

Raising in DP Revisited

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1. On the Absence of Raising

The absence of Raising in DP has figured prominently in syntactic theory ever since Chomsky (1970). As is well known, English has nominal counterparts to control configurations, in (1), though apparently no (non-gerund) nominal counterparts to Raising and ECM with infinitives, in (2):

- (1) a. John₁ refused / promised [PRO₁ to leave]
- b. John₁'s refusal / promise [PRO₁ to leave]

- (2) a. John₁ appeared / was certain [t₁ to be on time]
- b. *John₁'s appearance / certainty [t₁ to be on time]
- c. We wanted [Mary to arrive on time]
- d. *Our desire [of Mary to arrive on time]
- e. Our desire [for Mary to arrive on time]

The restriction against raising in DP has contributed, throughout the seventies and eighties, to theories about various sub-components in the grammar. Beginning with the lexicalist hypothesis, the development of GB has often proceeded comparatively, clauses vs. noun phrases, or verbs vs. nouns, with the categorical contrast with respect to Raising and ECM playing a role in the development of government, the ECP, and Exceptional Case Marking (Kayne (1984)); inherent vs. structural case marking (Chomsky (1986)); and theories of argument-structure, complementation, and C-selection (Abney (1987); Grimshaw (1990)). The claim made in Chomsky (1970), that the input to nominalization cannot be derived by transformation, left open the possibility that a post-nominalization A-movement operation produces (2b). Expanding the empirical paradigm to include the restriction on ECM, in (2d), Kayne (1984) argues that both (2b) and (2d) derive from the deficiency of N^o, vs. V^o, with respect to exceptional government of the subject of the embedded IP, resulting in a Case-Filter violation in the latter and an ECP violation in the former. Focusing on predicted similarities between noun phrases and clauses, and broadening the empirical context to include Raising in gerund DPs (*John's being certain/likely to be late*), Abney (1987) argues that Raising in gerunds attests to a VP within DP (the empirical core of the DP-hypothesis for English), and that N^o, unlike V^o, does not select reduced clausal complements, a prerequisite for both raising and ECM, and does not impose a subject requirement, a prerequisite for A-movement. In the spirit of Kayne's proposal, Abney's treatment invokes a single factor (absence of V^o), but implies a double violation, raising now being excluded due

to both the unavailability of nominal IP complements *and* inactive EPP; similarly, Chomsky (1986) treats the ungrammaticality of raising as stemming from two independent violations: the restriction of Case-assignment by N^0 to its arguments ('inherent Case'); and an independent, semantic, requirement that A-moved DP must be 'affected'.

Judging from the heterogeneity of accounts given for (2), and persistent unclarity regarding the ultimate source of violation – the source position within IP, the target position spec DP, or both – it appears that the restriction was never, in fact, fully understood. And despite its centrality to syntactic theory, the empirical claim has gone virtually unchallenged since Postal (1974). Postal (1974) argued that alternations such as those in (3), with infinitive and gerund complements to N^0 , support Raising-to-Subject in noun phrases.¹ Yet unlike Raising in IP, the construction in noun phrases fails to produce grammatical results with standard diagnostics such as expletive and idiom chunk movement, in (4):

- (3)
- a. the tendency [for John to leave]
 - b. John₁'s tendency [t₁ to leave]
 - c. the likelihood [of Nixon's winning]
 - d. Nixon₁'s likelihood [of t₁ winning]
- (4)
- a. *there's tendency to be a problem
 - b. *its tendency to rain in June
 - c. *it's tendency to annoy me that Jane is late
 - d. *it's likelihood of raining / of annoying me that Jane is late
 - e. *the shit's tendency to hit the fan in these situations
 - f. *the shit's likelihood of hitting the fan in these situations

While it is no doubt conceivable that the theoretical tools provided by GB were not sufficiently restrictive to produce a conclusive understanding of the restriction, it is equally possible that facts regarding its ungrammaticality in English DPs with infinitives are insufficient, on their own, to fully determine its analysis. I argue here that in fact, contrary to the expectation for a universal restriction raised by the proposals mentioned above, Raising in DP from infinitives does exist. Hebrew DPs headed by non-derived nouns such as 'chances', 'tendency', 'opportunity', denoting, roughly, modality or degrees of certainty with respect to the eventuality denoted by the embedded infinitive, exhibit the range of effects typically found in clausal raising constructions.² As shown below, they differ systematically from uncontroversial nominal counterparts to control predicates, in (5) and (6):³

¹ With the exception of a Structural-Case analysis of genitive Case in Hebrew construct DPs, supported by the existence of construct-state ECM (Siloni (1997)).

² Discussion of the source of the English restriction, and the precise difference between English and Hebrew are beyond the scope of this paper: the range of possibilities remains fairly broad, even with the elimination of some of the older Case-based and government-based approaches. First, it is possible that DPs with gerund complements, of the sort in (3d), do involve raising, despite the absence of expletives and idiom chunks. If so, it is possible that the parametric difference is

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|-----|---|---------|
| (5) | <ul style="list-style-type: none"> a. ha-nisayon Sel rina₁ [PRO₁ le-hagi' a ba-zman]
the-attempt of rina to-arrive on-time
'Rina's attempt to arrive on time' b. ha-havtaxa Sel rina₁ [PRO₁ le-hagi' a ba-zman]
the-promise of rina to-arrive on-time
'Rina's promise to arrive on time' | Control |
| (6) | <ul style="list-style-type: none"> a. ha-sikuyim Sel rina₁ [t₁ le-hagi' a ba-zman]
the-chances of rina to-arrive on-time
'Rina's chances of arriving on time' b. ha-netiya Sel rina₁ [t₁ le-hagi' a ba-zman]
the-tendency of rina to-arrive on time
'Rina's tendency to arrive on time' | Raising |

DPs of the sort in (6) show typical Case/theta splits, such that a possessor DP may be theta-marked as an embedded subject, yet Case-marked genitive in the DP domain. It is shown, in section 2, that both expletives and idiom chunks are licensed in the genitive position. Section 3 goes on to motivate a movement analysis of the theta-Case split, as schematized in (6), based on the distribution of focus particles, agreement, negative concord and extraposition.

The implications of Raising for the analysis of Control in DP and preliminary support for Obligatory Control are discussed in section 4. With the abandonment of government within the Minimalist Program (Chomsky (1995)), new and more fine grained approaches to infinitives neutralize the significance of the ever mysterious IP/CP Raising/Control infinitive divide (Martin (2001); Bošković (1997); Wurmbrand (2000)), and re-open, in effect, empirical questions surrounding the similarities and differences in the interpretation and distribution of Raising and Control and how they are to be encoded in the grammar. Recent studies of Control lead to firmer conclusions regarding the inseparability of the distribution and the interpretive properties of the null embedded subject, i.e.

related to the overt expression of non-finite tense, such that Hebrew infinitives are underlyingly similar to English gerunds. Alternatively, the difference may be related to the typology of A-movement and its parametric availability within DP. Richard Kayne (p.c.) gives the following contrast between standard raising nominals and ECM-raising nominals, when embedded under 'despite':

- (i) a. ?despite it's tendency to snow around here a lot, it's been relatively mild this year
- b. *despite his belief to be a genius, the rest of us were not as convinced

Setting aside the improvement under 'despite', the contrast may suggest a fairly deep difference between (ia) and (ib), such that only ECM-passive is derived by true A-movement (see Jacobson (1990) for a non-movement analysis of English clausal Raising). Similarly, the parametric difference between Hebrew and English may be tied to the typology of passive and A-movement, such that in Hebrew DP-internal A-movement is tolerated more readily than in English or that DP never allows true A-movement, and Hebrew raising constructions are not derived by true A-movement.

³ Clausal control in Hebrew, the counterpart of (1a), is perfectly grammatical, and bears the obligatory / non-obligatory distinction familiar from English. See Landau (2000) and Sichel (2006) for further details.

Obligatory vs. Non-Obligatory Control, and assimilate OC to anaphors, from which the distribution of OC is derived in various ways (Wurmbrand (2000); Landau (2001); Hornstein (1999); Hornstein (2001)). On Hornstein's approach, the anaphoricity of OC is directly related to its status as an NP-trace, leading to the expectation that OC should be licensed in exactly those configurations which license A-movement, including the sideways variety (Nunes (2004)). DP may serve therefore as an important testing ground for the A-movement hypothesis, such that if OC is A-movement, and Control is attested within DP, so is Raising expected (Culicover & Jackendoff (2001)). Given earlier conclusions regarding the unavailability of Raising in DP, its existence in Hebrew, and possibly English as well, will shape predictions regarding Control; while Culicover & Jackendoff (2001) consider the absence of Raising in DP as straightforward evidence against the A-movement hypothesis, its presence makes Control in DP much less surprising. However, whether or not the availability of Raising within Hebrew DP, and possibly also English, provides new evidence directly supporting an A-movement analysis depends ultimately on the nature of Control in DP, and on the status of the infinitive, complement or adjunct, questions which have not yet been conclusively settled on independent grounds (Stowell (1981); Grimshaw (1990); Hornstein (2001); Boeckx & Hornstein (2003)). As a step towards resolving these questions, I show that, allowing for pervasive implicit Agents of nominals, control in DP is most probably of the OC variety.

2. Evidence for the Non-Thematic Nature of the Genitive DP

The empirical basis for a distinction between raising and control in clauses is grounded in the relation between thematic licensing and Case assignment, such that in raising the matrix subject is theta-licensed by the embedded predicate and Case marked in its surface position in the matrix clause. Such theta-Case splits are observed most clearly, as is well known, with non-referential subjects such as expletives and idiom chunks, diagnostics which in English do not produce the expected grammaticality if Postal was correct in claiming that nouns like 'tendency' allow raising (see (4) above). While for English, the case for raising had to be made on independent, perhaps less convincing grounds, leaving open the possibility that non-referential possessors were excluded for independent reasons, Hebrew does show evidence of sort familiar from IP. IP raising diagnostics are shown in (7), for English, and in (8) for the Hebrew raising adjectives 'xayav' (=certain) and 'alul' (=possible), which select infinitive

complements. These include the absence of selection restrictions imposed on the subject, and the possibility of having an expletive or an idiom chunk raised from the embedded subject position in which they are licensed:

- (7) a. The theory₁ seems [t₁ to be correct]
 b. There₁ seems [t₁ to be a problem with the theory]
 c. The shit₁ seems [t₁ to have hit the fan]
- (8) a. ha-te'oria₁ xayevet / alula [t₁ lihiyot nexona]
 the-theory.f.s certain.f.s / possible.f.s to-be correct.f.s
 'The theory is certain / should (to) be correct'
 b. ze₁ xayav / alul [t₁ lihiyot naxon [Se-dina nicxa]
 it certain / possible to-be true that-dina won
 'It is certain / could (to) be true that Dina won'
 c. ha-kerax₁ xayav / alul [t₁ le-hiSaver be-macav kaze]
 the-ice certain / possible to-break in-situation like-this
 'the ice is certain / could (to) break in this kind of situation'

Within DPs, a consistent difference is observable between nouns such as 'chances', 'tendency', and 'opportunity' on the one hand, and nominal counterparts to control verbs, on the other. The former appear to impose no selection restrictions on the genitive DP, and allow expletives and idiom chunks associated with the embedded subject position. Yet in both types of DP the DP is marked genitive, by *Sel*, which on standard assumptions is associated with the nominal portion of the DP, N⁰ or its functional projections. In other words, there exists a class of nouns, to which I refer, anticipating the next few steps, as 'Raising', which Case-mark their possessors without bearing a thematic relation to them, on par with the syntactic subjects or clausal raising predicates. Examples (9) and (10) show a contrast between raising and control nouns with respect to selection restrictions, (11) and (12) show the difference with genitive expletives, and (13) and (14) show it for idiom chunks as genitive DPs. For convenience, the underlying structure is given under the Roman numeral heading each diagnostic:⁴

⁴ The English glossing of the good cases should not be taken to imply identical structure. English 'chances', 'probability', etc. with a gerund complement may well be ACC-ing constructions, with the embedded subject in-situ bearing no morpho-syntactic relation to the embedding DP, an analysis argued against for Hebrew in section 4.

- I. Selection Restrictions: N^o [the theory to be correct]
- (9) a. [ha-sikuyim Sel ha-te'oria lihiyot nexona] kluSim le-maday 'Raising'
the-chances of the-theory to-be correct.f.s slim quite
'The chances of the theory being correct are pretty slim'
- b. [ha-netiya Sel te'oriot lihiyot nexonot] yedu'a le-kulam
the-tendency of theories to-be correct known to-all
'The tendency for theories to be correct is known to all'
- c. [ha-histabrut Sel ha-te'oria lihiyot nexona] krova le-efes
the-probability of the-theory to-be correct.f.s close to-zero
'The probability of the theory being correct is close to zero'
- (10) a. *[ha-havtaxa Sel ha-te'ora lihiyot nexona] hirgiza otanu 'Control'
the-promise of the-theory to-be correct.f. annoyed us
- b. *[ha-nisayon Sel ha-te'oria lihiyot nexonot] hirgiz otanu
the-attempt of the-theory to-be correct annoyed us
- c. *[ha-seruv Sel ha-te'oriot lihiyot nexonot] hirgiz otanu
the-refusal of the-theory to-be correct annoyed us
- II. Expletives: N^o [it to-happen [CP that ...]]
- (11) a. [ha-sikuyim Sel ze likrot [Se-bibi yibaxer]] tovim 'Raising'
The-chances of it to-happen that-Bibi will.be.elected good
'The chances of it happening that Bibi is elected are good'
- b. [ha-netiya Sel ze likrot [Se-metunim ne'enaSim]] lo yexola lihiyot mikrit
the-tendency of it to-happen that-moderates get.punished can't be accidental
'The tendency for it to happen that moderates are punished cannot be accidental'
- c. [ha-histabrut Sel ze likrot [Se-bibi yipasel]] krova le-efes
the-probability of it to-happen that-bibi will.get.disqualified close to-zero
'The probability of it happening that Bibi gets disqualified is close to zero'
- (12) a. *[ha-nisayon Sel ze likrot [Se-bibi yibaxer]] hifti'a otanu 'Control'
The-attempt of it to-happen that-bibi will.be.elected surprised us
- b. *[ha-seruv Sel ze likrot [Se-bibi yipasel]] hifti'a otanu
the-refusal of it to-happen that-bibi will.get.disqualified surprised us
- c. *[ha-havtaxa Sel ze likrot [Se-bibi yibaxer]] hid'iga otanu
the-promise of it to-happen that-bibi will.get.elected worried us
- III. Idiom Chunks: N^o [SUBJ-idiom PRED-idiom]
- (13) a. [ha-sikuyim Sel ha-kerax le-hiSaver be-macav ka-ze]] kluSim 'Raising'
the-chances of the-ice to-break in-situation like-this slim
'The chances of the ice breaking in this kind of situation are slim'
- b. [ha-netiya Sel ha-kerax le-hiSaver be-macav ka-ze]] yedu'a le-kulam
the-tendency.f of the-ice to-break in-situation like-this known.f to-all
'The tendency for the ice to break in this kind of situation is know to all'
- c. [ha-efSarut Sel ha-kerax le-hiSaver be-macav ka-ze]] mutelet be-safek

the-possibility.f of the-ice to-break in-situation like-this held.f in-doubt
 'The possibility of the ice breaking in this kind of situation is doubtful'

- (14) a. *[ha-nisayon Sel ha-kerax le-hiSaver be-macav kaze]] hu tipSi 'Control'
 the-attempt of the-ice to-break in-situation like-this is silly
 b. *[ha-seruv Sel ha-kerax le-hiSaver be-macav kaze]] hu tipSi
 the-refusal of the-ice to-break in-situation like-this is silly
 c. *[ha-havtaxa Sel ha-kerax le-hiSaver be-macav kaze]] hi tipSit
 the-attempt of the-ice to-break in-situation like-this is silly

The facts in (9), (11), and (13) consistently point to the existence of a class of nouns which bears no thematic relation to the genitive *Sel*-DP: it imposes no selection restrictions on it and allows expletives and idiom chunks which are clearly licensed only in the embedded clause. Control nouns, in contrast, impose selection requirements and do not allow non-referential DPs such as expletives and idiom chunks, a consequence of the theta-relation they bear to *Sel*-DP.

Yet while (9)-(14) show that there is no necessary thematic relation between Raising N⁰ and the genitive DP, and that a genitive DP may be non-referential, it is still conceivable that when *Sel*-DP is referential, and is semantically compatible with the requirements for possession, it is then thematically licensed by the possession relation itself, mediated possibly by functional material in DP. If it is, it will bear a theta-role and a thematic relation with whichever portion of DP licenses possession.⁵ On that scenario theta-Case splits in DP would be limited to non-referential genitive DP, and the theta-criterion would impose Control by a referential genitive of the embedded infinitive subject, as depicted in (15):

- (15) a. ha-netiya Sel rina₁ [PRO₁ le-hacliax taxat laxac]
 the-tendency of rina to-succeed under pressure
 'Rina's tendency to succeed under pressure'
 b. ha-sikuyim Sel rina₁ [PRO₁ le-hacliax taxat laxac]
 the-chances of rina to-succeed under pressure
 'Rina's chances of succeeding under pressure'

A control analysis, in contrast to raising, would imply that the denotations of nouns such as 'chances' or 'tendency' may in some sense be possessed by individuals, and that this relation is independent of and

⁵ See for example the discussion of Possessor adjuncts in Partee and Borschev (2003), where it is claimed that (non-inherent / alienable) Possessors are not direct arguments of nouns, and are licensed semantically by a relation R represented higher in the structure.

in addition to the relation of the noun to the eventuality denoted by the embedded infinitive. On a raising analysis, chances and tendencies are monadic, and are associated only with eventualities, on a par with raising predicates and epistemic modals.⁶ Whether or not it is feasible to consider the relation of the genitive to N^o in examples like (15) as a possession relation turns out, however, to be tangential to the syntax of these constructions, since it can be shown that possession, in general, is not necessarily mediated by theta-role. Clausal possession, at least in Hebrew, has the possessor expressed as a dative, in (16). The dative position allows non-referential DPs such as expletives and idiom chunks, on a par with the DP-internal genitives discussed above, provided that these are licensed from below, within the possessed DP. The expletive in (17) has its source within a possessed DP of the sort seen in (11); the expletive may surface as a dative 'possessor', in (17b):⁷

(16) yeS le-dina be'aya
 Be to-dina problem
 'Dina has a problem'

(17) a. ha-sikuyim Sel ze₁ [t₁ likrot [Se-bibi Suv yibaxer]]]
 the-chances of it to-happen that-bibi again will.get.elected
 'the chances of it happening that Bibi will be reelected'
 b. yeS le-ze₁ [sikuyim [t₁ likrot [Se-bibi Suv yibaxer]]]
 is to-it chances to-happen that-Bibi again will.get.elected
 'There are chances of it happening that Bibi will get reelected'

The possibility of having a non-referential DP as clausal possessor provides independent evidence for the Raising-to-Have analysis proposed in Szabolcsi (1987), (1994) and Kayne (1993). It also suggests that quite generally, possession is not mediated by a thematic relation. Since non-referential DPs clearly cannot possess, a possessor interpretation of a dative or genitive DP, unlike the kinds of interpretations regulated by the Theta-Criterion, turns out not to be enforced. The possibility for the possession interpretation to be withheld from a position to which it can, in principle, be assigned is

⁶ Part of the difficulty in determining argument structure on independent semantic grounds hinges on the intensionality of these nouns, in conjunction with the extensional / intensional status of possession. Given that chances and probabilities may be negative, and that tendencies do not imply the truth of their complement, it appears that no extensional object need be possessed in cases such as *Mary's chances of winning (are less than zero)* or *John's tendency to be late*.

⁷ See Sichel (2005) for more detailed discussion, argumentation for the expletive status of 'ze', and similar examples with idiom chunks.

compatible with its neutralization in derived nominals. The requirements on the possessive interpretation appear to be relatively weak, weaker even than the requirement on theta-role assignment to subjects of process nominalizations, which, as is well known, can be withheld when no genitive is projected, i.e. *the demolition of the house took an hour*. Optionality of the possessor interpretation with overt genitives implies, therefore, that the genitive position in DP, or the dative position in clauses with 'have', is not restricted in its local domain. More generally, the possession interpretation, when present, as in (16), is probably not to be associated with a contentful predicate or head which assigns a theta-role to a DP argument. If possession is not thematic, the Theta-Criterion does not stand in the way of a raising analysis of referential *Sel*-DP: the DP gets its theta-role as subject of the embedded predicate, with the possibility of having possession configurationally 'overlayed' in its derived position in the DP domain.⁸

Independent motivation for excluding thematic possession is provided by the preservation of truth value with an embedded passive. With Control nouns, which assign a theta-role to the genitive DP, passive in the embedded clause identifies the genitive as an embedded Theme, affecting the denotation of the DP and ultimately truth conditions, in (18). No such effect is apparent with 'chances' or 'tendency', in (19) and (20):

- (18) a. ha-racon Sel ha-eved lir'ot et ha-malka
the-desire of the-slave to-see o.m the-queen
'the slave's desire to see the queen'
- b. ha-racon Sel ha-malka lehera'ot al-yedey ha-eved
the-desire of the-queen to-be.seen by the-slave
'the queen's desire to be seen by the slave'
- (19) a. ha-sikuyim Sel ha-cava lifgo'a be-mafginim
the-chances of the-military to-hurt in-demonstrators
'the chances of the military hurting demonstrators'
- b. ha-sikuyim Sel mafginim le-hipaga al yedey ha-cava
the-chances of demonstrators to-be.hurt by the-military
'the chances of demonstrators being hurt by the military'

⁸ See Sichel (2005) for further details.

- (20) a. ha-netiya Sel ha-cava lifgo'a be-mafginim
 the-tendency of the-military to-hurt in-demonstrators
 'the tendency for the military to hurt demonstrators'
- b. ha-netiya Sel mafginim le-hipaga al yedey ha-cava
 the-tendency of demonstrators to-be.hurt by the-military
 'the tendency for demonstrators to be hurt by the military'

To the extent that there is no change in "chances", from the chances of the military hurting demonstrators, to the chances of demonstrators being hurt by the military, and similarly for 'tendency', it appears that the only argument these nouns are associated with is the embedded infinitive. With control nouns, which bear a thematic relation to the genitive, it matters which of the participants in the embedded eventuality holds a desire (or refusal, attempt, etc.) for that eventuality. With the nouns in (19) and (20) it doesn't, suggesting that there is no possession of a tendency or chances by an embedded event participant, and more generally, that the genitive is thematically licensed only from below. If so, the theta-Case splits in DP observed with non-referential genitives apply to referential genitives as well, paving the way for a raising analysis.

3. Evidence for Movement

Genitive *Sel*-phrases occur in Hebrew after the noun they are associated with. Therefore, the conclusions reached in the section above are not sufficient, in and of themselves, to conclusively determine a movement analysis. In addition to a string vacuous movement analysis, which may, in principle, be assimilated either to Raising-to-Subject or Raising-to-Object, schematized in (21a), the post-nominal position of *Sel*-DP and the theta-Case split it exhibits are also compatible with an ACC-ing analysis, in (21b). The genitive marker *Sel* is external, in (21b), to an opaque clause, on a par with the potential ACC-ing complements to English nouns given in (22):

- (21) a. $N^0 \dots Sel DP_1 \dots [t_1 \text{ infinitive } \dots$ Raising (to 'subject' / 'object')
- b. $N^0 \dots [Sel [DP \text{ infinitive } \dots$ ACC-ing (off an N^0)

- (22) a. the chances of [there being a violent retaliation]
 b. the possibility of [it raining]
 c. the chances of [the shit hitting the fan]

According to an ACC-ing analysis of (22a), the genitive marker is associated with the gerund complement, and an opaque, non-ECM-like clausal boundary intervenes between 'of' and the embedded subject (Reuland, 1983); in other words, the DP following 'of' is not necessarily itself associated with the genitive Case assigned in DP, the theta-Case split is only apparent, and no movement bringing the DP close to its Case assigner is involved. By extension, it is perfectly feasible that Hebrew infinitives are nominal like gerunds in English, and require genitive licensing, in which case the embedded 'genitive' DP is not directly associated with genitive and no movement operation would be involved. Therefore, in order for the argument for raising to be complete, an ACC-ing type of analysis must be excluded for the Hebrew nouns with infinitive complements discussed so far.

The raised status of Sel-DP, as in (22a), is motivated by comparison of the internal syntax of its containing DP with the internal syntax of a similar construction which does exhibit the opacity effects expected on an ACC-ing analysis. Nouns such as 'phenomenon' and 'result', in (23), take non-finite complements. They contrast, as shown immediately below, with raising nouns on a variety of effects diagnosing clausal opacity, including the distribution of focus particles, clitic doubling, negative concord, and extraposition. They are easily distinguished from raising nouns, since the embedded clause is headed by a participle, while in Raising constructions the embedded clause is infinitival:⁹

- (23) a. [ha-tofa'a Sel [xayalot metaxkerot palestina'im]] hitrida et batya
 the-phenomenon of soldiers.f interrogating Palestinians disturbed batya
 'The phenomenon of soldiers interrogating Palestinians disturbed Batya'
 b. [ha-toca'a Sel [yeladim lo yoc'im me-ha-bayit]] hayta cfuya
 the-outcome of children not leaving from.the-house was expected

⁹ There is also an interpretive difference, possibly related to the way in which the non-finite clause combines with the head noun. In Raising constructions, the clause restricts the denotation of the head noun, on a par with Control infinitives in nominals and complements in VP generally. The non-finite clauses in (23), on the other hand, specify the content of the head noun, like an appositive:

- (i) ha-tofa'a hi Se-xayalot metaxkerot palestina'im ba-rexov
 the-phenomenon is that-soldiers.f interrogate Palestinians on.the-street
 'The phenomenon is that soldiers interrogate Palestinians on the street'

'The outcome of children not leaving home was expected'

The following set of contrasts are sensitive to the permeability of the clausal boundary within DP. They all show that the embedded clause in DPs of the sort in (23) is delineated by an opaque boundary. Like the English ACC-ing constructions studied in Reuland (1983), they do not exhibit ECM-like domain-extension effects, i.e. it never looks as if the embedded subject may be external to its clause. Raising constructions, on the other hand, consistently show ECM-effects. Their presence attests to a 'real' theta-Case split, since the embedded subject, even if it is in-situ in the embedded clause, would be structurally Case marked by the nominal genitive *Sel*. Focus particles and negative concord facts, show, in addition, that domain-extension effects are derived by the movement of the embedded subject to a clause-external position in the DP.

Consider first the distribution of focus particles such as *also / only*, which seem to be directly dominated by IP material. They cannot normally intervene between a preposition and its DP complement, unless there is also an IP clausal boundary separating the preposition qua C⁰ and the DP. This is seen in the following English ECM construction (24):

- (24) a. I baked the cake (only) for (*only) John
b. I prefer for [only John to be there]

A focus particle in (24b) can intervene between P⁰ and DP because here, unlike (24a), a clausal boundary between P⁰ and DP provides the IP material necessary to host the particle. The restriction against having a focus particle embedded within a PP or DP is seen also in Hebrew, including genitive phrases headed by *Sel*, in (25b):

- (25) a. dibarti (**rak / gam**) im (***rak/gam**) dani
spoke.I only/also with only/also dani
'I spoke only/also to Dani'
b. ha-sefer hu (**rak/gam**) Sel (***rak/gam**) dani
the-book cop only/also of only/also dani
'The book is only/also Dani's'

Given that focus particles cannot intervene between P and DP unless there is IP material to host them, they are a good diagnostic for sentential boundaries. They show that a clausal boundary falls between *Sel* and DP with nouns like 'phenomenon', but not with raising nouns of the 'chances' type. A focus particle may immediately follow *Sel* in (26), but not in (27):

- (26) [ha-tofa'a *Sel* [**rak/gam** xayalot metaxkerot palestina'im ba-rexov]] hitrida otanu
the-phenomenon of [only/also soldiers.f interrogating Pals. in.the-street] disturbed us
'The phenomenon of only/also soldiers interrogating Palestinians on the street disturbed us'
- (27) **rak/gam** [ha-sikuyim *Sel* (***rak/gam**) xayalot le-nace'ax] tovim
only/also the-chances of only/also soldiers to win are.good
'Only/also the chances of Rina winning are good'

The possibility of having a focus particle between *Sel* and DP in (26) implies IP material and an embedded clause following *Sel* and preceding DP. Therefore, DP must occupy an embedded subject position. The ungrammaticality of a focus particle between *Sel* and DP in (27) suggests the absence of IP material and that DP is a direct complement of *Sel*.

The contrast between (26) and (27) suggests an ECM-like configuration for (27), in which the embedded subject is directly Case-marked by genitive *Sel*. Nevertheless, it does not track movement per se, since *Sel* and its complement could be internal to the embedded clause, similar to the DP following 'want' in English, or external to the embedded clause, the result of movement. Similarly, pronominalization contrasts attest to an opaque clausal boundary with participial clauses following 'phenomenon', and a permeable, possibly ECM-like, boundary with the infinitive under 'chances'. There are two strategies for pronominalizing the genitive DP in Hebrew; the pronominal may be cliticized to *Sel*, as in (28b), or to N⁰, in (28c), the latter strategy optionally allowing clitic doubling in the presence of *Sel* and a doubled DP:

- (28) a. ha-simla *Sel* dina
 The-dress of dina
 'dina's dress'
- b. ha-simla Sela
 the-dress of-her
 'her dress'

- c. simlata (Sel dina)
 dress-her of dina
 'her dress' or 'dina's dress' (with clitic doubling)

Raising nouns, like 'chances', allow both types of pronominalization. The pronominal clitic may attach to *Sel*, as in (29b), and to N^0 , in (29c), with the option to double, exactly as in (28c). The class of nouns claimed to take opaque clauses exclude both. The embedded DP, as a pronominal, cannot cliticize to *Sel*, in (30b), or directly to N^0 , in (30c):

- (29) a. [ha-sikuyim Sel dina le-nace'ax] tovim
 the-chances of dina to-win good
 'The chances of Dina winning are good'
 b. [ha-sikuyim Sela le-nace'ax] tovim
 The-chances of.her to-win good
 'The chances of her winning are good'
 c. [sikuyeha (Sel dina) le-nace'ax] tovim
 chances.her of dina to-win good
 'The chances of her(/Dina) winning are good'
- (30) a. [ha-tofa'a Sel [xayalot metaxkerot palestina'im]] hitrida et batya
 the-phenomenon of soldiers.f interrogating Palestinians disturbed batya
 'The phenomenon of soldiers interrogating Palestinians disturbed Batya'
 b. *[ha-tofa'a Selahen metaxkerot kSiSim palestina'im] hitrida et batya
 the-phenomenon of-them interrogating old Palestinians disturbed batya
 c. *[tofa'atan Sel [(xayalot) metaxkerot palestina'im]] hitrida et batya
 phenomenon.their of soldiers interrogating Palestinians disturbed batya

Assuming that pronominalization is subject to a syntactic locality constraint, the presence of an opaque clausal boundary between *Sel* and DP will prevent pronominalization; on this analysis, the DP is not a complement of *Sel*, not even in the most liberal ECM-like sense. The possibility of pronominalization under 'chances', on the other hand, implies that the embedded subject DP is close enough to *Sel* and N^0 for cliticization to proceed. As with focus particles, this could be due to movement of DP to a clause-external, but it may also mean that DP is in-situ, with a permeable clausal boundary producing an ECM-like cliticization effect.

The distribution of negative concord and extraposition point conclusively to movement of the DP to a clause external genitive position. Negative DPs, including subjects and objects, are licensed in

Hebrew by clausemate negation, as seen in (31a) and (31b). Negation a clause up from the negative DP, or a negative DP a clause up from embedded negation are impossible, as in (31d) and (31e):

- (31) a. *(lo) baxarti be-af talmid
neg choosed.I in-no student
'I didn't chose any student'
- b. af talmid *(lo) nice'ax
no student neg won
'No student won'
- c. zaxarti [Se-af talmid lo hitkonen]
remembered.I that no student neg prepared
'I remembered that no student prepared'
- d. *lo zaxarti [Se-af talmid hitkonen]
neg remembered.I that-no student prepared
- e. *af talmid zaxar [Se-hu lo hitkonen]
no student remembered that-he neg prepared

With negation outside of the DP containing the embedded clause, and a negative DP within the non-finite clause embedded in DP, the result is grammatical for raising nouns, in (32b), and ungrammatical for 'phenomenon', in (32c). (32c) is expected, given the clausemate requirement, on a par with (31d). The grammaticality of (32b) is similar to the situation with the ECM complement under 'remember', in (32a), with high negation licensing an embedded negative subject. It could imply movement of 'no student' to a position outside of the embedded clause, in which it is close enough to negation, but it could also suggest domain extension, as in the examples considered so far.

- (32) a. lo zaxarti [af talmid mitkonen] 'ECM'
neg remembered.I no student preparing
'I didn't remember any student preparing'
- b. lo he'emanti [ba- sikuyim / netiya Sel af talmid le-hitkonen]
neg believed.I in.the-chances / tendency of no student to-prepare
'I didn't believe in the chances / tendency of any student preparing'
- c. *lo saladeti me-[ha- tofa'a Sel [af talmid mitkonen]]
neg disapproved.I from-the-phenomenon of no student preparing

The pattern of grammaticality with the reverse relative order of negative DP and negation, however, clearly favors a movement analysis. In (33) negation is within the clause embedded within DP. Here, a negative DP subject under 'phenomenon' is grammatical, as expected, if negation and the negative DP are within the same clause. (33b), with raising nouns, produces ungrammaticality:

- (33) a. *zaxarti af talmid lo mitkonen
remembered.I no student neg preparing
b. *he'emanti ba- sikuyim / netiya Sel af talmid lo le-hitkonen
believed.I in.the-chances / tendency of no student neg to-prepare
c. saladeti me- ha- tofa'a Sel [af talmid lo mitkonen]
disapproved.I from-the-phenomenon of no student neg preparing
'I disapproved of the phenomenon of no student preparing'

The ungrammaticality of (33b) can be understood as the result of movement, which places the negative DP outside of the clause which contains negation, in which case a clausal boundary will intervene, as in (31e). The combination of (32b), in which a lower negative DP appears to be high enough to be licensed by high negation, together with (33b), in which the negative DP appears to be too high to be licensed by a lower negation, strongly suggest that the genitive DP is in fact raised from its base position within the embedded clause, and that overt movement underlies the domain extension facts observed above with focus particles and pronominalization.

The conclusion that the genitive DP raises, albeit string vacuously, from its embedded position to a genitive position within DP, is further supported by contrasts in extraposition.¹⁰ A finite clause embedded within DP may be extraposed to a clause final position, seen in (34). If the genitive DP has raised from its embedded position, it is expected not to undergo clausal extraposition; raising nouns with extraposed infinitives are indeed impossible, as in (35):

- (34) a. ha-sikuyim adayim kayamim [Se-dina tibaxer]
the-chances still exist that-dina will.be.elected
'The chances still exist that Dina will get elected'
b. ha-hizdamnut adayim lo huxmeca [Se-dina tenace'ax]
the-opportunity still not missed that-dina will.win
'The opportunity hasn't yet been missed that Dina will win'
- (35) a. *ha-sikuyim adayim kayamim Sel dina le-hibaxer
the-chances still exist of dina to-be.elected
b. *ha-hizdamnut adayin lo huxmeca Sel dina le-nace'ax
the-opportunity still not missed of dina to-win

¹⁰ See Sichel (2003) for genitive Case assignment as a spec-head configuration between genitive DP and the head *Sel*, and further elaboration of the functional portion of DP consistent with Structural genitive case and movement.

The problem with extraposition in (35) is not likely to be related to the non-finite status of the complement, or the presence of the genitive *Sel*, since extraposition is allowed under 'phenomenon' and 'outcome', which similarly take non-finite embedded clauses preceded by *Sel*:

- (36) a. ha-tofa'a adayim kayemet [Sel anaSim medabrim ba-pelefon ba-rexov]
the-phenomenon still exists of people speaking on.the-cell phone in.the-street
b. ha-toca'a lo exara le-hagi'a [Sel yeladim lo yoc'im me-ha-bayit]
the-result not late to-arrive of kids not leaving from-the-house

The difference in extraposition between (35) and (36) suggests, therefore, that in (36) the genitive is part of the clausal constituent, while in (35) it is not, the result of movement into the DP domain.

4. Control as Movement within DP

The possibility of Raising in DP may carry implications for the analysis of Control, especially if Control is A-movement, as argued in Hornstein (1999, 2001). With the abandonment of the government relation within the Minimalist Program, a shared conclusion emerging from recent studies of Control is that its interpretive heterogeneity, OC vs. NOC, correlates with structural heterogeneity, either the size of the infinitive (Wurmbrand, 2000), or its position within the clause it is embedded in (Hornstein, 1999, 2001; Landau, 2001). According to both Landau and Hornstein, Obligatory Control is anaphoric; for Landau it is derived by Agree, limited to complements, while for Hornstein it is derived by A-movement, leading to the expectation that Obligatory Control should be licensed in exactly those configurations which license A-movement, including the sideward variety (Nunes, 2004). DP therefore serves as an important testing ground for the A-movement generalization, such that if OC is A-movement, and control is attested within DP, so is raising expected (Culicover & Jackendoff (2001)). The objection raised by Culicover & Jackendoff (2001), based on the absence of raising, may be neutralized by the facts presented above. Still, whether or not the availability of raising in DP directly supports an A-movement analysis depends on a number of factors discussed briefly below. First, whether the differences observed between raising and control in DP reduce to the theta-checking procedure developed in Hornstein (1999); and second, given the analogy between A-movement and Obligatory Control, on whether control in DP is of the OC or NOC variety, an empirical question not yet fully resolved (see Hornstein (2001), (2003), and Boeckx & Hornstein (2003) for recent

discussion). Preliminary evidence, based on the comparison of nominalizations and gerunds, suggests OC, granting pervasive control by an implicit argument.

Many of the differences between raising and control observed above reduce to the thematic properties associated with control and the genitive DP. Selection restrictions and the unavailability of non-referential genitives such as expletives and idiom chunks will follow directly from the theta-feature assigned by the head noun and checked by the genitive DP. Similarly, the fact that truth-value or denotation of a control noun is not preserved with an embedded passive, in (18), and it is with raising nouns, in (19) and (20), reduces to the thematic relation between the control noun and genitive DP and the absence thereof with raising nouns. The distribution of possessive datives, however, has been taken to track A-movement (Borer & Grodzinsky (1986); Landau (1997)) yet shows a difference between raising and control. A possessive link is possible when the dative possessor c-commands the possessed or its trace, in (37). A possessive link is therefore impossible between the dative and the subject in (37a), but good in the unaccusative structure in (37b):

- (37) a. ha-yeladim pihaku le-rina ba-hafgana
 The-children yawned to-rina at.the-demonstration
 → no possessive link between 'rina' and 'the children'
- b. ha-yeladim₁ ne'elmu le-rina t₁ ba-hafgana → possessive link bet rina and subj
 the-children disappeared to-rina at.the-demonstration
 'Rina's children disappeared at the demonstration'

Similar to the effects discussed in Burzio (1986) with impersonal SI, possessive datives distinguish Raising from Control. They are incompatible with unaccusative PRO, good with unaccusative NP-trace. In keeping with the basic requirement that the dative c-command the trace of the possessed, both the control examples, in (38), and the raising examples, in (39), contain an embedded unaccusative; when the matrix verb is a control verb, the relation is impossible, and when it is a raising predicate, a possessive reading is possible:¹¹

- (38) a. ha-yeladim₁ nisu [PRO₁ le-he'alem le-rina t₁ ba-hafgana]
 the-children tried to-disappear to-rina at.the-demonstration
 → no possessive link between 'rina' and 'the children'
- b. ha-yeladim₁ tixnenu [PRO₁ le-he'alem le-rina t₁ ba-hafgana]
 the-children planned to-disappear to-rina at.the-demonstration
 → no possessive link between 'rina' and 'the children'

¹¹ In the absence of a possessive link, (38a) and the examples with control allow an ethical dative reading, in which the dative is in some sense affected by the event.

- (39) a. ha-yeladim₁ alulim [t₁ le-he'alem le-rina t₁ ba-hafgana]
 the-children likely to-disappear to-rina at.the-demonstration
 'Rina's children are likely to disappear at the demonstration'
 b. ha-yeladim₁ amurim [t₁ le-he'alem le-rina t₁ ba-hafgana]
 the-children supposed to-disappear to-rina at.the-demonstration
 'Rina's children are supposed to disappear at the demonstration'

The contrast between Raising and Control surfaces also in DP, control DPs in (40), and raising DPs in

(41):

- (40) a. [ha-nisayon Sel ha-yeladim₁ [PRO₁ le-he'alem le-rina t₁ ba-hafgana] nixSal
 the-attempt of the-children to-disappear to-rina at.the-demo failed
 → no possessive link between 'to-rina' and 'the children'
 b. [ha-racon Sel ha-yeladim₁ [PRO₁ le-he'alem le-rina t₁ ba-hafgana]] muvan lanu
 the-desire of the-children to-disappear to-rina at.the-demo clear to-us
 → no possessive link between 'to-rina' and 'the children'
- (41) a. [ha-sikuyim Sel ha-yeladim₁ le-he'alem le-rina t₁ ba-hafgana] kluSim le-maday
 the-chances of the-children to-disappear to-rina at.the-demo meager rather
 'Rina's children's chances of disappearing at the demonstration are pretty slim'
 b. [ha-netiya Sel ha-maftexot₁ le-he'alem le-rina t₁] yedu'a le-kulam
 the-tendency of the-keys to-disappear to-rina known to-all
 'The tendency for Rina's keys to disappear is known to all'
 c. [ha-hizdamnut Sel ha-yeladim₁ le-he'alem le-rina t₁] avra kvar
 the-opportunity of the-children to-disappear to-rina passed already
 'The opportunity for Rina's children to disappear at the demonstration has passed'

The difference between raising and control DPs with possessive datives might be more challenging for an A-movement analysis of Control, since it seems to be sensitive to the source constituent, at the tail of the chain. Assuming that the dative binds into a position within the possessed DP (Borer & Grodzinsky (1986); Landau (1997)), it could be argued, in traditional terms, that PRO exhausts a full DP, and so cannot be possessed by an external dative, while a lexical noun phrase leaves enough structural space in DP for a variable or trace bound by the dative. If Control is exactly like A-movement, except for the theta-role the moved DP receives in its landing site, a simple tail analysis of the sort just sketched will not be available.

Finer implications of raising for the analysis of control depend on the nature of control in DP, whether it follows the Obligatory or Non-Obligatory pattern familiar from IP. Though often mentioned in the literature, control in DP has been scarcely studied and its status still remains unclear. Part of the

challenge may be related to the corollary, poorly understood, position of infinitives within DP, as complements (Stowell (1981), among others) or adjuncts (Grimshaw (1990)), leaving little ground for solid predictions. Another puzzle has its source in the pervasive optionality of an overt controller, as in (42), compared with the stricter requirement familiar from clauses:

- (42) a. John tried to leave
b. *It was tried to leave
c. John's attempt to leave
d. the attempt to leave

The obligatory presence of the controller in (42a) has been considered, by a class of accounts beginning with Williams (1980), to be a hallmark of Obligatory Control. Similarly, Hornstein (2001), (2003), and Boeckx & Hornstein (2003) treat the presence of the controller in DP to be central among the properties of control. Observing that DPs exhibit OC with overt controllers, and an NOC pattern when the controller is absent, (including laxing of the c-command and locality requirements), the assumption that absence of an overt controller implies NOC leads to indeterminate conclusions: DPs either exhibit NOC generally, since controllers are never obligatory (Hornstein (2003), Boeckx & Hornstein (2003)); or, DP exhibits OC with overt controllers and NOC when the controller is absent (Hornstein (2001)). The former solution is coherent, and is consistent with the supposed absence of raising in DP, yet it leaves unresolved the OC effects found with an overt controller located within the DP; the requirement for strict c-command, and the available interpretations (bound variable and De Se readings, sloppy identity), absent in clausal NOC, remain unaccounted for. Furthermore, given that an overt controller always produces OC, long distance control across a potential controller is never attested. In clauses, on the other hand, the NOC pattern, as observed with verbs such as 'help', allows the dative to control or be skipped, and exhibits optionality:

- (43) Mary knows that it would help Bill [PRO to behave himself / herself] in public

While full discussion of control in DP is beyond the scope of this article, the following facts suggest that the problems stemming from the treatment of 'obligatory presence of controller' as central to OC

may disappear if controllers may be covert and pronominal.¹² Once implicit argument control is granted, DP appears to exhibit OC generally, though sometimes by a null pronominal which may be identified from afar. The differences, from this perspective, between control in clauses and in nominals fall neatly into place. Null controllers are allowed more liberally than in clauses because independently, Agents of nominalizations are not required by an EPP. The laxing of c-command and locality follow from the properties of the covert controller, which may be identified by a non-local and non-c-commanding antecedent, not from the properties of the controlled subject. This is seen by comparing nominalizations with covert Agents with their gerund counterparts. Gerunds, unlike nominalizations, do not allow long distance control without c-command:

- (44) a. John₁'s mother₂ supported the decision [PRO to vindicate himself₁/herself₂/oneself]
 b. John₁'s mother₂ supported deciding [PRO to vindicate herself/*himself/*oneself]
- (45) a. John's mother was in favor of the refusal [PRO to vindicate himself/oneself/herself]
 b. John's mother was in favor of refusing [PRO to vindicate herself / *himself]

The greater flexibility of nominalizations with respect to absence of c-command can be shown to be independent of control of the embedded subject. Covert subjects of gerunds, quite generally, require c-command and a local antecedent, and in this respect may be assimilated to PRO, as seen in the examples in (46):

- (46) a. People who know John often discuss [his / *ec working too hard]
 b. Sam thought that Mary discussed [his / *ec shaving himself]

The hypothesis that c-command variability with nominalizations, as in (44a) and (45a), is related to the pronominal nature of the implicit Agent, rather than to the subject of the infinitive, can also explain the contrast in locality variability between gerunds and nominalizations. On a par with (46b), null subjects of gerunds are incompatible with long distance controllers, and nominalizations allow optionality when the antecedent is external to DP:

¹² See Sichel (2006) for more detailed discussion of control in DP.

- (47) a. John₂ regretted that Mary₁ put down the decision [PRO to love himself₂ / her₁ / herself₁]
 b. John₂ regretted that Mary₁ put down deciding [PRO to love herself₁ / *himself₂ / *her₁]
 c. John₂ regretted that Mary put down his₂ deciding [PRO to love himself₂]
- (48) a. John₂ was aware that Mary₁ counted on the promise [PRO to love her₁/himself₂/herself₂]
 b. John was aware that Mary counted on promising [PRO to love herself₂/*her₂/*himself₁/*oneself₁]

The comparison of nominalizations with gerunds suggests, therefore, that NOC effects detected in the absence of a controller internal to DP may be reducible to an implicit Agent argument which controls the embedded subject, but which itself is pronominal. The pronominal implicit argument may have as its antecedent a remote or non-c-commanding DP, producing the appearance of NOC; yet the relation between the implicit argument and the embedded subject patterns with OC, as if it were overt. Sichel (2006) shows that the interpretation of Control by implicit arguments also patterns with OC, allowing De Se, bound variable, and sloppy identity interpretations, bringing the source position closer to the NP-trace observed in Raising constructions. Whether and how the implicit argument is represented syntactically remain open to further study.

5. Conclusions

Contrary to expectations based in Government and Binding for a universal restriction against raising in DP, Hebrew appears to allow theta-Case splits in which a DP is marked genitive, yet thematically licensed exclusively in an embedded infinitive clause. Non-referential DPs, such as expletives and idiom chunks, may instantiate a genitive position in DPs headed by a class of non-derived nouns, denoting, roughly, notions of modality. It was shown, furthermore, that these theta-Case splits attest to a movement operation which relocates the embedded subject to a position in the DP domain in which it receives genitive Case. In light of raising in DP, objections to control as movement based on its absence should also be re-evaluated. While a fuller understanding of control in DP awaits further study, the comparison of nominalizations with gerunds may suggest that control in DP is consistently of the Obligatory variety, and is, in this respect, compatible with the distribution of raising.

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