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

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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.

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(3) a. Il vento rende/ rendeva __ nervosi
the wind make.pres make.pret __ nervous.masc.pl
'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.

## 2. Null Objects, bare *molti*, and a silent NP *UMANI* 'human.masc.pl'

(5) is not well-formed precisely because the null object forces a [+ human] reading that is incompatible with the implicature introduced by *veterinary*. (6) shows that null objects are specified for masculine plural.

(5) * Un veterinario visita ___ sedati
a veterinary visits ___ sedated.masc.pl
'A veterinary examines people sedated.'

(6) La morte rende ___ rigidi / $^{\#}$o / $^{\#}$e / *a
the death makes ___ rigid.masc.pl/masc.sg/fem.pl/fem.sg
'Death makes one rigid.'

Modifying the agreement on the adjectival predication, in (6), gives rise to different results: feminine singular is ruled out from such environment, whereas masculine singular and feminine plural force a non-human interpretation of the missing object.

### 2.1 Null objects and bare *molti* 'many'

Like null objects, bare *molti* (which is different from *ne ... molti* constructions where the NP modified by the quantifier has been cliticized) is able to bind the anaphor in (7a) and PRO in (7b).

(7) a. Una buona dormita riconcilia molti con se stessi
a good sleep reconciles many with oneselves.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 (8), perfectivity forces an anaphoric reading on the null object: the null object refers to a specific set of people.

(8) # Il vento ha reso __ nervosi
the wind aux made.perf __ nervous.masc.pl
'The wind made people nervous'

Also, bare *molti* is obligatorily [+ human] and triggers masculine plural agreement. The ungrammaticality of (9) confirms that *a veterinary* cannot examine *molti* exactly because the latter is specified [+ human], whereas a veterinary only examines animals.

(9) * Un veterinario visita molti sedati
a veterinary visits many sedated.masc.pl
'A veterinary examines many people sedated.'

Changing the agreement to anything different from masculine plural inevitably forces an anaphoric reading of bare *molti* constructions. In (10), *molte* refers either to a specific set of feminine [+ human] or it to a [+/- specific] female [-human] set.

(10) # 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 (11) have the same quasi-universal/generic arbitrary [+ human] masculine plural interpretation characteristic of null object and *molti* constructions. (12) shows that the D + Adj in (11) is specified for [+ human].

(11) Invidio i ricchi
envy the.masc.pl rich.masc.pl
'I envy the rich' (adapted from Baker (2003): 120 (43))

(12) * 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 (13a), appear in control environments (13b), and cannot appear with perfective tenses (14). In (14) *i ricchi* is interpreted as referring to a specific set of rich people.

(13) a. Una dormita riconcilia i richhi con se stessi
a sleep reconciles the.masc.pl rich.masc.pl with oneselves.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.mascpl rich.masc.pl to make mistakes
'Ambition often pushes the rich to make mistakes.'

(14) # 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 (12) as involving an AP adjoined to a non-realized NP (15) (adapted from Baker (2003)).

(15) $[_{DP}$ 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 (16).

(16) $[_{QP}$ $[_{Q^{\circ}}$ molti $[_{NP}$ Ø]]]

Moreover, I maintain that the null NP in (15) and (16) is in reality a silent NP *UMANI* 'human.masc.pl' (17), 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.

(17) a. $[_{DP}$ i $[_{NP}$ ricchi $[_{NP}$ UMANI]]]
b. $[_{QP}$ $[_{Q^{\circ}}$ 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 phasal 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* and D + Adj constructions, I argue that null objects cannot be full pronominal DPs as claimed in Rizzi (1986). Rather, null objects involve the null NP *UMANI* (18) and a complex quantificational structure.

(18) $[_{DP} \ldots [_{NP}$ UMANI]]

In particular, I postulate that the silent NP *UMANI* combines with a special silent null determiner whose semantics is similar to the Frege-Strawson iota usually postulated for definite plurals. This null determiner, however, has the extra property of introducing a higher order variable that requires to be bound by a habitual head (see section 4). There are in fact striking distributional and interpretive similarities between null objects and definite plurals. As (19) shows, only null objects and definite plurals can appear as the subject of a resultative small clause. Bare plurals are ruled out from these environments.

(19) Questa droga rende [___/ i giovani /*giovani paralizzati]
this drug makes the.masc.pl young.masc.pl/ youngs paralyzed
'This drug makes people/the young/young people paralyzed.'

Interpretively, null objects are more similar to definite plurals than to bare plurals (20). Definite plurals have two different readings depending on the locus of attachment of the adjective (20b). 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 (20a), whereas bare plurals realize the second one (20c).

(20) a. Questo pediatra visita [___ sedati ]
This pediatrician examines ___ sedated
*i) the pediatrician sedates people before examining them*

b. Questo pediatra visita [i bambini sedati ]
This pediatrician examines the children sedated
*i) the pediatrician sedates people before examining 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 (21). 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.

(21) $[_{GenP}$ Gen° … $[_{NP}$ UMANI ]]]

## 3. Adjectival Predication and Not Causativity: The First Requirement

Recall that according to Rizzi (1986) (22) is ruled out because only causative predicates license null objects as the subject of small clauses.

(22) * Talvolta la stampa ritiene [$_{SC}$ __ perplessi]
Sometimes the press believes __ puzzled
'Sometimes the press believes 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 (22) just happens to have a particular status (cf. (28)). The reason is that (23), where the predicate is clearly non-causative, is perfectly grammatical.

(23) La siccità coglie ___ (spesso) impreparati
the drought catches ___ often unprepared.masc.pl
'The drought catches people unprepared'

Moreover, transitive episodic (24a) and epistemic (24b) verbs cannot combine directly with a null object. (24a) and (24b) 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 (25).

(24) a. * Un dottore visita ___
a doctor visits ___
'A doctor examines people'
b. * La siccità coglie ___
the drought catches ___
'The drought catches people'

(25) * Talvolta la stampa lascia __
sometimes the press causes-to-remain __
'Sometimes the press leaves people'

Nevertheless, (24a) and (25) become acceptable if an adjectival predication is inserted (26). The same holds for (24a), compare to (23).

(26) a. Un dottore visita ___ sedati
a doctor examines ___ sedated.masc.pl
'A doctor examines one sedated.'

b. Talvolta la stampa lascia [$_{SC}$ __ perplessi]
sometimes the press causes-to-remain __ puzzled
'Sometimes the press leaves people puzzled'

If it is true that the presence of the null object is related to the presence of an adjectival predication, why is it that (22) is ruled out? First of all, (22) is only slightly degraded (? instead of *) for me. Second, (22) remains slightly degraded even when the depictive has an overt subject (27).

(27) ? La stampa ritiene [$_{SC}$ i ragazzi perplessi]
the press believes the boys puzzled
'The press believes boys to be puzzled'

The degradation of (22) is neither related to the presence of the null object nor to its licensing by causativity. The acceptability of (22) and (27) improves radically if the small clause is "heavier". Consider (28).

(28) 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.[2] (29a) is well-formed because *agitati* is present, not because of causativity. This implies that in cases like (29b) an adjectival predication has to be present at some point of the derivation.

(29) a. Il caffè rende ___ agitati
the coffee makes ___ agitated.masc.pl
'Coffee makes people nervous'
b. Il caffè eccita ___
the coffee excites ___
'Coffee agitates people'

I follow Arad (1998) who analyzes psych-causative verbs as the result of the incorporation of an adjective or a noun into a verb (a verbal root in Arad (2005)). This elegantly accounts for the well-formedness of (29b) and ties it in with necessity of having an adjectival predication legitimating the null object.

### 3.1 Null Objects are the Subjects of Adjectival Predications

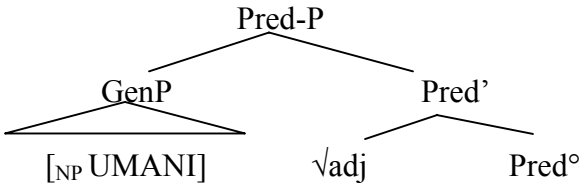
I propose that the close relationship that emerged between null objects and adjectival predications can be captured if one assumes that the null object is generated as the subject

[2] An exception, that I will not discuss here, 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)'

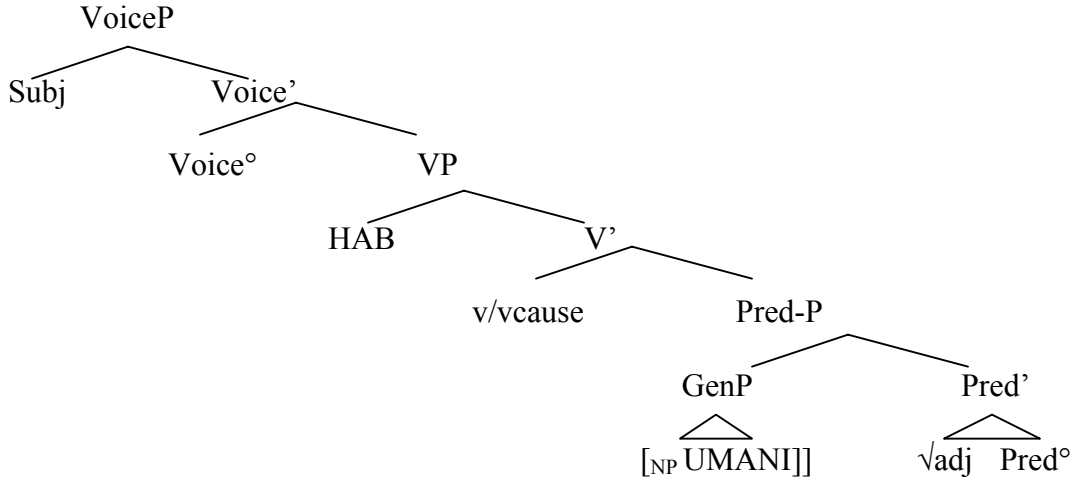
of the adjectival predication (Pred[icative]-P) (30).[3] Crucially, the adjectival predication is not a secondary predication. Secondary predications are optional elements, whereas in the case of the null object the adjectival modification is obligatory. The assumption that the null object is the subject of the adjectival predication accounts for the obligatory masculine plural agreement between the predicative adjective and the null object.

(30)




The basic structure that I propose for constructions with null objects is given in (31). 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 4, *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.

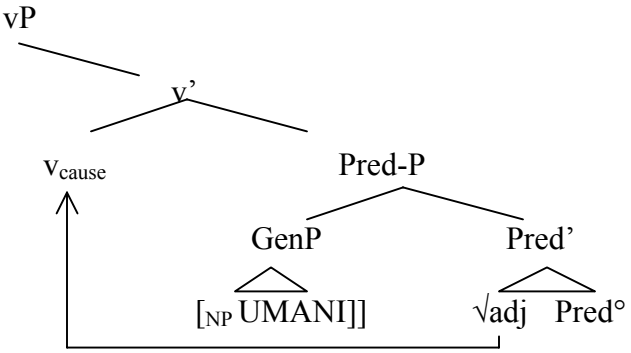
(31)




The structure in (31) straightforwardly applies to transitive episodic structures like (25a). Epistemic depictives predicates like *ritenere* 'to believe' (27) 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 (32). The adjectival root incorporates into the verbal causative head ($V_{cause}$).

[3] Irimia (2005) makes a somewhat similar claim and argues that "the host NP [in *he ate the meat raw*] is base-generated as an argument of the adjective and ends up occupying the specifier position of the secondary predicate phrase (SPP)." (Irimia (2005): 1).

(32)




Following McGinnis (2000), I assume that rendere 'to make' in resultative constructions like (28) is the spell-out of $v_{cause}$ found in the derivation of psychological causative verbs. (28) differs from its non-overt counterpart in that the adjectival predication does not incorporate into the verbal head. The derivation follows like in (32).

### 3.2 The Semantics of the Adjectival Predication

In the case of a depictive reading, Pred° corresponds to Dep[ictive]°. 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 (33), adapted from Pylkkänen ((2002): 28 (39)).

(33) **DEP°**: $\lambda f.\lambda x.\lambda a.\ (\exists b)\ f(b, x) \wedge a \circ b$

If the Pred° has a resultative reading (Pred° corresponds to Res[ultative]°), 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 (34). The key of the formulae (33) and (34) is in (35).

(34) **RES°**: $\lambda f.\lambda x.\lambda a.\ (\exists b)\ f(b, x) \wedge$ CAUSE (a, b)

(35) (i) x $\in$ Type e (for entity)
(ii) a, b $\in$ Type s (for event)
(iii) f $\in$ Type <e,<s,t>>

### 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 (36a) and the other is the verb (36b).

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

The semantics of the null object is given in (37), where *j* and *h* represent Pred' and the verb respectively. The key of the formulae (36) and (37) is in (38).

(37) Null object = λjλhQ[λk[Q(λxλm[human(x) & k(x)(m)])](h)(j)]

(38)
a. x, y, z, w ∈ 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 Second Requirement: Null Objects Require Habituality/Frequentativity

Rizzi argues that null objects can only appear with generic tenses. However, null objects can be licensed in non-generic tenses if an adverb is present (39). Generic tense is neither necessary nor sufficient.

(39) Il vento ha spesso/ regolarmente reso __ nervosi
the wind aux often regularly made.perfec __ nervous.masc.pl
'The wind often made people nervous'

Notice, though, that not all adverbs qualify as possible licensors. (40) shows that what is usually said to be a habitual adverb, just like *sempre* 'always', is not a licensor .

(40) # Il caffè ha di solito/sempre eccitato ___
the coffee has usually always excited ___
'Coffee usually/always agitated people'

I adopt van Geenhoven's (2001) distinction between frequentative/habitual adverbs (*repeatedly, often, regularly, habitually, ...*) and "genuine" adverbs of quantification (*usually, always, never, ...*). I then postulate that the null object is legitimated by pure frequency or habitual adverbs, but crucially not proportional adverbs of quantification. I maintain that what licenses the null object is not tense but rather frequentativity/habituality (F/H). Whenever a null object is present, F/H has to be encoded in the sentence as well. I propose that F/H is encoded in HAB (I maintain in fact that F is a subcase of H, see Cattaneo (2007)): an aspectual head that combines with the VP and that in imperfective tenses the VP always combines with an aspectual head. 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, it binds event-object pairs. and its semantics is given in (41).

(41) a. $HAB_{<<e,<s,t>>, <e,<s,t>>, t>} = \lambda f \lambda g\ MANY_{<c, z>}[f(z)(c)][g(z)(c)]$

b. (i) z ∈ Type e (for entity)
(ii) c ∈ Type s (for event)
(iii) f, g ∈ Type <e,<s,t>>

## 5 The Interpretation of Null Object constructions

The final semantic representation of null object depictives is given in (42) (mutatis mutandis for resultatives). The silent NP UMANI occurs in the restriction of the aspectual head, while the adjectival predication occurs in its scope.

(42) $MANY_{<c, z>}$ [$\Theta_2$ (subject, c) ∧ $\Theta_1$ (z, c) ∧ human (z) ∧ Act (c)] ∃b [Pred (b) ∧ In (z, c) ∧ c ∘ b]

*Act* represents the main predicate that introduces the action/activity (the first event c). *Human* corresponds to the interpretation of the null object and $\Theta_1$ is the theta-role assigned to it. *Pred* is the adjectival predicate required by null objects and constitutes a second event, b, contained in the main event. *b* may overlap (∘) with *c* in the case of depictives or it may be caused by *c* ( CAUSE (c, b)) in the case of resultatives. $\Theta_2$ indicates the thematic role of the subject.

Episodic depictives (25a) fit straightforwardly into the semantics derived in (42)—(43a). As for epistemic depictives (45), the final semantics is given in (43b).

(43) a. $MANY_{<c, z>}$ [Agent (a doctor, c) ∧ Patient (z, c) ∧ human (z) ∧ examinig (c)] ∃b [sedated (b) ∧ In (z, c) ∧ c ∘ b ]
b. $MANY_{<c, z>}$ [Exp (a judge, c) ∧ Percept (z, c) ∧ human (z) ∧ believing (c) ∧ until proven guilty (c)] ∃b [innocent (b) ∧ In (z, c) ∧ c ∘ 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.

(44) $MANY_{<c, z>}$ [Theme (il caffè, c) ∧ Agent (z, c) ∧ human (z) ∧ drinking (c)] ∃b [excited (b) ∧ In (z, c) ∧ CAUSE (c, b)]

*Rendere*-causatives have the semantics in (44), modulo the possibility for indirect causation to come into play, which I will not explore here.

## 9 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 determiner and a null NP UMANI '*human.masc.pl'*. I showed that the null object is generated as the subject of an adjectival predication and introduces a higher order variable that needs to be bound by a habitual aspectual head, HAB.

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