

Italian Null Objects, Resultative/Depictive Predication, and HAB*

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1 Introduction

Based on the grammaticality of sentences like (1) – (2), Rizzi (1986) argues that the missing object is a *null object*. The null object is an arbitrary *pro* associated with the interpretation [+human] and corresponds in meaning to English generic *one/people*. Considering that the anaphor and PRO are both bound, that the only possible binder is the missing object, Rizzi concludes that the null object is phonologically null but projected and syntactically active.

(1) Una buona dormita riconcilia ___ con se stessi
a good sleep reconciles ___ with oneself-MASC.PL
'A good night's sleep reconciles one_{arb}/people with themselves'

(2) L'ambizione spesso spinge ___ a [PRO commettere errori]
The ambition often pushes to make mistakes
'Ambition often pushes one_{arb}/people to make mistakes.'

(Rizzi (1986): 503 (9b))

According to Rizzi (1986), the null object obeys two major restrictions. On the one hand, null objects can only occur in sentences with *generic tense*. In Italian, simple present and preterit tenses naturally convey a generic reading, whereas perfective tenses like past perfect do not (cf. Lenci and Bertinetto (1995):6). The contrast in (3) is thus not surprising. (3b) is infelicitous because an anaphoric reading is forced on the null object: the wind made a specific set of people nervous.

(3) a. Il vento rende/ rende ___ nervosi
the wind make-PRES make-PRET ___ nervous-MASC.PL

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- ‘The wind made people nervous.’
 b. # Il vento ha reso ___ nervosi
 the wind aux made.PREF ___ nervous-MASC.PL
 ‘The wind made people nervous.’

On the other hand, Rizzi argues that only *causative predicates* license a null object as the subject of small clauses (4) (Rizzi (1986): 533 (66a) and (65a)). This is why there is a sharp contrast between (4a), where the verb is not causative, and (4b).

- (4) a. * Talvolta la stampa ritiene [sc ___ perplessi]
 Sometimes the press believes ___ puzzled
 ‘Sometimes the press believes people puzzled’
 b. Talvolta la stampa lascia [sc ___ perplessi]
 sometimes the press causes-to-remain ___ puzzled
 ‘Sometimes the press leaves people puzzled’

Drawing from new empirical observations, I revisit both the internal structure and the contextual requirements of Italian null objects discussed in Rizzi (1986). In particular, based on a comparison with bare *molti* constructions, I analyze the null object as consisting of a silent NP, UMANI ‘human.masc.pl’ and as having a complex quantificational structure.

Subsequently, I show that causativity does not play any role in the licensing of the null object and I argue that null objects are generated as the subject of an adjectival predication.

On the other hand, I propose that the restriction of null objects to generic tenses arises from the fact that null objects introduce a higher order variable, which has to be bound by a frequentative/habitual operator, HAB (following Rimell (2004)).

2 Null Objects have an arbitrary reference, are [+ human], and [+ pl]

As Rizzi (1986) already points out, the null object has an invariable masculine plural [+ human] arbitrary interpretation.² (5) is not well-formed precisely because the null object forces a [+ human] reading that is incompatible with the *veterinary* which correlates with animals.

- (5) ?? Un veterinario visita ___ sedati
 a veterinary visits ___ sedated-MASC.PL
 ‘A veterinary examines people sedated.’

Notice that by creating the right context, it is possible to have the null object refer to something non-human. In (6), the missing object can refer to chinchillas. In this paper, I will not explore the differences between the null object in (6) and the one in (5). I will content myself to arguing that

² Recall that the contrast in example (3) shows that the null object is infelicitous in the past tense because it would have a specific reading rather than arbitrary.

in the case of (6) the object has been dropped. The missing object in (6) is thus not the same as the null object in (5), which is on the contrary projected.

- (6) Context: Dr. Fraser is testing two new substances on chinchillas to see which one excites them.
- a. La sostanza A eccita ____, ma la B no.
 the substance A excites ____, but the B doesn't
 'Substance A excites chinchillas, but not substance B.'

Second, null objects are specified for plurality: the agreement on the adjective is necessarily plural. Consider (7).

- (7) a. # Un dottore visita __ sedato
 a doctor visits __ sedated-MASC.SG
 b. ? Il vento rende __ nervoso
 the wind makes __ nervous-MASC.SG

In (7a) the masculine singular agreement makes it impossible for the adjective to refer to the null object. The adjective can only modify the subject; (7a) is a subject depictive. In (7b), the adjective cannot refer to the subject Theme. On the contrary, the masculine singular agreement on the adjective widens the reference set of the null object. In (7b), the null object can also refer to a [- human] entity. This is clear if one considers (8). The plural agreement forces a human reading of the null object, however such interpretation is incompatible with the restriction imposed by the theme of the verb (the subject). In (8a) and (8b) the object can only be [- human].

- (8) a. # Questo appretto rende __ rigidi
 this starch makes __ rigid-MASC.PL
 'This starch makes one rigid.'
 b. # Questo curry rende __ piccanti
 this curry makes __ hot-MASC.PL
 'This curry powder makes one hot.'
 c. Questo appretto rende __ rigido
 this starch makes __ rigid-MASC.SG
 'This starch makes rigid.'
 d. Questo curry rende __ piccante
 this curry makes __ hot-MASC.SG
 'This curry powder makes food spicy.'

As soon as the agreement on the adjective is turned into a masculine singular (8c) and (8d) the reading of the null category is no longer [+ human] and the sentences are well-formed. In this case, the missing object can be interpreted anaphorically—if the discourse provides an antecedent—or generically as referring to shirts (which can be ironed using starch) in (8c) and meals in (8d).³ The contrast in (8) becomes even sharper if one considers (9). (9a) can only be

³ Thank you to Anna Szabolcsi for bringing these examples to my attention.

understood as referring to human beings. (9b) on the contrary allows for a reading where the missing object is interpreted as referring to animals, for example.

- (9) a. La morte rende ___ rigidi
 the death makes ___ rigid-MASC.PL
 ‘Death makes one rigid.’
 b. ? La morte rende ___ rigido
 the death makes ___ rigid-MASC.SG
 ‘Death makes animals/one rigid.’

Although null objects are specified for number, they are not for gender. Given the right context, null objects can trigger a feminine agreement (10a). Importantly, however, no matter whether masculine or feminine, the agreement must be plural hence the infelicitousness of (10b) under the reading where the adjective modifies the null object. (10b) is perfectly felicitous if the gynecologist is a woman and the adjective modifies the subject (subject depictive).

- (10) a. Un ginecologo visita ___ nude
 a gynecologist visits ___ naked-FEM.PL
 ‘A gynecologist examines one naked.’
 b. # Un ginecologo visita ___ nuda
 a gynecologist visits ___ naked-FEM.PL
 ‘A gynecologist examines one naked.’

Notice that the equivalent of (9b) in the feminine singular is ill-formed (11). Notice that ungrammaticality of (11) clearly contrasts with (9) where the masculine agreement is only slightly degraded. I will not pursue the investigation of why such difference exists.

- (11) * La morte rende ___ rigida
 the death makes ___ rigid-FEM.SG
 ‘Death makes one rigid.’

In this section, I have shown that null objects have the feature [+ human], are specified for plurality, and seem not to be restricted for gender. I also pointed out that there seems to be a second type of null object that triggers masculine singular agreement ((9) vs. (11)) and can be anaphoric. Here, I will not pursue such investigation further. I will limit myself to postulating that in cases like (9) we might face a case of object drop: the object is deleted with its features.

2.1 Null objects and bare *molti* ‘many’

Like null objects, bare *molti* is able to bind the anaphor in (12a) and PRO in (12b).⁴

⁴The construction in (12) is different from the construction *ne...molti* in (i). In (i), the NP selected by the quantifier has been cliticized. In this case, the interpretation of the cliticized NP need not be [+ human]; it is anaphoric to the context/discourse.

- (12) a. Una buona dormita riconcilia molti con se stessi
 a good sleep reconciles many with oneself-MASC.PL
 ‘A good night’s sleep reconciles many people with themselves’
 b. L’ambizione spesso spinge molti a [PRO commettere errori]
 The ambition often pushes many to make mistakes
 ‘Ambition often pushes many people to make mistakes.’

Bare *molti* ‘many’, like null objects, has an arbitrary interpretation and can only occur with generic tenses. In (13), perfectivity forces an anaphoric reading on the null object: the null object refers to a specific set of people.

- (13) # Il vento ha reso ___ nervosi
 the wind aux made.perf ___ nervous-MASC.PL
 ‘The wind made people nervous’

Bare *molti* is obligatorily [+ human] and triggers masculine plural agreement. The ungrammaticality of (14) confirms that *a veterinary* cannot examine *molti* exactly because the latter is specified [+ human], whereas a veterinary only examines animals.

- (14) * Un veterinario visita molti sedati
 a veterinary visits many sedated-MASC.PL
 ‘A veterinary examines many people sedated.’

Also, changing the agreement to anything different from masculine plural inevitably forces either an anaphoric reading of *molte* (the latter must refer to a specific [+ human] female set salient in the discourse) or a [+/- specific] non-human female set (15).

- (15) # La morte rende molte rigide
 the death makes molte rigid-FEM.PL
 ‘Death makes many people (fem) rigid.’

2.1.1 Bare *molti* and D + Adj constructions

D + Adj constructions (16) have the same quasi-universal/generic arbitrary [+ human] masculine plural interpretation characteristic of null object and *molti* constructions. D + Adj constructions are associated with a quasi-universal/generic interpretation; (16) can be paraphrased and corresponds to a generic reading of the type *I envy X_{adj} people (in general)*. (17) shows that the D + Adj in (16) is specified for [+ human].

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- (i) Ne ho visti molti
 NE have seen many.masc.pl
 ‘I have seen many of them’

(16) Invidio i ricchi
 envy the-MASC.PL rich-MASC.PL
 ‘I envy the rich’ (adapted from Baker (2003): 120 (43))

(17) * Un veterinario visita i ricchi sedati
 a veterinary visits the-MASC.PL rich-MASC.PL sedated-MASC.PL
 ‘A veterinary examines the rich sedated.’

Exactly like null objects and *molti*, D + Adj can also bind anaphors (18a), appear in control environments (18b), and cannot appear with perfective tenses (19). In (19) *i ricchi* is interpreted as referring to a specific set of rich people.

(18) a. Una dormita riconcilia i ricchi con se stessi
 a sleep reconciles the-MASC.PL rich-MASC.PL with oneself-MASC.PL
 ‘A night’s sleep reconciles the rich with themselves’
 b. L’ambizione spinge i ricchi a [PRO commettere errori]
 The ambition pushes the-MASC.PL rich-MASC.PL to make mistakes
 ‘Ambition often pushes the rich to make mistakes.’

(19) # Il vento ha reso i ricchi nervosi
 the wind aux made-PERF the-MASC.PL rich-MASC.PL nervous-MASC.PL
 ‘The wind made the rich nervous’

Interestingly, based on Chierchia (1998), Baker (2003) analyzes the adjectival constructions in (16) as involving an AP adjoined to a non-realized NP (20) (adapted from Baker (2003)).

(20) [DP i [NP ricchi [NP Ø]]]

Now, since *molti* can only select for a NP, I propose that, in fact, *molti* combines with the same null NP as in (21).

(21) [QP [Q° molti [NP Ø]]]

Moreover, I maintain that the null NP in (20) and (21) is in reality a silent NP *UMANI* ‘human.masc.pl’ (22), where capital letters indicate unpronounced material. Postulating the existence of a silent NP *UMANI* also allows me to account for the fact that D + Adj and bare *molti* constructions are both [+ human] and specified for masculine plural.

(22) a. [DP i [NP ricchi [NP UMANI]]]
 b. [QP [Q° molti [NP UMANI]]]

Following Kayne’s (2006) proposal, I assume that the NP *UMANI* that enters the derivation as an overt NP ends up being unpronounced because it moves to the specifier of a

phase edge prior to Spell-Out. The NP composing the null object thus never surfaces, as such, in any configuration.

2.2 Null objects, the silent NP *UMANI*, and a null determiner

Considering that null objects share the very same interpretation and detailed distribution as bare *molti* constructions and that the latter have been shown to involve the presence of a null NP, I argue that null objects cannot be full pronominal DPs as claimed in Rizzi (1986). Rather I analyze null objects as involving the null NP *UMANI* (23).

(23) [DP ... [NP *UMANI*]]

This of course does not explain why (10a)—repeated here in (24a)—is well-formed. If it is true that the null NP that constitutes the null object is specified masculinity and plurality, then the acceptability of (24a) is surprising. One would expect (24b) to be the right configuration, nevertheless the latter is not well-formed.

- (24) a. Un ginecologo visita ___ nude
 a gynecologist visits ___ naked-FEM.PL
 ‘A gynecologist examines one naked.’
 b. ?? Un ginecologo visita ___ nudi
 a gynecologist visits ___ naked-MASC.PL
 ‘A gynecologist examines one naked.’

In order to solve this apparent mystery, let me point out that in Italian masculine plural agreement is the default agreement for generic contexts. Consider the agreement triggered in (25a) by impersonal/generic *si*. As (25b) confirms, any agreement on the adjective other than masculine plural results in an ungrammatical sentence.

- (25) a. Più stelle un hotel ha, meglio si viene trattati
 more stars a hotel has better SI become treated-MASC.PL
 ‘The more stars a hotel has, the better one is treated’
 b. * Più stelle un hotel ha, meglio si viene trattato/a/e
 more stars a hotel has better SI become treated-MASC.SG/FEM.SG/FEM.PL
 ‘The more stars a hotel has, the better one is treated’

Moreover, although (24a) is well-formed, (26b) is ruled out.

- (26) a. Un dottore visita ___ nudi
 a doctor visits ___ naked-MASC.PL
 ‘A doctor examines one naked.’
 b. * Un dottore visita ___ nude

a doctor visits ___ naked-FEM.PL
 ‘A doctor examines one naked.’

I take the contrast between (24b) and (26b) to indicate that the default agreement for genericity in Italian is always specified for plurality but it is underspecified for gender (27).

(27) [+ pl, α gender]

If the context/world where the generic statement applies—say (26a)—is broad enough to include both male and female human beings (as it is indeed the case for a general practitioner), then the agreement is going to be specified for masculine ([MASC]) gender. However, if the context of the generic statement is sufficiently specific—as it is the case for (24a)—and cannot possibly apply to male human beings, then the agreement is going to be [FEM]. Although I will not take sides on how exactly this takes place, I assume that gender agreement is pragmatically determined.

Now, although I will not go into the exact nature of its internal structure, I assume a complex quantificational structure for the null object. In particular, I postulate that the silent NP *UMANI* combines with a special silent null determiner. The latter is similar in its semantics to the Frege-Strawson iota usually postulated for definite plurals (cf. Chierchia (1998), a.o.): null objects like definite plurals share a quasi-universal reading. However, I take the null determiner that constitutes null objects to have the extra property of introducing a higher order variable, to be notated as *Q*, which ranges over quantifiers that take two properties of event-object pairs as arguments. I will come back to the latter aspect of binding requirements of the variable in section 4, here I want now to focus on the striking similarity between null objects and definite plurals.

Conceivably, null object could be indefinites, definite plurals or bare plurals. If null objects were indefinites, we predict that under negation null objects and an overt indefinite would behave in the same way. They do not (28).⁵

- (28) a. Questa decisione non rende [dei lavoratori felici]
 this decision not makes some workers happy
 ‘This decision does not make [some workers happy]’
NOT for all x, x a person, this decision makes x happy (Neg > ind); *(ind > Neg)
- b. Questa decisione non rende [___ felici]

⁵The same holds if null objects were pure variables (i). Once again the prediction is not borne out.

- (i) a. Questa decisione non rende [tutti felici]
 ‘This decision makes [everyone happy]’
NOT for all x, x a person, this decision makes x happy (Neg > \forall); *(\forall > Neg)
- b. Questa decisione non rende [___ felici]
 ‘This decision makes [___ happy]’
for all x, x a person, this decision does NOT make x happy *(Neg > \forall); (\forall > Neg)

this decision not makes ___ happy
 ‘This decision makes [one happy]’
for all x, x a person, this decision does NOT make x happy
 *(Neg > null object); (\forall > null object)

As (29) and (30) show, only null objects and definite plurals can appear as the subject of a resultative small clause. Bare plurals are ruled out from these environments. Null objects seem to behave like definite plurals, rather than bare plurals.

- (29) a. La stampa ritiene [___ molto perplessi a dopo i recenti avvenimenti]
 the press believes very perplexed after the recent facts
 b. * La stampa ritiene [pazienti molto perplessi dopo i recenti avvenimenti]
 the press believes patients very perplexed after the recent facts
 c. La stampa ritiene [i pazienti molto perplessi dopo i recenti avvenimenti]
 the press believes the patients very perplexed after the recent facts
- (30) a. Questa droga rende [___ paralizzati]
 this drug makes paralyzed
 b. Questa droga rende [i giovani paralizzati]
 this drug makes the-MASC.PL young-MASC.PL paralyzed-MASC.PL
 c. * Questa droga rende [giovani paralizzati]
 this drug makes young-MASC.PL paralyzed-MASC.PL

Also, null objects and definite plurals have the exact same scope behavior under negation (31).

- (31) a. Questa droga non rende [tutti i giovani paralizzati]
 this drug not makes all the-MASC.PL young-MASC.PL paralyzed-MASC.PL
NOT for all x, x an event involving young people and this drug, all young people are paralyzed by this drug in x
 b. Questa droga non rende [___ paralizzati]
 this drug not makes paralyzed-MASC.PL
for most x, x an event involving people and this drug, people are NOT paralyzed by this drug in x
 c. Questa droga non rende [i giovani paralizzati]
 this drug not makes the-MASC.PL young-MASC.PL paralyzed-MASC .PL
for most x, x an event involving young people and this drug, young people are NOT paralyzed by this drug in x

Interpretively, null objects are more similar to definite plurals than to bare plurals (32). Definite plurals have two different readings depending on the locus of attachment of the adjective (32b). If the latter is a secondary predication, then reading i) arises; if the adjective is attributive, then reading ii) obtains. Null objects only realize the first of these two readings (32a), whereas bare plurals realize the second one (32c).

- (32) a. Questo pediatra visita [___ sedati]
 This pediatrician examines ___ sedated
 i) the pediatrician sedates people before visiting them

- b. Questo pediatra visita [i bambini sedati]
 This pediatrician examines the children sedated
i) the pediatrician sedates people before visiting them
ii) the pediatrician examines those children who were previously sedated before getting at his office
- c. Questo pediatra visita [bambini sedati]
 This pediatrician examines children sedated
ii) the pediatrician examines children who were previously sedated before getting at his office

I conclude that a special null definite determiner Gen° , which introduces a higher order variable, selects the null NP UMANI that constitutes null objects (33). I leave the discussion of why the null object does not allow an attributive reading, why no surface singular NPs can be interpreted as plural, or why the determiner cannot surface for future research.

(33) $[\text{GenP Gen}^\circ \dots [\text{NP UMANI }]]$

3. Adjectival Predication and Not Causativity: The First Requirement

Recall that according to Rizzi (1986) (34a) is ruled out because only causative predicates (34b) license null objects as the subject of small clauses.

- (34) a. * Talvolta la stampa ritiene [sc __ perplessi]
 Sometimes the press believes __ puzzled
 ‘Sometimes the press believes people puzzled’
- b. Talvolta la stampa lascia [sc __ perplessi]
 sometimes the press causes-to-remain __ puzzled
 ‘Sometimes the press leaves people puzzled’

I argue that the crucial fact is not causativity but rather that the null object is interpreted as the subject of the adjectival predicate and that (34) just happens to have a particular status (cf. (40)). The reason is that (35), where the predicate is clearly non-causative, is perfectly grammatical.

- (35) La siccità coglie __ (spesso) impreparati
 the drought catches __ often unprepared-MASC.PL
 ‘The drought catches people unprepared’

Moreover, transitive episodic (36a) and epistemic (36b) verbs cannot combine directly with a null object. (36a) and (36b) cannot be interpreted as *a doctor examines people* or *the drought catches people*. Crucially, the same holds for causative predicates. The latter are infelicitous if combined directly with a null object (37).

- (36) a. * Un dottore visita ___
 a doctor visits ___
 ‘A doctor examines people’
 b. * La siccità coglie ___
 the drought catches ___
 ‘The drought catches people’

Crucially, even causative predicates are infelicitous if combined directly (37).

- (37) * Talvolta la stampa lascia ___
 sometimes the press causes-to-remain ___
 ‘Sometimes the press leaves people’

Nevertheless, (36a) and (37) become perfectly acceptable if an adjectival predication is inserted. (38) illustrates this change for (36a). As for (36b) and (37), I refer the reader to (35) and (34b).

- (38) Un dottore visita ___ sedati
 a doctor examines ___ sedated-MASC.PL
 ‘A doctor examines one sedated.’

If I am right in defending the idea that what legitimates the presence of a null object in a resultative or depictive construction is the presence of an adjectival secondary predication, why is it that (34a) is ruled out?

In order to dissipate the conundrum, two main points have to be taken into consideration. First of all, (34a) is only slightly degraded (? instead of *) for me. Second, (34a) remains slightly degraded even with an overt subject of the depictive (39).

- (39) ? La stampa ritiene [_{SC} i ragazzi perplessi]
 the press believes the boys puzzled
 ‘The press believes boys to be puzzled’

The degradation of (34a) is neither related to the presence of the null object nor to its licensing by causativity. The acceptability of (34a) and (39) improves radically if the small clause is “heavier”. Consider (40).

- (40) La stampa ritiene [_{SC} ___ /i ragazzi perplessi dopo i recenti avvenimenti]
 the press believes ___ the boys puzzled after the recent events
 ‘The press believes people/boys to be puzzled after the recent events’

Here, I will not pursue the discussion of why the verb *ritenere* ‘to believe’ seems to have particular restrictions. What matters is that as long as an adjectival predication is present, the null object is licit.⁶ (41) is well-formed because *agitati* is present, not because of causativity.

- (41) Il caffè rende ___ agitati
 the coffee makes ___ agitated-MASC.PL
 ‘Coffee makes people nervous’

The generalization that emerges from the discussion so far is that, in order for it to be legitimate, the null object requires the presence of an adjectival predication. This implies that in cases like (42) an adjectival predication has to be present at some point of the derivation.

- (42) Il caffè eccita ___
 the coffee excites ___
 ‘Coffee agitates people’

I follow Arad (1998, 1999) who analyzes psych-causative verbs as the result of the incorporation of an adjective or a noun into a verb.⁷ This elegantly accounts for the well-formedness of (42) and ties it in with the necessity of having an adjectival predication legitimating the null object.

⁶ An exception, that I will discuss in section 6, is represented by I-level predicates. Null objects are incompatible with this kind of predicate (i).

- (i) * Gianni teme/ama ___ (ubriachi)
 John fears/loves ___ drunk.MASC-PL
 ‘John fears/loves people (drunk)’

⁷More specifically, consider what Arad (1998) says: “in many languages ObjExp predicates are not single verbs. Rather, they are formed out of a (light) verb with a noun or an adjective as its complement. Both types of ObjExp predicates exist in French:

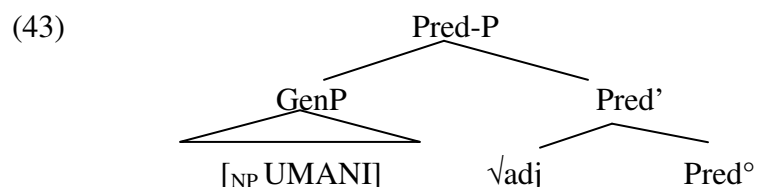
- (i) a. *enrager* (anger); *attrister* (sadden)
 b. *mettre en colère* (lit.: put at anger); *rendre triste* (lit.: turn/make sad)

Following Bouchard (1995), I will refer to forms such as [(ia)] as *incorporated* forms: a noun (*anger*) or an adjective (*sad*) has incorporated into a verb (lexically null, possibly containing some prepositional element), to form a lexical item which is pronounced like “anger” [...]The forms in [(ib)] are non-incorporated: the distinction between the verb (*mettre*, *rendre*) and its nominal or adjectival complement are clear. I assume that incorporated and non-incorporated forms share the same event structure and syntactic structure. They differ only with respect to the morphological spell-out of their lexical items.” (Arad (1998): 10-11)

3.1 Null Objects are the Subjects of Adjectival Predications

I propose that the close relationship that emerged between null objects and adjectival predications can be captured if one assumes that the null object is generated as the subject of the adjectival predication (Pred[icative]-P) (43).^{8,9}

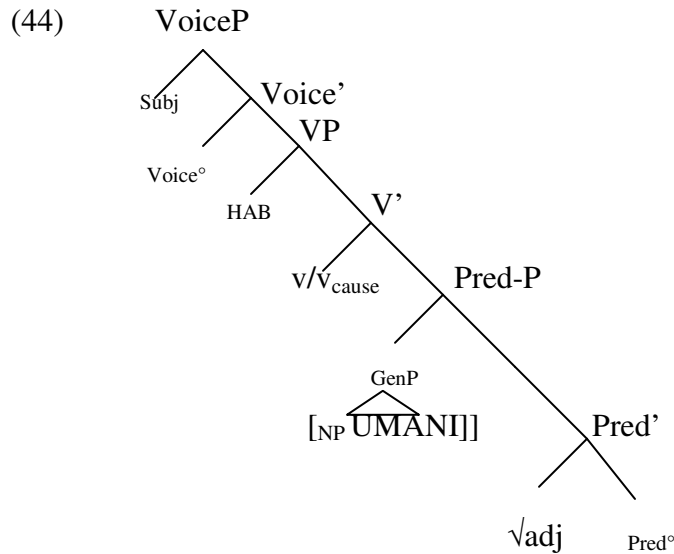
I follow Marantz (1997) and Pylkkänen (2002) and analyze nouns, verbs, and adjectives not as syntactic primitives, but rather as categories derived from functional structure in the syntax by merging an unspecified root with a functional head that defines the category (v, n, a, dep, res,...). I consider the external argument to be introduced in the syntax by VoiceP (see Kratzer (1996), Marantz (1997), Pylkkänen (2002)). All the elements combine via intersective predicate modification. In particular in (43), Pred-P consists of a Pred-head that first combines with an adjectival root, forming Pred'. The latter subsequently combines with the null object (GenP is the null determiner that I assume is present in null objects) to form Pred-P. Crucially, the adjectival predication is not a secondary predication. Secondary predications are optional elements, whereas in the case of the null object the adjectival modification is obligatory. The assumption that the null object is the subject of the adjectival predication straightforwardly accounts for the obligatory masculine plural agreement between the predicative adjective and the null object.



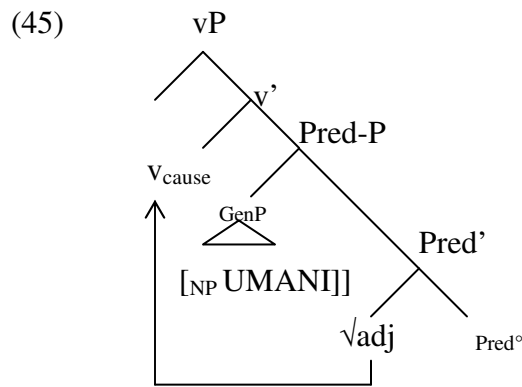
The basic structure that I propose for constructions with null objects is given in (44). I consider the external argument to be introduced in the syntax by VoiceP (see Kratzer (1996), Marantz (1997), Pylkkänen (2002)). As I will show in section 5, *HAB* is the habitual head that binds the variable introduced by the null object. Depending on whether the construction is a resultative or a depictive, the verbal head will be causative (in the case of resultatives) or not.

⁸ Irimia (2005) makes a somewhat similar claim for full DP hosting the secondary predication in cases like *he ate the meat raw*. More precisely, Irimia (2005) maintains that “the host NP is base-generated as an argument of the adjective and ends up occupying the specifier position of the secondary predicate phrase (SPP). Based on Hornstein’s (2001) movement analysis of Control, the specifier of the SP-P moves into a θ -position (see also Grebenyova 2005 and Marušič et al. 2003)” (Irimia (2005): 1). My proposal differs from Irimia’s (2005) claim in that in my theory the null object is base-generated as the subject of the adjectival predication.

⁹ My analysis clearly contrasts with Belletti and Rizzi’s (1988) proposal that both arguments of psych-causative verbs are generated as internal arguments. Arad (1998) already argues against such perspective and claims that the unique syntactic properties of psych-causative verbs are in reality related to their stative nature rather than to a particular syntactic structure as argued by Belletti and Rizzi (1988).



The structure in (44) straightforwardly applies to transitive episodic structures like (38). Epistemic depictives predicates like *ritenere* ‘to believe’ (40) differ from the representation of episodic depictives in that a PP restrictor combines with the VP before HAB is merged. As for psych-causative verbs, I propose—based on Arad (1998, 1999) and McGinnis (2000)—that their syntax corresponds to (45). The adjectival root incorporates into the verbal causative head (V_{cause}).



Following McGinnis (2000), I assume that *rendere* ‘to make’ in resultative constructions like (41) is the spell-out of v_{cause} found in the derivation of psychological causative verbs. (41) differs from its non-overt counterpart in that the adjectival predication does not incorporate into the verbal head. The derivation follows like in (45).

3.2 The Semantics of the Adjectival Predication

The adjectival predication ($Pred^\circ$) in (43) can be either depictive (see (37)) or resultative (see (41)). In the case of a depictive reading, $Pred^\circ$ corresponds to $Dep[ictive]^\circ$. Following Geuder (2000) and Pylkkänen (2002), I maintain that Dep° depicts an overlap or simultaneity of the state described by the adjectival predication $f(b, x)$ and the main event a , as in (46), adapted from Pylkkänen ((2002): 28 (39)).

- (46) a. **DEP** $^\circ$: $\lambda f.\lambda x.\lambda a. (\exists b) f(b, x) \wedge a \circ b$
- b. (i) $x \in \text{Type } e$ (for entity)
(ii) $a, b \in \text{Type } s$ (for event)
(iii) $f \in \text{Type } \langle e, \langle s, t \rangle \rangle$ (it has an event argument and an unsaturated argument of type $\langle e \rangle$)

If the $Pred^\circ$ has a resultative reading ($Pred^\circ$ corresponds to $Res[ultative]^\circ$), the state depicted by the adjectival predication is the result or consequence of the event associated with the main predicate. Kratzer (2004) formalizes such relationship by means of an abstract head CAUSE, as in (47).

- (47) a. **RES** $^\circ$: $\lambda f.\lambda x.\lambda a. (\exists b) f(b, x) \wedge \text{CAUSE}(a, b)$
- b. (i) $x \in \text{Type } e$ (for entity)
(ii) $a, b \in \text{Type } s$ (for event)
(iii) $f \in \text{Type } \langle e, \langle s, t \rangle \rangle$

3.3 The semantics of null objects

Given that I argue that the null object is generated in the specifier of the predicative projection and the semantics I have just put forward, Gen introduces a higher order variable, to be notated as Q , that ranges over quantifiers (like HAB) that take two properties of event-object pairs as arguments. One is denoted by SP' , a combination of the adjective with the secondary predication head (48a) and the other is the verb (48b).

- (48) a. $Pred'_{\langle e, \langle s, t \rangle \rangle} = \lambda y \lambda a \exists b [\text{adj}(b) \ \& \ \text{In}(y, a) \ \& \ \text{overlap/CAUSE}(a, b)]$
b. $\text{Verb}_{\langle e, \langle s, t \rangle \rangle} = \lambda y \lambda d [\text{verb}(d) \ \& \ \Theta(d, y)]$

The semantics of the null object is given in (49), where j and h represent $Pred'$ and the verb respectively. The key of the formulae (48) and (49) is in (50).

- (49) Null object = $\lambda j \lambda h Q [\lambda k [Q(\lambda x \lambda m [\text{human}(x) \ \& \ k(x)(m)])](h)(j)]$

- (50) a. $x, y, z, w \in \text{Type } e$

- b. a, b, c, d, m ∈ Type s
 c. f, g, h, j, k ∈ Type <e,<s,t>>
 d. Q ∈ Type <<e,<s,t>>, <e,<s,t>>, t>

In the next section, I show that habituality/frequentativity must bind (replace) Q.

4 Null Objects Require Habituality/Frequentativity: Second Requirement

Recall that Rizzi argues that null objects can only appear with generic tenses. However, as (51) illustrates, null objects can be licensed in sentences with non-generic tenses as long as an adverb is present. Generic tense is neither necessary nor sufficient.

- (51) Il vento ha spesso/ regolarmente reso ___ nervosi
 the wind aux often regularly made-PERFECT ___ nervous-MASC.PL
 ‘The wind often made people nervous’

Notice, though, that not all adverbs qualify as possible licensors. (52) shows that what is usually said to be a habitual adverb is unable to rescue the null object, just like *sempre* ‘always’ is unable to in (53).

- (52) # Di solito il caffè ha eccitato ___
 usually the coffee has excited ___
 ‘Usually coffee agitated people’

- (53) # Il caffè ha sempre eccitato ___
 the coffee has always excited ___
 ‘Coffee always agitated people’

The reason why *di solito* and *sempre* fail to license null objects is that they generally do not combine with a perfective tense (54) vs. (55).

- (54) * Di solito il vento ha reso ___/i ragazzi nervosi
 usually the wind aux made-PERF ___/the boys nervous-MASC.PL
 ‘Usually the wind maked people/ boys nervous’

- (55) Di solito il vento rende ___/i ragazzi nervosi
 usually the wind makes-IMPERF ___/the boys nervous-MASC.PL
 ‘The wind makes people/ boys nervous’

I adopt van Geenhoven’s (2005) distinction between frequentative and habitual adverbs (*repeatedly, often, regularly, habitually, once in a while, ...*) on the one hand, and “genuine” adverbs of quantification (*usually, always, never, ...*), on the other, and I postulate that the null

object is legitimated by pure frequency or habitual adverbs, but crucially not by proportional adverbs of quantification.

4.1 A HAB(itual) Head licenses null objects

I maintain that what licenses the null object is not tense but rather frequentativity/habituality (F/H). Consequently, whenever a null object is present, F/H has to be encoded in the sentence. Such requirement ensues from the fact that the variable introduced by the null object needs to be bound by F/H.

F/H can be encoded overtly by an adverb or be null. This predicts that the frequentative/habitual head—whether overt or null—should be able to co-occur with proportional adverbs of quantification.

- (56) a. * Spesso il caffè eccita ___ sempre
 often the coffee excites ___ always
- b. Il caffè eccita ___ sempre regolarmente
 the coffee excites ___ always regularly
 ‘Coffee always agitates people regularly.’
- c. Di solito il caffè eccita ___
 usually the coffee excites ___
 ‘Usually coffee agitates people’
- d. Il caffè eccita ___ sempre
 the coffee excites ___ always
 ‘Usually coffee agitates people’

Considering that (56a) but not (56b) is ungrammatical, I claim that when the null head is non-overt it encodes habituality by default. If it encoded frequentativity, (56c) and (56d) should be as bad as (56a); also, habitual adverbs are compatible with *always* (56b). I conclude that frequentativity is a subcase of habituality. Following Rimell (2004), I label the null aspectual head HAB.

I propose that HAB is an aspectual head that combines with the VP and that in imperfective tenses the VP always combines with an aspectual head (contra Rimell (2004)). In the case of perfective tenses, HAB cannot be introduced by the VP but must be realized in the form of a frequentative or habitual adverb.

I assume that the interpretation of HAB is equivalent to *MANY*. Only HAB has the right type to combine with the null object and its semantics is given in (57).

- (57) a. $HAB_{\langle\langle e, \langle s, t \rangle \rangle, \langle e, \langle s, t \rangle \rangle, t \rangle} = \lambda f \lambda g \text{ MANY}_{\langle c, z \rangle} [f(z)(c)][g(z)(c)]$
- b. (i) $z \in \text{Type } e$ (for entity)
 (ii) $c \in \text{Type } s$ (for event)
 (iii) $f, g \in \text{Type } \langle e, \langle s, t \rangle \rangle$

5 The Interpretation of Null Object constructions

Here, I will not go into the details of a semantic derivation (see Appendix for an example of a detailed semantic derivation). The final semantic representation of depictives is given in (58) (*mutatis mutandis* for resultatives). The silent NP *UMANI* occurs in the restriction of the aspectual head, while the adjectival predication occurs in its scope.

- (58) $MANY_{\langle c, z \rangle} [\Theta_2 (\text{subject}, c) \wedge \Theta_1 (z, c) \wedge \text{human} (z) \wedge \text{Act} (c)] \exists b [\text{Pred} (b) \wedge \text{In} (z, c) \wedge c \circ b]$

MANY binds event-object pairs. *Act* represents the main predicate that introduces the action/activity (the first event e_1). *Human* corresponds to the interpretation of the null object and Θ_1 is the theta-role assigned to it. *Pred* is the adjectival predicate required by null objects. *Pred* constitutes a second event, b , contained in the main event. e_2 may overlap (\circ) with c in the case of depictives or it may be caused by a (*CAUSE* (c, b)) in the case of resultatives. Θ_2 indicates the thematic role of the subject.

Episodic depictives (37) fit straightforwardly into the semantics derived in (59).

- (59) $MANY_{\langle c, z \rangle} [\text{Agent} (a \text{ doctor}, c) \wedge \text{Patient} (z, c) \wedge \text{human} (z) \wedge \text{examining} (c)] \exists b [\text{sedated} (b) \wedge \text{In} (z, c) \wedge c \circ b]$

In the case of epistemic depictives (45), the final semantics is given in (60).

- (60) $MANY_{\langle c, z \rangle} [\text{Exp} (a \text{ judge}, c) \wedge \text{Percept} (z, c) \wedge \text{human} (z) \wedge \text{believing} (c) \wedge \text{until proven guilty} (c)] \exists b [\text{innocent} (b) \wedge \text{In} (z, c) \wedge c \circ b]$

The final semantics of psych-causative constructions is obtained via coercion (a type-shifting-like rule) of the subject into a *coffee-drinking* event predicate. Coercion is here (and in all cases of psych-verbs with natural causes forces subjects) required because for people to be agitated by coffee, they need to drink coffee. The first event is supplied by coerced coffee (coffee-drinking event), whereas the adjectival predicate—which incorporates into the causative verbal head—is in the scope of *HAB* and represents the second event. I leave aside the exact semantics of the incorporation into the verbal head.

- (61) $ASP_{\langle e_1, x_1 \rangle} [\text{Theme} (\text{il caffè}, e_1) \wedge \text{Agent} (x_1, e_1) \wedge \text{human} (e_1) \wedge \text{drinking} (e_1)] \exists e_2 [\text{excited} (e_2) \wedge \text{In} (x_1, e_1) \wedge \text{CAUSE} (e_1, e_2)]$

Rendere-causatives have the semantics in (61), modulo the possibility for indirect causation to come into play.

6 A Residual Question

Psych-verbs (*teme* ‘fears’) and I-level (*ama* ‘loves’) predicates are incompatible with null objects (62). Given that the psych-verbs we are considering here are I-level predicates, in what follows I will refer to both predicates as I-level predicates.

- (62) * Gianni teme/ama ____
 John fears/loves ____
 ‘John fears/loves people’

Given the two licensing requirements null objects have, I believe that the ungrammaticality of (62) is related to the impossibility for I-level predicates to combine with HAB and select for an adjectival predicate.

Frequentative and habitual (63) adverbs are unavailable with this kind of predicate.

- (63) * Detesta/ama frequentemente/abituamente i dolci
 detests/loves frequently habitually the-MASC.PL sweets
 ‘S/He frequently/habitually detests/loves sweets’

In contrast, proportional quantifiers are compatible with I-level predicates (64).

- (64) Di solito detesta/ama i dolci
 usually detests/loves the-MASC.PL sweets
 ‘S/He usually detests/loves sweets’

I will not go into the explanation of the behavior of I-level predicates.¹⁰ What is important is the fact that neither frequentative nor habitual adverbs are compatible with I-level predicates. The first requirement for null objects licensing is not met.

Now, consider the data in (65) and compare them to (66).

- (65) * Gianni teme/ama ____ ubriachi
 John fears/loves ____ drunk.masc.pl
 ‘John fears/loves people drunk’
- (66) * Gianni teme/ama Maria ubriaca
 John fears /loves Mary drunk.fem.sg
 ‘John fears/loves Mary drunk’

Null objects remain incompatible with I-level predicates even if an adjectival predication is present (65). Hence, not only do I-level predicates fail to allow for a HAB aspectual head, they

¹⁰ The very fact that I-level predicates are not compatible with habitual adverbs and thus cannot license null objects speaks against Chierchia’s analysis (1995). They do not introduce a generic operator nor do they quantify over objects-times pairs. Their habitual flavor derives from the fact that they allow proportional quantification over the reference time/situations (van Geenhoven (2005). Here, I follow Longobardi (2001) in arguing that there are I-level predicates that are not habitual.

also cannot combine with an adjectival predication as the ungrammaticality of (66) with a realized object suggests.

I-level predicates like *love*, *detest*, *fear* do not thus allow for an adjectival predication. It is then not surprising that null objects, which are crucially subjects of adjectival predications, are not compatible with I-level predicates.¹¹

7 Conclusion

The proposed analysis ties together the observations about the internal structure and the contextual requirements of the null object. The null object is a complex DP that contains a null NP *UMANI* ‘*human.MASC-PL*’ and a null determiner that introduces a higher order variable. I showed that the null object is generated as the subject of an adjectival predication and that the higher order variable needs to be bound by a habitual aspectual head, *HAB*.

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¹¹ Hungarian I-level predicates are acceptable with secondary adjectival predication (Anna Szabolcsi, p.c.). In (i), the suffix on the adjective is adverbial. This indicates that we are not dealing with a plain postnominal adjective.

(i) Szeret-em a sör-t hideg-en (Hungarian)
 like-1sg the beer-acc cold-adv
 ‘I like beer cold’

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Appendix

Hereafter I illustrate the compositional semantics of the depictive *Un dottore visita ___ sedati* ‘a doctor examines people sedated’.

Variables:

- $x, y, z, w \in \text{Type } e$
 $a, b, c, d, m \in \text{Type } s$
 $f, g, h, j, k, n \in \text{Type } \langle e, \langle s, t \rangle \rangle$
 $Q \in \text{Type } \langle \langle e, \langle s, t \rangle \rangle, \langle e, \langle s, t \rangle \rangle, t \rangle$

Primitives

$SP_{\langle \langle e, \langle s, t \rangle \rangle, \langle e, \langle s, t \rangle \rangle \rangle}$	$\Rightarrow \lambda f \lambda y \lambda a \exists b [f(y)(b) \ \& \ \text{overlap}(a,b)]$
$\text{sedated}_{\langle e, \langle s, t \rangle \rangle}$	$\Rightarrow \lambda x \lambda c [\text{sedated}(c) \ \& \ \text{In}(x,c)]$
$\text{nullobject}_{\langle \langle e, \langle s, t \rangle \rangle, \langle \langle e, \langle s, t \rangle \rangle, \langle e, \langle s, t \rangle \rangle \rangle \rangle}$	$\Rightarrow \lambda j \lambda h \lambda Q [\lambda k [Q(\lambda x \lambda m [\text{human}(x) \ \& \ k(x)(m)])](h)(j)]$
$\text{visita}_{\langle e, \langle s, t \rangle \rangle}$	$\Rightarrow \lambda y \lambda d [\text{visiting}(d) \ \& \ \text{Pat}(d,y)]$
$\text{HAB}_{\langle \langle e, \langle s, t \rangle \rangle, \langle e, \langle s, t \rangle \rangle, t \rangle}$	$\Rightarrow \lambda f \lambda g \text{MANY}_{c,z} [f(z)(c)] [g(z)(c)]$
$\text{Voice}^{\circ}_{\langle \langle e, \langle s, t \rangle \rangle, \langle e, \langle s, t \rangle \rangle \rangle}$	$\Rightarrow \lambda w \lambda n [\text{Agent}(n,w)]$
$\text{a doctor}_{\langle e \rangle}$	

Derivation

1. merge sedated and SP = SP'

$$\lambda f \lambda y \lambda a \exists b [f(y)(b) \ \& \ \text{overlap}(a,b)] (\lambda x \lambda c [\text{sedated}(c) \ \& \ \text{In}(x,c)]) =$$

$$\lambda y \lambda a \exists b [\lambda x \lambda c [\text{sedated}(b) \ \& \ \text{In}(x,c)] (y)(a) \ \& \ \text{overlap}(a,b)] =$$

$\lambda y \lambda a \exists b [\text{sedated}(b) \ \& \ \text{In}(y,a) \ \& \ \text{overlap}(a,b)]$

2. merge null object and SP' = SP-P

$\lambda j \ \lambda h \ \lambda Q [\lambda k [Q(\lambda x \lambda m [\text{human}(x) \ \& \ k(x)(m)])](h)(j)] \ (\lambda y \lambda a \exists b [\text{sedated}(b) \ \& \ \text{In}(y,a) \ \& \ \text{overlap}(a,b)]) =$

$\lambda j \lambda Q [\lambda k [Q(\lambda x \lambda m [\text{human}(x) \ \& \ k(x)(m)])] \ (\lambda y \lambda a \exists b [\text{sedated}(b) \ \& \ \text{In}(y,a) \ \& \ \text{overlap}(a,b)])](j)]$

3. merge verb and SP-P = V'

$\lambda j \lambda Q [\lambda k [Q(\lambda x \lambda m [\text{human}(x) \ \& \ k(x)(m)])] \ (j) \ (\lambda y \lambda a \exists b [\text{sedated}(b) \ \& \ \text{In}(y,a) \ \& \ \text{overlap}(a,b)])] \ (\lambda y \lambda d [\text{visiting}(d) \ \& \ \text{Pat}(d,y)]) =$
 $\lambda Q [\lambda k [Q(\lambda x \lambda m [\text{human}(x) \ \& \ k(x)(m)])] \ (\lambda y \lambda a \exists b [\text{sedated}(b) \ \& \ \text{In}(y,a) \ \& \ \text{overlap}(a,b)])] \ (\lambda y \lambda d [\text{visiting}(d) \ \& \ \text{Pat}(d,y)])]$

4. merge HAB and V' = VP

$\lambda Q [\lambda k [Q(\lambda x \lambda m [\text{human}(x) \ \& \ k(x)(m)])] \ (\lambda y \lambda a \exists b [\text{sedated}(b) \ \& \ \text{In}(y,a) \ \& \ \text{overlap}(a,b)])] \ (\lambda y \lambda d [\text{visiting}(d) \ \& \ \text{Pat}(d,y)])] \ (\lambda f \lambda g \text{MANY}_{c,z} [f(z)(c)] [g(z)(c)]) =$

$\lambda k [\lambda f \lambda g \text{MANY}_{c,z} [f(z)(c)] [g(z)(c)] (\lambda x \lambda m [\text{human}(x) \ \& \ k(x)(m)])] \ (\lambda y \lambda a \exists b [\text{sedated}(b) \ \& \ \text{In}(y,a) \ \& \ \text{overlap}(a,b)]) \ (\lambda y \lambda d [\text{visiting}(d) \ \& \ \text{Pat}(d,y)])] =$

$\lambda k [\lambda g \text{MANY}_{c,z} [\lambda x \lambda m [\text{human}(x) \ \& \ k(x)(m)] (z)(c)] [g(z)(c)]] \ (\lambda y \lambda a \exists b [\text{sedated}(b) \ \& \ \text{In}(y,a) \ \& \ \text{overlap}(a,b)]) \ (\lambda y \lambda d [\text{visiting}(d) \ \& \ \text{Pat}(d,y)])] =$

$\lambda k [\lambda g \text{MANY}_{c,z} [\text{human}(z) \ \& \ k(z)(c)] [g(z)(c)]] \ (\lambda y \lambda a \exists b [\text{sedated}(b) \ \& \ \text{In}(y,a) \ \& \ \text{overlap}(a,b)]) \ (\lambda y \lambda d [\text{visiting}(d) \ \& \ \text{Pat}(d,y)])] =$

$\lambda k \ \text{MANY}_{c,z} [\text{human}(z) \ \& \ k(z)(c)] [\lambda y \lambda a \exists b [\text{sedated}(b) \ \& \ \text{In}(y,a) \ \& \ \text{overlap}(a,b)] (z)(c)] \ (\lambda y \lambda d [\text{visiting}(d) \ \& \ \text{Pat}(d,y)])] =$

$\lambda k \ \text{MANY}_{c,z} [\text{human}(z) \ \& \ k(z)(c)] [\exists b [\text{sedated}(b) \ \& \ \text{In}(z,c) \ \& \ \text{overlap}(c,b)] \ (\lambda y \lambda d [\text{visiting}(d) \ \& \ \text{Pat}(d,y)])]] =$

$\text{MANY}_{c,z} [\text{human}(z) \ \& \ \lambda y \lambda d [\text{visiting}(d) \ \& \ \text{Pat}(d,y)] (z)(c)] [\exists b [\text{sedated}(b) \ \& \ \text{In}(z,c) \ \& \ \text{overlap}(c,b)]] =$

$\text{MANY}_{c,z} [\text{human}(z) \ \& \ \text{visiting}(c) \ \& \ \text{Pat}(c,z)] [\exists b [\text{sedated}(b) \ \& \ \text{In}(z,c) \ \& \ \text{overlap}(c,b)]]$

5. the final result after merging Voice°

$\text{MANY}_{c,z} [\text{Agent} (a \ \text{doctor}, c) \ \& \ \text{human}(z) \ \& \ \text{visiting}(c) \ \& \ \text{Pat}(c,z)] [\exists b [\text{sedated}(b) \ \& \ \text{In}(z,c) \ \& \ \text{overlap}(c,b)]]$

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