Incorporated nominals as antecedents for anaphora, or How to save the thematic arguments theory

0. It is well-known that (I)ncorporated (N)ominals may differ across languages with respect to discourse transparency, that is, the ability to be antecedents for pronouns in subsequent sentences. E.g., West Greenlandic INs are discourse transparent, (1), while in Hindi and Hungarian plural INs are discourse transparent and singular ones are not, (2). Moreover, Farkas & de Swart (2005) (F&dS, henceforth) show that Hungarian INs may not antecede overt pronouns, but may antecede covert ones, (3). F&dS provide a framework aimed at capturing these data, described in Section 1. However, as I show in Section 2, their theory in fact does not work as intended. In Section 3 I propose two possible modifications of F&dS's approach which avoid the problems of the original. Both of the proposed analyses appear to be viable accounts for the data; which one is better is an empirical question that needs much further investigation.

1. The widely accepted informal view on nominal incorporation states that an IN does not provide a full-fledged argument, but instead forms a complex predicate with the verb, like the English "berry" in a compound "berry-picking", adding a restriction on possible objects of picking (cf. Chung & Ladusaw (2003), a.m.o.) F&dS propose the following to capture this intuition: A) there are two types of variables: discourse referents and thematic arguments; B) full DPs introduce discourse referents and restrictor conditions, while INs introduce just restrictor conditions; C) each predicate starts with all argument slots filled with thematic arguments; D) when a predicate combines with a normal DP, one of its thematic arguments is substituted with the discourse referent introduced by the DP; E) when a predicate combines with an IN, the thematic argument of the predicate is substituted with the thematic argument occuring in the condition introduced by the IN – this process is called Unification, cf. the result in (4).

Thematic arguments under F&dS are not interpreted by embedding functions, and thus a special verification clause for conditions containing thematic arguments not substituted by discourse referents is needed, given in (5). Anaphoric relations between an IN and a pronoun are modelled via introduction of a new connective $\approx$, that builds conditions of the form $\mathbf{v} \approx \mathbf{x}_i$, where $\mathbf{x}_i$ is defined as "an accessible and suitable (uninstantiated) thematic argument". A verification clause for such conditions may be found in (6).

2. There are two major problems with F&dS framework. The first one is that (5) does not ensure that thematic arguments with the same name receive the same interpretation. Thematic arguments may be thought of as predicate logic variables immediately bound by existential quantifiers, and (4) amounts to (7). The variable name identity in this formula means nothing, since (7) (and hence (4) too, under F&dS) is equivalent to (8). So there is actually no complex predicate in (4): the two conditions do not actually share their arguments. The second problem concerns anaphoric dependencies. The individuals assigned to thematic arguments are not stored anywhere, since they are not "recorded" by embedding functions. Thus it is impossible to find the exact individual which has been used to verify a condition with a thematic argument, so that this individual may be assigned to the discourse referent denoted by a pronoun.

3. The first solution is like this: thematic arguments are introduced in the universe of a DRS and are interpreted by embedding functions. However, they belong to a different sort of variables than the usual discourse referents, just like plural discourse referents constitute a sort of its own in the standard DRT. Thus discourse referents and thematic arguments are the same thing, besides the difference in sort and the fact that the former are introduced by full DPs, and the latter, by INs. Different pronouns may have different sortal restrictions: Hungarian overt pronouns allow only discourse referents as antecedents, while covert pronouns allow thematic arguments too; West Greenlandic pronouns allow antecedents of both sorts.

The other solution is more interesting. It preserves F&dS's proposal that thematic arguments are not recorded by embedding functions. However, we introduce "temporary embedding functions" to ensure that thematic arguments with the same name in the same DRS have equal denotation. In effect, (4) gets the right interpretation in (9). However, temporary embeddings are lost when we go to another DRS, so it is impossible to refer back to thematic arguments. But they may be used to construct new discourse referents, just as the referent for *they* is constructed using *every delegate* in "*Every delegate arrived.. They are tired.*" Cross-linguistic differences reside in language-specific DRS-construction rules. West Greenlandic allows free discourse referent construction, so all its INs are (pseudo)-transparent. In Hungarian, referent construction may be invoked only by a pronoun resolution rule, and only that for the covert pronouns.

(1) West Greenlandic (from van Geenhoven, 1998:187):

Aani	qimmi-qar-p-u-q.	Miki-mik	ati-qar-p-u-q
Aani.ABS	dog-have-IND-[-tr]-3Sg.	M.-inst	name-have-IND-[-tr]-3Sg

'Aani has a dog_1. It_1 is called Miki.'

(2) Hindi (from Dayal, 1999):

a. anu kitaab paRh-rahii-hai. *vo bahut acchii hai
Anu book read-PR-PROG It very good be-PR
'Anu is reading a $book_1$. It_1 is very good.'

b. anu apne bete ke liye laRkiyaaN dekh rahii hai. vo unkaa swabhaav jaannaa caahtii hai.
'Anu is seeing $girls_1$ for her son. She wants to find out $their_1$ temperament.'

(3) $János_1$ $beteget_2$ vizsgált a rendelőben. (Hungarian, from F&dS 2005:135-136)
J. patient.Acc examine.Past the office.in
'Janos patient-examined in the office.'

a. A singular IN binding an **overt** pronoun:
??$\varnothing_1$ Túl sulyosnak találta **őt**$_2$ és beutaltatta $\varnothing_2$ a korházba.
he too severe.Dat find.Past he.Acc and intern.Cause.Past him the hospital.in
'He found him too sick and sent him to hospital.'

b. A singular IN binding a **covert** pronoun:
$^{OK}\varnothing_1$ Túl sulyosnak találta $\varnothing_2$ és beutaltatta $\varnothing_2$ a korházba.
he too severe.Dat find.Past he.Acc and intern.Cause.Past him the hospital.in
'He found him too sick and sent him to hospital.'

(4) János beteget vizsgált.
"Janos patient-examined."

u
Janos(u) patient(x) examined(x, u)

(u a discourse referent,
x a thematic argument)

(5) (F&dS 2005: 63) A function **f** verifies a condition of the form $P(a_1, \ldots, a_n)$ relative to a model M iff there is a sequence $\langle e_1, \ldots, e_n \rangle \in E^n$, such that $\langle e_1, \ldots, e_n \rangle \in \in I(P)$, and if a_i is a discourse referent, $e_i = \mathbf{f}(a_i)$, and if a_i is a thematic argument, e_i is some element in E.

(6) (F&dS 2005: 144) A function **f** verifies a condition of the form $\mathbf{v} \approx \mathbf{x}_i$, where **v** is a discourse referent and $\mathbf{x}_i$ is an (uninstantiated) thematic argument that shows up in the i-th position of a predicative condition of the form $P(x_1, \ldots, x_i, \ldots, x_n)$, iff **f** maps **v** onto the individual e_i that is the i-th element of the n-tuple $\langle e_1, \ldots, e_n \rangle$ that verifies the condition $P(x_1, \ldots, x_i, \ldots, x_n)$.

(7) $\exists u$: (Janos(u) & ($\exists x$: patient(x)) & ($\exists x$: examined(x, u)))
"There is u named Janos and there is x who is a patient and there is x who was examined by u."

(8) $\exists u$: (Janos(u) & ($\exists x$: patient(x)) & ($\exists y$: examined(y, u)))

(9) $\exists u \exists x$: (Janos(u) & patient(x) & examined(x, u))

References:

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