the.gen guests  
           'the announcing of the guests'

This diagnostic is somewhat different from the one developed above. On one possible understanding of the test, the existential nature of the implicit agent leads to the interpretation 'Someone's announcing of the guests' which then triggers a scalar implicature that the guests did not introduce themselves. If so, the test may diagnose transitivity, but it isn't clear that anything follows regarding structural representation. Nevertheless, the prediction is clear: to the extent that Hebrew derived nominals have the implicit agent structurally represented, they are certainly transitive and should also exclude reflexive interpretation. This seems to be correct. The nominalization of *comb* (12c) patterns with the verbal passive (12a) rather than the adjectival passive (12b).

- (12) a. ha-yalda surka (agent  $\neq$  theme)  
 The-girl combed.PASS.F.S  
 'The girl was combed'
- b. ha-yalda hayta mesoreket (agent = /  $\neq$  theme)  
 the-girl was.F.S combed.F.S  
 'The girl was combed'
- c. ha-seruk Sel ha-yalda lakax Sa'a (agent  $\neq$  theme)  
 the-combing of the-girl took hour  
 'The combing of the girl took an hour'

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<sup>1</sup> See Bhatt & Pancheva (2006) for recent discussion of implicit agents in nominalizations. The strongest arguments in favor are based on the observation that similar effects are absent in nominal passive (see Roeper 1984 for control, Safir 1987 for depictive modification, and Giorgi & Longobardi 1991, Longobardi 2001 for anaphor binding).

<sup>2</sup> Borer (1998) states the generalization in terms of disjointness, but that seems to be too strong since some referential overlap is possible. This is consistent with the view that only bound readings are ruled out when R-expressions are bound (Reinhart 1983). Campbell (1998) shows independently that Principle C excludes only full overlap, detectable with plural R-expressions. Principle C allows partial overlap, in (ib):

i. Context: I went to talk to [the students in Jones' class]<sub>1</sub> yesterday.

a. \*They<sub>1</sub> told me that [the students]<sub>1</sub> had aced the exam

b. They<sub>1</sub> told me that [(only) the smart students]<sub>2 ∈ 1</sub> had passed the exam

In what follows, I use 'non-identity' to refer to the situation in (2a) and (3), where full overlap between the two existentials is impossible, and 'co-existential' for full identity between two existentials.

<sup>3</sup> The non-identical judgement here and throughout relies on a true existential reading of both positions. Generic readings will allow identity for interpretive reasons which may



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have little to do with structural position. First person plural interpretations are considered a sub-species of the generic reading and are similarly ignored. See Cinque 1988 for the claim that these two readings have the same basic syntactic distribution.

<sup>4</sup> *They* in all the English translations should be read as "corporate they".

<sup>5</sup> (4a) includes Topicalization to neutralize VP-conjunction and a single subject.

<sup>6</sup> Thanks to Edit Doron (personal communication) for suggesting this difference between ordinary indefinites and bare plurals.

<sup>7</sup> As with null existentials, the effect in (5) is restricted to the existential reading.

<sup>8</sup> Regarding interpretation, I assume that existential closure applies to each null subject separately. Co-existential readings are not "linked" readings in the sense of Lebeaux 1984 and Authier 1989, where multiple variables are unselectively bound by a single operator. It is crucial, for the Principle C analysis, that existential closure does not count as a syntactic operator in A-bar position, since if it was, the matrix subject would be outside of the domain of the embedded local A-bar binder (Chomsky 1982). Overt and covert bare plurals differ from epithets in not allowing bound readings, which I attribute to their indefiniteness. See Aoun & Chouerri 2000 for the claim that bound readings with epithets depend on the presence of extra pronominal material.