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MISSING TYPES

November 30 – December 2, 2020, Caritive constructions in the languages of the world

1. CARITIVES: SYNTACTIC BACKGROUND

What this talk is NOT about:

- how a caritive can be encoded (a PP or a corresponding case (abessive in Uralic, aka privative for Australian languages, anticomitative, or deprivative...))
- caritives as sentential (VP) modifiers (*left without looking back*)
- clausal (*without looking back*) vs. nominal (*without a word*) caritives
- determiners inside the caritive (bare NP caritives, such as *sans peur et sans reproche*)

What this talk IS about: **NP-internal indefinite caritives:**

- (1) a. Elle était une petite **enfant sans parures** [...] French, Choi-Jonin 2006
 she was a small child without adornments
She was a small child without any adornments.
- b. Ik zoek naar **een moderne laptop zonder besturingssysteem.** Dutch
 I search towards a modern laptop without operating.system
I'm looking for a modern laptop without an operating system.

Plan of the talk:

- the syntactic issue: **the absence of an article** (even in the singular)
- the semantic issue: the scope of the bare NP
- bare caritives and the notion of possession
- towards the solution: bareness as definiteness
- contextual relationality and what is presupposed

Warning: trees and lambdas to follow!

2. BARE NPS

A lot of semantic research has been done on bare (anarthrous) NPs in languages that normally have articles (Germanic, Romance, etc.)

General consensus (Carlson 1977a, b, Dayal 1999, Doron 2003, De Swart and Zwarts 2009, de Swart, Winter and Zwarts 2005, 2007, etc.): such bare NPs denote properties (sets of entities) or kinds (the intensional counterpart of thereof)

- (2) a. Maria tem **carro.** Brazilian Portuguese, Cyrino and Espinal 2014
 Maria has car
Maria has a car.
- b. Jan en Sofie zijn **leraar.** Dutch, de Swart et al. 2007
 Jan and Sofie are teacher
Jan and Sofie are teachers.
- c. **Dogs** are intelligent/tired.

An important property of bare nominals is that they have **narrow scope**: they can be interpreted only in their surface position:

- (3) Damian didn't eat green beans/meat.
 ≠ There were some green beans/meat that Damian didn't eat.

Why do we care? Because caritives can be bare (even in English!). And yet...

- (4) un sac sans poignée
a bag without handle
a bag without a handle



a.



b.

An NP-internal *without*-caritive is ambiguous (in a way that a *less*-caritive is not)

And in one of the readings available the existence of a handle is not excluded

3. WITHOUT SCOPE

Semantic intuition: Cristea 1970, Riegel 1977, Lagacé 1987, Muller 1991:404, Feigenbaum 1996, 1997a, b, Vlachou 2000, Choi-Jonin 2006, Sæbø 2009, Choi-Jonin and Mignon 2010: the caritive relation is negative and parasitic on possession:

- (5) with (NEG (NP)) Muller 1991:404

In normal language (note the two orders of possession and negation):

- (6) without X for bare caritives only
a. = not having an X
b. = having no X

In slightly formalized form (note the existential; it should not be there for definite caritives):

- (7) $\llbracket \text{without X} \rrbracket = \lambda y . \neg \exists x . x \text{ is an X and } y \text{ has } x$
there is no x such that x is a handle (X) and y has x

In formal representation assuming that bare NPs are properties (cf. the incorporating analysis of *have* and HAVE-verbs (Borthen 2003, Dobrovie-Sorin, Blear and Espinal 2006, Espinal and McNally 2010, Le Bruyn, de Swart and Zwarts 2013))

- (8) a. $\llbracket \text{with} \rrbracket = \lambda N . \lambda M . \lambda x . M(x) \wedge \exists y . N(y) \wedge \text{HAVE}(x,y)$ Le Bruyn, de Swart and Zwarts 2012
b. $\llbracket \text{without} \rrbracket = \lambda N . \lambda M . \lambda x . M(x) \wedge \neg \exists y . N(y) \wedge \text{HAVE}(x,y)$

The assertion of (non)existence then comes from the lexical entries for *with(out)*

This does not account for (4b), where the bag might have a remaining handle. Or for *a table without a leg*, where this is even clearer

3.1. A note about dialectal differences

In French, Dutch and Russian two types of idiolects have been detected:

- (9) a. sobaka bez lapy Russian
dog without paw
a dog without a paw

- b. un chien sans pied French
 a dog without foot
a dog without a paw
- c. een hond zonder poot Dutch
 a dog without foot
a dog without a paw

For some speakers examples (9) are strongly infelicitous because they imply that dogs have only one paw

For others they have no such implications

3.2. The scope of the existential

Examples like (4b) and (9) suggest the opposite scopal relation between the existential and the negation inside *without*: there is a handle that the bag in question does not have:

(10) $\lambda x . \text{bag}(x) \wedge \exists y \text{ handle}(y) \wedge \neg \text{HAVE}(y)(x)$ \Rightarrow always true

Obviously this is wrong: there is always a handle that any given bag does not have

It is not just *any* handle that the bag in question does not have, it is *its* handle (or one of its handles)

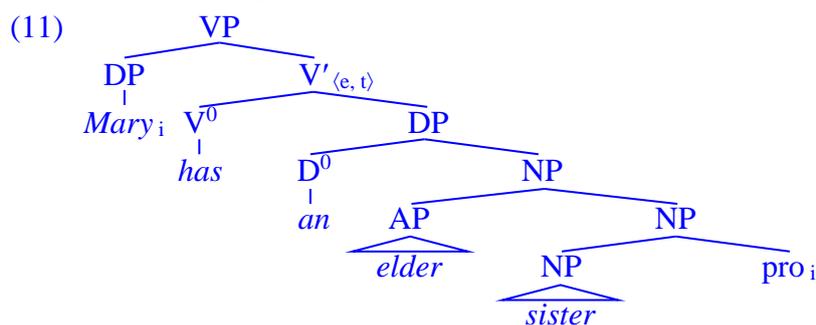
And this is where we enter the domain of what possession is

4. THE NATURE OF POSSESSION

A lot of syntactic and semantic work (e.g., Guéron 1985, 1995, Cowper 1989, Tellier 1990, Burton 1995, Ritter and Rosen 1997, Partee 1999, Landman 2004, Sæbø 2009, etc.) work has converged on the intuition that *have* is (generally) semantically empty

Possession is in the argument structure of the possessee

Guéron 1985, 1995, Tellier 1990, Sæbø 2009: the internal argument slot of relational nouns is saturated by a null pronoun, which is then {coindexed with/bound by} the subject of *have*:



This mechanism cannot be used for NP-internal caritives because there is no entity-denoting NP to bind the possessee (e.g., *no committee without a chair*: no possessor individual)

But the same result can (and should!) be achieved semantically:

(12) $\llbracket \text{have} \rrbracket = \lambda R \lambda w \lambda v \exists v (R(w)(v))$ after Le Bruyn, de Swart and Zwarts 2016
 where R is a relation of type $\langle e, \langle e, t \rangle \rangle$ (e.g., *sister*)

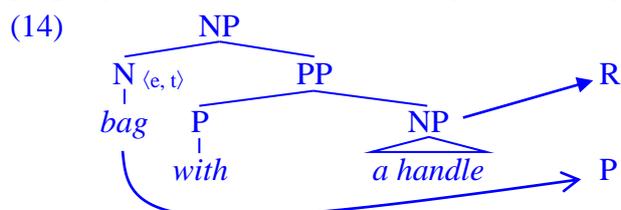
This means that the direct object of *have* is a relation (rather than an entity) and *have* applies this relation to its own second (external) argument (i.e., the subject) and asserts the existence of an entity that bears this relation to the subject

Similar proposals have been advanced for adnominal possession (e.g., Higginbotham 1983, Burton 1995, Vikner and Jensen 2002, Sæbø 2009, Karvovskaya 2018)

So the lexical entry for *with* could work like this:

$$(13) \llbracket \text{with} \rrbracket = \lambda R_{\langle e, \langle e, t \rangle \rangle} \lambda P_{\langle e, t \rangle} \lambda y . \underline{P(y)} \wedge \exists v (R(y)(v))$$

(13) takes a relation R (the possessee) and a property P (the modified NP) and returns another property (underlined), that of being P and being in the relation R with an object y



The NP in (14) returns the property of being a bag (P) that some object has the *handle-of* relation (R) with

This is how the relative scopes in (8b) and (10), now presented side by side, also work:

$$(15) \text{ a. } \llbracket \text{without} \rrbracket = \lambda R_{\langle e, \langle e, t \rangle \rangle} \lambda P_{\langle e, t \rangle} \lambda y . \underline{P(y)} \wedge \neg \exists v (R(y)(v)) \quad (8b)$$

$$\text{ b. } \llbracket \text{without} \rrbracket = \lambda R_{\langle e, \langle e, t \rangle \rangle} \lambda P_{\langle e, t \rangle} \lambda y . \underline{P(y)} \wedge \exists v \neg (R(y)(v)) \quad (10)$$

(15) is even more ridiculous than (10): it says that there is an object that does not entertain the *handle-of* relation (R) with the modified NP (i.e., with *bag*)

For the scopal relation in (10) or (15b) to work, we need to do something more complicated: to say that there is an object x that is an R (handle of) the P (bag) y and that is not located (instantiated) on y:

$$(16) \lambda x . \text{bag}(x) \wedge \exists y \text{ handle}(x)(y) \wedge \neg \text{HAVE}(y)(x)$$

But then we will not be able to account for clutches, as in (4a): clutches have no handles!

- (4) a bag without a handle
 a. **a handleless bag**
 b. a bag with a handle missing

In addition, scoping the existential over negation gives rise to the wrong truth conditions for plural caritives

4.1. Plural caritives

French is of particular interest here because it does not normally allow bare plurals:

- (17) Damian a mangé *(des) haricots verts.
 Damian has eaten DES beans green
Damian has eaten green beans.

Though they are ok in plural caritives:

- (18) a. plat'je bez pugovic Russian
 dress without buttons
a dress without buttons
- b. une robe sans boutons French
 a dress without buttons
a dress without buttons

- c. een jurk zonder knopen Dutch
 a dress without buttons
a dress without buttons

(18) means a buttonless dress, a dress with all of its buttons missing and cannot mean (19):

(19) $\lambda x . \text{dress}(x) \wedge \exists y \text{ buttons}(x)(y) \wedge \neg \text{HAVE}(y)(x)$ \Rightarrow wrong

(19) means a dress with buttons missing

4.2. Intermediate summary

The caritive relation is negative and parasitic on possession

However, the scopal relation between the existential and the negation that it introduces is far from clear:

- with the negation scoping over the existential ($\neg \exists x$: handle (x) and HAVE (x)(y)), the bag has no handles
- with the existential scoping over the negation and its domain limited to possessors ($\exists x$: handle (y)(x) and \neg HAVE (x)(y)), clutches and plurals cannot be accounted for. In addition, this view necessitates double encoding of the same possessive relation

Both scopal relations seem to be needed

This is why we have been working with French and Dutch

- bare NPs are known to have surface scope, so scoping the NP out is not an option
- scopal relations cannot vary internally to a lexical item

And so we have a puzzle.

5. TOWARDS A SOLUTION

Intuition: bare NPs in caritives are exceptional (cf. French). If they were kind-denoting in the same way as English bare NPs are, we would not see the exceptional behavior in French

Proposal: **the bare NP in a caritive is a weak definite**

5.1. Weak definites: clearing out the confusion

There are two very different kinds of things called weak definites (maybe more)

5.1.1. Morphologically weak definites (the wrong ones)

Ebert 1971a, b, Schwarz 2009, 2013, Cabredo Hofherr 2012, etc.: in a number of languages two definite articles are available:

- (20) a. Ik skal deel tu a/*di koopmaan. Fering, Ebert 1971b via Schwarz 2013
 I must down to the weak/the strong grocer
I have to go down to the grocer.
- b. Oki hee an hingst keeft. *A/Di hingst haaltet.
 Oki has a horse bought the weak/the strong horse limps
Oki has bought a horse. The horse limps.

The weak definite article (roughly) encodes uniqueness, the strong one encodes anaphoricity

Forget these

Issue 2: in English we have an indefinite here, not a definite or a bare NP

5.3. A pre-existing relation

Suppose the relation between the possessor and the possessee is a function (each bag has only one handle (or none))

Conditions on why and how this is broken are a separate matter

The relation is contextual (and can be identical to the relation that is introduced by the lexical semantics of the possessee noun itself, as with, e.g., the noun *son*)

And this relation does not obtain between the possessor and the possessee

Crucially, in bare caritives R is established not between two entities but between a kind and a property (think of it as the relation that bags should have with handles)

(25) $[[\text{without}]] = \lambda k_e \lambda P_{\langle e, t \rangle} \lambda y . P(y) \wedge \neg R(y)(k)$

where R is the relevant possessive relation between entities and a kind

After combining with its two arguments (the first of which denotes a kind (*handle*) and the second, a property (*bag*)), *without* returns the set of bag-entities y such that none of them is in the relevant contextual relation with the handle-kind k

I know, this is complicated :(

There is no existential quantifier and so no handle is asserted to (pre-)exist

Why do the weird R thing instead of saying that x doesn't have y?

Because, as discussed above, **there is really no possessive relation**, it is either contextual or supplied by the argument structure of the possessee noun (if k is *mother*, then R is *mother-of*)

Another important point: because the inner argument of *without* is a kind (type e), *without* is compatible with entity-denoting arguments as well:

- (26) a. Je me suis retrouvé sans Marie. Choi-Jonin and Mignon 2010
 I me am found without Marie
I found myself without Marie.
- b. l'utopie Yiddish sans un aréopage de propagandistes
 the.utopia Yiddish without a areopagus of propagandists
a Yiddish utopia without an areopagus of propagandists
- c. However, **an English football team without Beckham** is like an Indian cricket team without Sachin Tendulkar.

What is denied is the cooccurrence of the possessor and the possessee; the possessive relation is there as a free variable

It is the verification of $R(y)(k)$ that gives rise to weak definiteness

6. CONCLUSION AND FURTHER QUESTIONS

The problem is not solved

There is no independent evidence that relational weak definites can be bare

The appeal to R is a kind of existential disclosure (Dekker 1993), because kinds cannot be relational and it is not clear how a truly relational noun fares here (consider *child* vs. *child of*, one is true for the lifetime of an individual, the other is not)

The mechanism by which relational nouns (and other relations) can be definite without being unique is still to be determined

6.1. Presuppositions of *without*

Feigenbaum 1996: *sans* ‘without’ introduces the presupposition that the absent entity should be present. However...

- (27) a. Like most if not all of Romance, French is a **language without a glottal stop**.
 b. Lou was the only **person without a movie**.

What is presupposed is a relation between languages and glottal stops (obvious) or between people and movies (contextually given)

6.2. Plurality

What does the plural NP in the caritive denote, given that it is unlikely to be a bare plural?

The singular marking always entails a single possessee and the plural marking always entails plurality (cf. Sauerland, Anderssen and Yatsushiro 2005 for #*Does the girl have noses?*), but such is not generally the case for possession (*Does the bag have handles?*)

However, property-denotation for the complement of *without* is supported by independent evidence: the partitive *de* in the presence of an intervening modifier (Grevisse 2006:1389) or with higher negation (Larrivée 2009):

- (28) a. *sans* *(presque/ vraiment) d' efforts
 without almost/really of efforts
almost/really without efforts
- b. je ne mens jamais sans de bonnes raisons Larrivée 2009:67
 I NEG lie never without of good reasons
I never lie without good reasons.

The missing object cannot be referred to by a relative pronoun; for anaphoric pronouns this is marginally possible:

- (29) C'était un jeune soldat sans nez...
 this+was a young soldier without nose
It was a young soldier without a nose.
- a. *qu'il avait perdu à Waterloo.
 REL+3MSG.NOM had lost at Waterloo
- b. %Il l'avait perdu à Waterloo.
 3MSG.NOM 3SG.ACC+had lost at Waterloo
He had lost it at Waterloo.

Yet there is no effect of modification or semantic enrichment

6.3. What about clutches and Manx cats?

Proposal: the caritive there is a kind-level modifier, i.e., the NP it combines with denotes a set of kinds rather than entities

Or it could be something akin to coercion:

- (30) le Louvre sans Mona Lisa/aucun tableau
 the Louvre without Mona Lisa/any painting
the Louvre without Mona Lisa/any paintings

7. APPENDIX: KINDS OF NON-EXISTENCE

There are other instances where an indefinite has been treated as kind-referring: with caritive predicates (*missing*), with creation failure verbs (*prevent*) and language-specifically for kinds

7.1. The *missing* link

Higginbotham 1989, Zimmermann 2010: *missing* as an opaque predicate

Dowty 1985, citing Irene Heim and Emmon Bach: *missing* has an intensional subject:

- (31) a. A screw is missing from this TV set.
b. The spare tire is missing from this car.

Higginbotham 1989: *missing* is an unaccusative predicate with intensional interpretation with the subject originating low. There is a transitive variant:

- (32) This TV set is missing a screw.

“In short, missing involves failing to have”. No specific proposal is made

Zimmermann 2010: *missing* is a two-place predicate requiring the entity its subject is missing from and a modal component: “After all, Peter cannot be said to be missing from the German government x just because it happens to have a vacancy and Peter does not happen to be a minister”.

- (33) $(\forall j \triangleright_x i) [\neg I_i(\mathbf{p}, x) \ \& \ I_j(\mathbf{p}, x)]$
where the transitive constant I expresses the concept of completing (being part of, taking part in, etc., and \triangleright_x introduces, roughly, possible worlds (indices) where the minimally different x is complete

In other words, *missing* means lacking a part that is obligatory for completeness

If the subject is quantified, it can scope above or below the universal...

...except this doesn't give rise to the precise truth-conditions required! Zimmermann 2010 introduces several hypotheses, including turning the missing part into a transitive property (e.g., *screw* is *screw of*), but does not arrive at a firm conclusion

Important: *missing* combines with a generalized quantifier, not a property!

Hence the intensionality cannot be achieved by assuming that the complement is a property, as in Zimmermann 1993 or Van Geenhoven and McNally 2005, but the analysis of Moltmann 1997 might work

- (34) Every screw is missing.
a. All the screws are not where they are supposed to be. specific
b. Where there are supposed to be screws, there is nothing. non-specific

But is this genuine ambiguity?

- (35) Two missing screws have been replaced. Zimmermann 2010

Zimmermann 2010 sketches an intentionalist analysis, with the denotation of the noun *screw* including both ordinary screws and missing ones (cf. Condoravdi, Crouch and van den Berg 2001b, Condoravdi, Crouch, Berg, Everett, Paiva, Stolle and Bobrow 2001a)

7.2. Preventing accidents

Condoravdi et al. 2001b, Condoravdi et al. 2001a: while (36) is ambiguous between a general and a specific readings, neither of the two asserts existence of an accident:

- (36) Safety procedures at Chernobyl prevented a serious nuclear accident.
a. general: no accident occurred false
b. specific: there was an accident that could have happened but didn't potentially true

Condoravdi et al. 2001b: non-indefinite NPs are restricted to a specific reading implying a set of particular potential objects quantified over

The direct object of *prevent* can be a DE-environment (under the general reading)

Proposal: the direct object of *prevent* denotes in the domain of **concepts** rather than entities:

- (37) a. $\exists y \exists X . X = \text{SNA} . \textit{safety.procedure} (y) \ \& \ \textit{prevent} (y,X)$ general
 b. $\exists y \exists X . X \sqsubseteq \text{SNA} . \textit{safety.procedure} (y) \ \& \ \textit{prevent} (y,X)$ specific

The specific reading involves sub-types of a concept (there is a sub-type of accident that was prevented)

Problem: why is the article indefinite in (36) for the reading in (37a)?

The lexical meaning of *prevent* entails non-instantiation of the relevant concept:

- (38) $\forall x \forall T . \textit{prevent} (x,T) \rightarrow \neg \textit{instantiated} (T)$

What is a concept (both formally and intuitively)?

- Condoravdi et al.: it is an individual (a first-order entity)

In essence, it is what we call a kind when we do not mean the sum of all of its instantiations (cf. Carlson 2010)

7.3. Two kinds

The word *kind* is used to denote (at least) two different things:

- entities referred to by bare plurals or mass nouns in English generic sentences
- entities referred to by singular definite subjects of inherently kind level predicates (the same as *the well-established kind* of Krifka, Pelletier, Carlson, ter Meulen, Chierchia and Link 1995?)

- (39) a. Tigers eat meat.
 b. The tiger is the largest cat species.

Intensionalized sum of all instantiations ($\langle\langle s, \langle e, t \rangle \rangle$) vs. a species or established kind (type *e*)

Rothstein 2013: the notion of *an encyclopedic kind* is independently needed:

Doron 2003, Rothstein 2013: A singular kind-denoting NP in Hebrew is bare and unlike a proper name not introduced with the direct object marker required for definites:

- (40) *be- yamim ele menase cevet mada'anim sqoti le-šabet (*et) namer tasmani.*
 in days these try.SG team scientists Scottish to-clone DOM tiger Tasmanian
Currently a Scottish team of scientists is trying to clone the Tasmanian tiger.

The appearance of the definite article leads to anaphoric interpretation

In Hebrew there is no difference in definiteness: *prevent* cases are also bare

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