Predication vs. Aboutness in Copy Raising

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Abstract

Copy raising sentences (*Charlie looks like his prospects are bright*) are ambiguous between a thematic and a nonthematic reading for the subject, corresponding to whether or not it is the perceptual source. On the basis of Hebrew and English data, this paper motivates a novel generalization: A pronominal copy in the complement is not necessary only if the matrix subject is thematic. This follows if (i) a nonthematic DP must be licensed by predication, (ii) the clausal complement is turned into a predicate by merging with a null operator, and (iii) the pronominal copy is the variable required by the operator. Contra previous analyses, I argue that the complement in copy raising may be propositional, forming an "aboutness" relation with the subject. When it is predicative, however, a null operator is necessary, since CPs are not natural predicates. The dichotomy between propositional and predicative CPs cuts across the gap/copy distinction, and is manifested in other constructions, also discussed (hanging topic vs. left dislocation, rationale vs. purpose clauses and proleptic object constructions).

1. Introduction[*]

Predication is a fundamental relation in natural language. Already Jespersen (1924) recognized that this relation (which he termed *nexus*) is primitive and can be reduced to neither word order nor phrase structure. Within generative grammar, the underlying unity of predicative relations was famously stressed by Williams (1980). Some illustrative examples from English are given in (1) (where the predicates are bracketed and their subjects italicized).

(1) a. She considers *him* [$_{DP}$ a genius].
b. She saw *him* [$_{VP}$ swimming].
c. She kept *him* [$_{PP}$ under surveillance].
d. *He* arrived [$_{AP}$ exhausted].
e. *He* made [$_{DP}$ a good cook].
f. With *him* [$_{PP}$ out of sight], she could speak freely.

It is noteworthy that all the predicates in (1) are projections of lexical categories (parts of speech). That they freely occur in such contexts indicates that lexical

[*] For valuable comments and judgments, I am grateful to Ash Asudeh, Marcel den Dikken, Thomas McFadden and Milan Rezac.

categories are *natural predicates*. By that I simply mean that these categories can occur as predicates without the aid of any special means.

The question arises whether functional projections are any different. Given the multitude of functional categories, a comprehensive answer is of course beyond the scope of a single article. Instead, I would like to focus on one major functional projection – the projection of the clause. The question we ask is the following.

(2) Are CPs natural predicates?

To obtain a meaningful answer, of course, we need to identify a reliable linguistic diagnostic that can be applied to any given clause and unambiguously determine whether it is a predicate or not. Motivating one such diagnostic is a central goal of this paper. On an informal level of description, however, we can already get a sense of the kind of data that bear on the question. As it turns out, the status of CPs as natural predicates is an undecided issue.

One obvious class of cases where CPs are used as *non*-natural predicates (henceforth, *derived predicates*) involves null operator constructions.

(3) a. This essay is difficult [$_{CP}$ Op$_i$ to understand t$_i$].
b. They bought a dog [$_{CP}$ Op$_i$ to play with t$_i$].
c. This tea is too hot [$_{CP}$ Op$_i$ to drink t$_i$].
d. He left with some memories [$_{CP}$ Op$_i$ to cherish t$_i$].

In all these cases a null operator moves from a position internal to the CP to its edge (Chomsky 1977, 1980, Browning 1987, Jones 1991). The CP is interpreted as λ-predicate, abstracted over the trace position. These constructions are clearly derived, hence do not bear on question (2). I will have nothing to say about them, except for a few comparative comments in sections 4.2 and 5.3.

In contexts where null operators are not implicated, CPs seem to fail as predicates (see Rothstein 1991).

(4) a. I consider that problem [$_{CP}$ Op$_i$ for you to solve t$_i$].
b. *I consider that problem [$_{CP}$ for you to solve it/everything].

Sentences like (5) appear, at first sight, to suggest that CPs can function as natural predicates.

(5) a. The claim is [$_{CP}$ that Fred is handsome].

b. The plan is [$_{CP}$ that we take over and release the captives].
c. The fact is [$_{CP}$ that nobody likes her].

However, there is clear evidence that these are "inversion" sentences, where the predicate is the pre-copular DP and not the postcopular CP. Like other inverted copular sentences (e.g., *The best candidate is John*), they cannot occur as small clauses (6), and both the pre- and post-copular constituents resist extraction (7) (Moro 1997, Den Dikken 2006).[1]

(6) a. I consider the best candidate *(to be) John.
b. I consider the claim *(to be) that Fred is handsome.

(7) a. * [How good a candidate]$_i$ do you think t_i is John?
b. * John$_i$, I think the best candidate is t_i.
c. * [Whose claim]$_i$ do you think t_i is that Fred is handsome?
d. * [That Fred is handsome]$_i$, I don't think the claim is t_i.

Finally, consider the varieties of topic-comment constructions, where it is common to refer to the post-topic clause as a "sentential predicate", attributing a property to the topic (see, for example, Erteschik-Shir 1997:15).

(8) a. That gun, [$_{CP}$ you better hide it].
b. As for dinner, [$_{CP}$ I think we'll just look around for a decent restaurant].
c. Concerning Sally, [$_{CP}$ when will you know her grade]?

The term "sentential predicate" has been most commonly used in connection with multiple subject constructions in Chinese, Korean and Japanese (see, among others, Park 1973, Teng 1974, DeWolf 1985, Heycock 1993). These constructions typically have the form [$_S$ DP$_{NOM}$ [$_S$ DP$_{NOM}$ VP]], where the inner S is said to be predicated of the outer DP$_{NOM}$, the so-called *major* (or broad) *subject*.

[1] I thank Marcel den Dikken for the examples and discussion of this point. Note that precopular CPs display the opposite behavior: They may occur as small clause subjects and are available for movement.

i. I consider that Fred is handsome the common claim.
ii. [That Fred is handsome]$_i$ I think t_i is the claim.

(9) i ttalki-ka mas-i coh-ta. *Korean*
this strawberry-NOM taste-NOM good-IND
'This strawberry is delicious'.
(Lit. This strawberry, taste is good)

One question that arises with respect to these constructions is whether it is appropriate to convert the functional description in terms of "topic-comment" to the grammatical (or semantic) description in terms of "subject-predicate". Some linguists think that it is actually beneficial to let these two descriptions blend, as the following quote reveals: "A comment consists of "new information" supplied about "given information", i.e., the topic, and is therefore equivalent to the traditional notion of *predicate*" (DeWolf 1985: 377).

Nevertheless, I will argue that the term "sentential predicate" often obscures important distinctions, which are best kept in sight in attempting to answer question (2). The main theoretical claim of the present paper can be put very simply: *There are no natural CP predicates*. This claim will be established in detail in one empirical domain of clausal complements, in Hebrew and English, but it has obvious implications for the proper treatment of all the constructions in (4)-(9). Some of these implications are addressed in section 5.3.

The construction that is the target of the present investigation is known as *copy raising* (CR). It is quite common crosslinguistically, and has been documented in English, Hebrew, Irish, Turkish, Igbo, Haitian and Swedish, among other languages (Rogers 1971, 1972, Lappin 1984, McCloskey and Sells 1988, Déprez 1992, Ura 1998, Moore 1998, Rooryck 2000, Potsdam & Runner 2001, Asudeh 2002, Rezac 2004, Fuji 2005, Asudeh & Toivonen 2007a). Typically, it features a matrix perception verb taking a DP subject and a finite complement; the complement contains a pronoun coindexed with the matrix subject, called *the copy*. In the related variant, the matrix verb occurs with an expletive subject and the copy is replaced by the original matrix subject.

(10) a. Charlie$_i$ seems [like somebody's just mocked his$_i$ accent].
b. It seems [like somebody's just mocked Charlie's accent].

The term copy raising, as we will shortly see, is doubly misleading. There need not be a copy, and even when there is, it is unlikely to be a residue of raising. Nonetheless, I will use the term CR as it has already established itself in the literature.

CR is a particularly interesting testing ground for the constellation of issues raised in the preceding discussion. The standard analysis of the bracketed complement

in (10a) takes it to be a sentential predicate. The initial appeal of this approach, however, is challenged by two facts: (i) The very similar bracketed complement in (10b) seems to function as a proposition; (ii) As mentioned, the copy is not always necessary. By carefully studying the correlations between the form and interpretation of CR constructions we will be able to show why the answer to question (2) must be negative. Moreover, this investigation will be free of the topic-comment confounds that arise with (8)-(9), since CR is not attached to any special discourse function; thus it presents a purer picture of how sentential predication works in the grammar.

The structure of this paper is as follows. Section 2 describes the empirical properties of CR, focusing on two aspects: the obligatoriness of the copy and the thematic interpretation of the matrix subject (henceforth, the CR subject). Section 3 presents a novel generalization that systematizes the data surveyed in section 2: A copy is not necessary only if the CR subject is construed as the source of the perceptual report. Section 4 develops an analysis of this generalization, using two central ideas: (i) Arguments may be licensed either by θ-marking or by predication, and (ii) Sentential predicates are necessarily derived (by Op-merger). Section 5 addresses potential objections to the present analysis, stemming from previous analyses of CR, and section 6 concludes the paper.

2. Properties of copy raising

In this section I describe the main features of the CR construction, which are identical in English and Hebrew. Two aspects that bear significance for the subsequent discussion are highlighted: Omission of the pronominal copy in the complement and the thematic interpretation of the CR subject.

2.1 General description of the copy raising construction

A handful of verbs feature the CR construction. In English, these are *seem*, *appear*, *look*, *sound*, *smell*, *feel*, and *taste*. In what follows, I will refer to this class as *perceptual source verbs*. All the verbs in this class take finite complements headed by *like/as if/as though*, and all display an alternation between an expletive-subject variant and the copy raising variant. Typically (but not necessarily, as we will see), the matrix subject in the latter binds an embedded pronoun, namely the copy.

(11) a. It seems like/as if/as though this room needs some cleaning.
b. This room$_i$ seems like/as if/as though it$_i$ needs some cleaning.

(12) a. It sounded like/as if/as though Frank really offended Suzan.
b. Suzan$_i$ sounded like/as if/as though Frank really offended her$_i$.

(13) a. It tasted like somebody had forgotten to salt that lamb ragu.
b. That lamb ragu$_i$ tasted like somebody had forgotten to salt it$_i$.

There is straightforward distributional evidence for analyzing *like*/*as* as prepositions taking clausal (CP) complements, themselves headed by the complemntizers *∅/if/though* (Potsdam & Runner 2001, Asudeh 2002). There is also some evidence that the PP headed by *like*/*as* is a complement and not an adjunct (Asudeh 2002). Finally, the copy cannot be analyzed as a resumptive pronoun: It is completely natural (unlike resumptives, which are marginal in English) and can be bound by a quantificational antecedent, again, unlike resumptive pronouns (Heycock 1994, Potsdam & Runner 2001).

CR in Hebrew is attested with the verbs *nir'a* 'seem, look', *nišma* 'sound', *hirgiš* 'feel' and *heriax* 'smell'. The PP complement is headed by the preposition *ke'ilu* 'as if', followed by the standard finite complementizer *še-*.[2] Either P or C may be dropped, but not both; I take this variability to be essentially PF reduction with no syntactic consequences.

(14) a. nir'e ke'ilu (še-)lo mil'u et ha-hora'ot šel Gil.
looks as.if (that-)not followed.3pl ACC the.instructions of Gil
'It looks like they didn't follow Gil's instructions'.

b. Gil nir'e ke'ilu (še-)lo mil'u et ha-hora'ot šelo.
Gil looks as.if (that-)not followed.3pl ACC the.instructions his
'Gil looks like they didn't follow his instructions'.

(15) a. nišma (ke'ilu) še-haya me'od kaše le-Rina la'azov et ha-bayt.
sounds (as.if) that-was very difficult to-Rina to.leave ACC home
'It sounds like it was very difficult for Rina to leave home'.

[2] *ke'ilu* is itself a composite of *ke-* 'as' and *ilu* 'if' (counterfactual). Its categorial status is actually less obvious than its English counterparts. Alongside CPs, it can occur with DPs or APs; in such cases, however, it seems to function as a modifier, not a preposition.

i. Gil nir'e ke'ilu mevugar / adam recini.
Gil looks as.though adult / person serious
'Gil looks "sort of" adult / a serious person'.

b. Rina nišma'at (ke'ilu) še-haya la me'od kaše la'azov et ha-bayt.
Rina sounds (as.if) that-was to.her very difficult to.leave ACC home
'Rina sounds like it was very difficult for her to leave home'.

(16) a. ze meriax ke'ilu avar zmana šel ha-gvina ha-zot.
it smells as.if passed its.time of the-cheese the-this
'It smells like the time of this cheese has passed'.

b. ha-gvina ha-zot merixa ke'ilu avar zmana.
the-cheese the-this smells as.if passed its.time
'This cheese smells like its time has passed'.

Unlike *seem/appear* in English, none of the CR verbs in Hebrew participates in ordinary raising (with infinitival complements). Other than that, the constructions in the two languages appear to be parallel in all relevant respects. The factual claims below will be illustrated in either Hebrew or English; unless otherwise noted, the claims obtain in both languages.

2.2 Is the copy necessary?

In his pioneering studies, Rogers (1971, 1972) reduced CR to standard raising. The reduction rested on one key analogy, namely, that the copy in CR and the subject gap in standard raising are equivalent – both flag the base position of the matrix subject. Two implications followed: (i) The CR transformation only applies to embedded subjects; (ii) the copy pronoun is obligatory.

To the extent that CR with embedded (highest) subject copy is phenomenologically distinct from CR with a copy anywhere else, (i) is warranted (see section 5.1, and also Potsdam & Runner 2001, Rezac 2004, Fuji 2005). The validity of (ii), however, has been called into question. In fact, the literature offers contradictory answers to (ii).

Following Rogers, Lappin (1984), Rooryck (2000), Asudeh (2002), Fuji (2005) and Asudeh & Toivonen (2007a) all assume that the copy is obligatory. Lappin and Fuji exclusively discuss the verbs *seem* and *appear*. Asudeh & Toivonen distinguish between *seem*/*appear*, whose complement must contain a copy, from all the other perceptual source verbs (*look, sound*...), whose complement need not contain a copy.

(17) a. * Bill appears as if Mary is intelligent. (Lappin 1984:(16b))
b. * Tina seems like Chris has been baking sticky buns. (A&T 2007a:(16a))

However, already Rogers (1974) realized that his original claim was too strong. He presents (18), which would be felicitous if it is known that whenever Maude cooks anything involving sherry, she invariably gets soused and burns everything.

(18) The soup tastes like Maude has been at the cooking-sherry.

Heycock (1994) (and, following her, Potsdam and Runner 2001) argues that a copy is never necessary. Asudeh (2002:(13)) provides such an example with *smell*.

(19) Richard smells like Gonzo has been baking.

Asudeh & Toivonen's (2007a) claim, that copy-less complements of *seem*/*appear* are impossible, is perhaps true of certain dialects of English, but not all of them. Here are five random examples of such complements that turned up in an internet search.

(20) a. It's not that I really felt that Giles *actions* were out of character. To me, he just seemed colder, more harsh. **He seemed like there was no longer any turmoil or emotion over doing the tough things**.

b. Maybe she didn't think it would be that hard, but when I talked to her **she seemed like there would be no issues**.

c. Most Jewish programs for college students are mainly about bringing the students together and getting them to interact with each other. Not necessarily about finding the truth or making a lifelong commitment. **This program seemed as if they were trying to hide who they really are and that they are related to Christianity.**

d. The day of the 17th, I checked the tracking information out of curiosity in how far it had come and where it had been. The tracking information showed it as being scanned into the Nashville sorting facility. I could not express my excitement as **the situation appeared like I would receive the package a day early**.

e. In fact, even the sky appeared as though the clouds themselves had been stripped of life.

At this point, then, the empirical picture is unclear. Although it appears that copies are not necessary in all contexts, there are contexts where they are strongly preferred. This is a familiar array in linguistic analysis; almost always, it points to a hidden dimension of variation which needs to be identified and controlled for. This will be the task of section 3. Before that, we need to address a second, interpretive dimension of CR constructions.

2.3 Is the subject the perceptual source?

Rogers (1972) has claimed that CR constructions carry a "cognitive presupposition" that is absent from their expletive variants. For example, (21a) does but (21b) does not entail (21c).

(21) a. Harry looked to me like he was drunk.
b. It looked to me like Harry was drunk.
c. I saw Harry.

More generally, according to Rogers, the subject of a CR construction must be understood as the perceptual source of the report. Asudeh & Toivonen (2007a) further elaborate on this point. Although they do not treat the entailment as a presupposition, a key component of their analysis is the claim that the CR subject is a perceptual source (Psource). For example, they maintain that the sentence *Tom seems like he's cooking* is infelicitous in a context where Tom is not perceived. Psource in A&T's analysis is a semantic role, not to be identified with a θ-role; this point will bear significance in section 5.2 below. Importantly, a parallel interpretation is imposed on subjects of all perceptual source verbs, modulo the sensory modality.

Quite the opposite position is defended in Heycock 1994. Consider example (22).

(22) Your car sounds like it needs tuning very badly.

Heycock points out that this statement can be made by a speaker X in two very different contexts, corresponding to (23a) or (23b).

(23) a. X is sitting in Y's car and is listening to the engine and wincing.
b. In a long distance phone call, Y has just described to X the bizarre noises that Y's car is making.

The difference lies in the perceptual source: In (23a), it is the matrix subject, while in (23b) it is the person making the report to which X responds. On the latter reading, Heycock writes, "the difference between *sounds like* and *seems* is just that *sounds* is more specific in the type of evidence motivating belief in the truth of the proposition denoted by the subordinate clause (it must be an oral – or at least verbal – report)" (p. 289). It should be clear that the reading in (23b) is precisely the one purported to be unavailable in CR, on Rogers' and on A&T's accounts.

A similar example is (24a), which, according to Heycock, can be uttered by someone who has just seen the official exam results posted. In fact, the non-Psource reading can be enforced by selecting a subject that cannot (normally) produce the type of sensory stimulus to which the CR verb is responsive, as in (24b).

(24) a. Oh dear, John looks like he has failed the exam.
b. The problem sounds like it could be tricky to solve.

To summarize, it seems that the Psource interpretation is not a necessary feature of all CR subjects. At the same time, once again, it can become very dominant in particular contexts. In the following section I will explore in more detail the range of readings available whenever the Psource interpretation is suppressed. Crucially, the question will be seen to interact with the question of (non)obligatory copies, examined in the preceding section. A hitherto unsuspected dependence between these two properties will pave the way for a novel understanding of CR constructions in particular and predication relations more generally.

3. The Psource-Copy Generalization (PCG)

3.1 A novel generalization

The empirical profile of CR becomes systematic at once as soon as we recognize that it is governed by the following generalization.

(25) *The Psource-Copy Generalization (PCG)*
A copy is not necessary only if the subject is a Psource.

Two types of evidence establish the PCG. First, CR examples whose subject can be construed as a Psource *allow* a copy-less complement. Second, CR examples whose subject cannot be construed as a Psource *require* a copy in their complement.

Before we turn to the evidence, some comment is in order on the range of interpretations available to Psource arguments and how perceptual source verbs differ amongst themselves in this respect. Consider first the clearest case, the verb *taste*. With this verb, the minimal conditions on the Psource are relatively straightforward. A Psource of *taste* must be a potential source of gustatory stimuli. Next, with the verb *sound*, the Psource should be a potential source of auditory stimuli, although some latitude is allowed for merely verbal/textual stimuli, as in Rogers' (1974) example *The New York Times sounds like it thinks Richard is in trouble*. Thus, prevention of either of these interpretations would involve entities that simply lack the capacity to produce the relevant sensory stimuli.[3]

The verbs *smell*, *look* and *feel* are less choosy in their Psource implications. Note that *smell* is often used in the sense of 'give off a suspicious impression' (*This arrangement smells corrupt*). In that sense, the subject of *smell* can be a Psource even when no olfactory stimulus is involved. Still, not everything can "smell" in this particular conspiratory sense (e.g., # *This window smells new/unsafe*), so the Psource interpretation can be prevented when needed.

Similarly for *look* and *feel*, things can produce "a look" or "a feel" without possessing visual or tactile properties. Still, they function as perceptual sources insofar as some aspect of their physical or abstract constitution is responsible for the "perceptual" experience. Note the scare quotes; in their more abstract usage, *look* and *feel* may report a mental event that is not necessarily mediated by sensory perception (e.g., *The prospects look daunting, this solution feels right*).[4]

Finally, the most bleached perceptual source verbs are *seem* and *appear*. These verbs impose no substantive restriction on the sensory or mental mode through which the Psource is perceived. Yet even with them, as we will see below, it is possible to distinguish the "weak" Psource interpretation imposed on argumental subjects from the absolute lack of thematic information associated with an expletive subject.

With that in mind, let us turn to the evidence for the PCG in (25). In the following Hebrew triplet, the (a) example features a CR subject capable of supporting an auditory Psource interpretation; predictably, no copy is needed in the complement of *nišma* 'sound'. The (b) example shows that in the same context, that complement must contain a copy if the CR subject is not a potential auditory Psource. Finally, the

[3] Obviously, normal circumstances are presupposed. Under extraordinary conditions, books can emit sound, colors have taste, etc.

[4] These considerations suggest that the term "perceptual source" should not be understood literally. Exactly how to state its possible extensions is an interesting topic in the "epistemology" of lexical semantics, which lies outside the scope of the present study.

(c) example shows that the same CR subject does not require a copy in the complement of *nir'e* 'look', since it is a perfectly good visual Psource.[5]

(26) a. *Context*: My friend describes to me how well-kept and flourishing her garden is. I remark:
ha-te'ur šelax nišma ke'ilu kol yom magia ganan.
the-description your sounds as.if every day comes gardener
'Your description sounds like every day a gardener comes.'

b. *Context*: My friend describes to me how well-kept and flourishing her garden is. I remark:
ha-gina šelax nišma'at ke'ilu kol yom magia ganan *(letapel ba).
the-garden your sounds as.if every day comes gardener *(to.tend it)
'Your garden sounds like every day a gardener comes *(to tend it).'

c. *Context*: I look at my friend's flourishing garden and say:
ha-gina šelax nir'et ke'ilu kol yom magia ganan.
the-garden your looks as.if every day comes gardener
'Your garden looks like every day a gardener comes.'

The triplet in (27) replicates the argument: a copy is required in (27b), where the perceptual modalities associated with the matrix subject and verb do not match, but not in (27a,c), where they match.

(27) a. *Context*: I wake up to a strange noise.
ha-ra'aš ha-ze nišma ke'ilu mišehu xadar la-bayit.
the-noise the-this sounds as.if somebody penetrated to.the-house
'That noise sounds like somebody broke in to the house'.

b. *Context*: My friend describes to me the broken window in his apartment. I respond:

[5] As far as I have been able to determine, the English translations approximate the pattern observed in Hebrew. The matching is less than perfect, however. For some reason, the CR construction is rather peripheral in English. Some speakers do not like it at all, while others were averse to non-Psource interpretations (see Asudeh and Toivonen 2007b for some statistics). Speakers who are comfortable with all the usages of CR, however, seem to abide by the PCG.

ha-xalon ha-ze nišma ke'ilu mišehu xadar
the-window the-this sounds as.if somebody penetrated
la-bayit *(darko).
to.the-house *(through.it)
'This window sounds like somebody broke in to the house *(through it)'.

c. *Context*: I look at the broken window in my friend's apartment and remark:
ha-xalon ha-ze nir'e ke'ilu mišehu xadar la-bayit.
the-window the-this looks as.if somebody penetrated to.the-house
'This window looks like somebody broke in to the house'.

Establishing the PCG with respect to *nir'e* 'seem, look' is more delicate, since, as noted above, this verb accepts nearly any kind of perceptual or cognitive input as a Psource. To rule out a Psource interpretation with *nir'e*, we can use as the CR subject a physical entity which is exclusively non-visual – like *odor*.

(28) *Context*: I enter the house, look and smell around, and say:
a. * ha-re'ax ha-ze nir'e ke'ilu mašehu nisraf ba-martef.
the-odor the-this looks as.if something burns in.the-basement
'This odor looks like something is burning in the basement'.

b. ha-ašan ha-ze nir'e ke'ilu mašehu nisraf ba-martef.
the-smoke the-this looks as.if something burns in.the-basement
'This smoke looks like something is burning in the basement'.

Unlike odor, smoke is visible, supporting a Psource interpretation for the subject of *nir'e* 'look, seem'; hence the copy is not necessary in (28b).[6] That *odor* can occur as the subject of *nir'e* 'look, seem', provided an embedded copy is present, is shown in (29), which is acceptable, though less than perfect. The non-Psource interpretation forces the occurrence of a copy.[7]

[6] Predictably, replacing *nir'e* 'look, seem' by *meriax* 'smell' in (28a) renders the sentence grammatical; see also (32).

[7] One might ask why (21a) should force a Psource reading (as Rogers claimed). In fact, I believe this is a strong implicature, not an entailment. Usage of CR (and not the expletive variant) implicates that the matrix subject does participate in the perceptual event. But this implicature can be overridden, as the following examples (from the web) demonstrate.

i. It is an encouragement to me to see that publishers seem to be reviving the sermon-book, which at one point looked to me like it was fading from use.

ii. "JOHNSON! JOHNSON, WAKE UP'", Michaels started to shout in my dormitory in Buffalo. His voice looked to me like it was coming from beneath the water.

(29) ?ha-re'ax ha-ze nir'e ke'ilu hu ba me-ha-martef.
the-odor the-this looks as.if it comes from-the-basement
'This odor looks like it's coming from the basement'.

Notice also that all the naturally occurring examples in (20), where the complement of CR *seem/appear* contains no copy, involve a (visual) Psource subject. This interpretation is precisely what makes the copy unnecessary.

Turning to the verb *hirgiš* 'feel', recall that it does not require its Psource argument to produce a tactile sensation, yet some capacity for producing direct and immediate perception is needed. For this reason, objects in our immediate surroundings are potential Psources for *feel* whereas objects remote in time or space are not. In this light, consider the following contrast, where the accessibility of Psource interpretation for the matrix subject correlates with the necessity of an embedded pronominal copy.[8]

(30) a. *Context*: I feel the wool of your sweater and remark:
ha-cemer ha-ze margiš ke'ilu yihye lexa nora xam.
the-wool the-this feels as.if will.be to.you terribly hot
'This wool feels like you'll be terribly hot.'

b. *Context*: We talk about the changing climate, and I remark:
ha-šana ha-ba'a margiša ke'ilu yihye *(ba) od yoter xam.
the-year the-next feels as.if will.be *(in.it) more hot
'Next year feels like it will be hotter *(in it)'.

Finally, the verb *meriax* 'smell', unlike the other perceptual source verbs, seems to impose a Psource interpretation on its argumental subject in all circumstances. To see this, consider (31).

(31) a. *Context*: I enter Gil's kitchen and sniff at the bubbling pots. I remark:
ze meriax ke'ilu Gil maca ba-internet et kol ha-matkonim šelo.
it smells as.if Gil found in.the-internet ACC all the-recipes his
'It smells like Gil has found all his recipes in the internet'.

The CR subject in (i), *the sermon-book*, is understood as a type, not as a token, hence not visually perceptible. The CR subject in (ii) is a voice – not a visual stimulus at all. Both can occur as subjects of *look to me* thanks to the presence of an embedded copy.

[8] The use of *hirgiš* as a perceptual source verb (as opposed to a subject-experiencer verb) is very colloquial in Hebrew, and some speakers do not allow it.

b. # ha-internet meriax ke'ilu Gil maca bo et kol ha-matkonim šelo.
the-internet smells as.if Gil found in.it ACC all the-recipes his
'The internet smells like Gil has found all his recipes in it'.

Note that this specific restriction on *meriax* does not undermine the PCG. This generalization does not address the question whether a Psource interpretation is necessary or not; it merely states that if it is present, and only in that case, a copy is not necessary. Indeed, *meriax* is fully consistent with the PCG, as shown in (32).

(32) *Context*: I enter Gil's kitchen and sniff at the bubbling pots. I remark:
ha-marak ha-ze meriax ke'ilu xazarti la-yaldut šeli.
the-soup the-this smells as.if returned.1sg to.the-childhood mine
'This soup smells like I'm a child again'.

To summarize, the PCG accounts for apparent inconsistencies in the (non)obligatoriness of a pronominal copy in CR complements. It does so by systematically tying the option of dropping the copy to the option of interpreting the CR subject as a perceptual source (in some suitably extended sense). Before we turn to the theoretical explanation of the PCG, let us briefly consider data that *appear* to fall under it, but upon closer examination turn out to reflect an independent interpretive condition on CR constructions.[9]

3.2 Why a Psource is not sufficient

Although a Psource interpretation, according to the PCG, is necessary to allow a copy-less complement, it is not sufficient. The reason is that CR constructions, as

[9] Apparent counterexamples to the PCG are provided by Heycock (1994:292).

i. That book sounds like everyone should own a copy.
ii. Her apartment sounds like there must be a wonderful view.

My English informants find (i) slightly marginal and (ii) considerably worse. As mentioned in fn. 5 above, the general instability of CR in English makes it hard to interpret these judgments. To risk a speculation, it could be that for some speakers, implicit arguments may qualify as copies. This may be the reason why implicit copies are more tolerable in relational nouns; while the bound "position" in (i) is an argument (a copy *of it*), the one in (ii) is an adjunct (view *from it*). That implicit arguments are syntactically present is independently argued in Landau, to appear b.

A second potential source for (i)-(ii) involves a metonymic reading of the CR subject: *that book* stands for 'the description of that book', *her apartment* stands for 'the description of her apartment'. Note that on these readings, the matrix subject is a thematic Psource, hence no copy is needed, not even an implicit one. Granting this option, I should point out that metonymy cannot freely intervene for all speakers. The contexts in (26b)/(27b) explicitly induce the 'description of' context, but a copy is nonetheless required. Furthermore, this particular metonymy would fail to extend to the other CR verbs (descriptions normally not producing sight, feel, smell or taste).

instances of perceptual predications, are subject to further interpretive conditions. One such condition is that the embedded event (or state) be plausibly inferable from the matrix perceptual event.[10] If this condition is not met, the result is pragmatically anomalous. Indeed, I believe that this is the underlying source of the deviance displayed in (17), repeated below.

(33) a. * Bill appears as if Mary is intelligent. (Lappin 1984:(16b))
b. * Tina seems like Chris has been baking sticky buns. (A&T 2007:(16a))

Recall that these examples were taken as evidence for the alleged obligatoriness of an embedded copy in CR constructions. Yet by now we have seen enough examples to doubt this conclusion. The reason these sentences are anomalous (though not ungrammatical – I would mark them as "#" instead of "*") is, I submit, purely pragmatic. Indeed, it seems next to impossible to imagine how Mary's intelligence can be inferred from having a perceptual contact with Bill.[11] That this interpretive strain is at the heart of the deviance of (33a), and not the absence of a salvaging copy, is clearly demonstrated in (34).

(34) a. # Bill appears as if Mary is intelligent despite his prejudices.
b. Bill appears as if Mary is more intelligent than him.
c. Bill appeared as if Mary had just said the most embarrassing thing.
[e.g., in a party context, where Mary is Bill's wife].

Where the embedded state cannot be plausibly inferred from Bill's appearance, even a copy pronoun would not save the sentence (34a); where it can, a copy pronoun is possible (34b), but not necessary (34c). Clearly, the facts in (33)-(34) follow in their entirety from the PCG, coupled with the interpretive condition discussed above, and not from any absolute requirement for a copy in the complement of CR *seem*/*appear*.

[10] Rogers' (1972) original intuition was that the perceptual event is a *cause* of the embedded event, on a par with the causative analysis of psych verbs like *frighten*. There is, however, no reason to assume such a strong semantic connection in the case of CR constructions.

[11] In fact, (33b) is redeemable with enough contextual information (e.g., suppose that Tina's clothes display the typical stains that arise whenever one stands next to Chris when he's baking sticky buns). Insufficient control for the effects of the "plausible perceptual inference" condition may artificially bias informants against copy-less complements of *seem/appear*, making it look like the grammar (rather than world-knowledge) requires the copy. See section 5.2.

4. An analysis

4.1 The proposal

The goal of this section is to derive the PCG, repeated below, from general principles.

(35) *The Psource-Copy Generalization (PCG)*
A copy is not necessary only if the subject is a Psource.

Observationally, each CR verb appears in three environments, distinguished by the type of the CR subject: An expletive, a non-Psource DP or a Psource DP. The first and the third environments differ from the second one in not requiring a copy in the complement. We will designate the three variants by indexing the CR verb, as below.

(36) *Context*: I read about the nutritional merits of Tibetan food, and remark:
a. It *sounds*$_1$ like Tibetans are healthier than us.

Context: I read about the nutritional merits of *tsampa*, the Tibetan flour (made of roasted barley and butter tea), and remark:
b. Tsampa *sounds*$_2$ like Tibetans are healthier *(eating it).

Context: My friend tells me about the nutritional merits of Tibetan food.
I respond:
c. You *sound*$_3$ like Tibetans are healthier than us.

The first step is to recognize, with Heycock (1994), that a Psource interpretation for the CR subject indicates that it is *thematic*, whereas a non-Psource interpretation indicates it is not. In other words, *sound*$_1$ and *sound*$_2$ take nonthematic subjects but *sound*$_3$ takes a thematic subject, which is assigned the θ-role Psource. Note that this assumption is well-motivated in the context of θ-theory: entailments associated with arguments (such as the Psource entailment) are normally taken to reflect selectional restrictions imposed by the governing predicate; such restrictions, in turn, reveal a thematic relation.

The second step concerns the ways in which an argument may be semantically integrated in a sentence. In fact, there are precisely two such ways: θ-role assignment or predication (note that we exclude adjuncts from the discussion).[12]

[12] See Browning 1987:62 for an early formulation of this idea, under a different execution. Note that Rothstein (1991) is concerned with a related but distinct dichotomy: the licensing of an XP either as an

(37) a. I like John.
b. John, I like his style.

John receives a θ-role directly from the verb *like* in (37a), thus being semantically licensed. In (37b) (a left-dislocation structure), however, *John* receives no θ-role. It is semantically licensed as the subject of a sentential predicate, derived by λ-abstraction. Other instances of licensing by predication include the subject of complex predicates, like *easy-to-please* constructions, Romance causatives, restructuring predicates etc.

The third and last step in the analysis is the assumption that CPs are not natural predicates in the sense discussed in the introduction; to recall, a natural predicate is a syntactic category that can function as a semantic predicate without the aid of a null operator. This was already hinted at in connection with examples (3)-(7), but in fact, we take it to hold of all CPs.

Natural language provides a ready tool to turn a CP into a predicate: Merger with a null operator. The operator must bind a variable inside the CP. Syntactically, the operator-variable pair may be the outcome of movement, in which case the variable would (normally) be an unpronounced trace; alternatively, the operator may be base-generated as a sister to the clause, and bind a pronominal variable in it. Unless the language possesses suitable null pronouns, that variable would have to be overt. In any case, the semantic result is the same - λ-abstraction over the variable.

(38) a. $[_{CP}$ ...]: *proposition*
b. $[_{CP}$ Op_i ... t_i ...]: *predicate* λx.P(x)
c. $[_{CP}$ Op_i ... $pronoun_i$ ...]: *predicate* λx.P(x)

As mentioned, a variable must be present in the CP of (38b,c). This is due to the well-known Ban on Vacuous Quantification (BVQ), which prohibits at LF the occurrence of operators with no variable to bind (Chomsky 1982). The BVQ is violated in (39), because the operator – *who* in (39a), *Op* in (39b) – binds no variable. Moreover, our assumption that CPs are not natural predicates guarantees that a null operator is necessary to form a predicate out of the CP in (39b); without the operator, *John*, which receives no θ-role, would not be semantically integrated. This web of assumptions correctly predicts the ungrammaticality of these examples.

(39) a. * Who_i do you like the style?

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argument or as a predicate. For us, the important point is that an argument can be licensed either by a θ-marking head or by a predicate. The two disjunctions are of course mutually consistent.

b. * John, [$_{CP}$ *Op$_i$* [I like the style]].

The very same reasoning explains the contrast between (36b) and (36c). Since *Tsampa* in (36b) is not a possible Psource for *sound*, it cannot be licensed through direct θ-assignment by *sound$_2$*. Therefore, it must be licensed by some predicate. The *like*-complement, however, is intrinsically propositional. This is most obviously seen in (36a), where it functions as the propositional argument of *sound$_1$*. Moreover, CPs are, by assumption, not natural predicates, so a null operator must be merged to the *like*-complement to turn it into a predicate.[13] Once merged, this null operator must bind a variable, or else a violation of the BVQ would ensue. This is why the pronominal variable, namely the copy, is necessary in the complement of (36b). In contrast, *You* in (36c) is semantically licensed by receiving the Psource θ-role of *sound$_3$*. Predication is not needed, a null operator is unnecessary, hence a copy is not needed either.

4.2 Constraining Op-merger

At this point we must face a familiar problem: how to restrict the distribution of derived predicates, either CPs or PPs. Why do they not occur in every context that is otherwise hospitable to predicates?

(40) a. * This painting is [$_{CP}$ that it is a masterpiece].
b. * This painting is [$_{CP}$ for us to admire it].

(41) a. * John seems [that he is a clever guy].
b. * The soup smells [that you've put garlic in it].

(42) a. * The boys became [$_{PP}$ like they were monsters].
b. * Bill remained [$_{PP}$ as if he were reticent].

[13] One may ask why *like* itself does not make the complement predicative, given that PPs are natural predicates. This is trivially true, but irrelevant to the case at hand. A fundamental property of natural predicates is that their open slot ("external argument") is their own argument. Since, however, the open slot in CR is always *inside* the CP complement of *like*, there is no way for it to become the open slot of the *like*-PP. Only long-distance variable binding can make the deeply embedded slot visible to external saturation.

A different question that arises is the following. Normally, the preposition *like* has an external argument, so [*like* DP] is a predicate (of comparison). If [*like* CP] is a proposition, then somehow that external argument must be removed. This may seem odd, but in fact it is far from obvious that the semantics of *like*-complements in CR involves any comparison (although see Rooryck 2000 for a treatment of *seem* as a comparative predicate). Clearly, these matters deserve further research.

If merger of a null operator were a free option in the grammar, it could turn the CPs/PPs in (40)-(42) into predicates. Notice that postcopular predicative CPs are not excluded in general (e.g., *This painting is [for you to admire]*), nor are PP predicates excluded after *become/remain* (e.g. *She became [down to earth]*, *He remained [above suspicion]*).

It is worth pointing out that this is a general problem, cutting across theoretical frameworks, although it is often ignored. While the null operator implementation is specific to the present proposal, the idea that CR complements are predicative is shared by many (see Lappin 1984, Heycock 1994, Asudeh 2002, Asudeh & Toivonen 2007a). The risk of overgenerating derived predicates in the wrong environments thus forces any account to posit some lexical property that singles out CR constructions in their capacity to host such predicates.

In addressing this problem, we may rely on the rich understanding already obtained concerning other null operator constructions (see, among others, Chomsky 1977, 1980, Browning 1987, Clark 1990, Jones 1991, Culicover and Postal 2001). Two relevant conditions are stated and illustrated below.

(43) *Op does not merge with finite clauses (*[$_{CP}$ Op [C$_{[+Fin]}$ ...]]).*

a. We invited Mary$_i$ [$_{CP}$ Op$_i$ [for you to work with t$_i$]].

b. * We invited Mary$_i$ [$_{CP}$ Op$_i$ [that you should work with t$_i$]].

c. This movie$_i$ is too boring [$_{CP}$ Op$_i$ to watch t$_i$].

d. * This movie$_i$ is too boring [$_{CP}$ Op$_i$ that we/one can watch t$_i$].

(44) *Op-derived complements are selected.*

a. High-heel shoes are impossible [$_{CP}$ Op$_i$ [to wear t$_i$ in this neighborhood].

b. * High-heel shoes are forbidden [$_{CP}$ Op$_i$ [to wear t$_i$ in this neighborhood].

Without attempting to derive these conditions, let us simply see how they apply to (40)-(42). (40a) and (41a-b) are excluded by the nonfiniteness condition (43). This immediately explains why the prepositions *like/as* are obligatory in CR ((43) is a condition on CPs, not PPs).[14] (40b) does not violate this condition, but the reason for its deviance is intuitively clear: It is "cheaper" to form a predicate out of an infinitive by moving Op and leaving an unpronounced trace (cf. *This painting is [Op$_i$ for us to*

[14] Note that *like/as* may not select infinitival CP complements, a general restriction on English prepositions. (43) evidently does not apply to relative clauses. Quite plausibly, the null operators implicated in DPs like (i)-(ii) are phonologically deleted *wh*-copies, distinct from the one involved in (43)-(44), which has no overt counterpart.

i. The boy [$_{CP}$ ~~who~~ we saw ~~who~~$_i$]
ii. The house [$_{CP}$ ~~which~~ we saw ~~which~~$_i$]

admire t_i*]*) than by independently merging a copy pronoun, Op, and then coindexing them. This preference for chain-dependencies cuts across constructions. For example, it has been argued that anaphoric binding involves syntactic chain-formation, which is cheaper than mere coindexation and binding of a pronoun, explaining condition B effects (Reuland 2001). Similarly, resumptive pronouns in English relative clauses are generally excluded from positions where traces are permitted; their last resort status is regulated by economy (Shlonsky 1992, Pesetsky 1998).

Turning to (42a-b), the selection requirement (44) is failed in them. Although *make* and *consider* select a predicative small clause, they do not license the more specific selection for a null operator. This is entirely analogous to the contrast in (44): Both *impossible* and *forbidden* can occur with an expletive subject and a clausal complement, yet only the former optionally selects for a null operator required for the *tough*-construction variant. Such contrasts are poorly understood, but they point to a deeper property of UG: Use of null operators comes at a cost. Derived predicates need specific licensing, unlike natural predicates, something like the difference between l-selection (for an *item*) and s-selection (for a *type*) (see Clark 1990 for a similar intuition).

Exactly how this type of licensing is to be executed is not crucial for our purposes. To keep to traditional notions of selection, assume that predicates like *impossible* and *seem* optionally select a feature [+Op] on the head of their complement – CP for *impossible, like*-PP for *seem*. This feature then acts as a criterial head feature (in the sense of Rizzi 2006) that must be matched by a specifier with the same feature, namely a null operator.[15]

4.3 The argument structure of CR verbs

Let us now look more closely at the meanings of CR verbs. In terms of lexical entries, we must assume a denotational dichotomy, which is further expanded to a trichotomy at the level of semantic composition.[16] Denotationally, there are just two concepts corresponding to *sound* (and by analogy, the other CR verbs): SOUND_B and SOUND_T. SOUND_B is a binary relation between an experiencer and a proposition (ignoring the event argument). I will not try to spell out its truth conditions here;

[15] Why must the null operator merge *externally* (binding a copy pronoun) and not by movement (binding a trace)?

i. * John seems [$_{PP}$ Op_i like [$_{CP}$ nobody can stand t_i]].

If this movement takes place in one fell-swoop, it violates locality, crossing a CP phase boundary. If it does leave a trace in [Spec,CP], the case reduces to (43).

[16] I adopt the terms from Asudeh and Toivonen (2007a), as well as some key aspects of the lexical entries. The treatment od *sound* below is readily extendable to the other perceptual source verbs.

roughly, it involves an auditory sensation impinging on the experiencer and generating a thought/impression, the latter denoted by the propositional argument. The Psource in $SOUND_B$ is left unspecified. $SOUND_T$ is a ternary relation, specifying that an auditory sensation originating in the Psource generates in the experiencer the thought/impression denoted by the propositional argument.

What is relevant for our purposes is how these semantic concepts map onto the three lexical entries of *sound*. I include below the event variable *s* and the experiencer variable *z*, although the latter has mostly been implicit so far (but see (21a,b)). *p* stands for the propositional complement and *P* for its predicative variant (derived by null operator merger). *x* and *y* are the Psource and non-Psource subject arguments, respectively.

(45) Lexical entries for *sound*

a. $sound_1$: $\lambda z.\lambda p.\lambda s.SOUND_B(s,z,p)$. cf. (36a)

b. $sound_2$: $\lambda y.\lambda z.\lambda P.\lambda s.SOUND_B(s,z,P(y))$. cf. (36b)

c. $sound_3$: $\lambda x.\lambda z.\lambda p.\lambda s.SOUND_T(s,x,z,p)$. cf. (36c)

The peculiar feature of CR verbs, as Asudeh & Toivonen (2007a) point out, is that they mask a denotational dichotomy under a compositional trichotomy. Truth-conditionally, $sound_1$ and $sound_2$ are equivalent, both expressing the underlying $SOUND_B$. They only differ in how they compose with their arguments. While $sound_1$ takes its propositional argument as a primitive unit, $sound_2$ composes it out of an individual and a property. The non-Psource subject of $sound_2$ is not a thematic argument of the verb, although it indirectly contributes to the denotation of its propositional argument. In contrast, the Psource subject of $sound_3$ is not just a compositional argument but also a thematic one, as reflected by the fact that it is also an argument of the underlying $SOUND_T$ predicate.

These lexical entries accurately reflect the two fundamental semantic properties of CR verbs that concerned us above: The status of the subject (Psource or not) and the status of the complement (proposition or predicate). Through the mediation of the Op-analysis of CP predicates and the BVQ, they provide a principled explanation for the PCG.

In the next sections I address potential objections and alternatives to the present analysis, stemming from earlier work on CR constructions.

5. Objections and alternatives

This section discusses three points of divergence between the present analysis and previous ones. The first is whether the thematicity of the CR subject is not linked to an independent factor, namely, the position of the copy in the complement. The second is whether CR complements can ever be propositional, or, put differently, whether there are natural (Op-less) CP predicates. The third is whether Psource is to be characterized as θ-role or some broader type of semantic relation. In each case, I will argue that the reasons for adopting the alternatives are less than compelling; more importantly, doing so would inevitably eliminate any principled explanation for the PCG.

5.1 What is the relevance of the position of the copy?

The present analysis rests on the claim that whether or not the CR subject is thematic is determined by whether or not it is a Psource. This claim is directly challenged by Asudeh & Toivonen (2007a), to which we turn in the next section. It is also incompatible with Potsdam & Runner (2001) (henceforth, P&R), who offer the following criterion.

(46) *P&R's criterion*

a. When the CR subject binds a highest-subject pronominal copy, it is either thematic or nonthematic.

b. When the CR subject does not bind a highest-subject pronominal copy, it is thematic.

This criterion is motivated by an empirical split already observed by Rogers (1972). A CR subject may be a *there*-expletive or an idiom chunk only when the copy occurs in the highest embedded subject position. Based on that split, P&R treat the construction picked by (46a) as genuine copy raising (GCR) and the one picked by (46b) as apparent copy raising (ACR).[17]

(47) *GCR*

a %There looks like there's gonna be a riot.

b. % The shit appears as though it's going to hit the fan very soon.

[17] Some English speakers reject (47) (see Lappin 1984), hence the dialectal mark "%". Potsdam & Runner posit that certain dialects do and others do not have the GCR option with a nonthematic matrix subject.

(48) *ACR*

a. * There seems like John expects there to be an election.

b. * The other foot appears like the shoe is on it.

Lack of reconstruction effects suggests that the subject of GCR is not moved from the embedded clause (leaving a "pronounced" trace, as it were). P&R propose that GCR involves a non-movement A-chain, subject to the Minimal Link Condition (hence the restriction of the copy to the highest embedded subject), while ACR involves simple coindexation between two thematic positions (see also Rezac 2004). Fuji (2005), proceeding from the same distinction, proposes a movement analysis of GCR, coupled with overt resumption of the A-trace.[18]

The logic of the expletive/idiom chunk test is, however, challenged in Heycock 1994. While it is true that only nonthematic positions can host these elements, Heycock argues that it is not true that only thematic positions exclude them. Consider *tough*-constructions, whose subject position is, at least on one popular view, nonthematic. This property is not sufficient to license expletives and (many) idiom chunks as *tough* subjects.

(49) a. * Good care is hard to take of the orphans.

b. * There is hard to believe to have been a crime committed.

As Heycock (p.262) observes, such facts equally follow from an analysis in which the *tough* subject is interpreted as the subject of a complex predicate, consisting of the *tough* adjective and its complement. Given that descriptive properties can only be attributed to "referential" DPs, expletives and idiom chunks fail to bear them.[19] This explanation, then, does not rely on the subject directly discharging a θ-role from the θ-grid of the matrix predicate. Importantly, this logic smoothly carries over to (48), if indeed the CR subject is a subject of a (derived) CP predicate, as in the present analysis. In short, facts like (48) are entirely consistent with the CR subject being nonthematic (although saturating a predicate).

[18] There is some disagreement as to the consistency of the reconstruction data. The CR subject can neither take scope under the CR verb, unlike in standard raising (Lappin 1984), nor be construed in the scope of an embedded Q-adverb (Potsdam & Runner 2001). Fuji (2005) presents data showing that a pronoun inside the CR subject can be bound by an embedded QP, presumably owing to reconstruction; however, Asudeh & Toivonen (2007a) challenge the generality of this option. Overall, the evidence seems to weigh in favor of a non-movement analysis.

[19] Certain idiom chunks may appear in *tough*-constructions (e.g., *Headway should be easy to make in cases like this*) and head relative clauses. The idioms to which they belong are quasi-compositional, so that the idiom chunk is actually referential (see Berman 1973, Nunberg, Sag and Wasow 1994). The point of the text is that non-referential idiom chunks pattern with expletives in predicational structures.

Clearly, the Psource criterion and (46) cut the "thematic pie" in completely independent ways. Consider again some representative examples.

(50) a. That noise sounds like somebody's cleaning.
b. Your house sounds like nobody enjoys cleaning *(it).
c. It sounds like nobody enjoys cleaning your house.

If the thematic status of the matrix subject is singularly sensitive to the position of the bound copy, as P&R claim, then both *that noise* and *your house* are thematic in (50a,b), since neither binds a highest-subject copy. This is so despite the fact that *your house* is not a Psource in the context of (50b) (e.g., a conversation in a cafe). Moreover, the idea that *your house* receives some θ-role from *sounds* in (50b) fails to explain the (truth-conditional) synonymy of (50b) and (50c); obviously, *your house* in the latter is thematically unrelated to *sounds*. Finally, the parallel treatment of (50a) and (50b) under P&R's criterion (46) fails to address the fundamental observation of the present paper – the fact that a copy is only necessary in (50b) (and similarly for all the contrasts discussed in section 3.1).[20]

The present analysis explains the contrast between (50a) and (50b) by reference to the Psource status of *that noise* and the non-Psource status of *your house*. This interpretive contrast is translated to a thematic distinction between the two subjects. It is only by virtue of being nonthematic that *your house* in (50b) must be licensed by a predicative complement – hence the necessary pronominal variable (copy) for the null operator to bind. The synonymy of (50b) and (50c) follows from the fact that both are mapped to a single underlying semantic predicate, $SOUND_B$ (see (45a-b)).

Left to be explained is the dialectal distinction between (47) and (48). Given the above considerations, we can certainly accept P&R's conclusion that the CR subject in GCR is nonthematic; yet we must reject their conclusion that it is necessarily thematic in ACR. Thus, CR subjects may be nonthematic (because they are not Psources) and yet incompatible with expletives/idiom chunks (because of the semantics of predication). The implication is that the dialectal distinction between GCR and ACR must be stated independently of θ-theory.

As P&R, Rezac (2004) and Fuji (2005) argue, a formal syntactic dependency, akin to an A-chain, must be licensed in GCR but not in ACR.[21] Whether the

[20] Note that subcategorization cannot be invoked to force the presence of the copy pronoun in (50b); plainly, *Nobody enjoys cleaning* is a grammatical sentence.

[21] Interestingly, Rogers (1974) restricted his original Richard transformation (= raising + copy insertion) to just the cases of type (47), with a nonreferential subject. Briefly, the reason was that even when the copy is the highest subject, the Psource interpretation arises only when the CR subject is argumental, and not in the expletive variant (cf. (21a) vs. (21b)); but transformations are not supposed to alter meaning. Moreover, the Psource interpretation is independent of CR, as (18) reveals.

dependency involves actual A-movement or not need not concern us here; what matters is that the dependency displays the local character of an A-chain (hence it is restricted to the highest embedded subject). The semantic outcome of the dependency allows the GCR subject to be thematically interpreted in the position of the copy. This interpretive route does not exploit predication, but rather direct θ-assignment (via the A-chain), as in standard raising. Hence, the CR subject in (47) is licensed. The present point is simply that the position of the copy is relevant to the formation of that dependency, but not to the thematic relation between the CR subject and the CR verb. This seems to hold for Hebrew and at least one dialect of English.

There might be, however, a narrower English dialect, which does require the copy to be the highest embedded subject whenever the CR subject is nonthematic. P&R's discussion seems to suggest such a dialect, although they generally do not attempt to distinguish nonthematic readings of argumental DPs from expletives and idiom chunks. Let us assume this narrower dialect to exist. Speakers of this dialect, presumably, reject the English equivalents of examples (26b), (27b), (36b) and (50b). They do, however, accept the English equivalents of examples (29), (30b), as well as (47).[22]

The distinction between the two dialects can be readily accounted for within our analysis, specifically, by focusing on the lexical entries in (45). Whereas the two dialects share the ternary entry for CR verbs, e.g. $sound_3$ (derived from the underlying $SOUND_T$) in (45c), they differ in how they express the underlyingly binary predicate. For $SEEM_B$, either $seem_1$ or $seem_2$ are available in the permissive dialect. The former is used with expletive subjects, standard raising and copy raising.

(51) a. It $seems_1$ [like syntax is interesting].
b. $Syntax_i$ $seems_1$ [t_i to be interesting].
c. $Syntax_i$ $seems_1$ [like it_i is interesting].

That is, the propositional argument of $seem_1$ is put together before it is composed with $seem_1$. This putting together is straightforward in (51a), and is syntactically mediated in (51b-c) by the A-chain (derived by movement in (51b) and non-movement in (51c)). The A-chain allows the CR subject to be thematically interpreted in the position of its trace/copy, which, in turn, is restricted to the highest embedded subject

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From the present perspective, Rogers (1974) clearly had the right insight in realizing that a Psource reading of the CR subject renders it "independent" of the complement clause; his error was in supposing that this reading is obligatory with referential subjects.

[22] This does not seem to be Rogers' (1974) dialect. For Rogers, an argumental DP in the CR subject position must always be interpreted as the Psource – even if the copy is the highest embedded subject (compare his example (2) with P&R's example (18)). This is of course related to fn. 21.

position, due to the MLC. Notice that no predication is involved in the process. By assumption, *seem*$_1$ is available to all dialects.

On the other hand, *seem*$_2$ is available only to the permissive dialect. *seem*$_2$ (and by extension, *sound*$_2$, *feel*$_2$, etc.) takes a predicative complement, composes it with the CR subject, and applies to the resulting proposition. As discussed, the predicative complement must contain a null operator and a copy; crucially, the copy can be anywhere in the complement. By assumption, the restrictive dialect lacks this option. This could be either due to the simple absence of *seem*$_2$, or to the absence of predicative *like*-complements (recall the lexical basis of Op-derived complements, (44)). As a result, the only way for a nonthematic CR subject to be semantically integrated in this dialect is through the A-chain route.

5.2 Is Psource a θ-role?

The present analysis assumes, and crucially so, that Psource is a θ-role in the sense that it falls under the purview of the θ-criterion, or more neutrally, Full Interpretation. Thus, assignment of the Psource interpretation to an argument is sufficient to license it at LF (it need not enter further semantic relations); and the Psource interpretation may not be assigned to more than a single argument in a clause.

That Psource is a θ-role in the first of these senses is explicitly denied in Asudeh & Toivonen (2007a) (henceforth, A&T). Instead, they are argue that it is a *semantic role* – a broader notion that subsumes temporal and locative adverbs as well as the traditional θ-roles. It is important to realize that the issue is substantive and not terminological. To see this, we must first sort out the empirical issues from the theoretical one.

A&T's analysis is based on two empirical claims.

(52) *A&T's empirical claims*

a. There must be a copy in the complement of CR *seem/appear*.

b. A CR subject (which is not an expletive or an idiom chunk) must be interpreted as a Psource.

If these claims are granted, it becomes clear why A&T must deny Psource its thematic status. The fundamental question is how the CR subject is semantically licensed. The question is clearly theory-neutral, as it arises with equal force under the present analysis and under A&T's, which is couched in a radically different framework (LFG and Glue Semantics). "The necessity of a copy pronoun for copy raising verbs

follows", A&T write, "if their subject is a non-thematic argument that is only licensed through its relationship to the copy pronoun" (p. 14).

Indeed, if the CR subject receives no θ-role from the matrix verb, then it must be semantically licensed through some other means; in the present analysis, merger of a null operator with the *like*-complement. In A&T's analysis, it is the introduction of a *manager resource* in the semantic composition, which effectively removes the copy from the semantic representation and plugs in the CR subject instead. Importantly, both methods yield as a theorem the obligatory presence of a copy in the complement.

However, the combination of this conclusion and (52b) implies, for A&T, that a Psource interpretation is *not* sufficient for thematic licensing; for every (argumental) CR subject is a Psource, and yet a copy is required to license it. It follows that Psource cannot be a θ-role, at least on the assumption that θ-roles suffice to license (the semantic integration of) arguments.

The truth of the matter is that (52a) is at best a dialectal condition, absent from certain varieties of English (see (20), (34c)). Asudeh and Toivonen (2007b) argue that the latter varieties account for less than 10% of the speakers, but that may be an underestimate for the reasons mentioned in section 3.2 and fn. 11 (in German A&T found that over 60% of the speakers allow copy-less complements of *seem/appear*). At any rate, the present analysis can readily accommodate the more restrictive dialect too (see fn. 23 below). Asudeh and Toivonen (2007a:16,41) acknowledge that "certain speakers" do not require a copy in CR complements. What they fail to note is that this option is systematically correlated with a Psource interpretation for the CR subject, as stated in the PCG.

Consider next (52b), which should equally hold for *seem/appear* and *look/sound/feel*. The second verb class clearly violates this condition, as many examples above show (see (22), (24), (26b), (27b), (29), (30b), (36b), (50b)). Can we show that the subject of *seem/appear* also need not be a Psource? If the Psource of *seem/appear* must trigger a visual stimulus, then the following examples (picked from the internet) militate against subjecting these verbs to (52b).

(53) a. Mark Twain seems like he was a good man.

b. I'm sixteen and in grade 11. The future seems like it's looming over my head.

c. And just as these feelings appear like they couldn't possibly get any worse, the third of the five stages begins – Anger.

One could perhaps suggest that the Psource of *seem/appear* may be either abstract (i.e., non-perceptual) or non-visual. This, however, would leave the term 'perceptual source' with little (non-circular) content for these verbs. In contrast, the present account requires no tampering with our intuitions about perceptual events: (53a-c) pose no problem since the presence of an embedded copy renders a Psource interpretation unnecessary.

The bottom line of this discussion is this. A&T's claim that Psource is not a genuine (=licensing) θ-role is only required on partial empirical grounds. The copy in CR complements is only necessary (for all speakers) when the CR subject is not a Psource, that is, nonthematic. Capturing this correlation within A&T's system is currently impossible, since the link between thematic licensing and Psource interpretation is explicitly broken.[23]

Let us turn now to the empirical argument offered by A&T against the treatment of Psource as a θ-role. The argument is based on CR in Swedish, where, alongside the familiar (54a,b), one finds (54c).

(54) a. Det verkar som om Tom har vunnit.
it seems as if Tom has won
'It seems as if Tom has won'.

b. Tom verkar som om han har vunnit
Tom seems as if he has won
'Tom seems as if he has won'.

c. Det verkar på Tom som om han har vunnit.
it seems on Tom as if he has won
~ 'Tom gives the impression that he has won'.

The *på*-PP in (54c) has a Psource interpretation and, as A&T show, behaves like an adjunct in being an island for extraction (and optional). A&T conclude: "Since the *på*-PP that realizes the Psource semantic role in Swedish is not an argument, it follows

[23] A&T also maintain that accepting that CR *seem/appear* may take thematic subjects "entails that the standard semantics for these verbs is wrong and that the verbs at least sometimes denote a relation between individuals and propositions" (p. 16). This critique has no force. All that is entailed is a lexical ambiguity – precisely the same ambiguity already acknowledged by A&T for the verbs *look/sound/feel/taste*, which occur either with an expletive or a thematic subject.

Notice that the present analysis is fully consistent with the existence of an English dialect that never accepts copy-less complements to *seem/appear*, under any circumstances. These speakers, presumably, would possess $SEEM_B$/$APPEAR_B$ but not $SEEM_T$/$APPEAR_T$ (see (45)) in their semantic dictionaries. Similarly, (31b) suggests that $smell_2$ is missing from Hebrew and English. Such dialectal/idiolectal lexical gaps are commonplace and do not call for any special amendments.

that Psource cannot be a θ-role according to the standard conception of the θ-criterion" (p. 13).

The conclusion, however, is no more warranted than the conclusion that Agent is not a θ-role because the *by*-phrase is an adjunct. In fact, there is a class of thematically-licensed adjuncts (*a-adjuncts* in Grimshaw 's (1990) sense) that occur as "doubles" of implicit arguments; crucially, they all double genuine θ-roles. In addition to the *by*-phrase that doubles an Agent (55a), we find the *of*-phrase that doubles a Possessor (of property) (55b,c), as discussed in Bennis 2004 and Landau, to appear a.

(55) a. John poured the beer / The beer was poured (by John)
b. John was rude / That was rude (of John)
c. John was annoying / It was annoying (of John)

According to Landau, the right-hand-side forms are derived from the left-hand-side forms by a generalized lexical Saturation Operator, which existentially binds an argument slot, preventing the direct projection of its θ-role. It is therefore reasonable to assume that Psource is a θ-role either explicitly assigned to the CR subject, or left implicit and optionally identified by a suitable doubling adjunct (if the language affords one). At any rate, one need not adopt A&T's unorthodox claim that subject DPs can be assigned adjunct-like semantic roles.

5.3 Must a sentential predicate contain a copy?

A final aspect of the present analysis which is at odds with previous ones concerns the semantic type of the CR complement. To the extent that this question has been addressed in the past, the CR complement has been uniformly viewed as a predicate (Lappin 1984, Heycock 1994, Asudeh 2002, Asudeh & Toivonen 2007a). For us, however, the CR complement is by necessity a predicate only when the CR subject is nonthematic, that is, not a Psource. When it is, the complement may be propositional. The point of disagreement, therefore, is the semantic type of the complement when the CR subject is a Psource.

Notice first that no issue of lexical parsimony arises. Under *all* approaches, CR verbs must be minimally ambiguous, to allow either a predicative complement (*John seems sad*) or a propositional one (*It seems like John is sad*). The only issue is which of these options is also true of CR constructions (*John seems like he is sad*).

Consider what is at stake. Under the present proposal, the obligatory presence of a copy in the complement is a reliable indication that the complement is predicative, that is, contains a null operator; only an operator could force the presence of the copy,

which is interpreted as a bound variable. CR complements that need not contain a copy are therefore propositional.[24] If one were to maintain that even copy-less complements are predicative, one would have to hold that "closed" constituents may function as predicates.

In fact, this is exactly the position upheld by Heycock (1994: 263): "... maximal projections that constitute a fully saturated argument structure can nevertheless function as predicates, without the presence of an operator". Heycock offers two types of constructions instantiating variable-less sentential predicates: CR in English and Multiple Subject Constructions (MSC) in Japanese.

As is well known, the outer nominative DP in MSC, the so-called *major subject*, need not bind any overt position in the clause (Kuroda 1986). Nonetheless, the clause is perceived as being "about" the major subject.[25]

(56) a. Buturigaku-ga syuusyoku-ga taihen da
physics-NOM finding.jobs-NOM difficult COP
'Physics is such that finding jobs is difficult'.

b. Oranda-no sakana-ga huyu-ga nisin-ga yoi.
Holland-GEN fish-NOM winter-NOM herring-NOM good-is
'Fish from Holland [are such that] [in] winter herring is the best'.

Heycock also observes (following Kuroda 1986) that a major subject cannot bind the object position of its own clause – an unexpected restriction if the binding is mediated by an Ā-chain headed by a null operator. Given that English CR complements may also lack a variable (copy), Heycock concludes that variable-less predicative CPs are an available option in UG.

The conclusion, however, could be just the opposite: There are no variable-less predicative CPs, and both copy-less complements in Japanese MSC and English CR are propositional, not predicative. The clear advantage of this alternative is its ability to explain why a copy nevertheless *is* necessary in certain CR complements (namely,

[24] Obviously, *if* the copy were always necessary, then the uniform predicative approach would be vindicated. Given that the copy is sometimes optional, there is no obvious argument in favor of that approach.

[25] Doron and Heycock (1999) and Heycock and Doron (2003) propose that in gapless MSCs a λ-abstract is nevertheless formed over the event/situation variable. This would seem to imply that *physics* and *fish from Holland* in (56) are construed as events/situations (being attributed properties of events/situations), contrary to intuition. Furthermore, as Doron & Heycock observe, major subjects are interpreted outside the nuclear scope of the sentence. If, however, the event variable is not existentially closed at the VP level and remains available for λ-abstraction, existential closure (in gapless MSCs) would apply high enough to capture the major subject in its scope – a false prediction. I conclude that λ-abstraction over the event/situation variable is not an option in MSCs.

those occurring with a non-Psource subject). If CR complements were predicative throughout, there would be no reason to expect differences among them in the optionality of the copy.[26]

In fact, since the predicative status of the complement is independent of the presence of a copy in Heycock's analysis, it is unable to explain why any CR example would ever require a copy in the complement. On Heycock's theory, predication is "layered" over the thematic argument structure. As a result, whether or not the matrix subject receives a θ-role from the CR verb has no bearing on the predicative status of the complement. Although Heycock points out that θ-assignment and predication are two legitimate ways of sanctioning an argument, she never ties the activation of the latter to the deactivation of the former. Thus, her analysis too fails to capture the PCG.

The Op-analysis of predicative CPs explains other systematic facts about the occurrence of pronominal copies in complements. Consider the Proleptic Object (PO) construction, recently discussed in Davies 2005. This object has no obvious thematic properties; importantly, the finite complement must contain a copy.[27] The Hebrew examples below and their English translations are parallel.

(57) a. xašavnu al Gil še-mašehu nora kara *(lo).
we.thought about Gil that-something terrible happened *(to.him)
'We thought about Gil that something terrible had happened *(to him).'

b. šamanu al Rina še-ha-švita histayma *(bi-zxuta).
we.heard about Rina that-the-strike ended *(in-her.right)
'We heard of Rina that the strike has ended *(thanks to her).'

[26] In this light, it seems wrong to group Japanese MSCs together with Semitic ones, as Doron & Heycock (1999) and Heycock & Doron (2003) do. The latter *must* contain a copy, unlike the former, and in that respect pattern with left-dislocation (see (60b) below). See Landau 2009 for further evidence against the postulation of MSCs in Hebrew.

[27] This observation is attributed to Jane Grimshaw in Lappin (1984: fn. 10). The copy could be a null pronoun, if the language allows such, but is still mandatory (see Davies 2005 for relevant evidence from Madurese).

Note that the present analysis entails that a predicative complement *allows* a nonthematic argument in the matrix clause, but does not entail the stronger claim that it *requires* a nonthematic argument. This is so because an argument may simultaneously receive a θ-role from a matrix verb and saturate a secondary predicate (e.g., *Bill arrived hungry*). Thus, nothing in our analysis settles the (non)thematic status of the proleptic object. The question is actually rather subtle. The nonoccurrence of idiom chunks and expletives as proleptic objects is not informative, given the discussion of (48)-(49) above. Nor does the fact that (i) and (ii) are not synonymous necessarily prove that the proleptic object is thematic, as it could be explained otherwise (e.g., by reference to scope and intensionality). I leave this question open.

i. John believes that elves' feet are purple.
ii. John believes about elves that their feet are purple.

No contextual information can render the pronominal copies in (57) superfluous. Compare now the very same complements in a CR construction. Here, no copies are necessary.

(58) a. Gil nir'a ke'ilu mašehu nora kara.
Gil looked as.if something terrible happened
'Gil looked like something terrible had happened.'

b. Rina nišme'a ke'ilu ha-švita histayma.
Rina sounded as.if the-strike ended
'Rina sounded like the strike has ended.'

Heycock (1994: 292) remarks that even when no copy is present, "it is of course clear that the matrix subject is interpreted as binding some "understood" position in the complement". This is far from obvious, however. Suppose Gil watches TV in the other room, and all of a sudden rushes in, all pale and shaking. In this context, (58a) can be understood, among other possibilities, as either (59a) or (59b).

(59) a. Gil looked like *he just learned that* something terrible had happened.
b. Gil looked like something terrible had happened *to him*.

In fact, with enough contextual information, we may relate *Gil* to the embedded event of (58a) in any imaginable way. The same is true of *Rina* and the embedded event in (58b) (e.g., the strike has ended to *her* dismay/great relief, thanks to *her*, etc.). Finally, consider examples like (20c,d), (32) and (50a) above, where it is entirely unclear where the alleged "understood copy" position could be in the complement.

The clear contrast between CR and PO constructions in their (in)tolerance to copy-less complements is mirrored by another familiar contrast, that between hanging topics and left dislocated phrases.

(60) a. As for John, something terrible happened.
b. John, something terrible happened *(to him).

Just like a proleptic object must bind a copy, so must a dislocated phrase. And just like a CR subject (construed as a Psource) need not bind a copy, so does a hanging topic. All these facts find a natural explanation on the view that certain environments select for predicative clauses and others for propositional ones. Crucially, predicative clauses must contain a pronominal copy to be bound by the empty operator, a strictly

grammatical requirement. Propositional clauses only need to be interpreted as being about the matrix topic/subject – a pragmatic requirement that is often met without the aid of a pronominal copy.

The breakdown of constructions by these two types is summarized in (61).

(61) *Classification of constructions by the semantic type of the clause*

Propositional CP $[_{CP}$ ..... $]$	**Predicative CP** $[_{CP}$ **Op**$_i$ [... ***(copy**$_i$**)**...]]
1. CR complement under a Psource subject	4. CR complement under a non-Psource argumental subject
2. Clause following the major subject in MSC	5. Complement of a PO construction
3. Clause following a hanging topic	6. Clause following a left-dislocated phrase.

This picture establishes a principled link between the semantic type of the clause and the (non)obligatoriness of a copy in it. The link consists of two assumptions: (i) A CP is predicative iff it contains a null operator, and (ii) an operator must bind a variable (the BVQ). If, on the other hand, *all* the clause types in table (61) were predicative, we would lose this systematic correlation.[28]

One important lesson from this discussion is that talk of "sentential predicates" can be dangerously vague. Not every "aboutness" relation qualifies as predication. In particular, the relations that the clauses of types (1)-(3) in table (61) bear to their subject is *not* predication. Of course, one may still choose to call it so, conflating the subject-predicate and topic-comment distinctions; yet more confusion than insight is likely to follow from this choice.

[28] Clearly, predicative clauses are more commonly formed with a silent copy, namely a trace, serving as the λ-variable. In contrast, propositional clauses do not tolerate traces (unlike pronouns, traces cannot be free variables, hence always produce a predicate). This distinction, entirely analogous to the one laid out in table (61), is illustrated in (i)-(ii) and (iii)-(iv) (For extensive discussion of these constructions, see Faraci 1974, Browning 1987 and Jones 1991).

i. *Object purpose clause (predicative)*
They gave Mary a few exercises$_i$ [Op$_i$ to test herself *(on t$_i$)].
ii. *Rationale clause (propositional)*
They gave Mary a few exercises [in order to test (*on t$_i$) for any weaknesses].
iii. *Adjectival complement constructions (predicative)*
John$_i$ is tough for us [Op$_i$ to argue *(with t$_i$) about anything].
iv. *Degree clauses (predicative or propositional)*
John is too tough for us [to argue (with t$_i$) about anything].

6. Conclusion

The predicative function of CPs has been most convincingly demonstrated for CPs that contain a gap (a trace): Relative clauses, object-gap purpose clauses, degree clauses and *tough*-constructions. In all these cases, it has been clear (at least since Chomsky 1977) that (i) the gap is formed by movement, and (ii) the CP is turned into a predicate by the operator-gap dependency.

The fate of copy-containing CPs, however, has been more troublesome. First, there is no gap in them, hence no obvious signpost for a bound variable. Second, there is no evidence for movement (no island effects), hence no signpost for an operator. For these reasons, determining whether such clauses are predicative or not is not so trivial.

Copy-containing CPs can *become* predicative, as I have argued in this paper, when inserted in positions that license derived predicates. They simply have to merge with a null operator and contain a pronominal copy for it to bind. External merge (base generation) of Op explains why no movement effects are attested (Potsdam & Runner 2001, Asudeh & Toivonen 2007a); usage of a bound copy explains why no gap is needed.

The interesting question is whether this is the *only* way by which a CP may become predicative. Previous discussions are not always clear on this point. Williams (1980), for example, suggests that a clause must contain a "predicate variable" in order to function as a predicate; his examples of such variables are all gaps (PRO or trace). Williams (1987) considers these variables to be vertically bound by their maximal projections – "a kind of λ-abstraction", he writes. Yet for Williams, vertical binding already applies at the VP level, where the "bound variable" is nothing but the external θ-role. This role is not realized as a syntactic node in the tree (for Williams, subjects are external to VP). Clearly, this notion of variable binding is too weak to capture the effects discussed in this paper. The null operator merged to the CR complement must bind a *syntactic* variable, namely the copy. Understood θ-slots do not suffice. In other words, the BVQ applies to fully-fledged LF representations and not to lexical ones.

A clearer position is held in many studies of MSCs in East Asian languages, as well as in Heycock 1994, Doron & Heycock 1999 and Heycock and Doron 2003. These studies employ a notion of "sentential predicate" that explicitly allows for "complete" sentences to function as predicates. On the basis of a novel generalization governing the occurrence of copies in CR, I argued against this notion. The generalization (the PCG) stated that a copy is not necessary only if the CR subject is

interpreted as a Psource – that is, only if it is thematic. If the subject is nonthematic (and still argumental), it can only be licensed by predication, where the complement clause serves as the predicate. This forces the occurrence of a null operator, which in turns demands a copy to bind. If clausal predicates could be formed *without* a null operator, and without a bound copy, we would lose this account.

Importantly, the distinction between predicative and propositional CPs is semantic, cutting across the syntactic copy/gap distinction. Certain environments select for predicative clauses, whether containing gaps (*tough* constructions, object purpose clauses) or copies (CR with non-Psource subject, proleptic object complements, left dislocation clauses). Other environments select for propositional clauses (rationale clauses, CR with Psource subject, MSCs, hanging topic clauses). The latter type of clauses need not contain any copy. They *could* contain a pronoun coindexed with the matrix subject/topic, yet this would be merely coreference, not variable binding; the pronoun would facilitate the construal of the proposition as being about the coreferential matrix argument.

The discovery that CPs are not natural predicates is interesting and non-trivial. In principle, CPs could have been like DPs, PPs, APs or VPs in being able to function as predicates without the aid of a null operator. In practice, they are not. This opens up questions for further research. Is the restriction specific to CPs, and if so, why? Alternatively, could it be generalized to all functional projections, or just a subset of them? These questions concern the fundamental denotational mappings determined by UG, a topic of great significance to the study of crosslinguistic variation.

Finally, the present study reaffirms the modularity of grammar. θ-marking is not the same as predication – in fact, the two processes are often complementary; and predication is not the same as "aboutness". Quite as the traditional picture has it, the first process is in the purview of the lexicon, the second in the purview of the syntax-semantic interface, and the third in the purview of pragmatics.

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