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Referentially Dependent DPs

Ellipsis vs. Italian Pro-forms

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The phenomenon: referentially dependent DPs

In what conditions DPs without any visible noun (or Noun-less DPs, **NDPs**) refer to a **subset** of contextually salient items, rather than just to tokens of the same type?

- **Subset/D-Linked reading (DL).**

- (1) [Ten bombs]_{*j*} exploded yesterday in this town. [**Three**]_{*i*⊂*j*} were cluster bombs.

- **Non-subset/not-D-Linked one (nDL).**

- (2) [Ten bombs]_{*j*} exploded yesterday in this town. [**Three**] exploded today.

We use “D-Linked” for the subset reading, in the sense of Pesetsky 1987. Note that the non-D-Linked reading may also accidentally refer to (some of) the same tokens.

Overview of the variables we considered

- ❶ Type of determiner
 - numerals (*three/tre*)
 - proportions (*la metà* ‘the half’)
 - quantifiers (*somebody/some/everyone*)
- ❷ Argumental role
 - pre-verbal subject
 - post-verbal object
 - (post-verbal subject in Italian)
- ❸ Languages
 - Italian
 - English

Italian makes for an interesting contrast because in this language post-verbal cases **require** the presence of the clitic proform *ne*. Its absence leads to ungrammaticality:

- (3) Carlo aveva tre auto. *Suo fratello ha venduto due.
 Carlo had three cars. His brother has sold two.

Overview of the proposal

The proposal in a nutshell



The DL/nDL readings are due, respectively, to the presence of a simple NP (*bombs*), or of a partitive structure (*of the bombs*) which is either elided or picked up by a pro-form in the Italian post-V cases.

Predictions:

- 1 Quantifiers that only allow partitive complements (OPQs: Italian *la metà* ‘half’) force DL (modulo the possibility of elided bare plural objects).
- 2 Quantifiers that do not allow overt partitives (Non-partitive Qs – NPQs: English *nobody, everybody, someone, somebody*, Italian *nulla/niente* ‘nothing’) do not allow DL either.

Factors and methodology

- **Forcing the non D-Linked interpretations**

The DL reading is preferred when **i)** the DPs in the two sentences are parallel topics and **ii)** the predicate of the Noun-less DP allows it.

The nDL reading is affected by two factors:

- ① **Inconsistent predicates:** in (4), the impossibility of re-exploding forces a non subset interpretation of the NDP:

(4) Ten bombs exploded. Two remained unexploded. **pred inconsistent \Rightarrow nDL**

- ② **Inconsistent numerals:** the cardinality of the NDP may be greater than that of the antecedent DP, thus **too high** for the DL reading favoured by the continuation predicate. Interestingly, this leads to a clash not, to a nDL reading: the ambiguity is predicate-driven.

(5) Ten bombs exploded. #Twenty were cluster bombs. **inconsistent num**

- Since the judgements are often graded, we collect them from >20 native speakers, using a 1–5 scale (1 = worst), in English and Italian, using Prolific. We analyse the result using Wilcox 2-sided test ($p \leq 0.05 = \text{"*"}; p \leq 0.005 = \text{"***"}\text{"}$)

Numerals pre-V: DL / nDL

In pre-V position English and Italian are completely symmetric, modulo the number and gender agreement in Italian.

- (6) Ten bombs exploded yesterday in this town. *English*
- a. [Three] exploded mid-air. DL
- b. [Three] exploded today. nDL, other bombs
- (7) [Dieci bombe]_j sono esplose ieri in questa città. *Italian*
- Ten bombs are exploded_{pl.Fem.} yesterday in this town.
- ‘Ten bombs exploded yesterday in this town’
- a. Tre_{i⊂j} erano a grappolo. DL
- [Three] were at cluster.
- ‘Three were cluster bombs.’
- b. Tre sono esplose oggi. nDL, other bombs
- [Three] are exploded_{pl.Fem.} today.
- ‘Three exploded today.’

Numerals post-V object: DL / nDL

In post-V object position, in Italian, the pro-form *ne* ‘one(s)’ (Cordin 1988) is obligatorily inserted (9), but the ambiguity seen with pre-V numerals in the previous slide persists.

- (8) Yesterday ten bombs exploded. *English*
 a. We shot down three. DL
 b. Today, I heard three. nDL, other bombs
- (9) [Dieci bombe]_{*j*} sono esplose ieri in questa città. *Italian*
 Ten bombs are exploded_{*pl.Fem.*} yesterday in this town.
 ‘Ten bombs exploded yesterday in this town’
 a. Ne_{*i*} ho sentite [tre *t_i*]. DL
 Ne I have heard_{*pl.Fem.*} [three *t_i*].
 ‘I heard three.’
 b. Oggi ne_{*i*} ho sentite [tre *t_i*] nDL, other bombs
 Today ne I have heard_{*pl.Fem.*} [three *t_i*].
 ‘Today I heard three.’

Numerals post-V subject in Italian: DL / nDL

Italian has a third case, absent in English: post-V subject. In this case the pro-form *ne* ‘one(s)’ is also obligatorily inserted, and the ambiguity seen with pre-V numerals in the previous slide still persists.

- (10) Ieri sono esplose dieci bombe in questa città. *Italian*
 Ten bombs are exploded_{pl.Fem.} yesterday in this town.
 ‘Ten bombs exploded yesterday in this town’
- a. Ne ho sentite [tre t_i]. *DL*
 Ne I have heard_{pl.Fem.} [three t_i].
 ‘I heard three.’
- b. Oggi ne sono esplose [tre t_i]. *nDL, other bombs*
 Today ne I have heard_{pl.Fem.} [three t_i].
 ‘Today I heard three.’

The magic of *ne*

Ne seems to be the crucial ingredient to obtain either readings post-V.

Two cases where *ne* is impossible: **i.** when extracted from ‘strong’ quantifiers (universals like *ciascuno* ‘each one’) (11a), or **ii.** with post-verbal subjects of unergative verbs (11b).

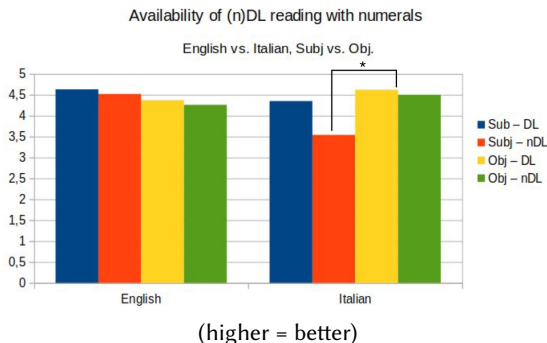
- (11) a. *Bombe, **ne** ho sentita [ciascuna t_i].
 Bombs, ne I have heard [each one t_i].
 b. *Clienti, **ne** hanno telefonato tre.
 Customers, ne have phoned three.

But if *ne* is removed both DL and nDL readings are blocked:

- (12) Dieci bombe ieri. {??Ho sentito ciascuna / *Oggi sentirò ciascuna}
 Ten bombs yesterday. { I have heard each one / Today I will hear each one}
 (13) Dieci clienti ieri. Oggi hanno telefonato tre.
 Ten customers yesterday. Today have phoned three.
 Only meaning: ‘Three people called’, not ‘Three (of the) customers’

Summary on numerals: symmetry Italian-English

Numerals	English	Italian
Pre-V	DL / nDL	DL / nDL
Post-V object	DL / nDL	DL / nDL, presence of <i>ne</i>
Post-V subject	absent	DL / nDL, presence of <i>ne</i>



Proportions pre-V: obligatory DL

Unlike numerals, NDPs containing **proportions** strongly prefer DL readings in subject position, in both languages:

- (14) Yesterday ten bombs exploded in this city. *English*
 a. Half exploded in mid-air. DL
 b. #Half exploded today. DL: 'ri-explosion' reading
- (15) [Dieci bombe]_j sono esplose ieri in questa città. *Italian*
 Ten bombs are exploded_{pl.Fem.} yesterday in this town.
 'Ten bombs exploded yesterday in this town'
 a. [La metà]_{i⊂j} erano a grappolo.
 [The half] were at cluster.
 'Half were cluster bombs.'
 b. #[La metà] sono esplose oggi. DL: 'ri-explosion' reading
 [The half] are exploded_{pl.Fem.} today.
 'Half exploded today.'

Proportions post-V obj.: DL in English, DL/nDL in Italian

In post-V position the pro-form *ne* is obligatory inserted (17). Crucially, in Italian either reading (DL/nDL) is possible, in contrast with English.

- (16) Yesterday ten bombs exploded in this city. *English*
 a. We shot down half. DL
 b. Today, I heard half. DL: 'ri-explosion' reading
- (17) [Dieci bombe]_j sono esplose ieri in questa città. *Italian*
 Ten bombs are exploded_{pl.Fem.} yesterday in this town.
 'Ten bombs exploded yesterday in this town'
- a. Ne ho sentite la metà. DL
 Ne I have heard_{pl.Fem.} the half.
 'I hear half'
- b. Oggi ne ho sentite la metà. nDL with "today"
 Today ne I have heard_{pl.Fem.} the half.
 'Today I hear half'

Proportions post-V subject in Italian: DL / nDL

Let's consider Italian post-V subjects. In this case the pro-form *ne* 'one(s)' is also obligatorily inserted. The double reading seen in Italian post-V objects with proportions persists.

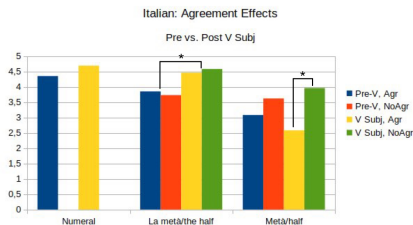
- (18) [Dieci bombe]_j sono esplose ieri in questa città. *Italian*
 Ten bombs are exploded yesterday in this town.
 'Ten bombs exploded yesterday in this town'
- a. Ne sono esplose la metà. DL
 Ne is exploded_{pl.Fem.} the half.
 'I hear half'
- b. Oggi ne sono esplose la metà. nDL with "today"
 Today ne is exploded_{pl.Fem.} the half.
 'Today I hear half.'

Summary on proportions: asymmetry Italian vs. English

Proportions	English	Italian
Pre-V	DL	DL
Post-V object	DL	DL + nDL, presence of <i>ne</i>
Post-V subject	absent	DL + nDL, presence of <i>ne</i>

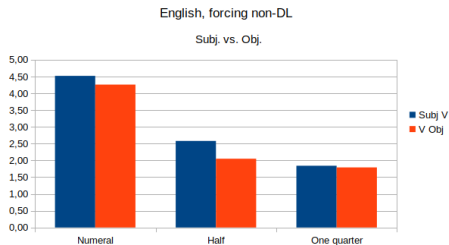
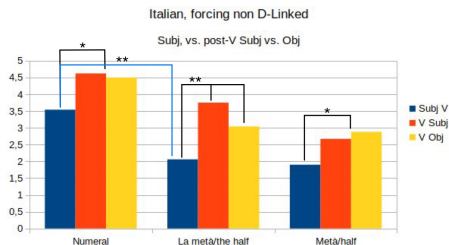
Additional variables in Italian: bare *metà* and V-agr

- The Italian word for *half* may be rendered with or without a definite determiner: **metà** or **la metà**
Note that this is impossible with any other proportion: cf. “I will take a/one/*the/*D⁰ quarter”)
- Both *metà* and *la metà* are singular; the verb can agree with these words or not.



- (la) *metà* + V_{sing} / (la) *metà* + V_{plur}
- *la metà* has optional number agreement (regardless of readings).
- The bare form *metà* has a preference for *plural* V-agr.
- Forcing nDL, verb agreement with pre-V *la metà* was not significant.

V position effects: Italian vs. English judgments



(higher = better)

Analysis: nDL with numerals

We propose that non D-Linked Noun-less DPs with numerals contain a simple NP restriction (19):

(19) $[_{DP} \text{ three } [_{NP} \text{ bombs}]]$

The NP restriction is:

① elided in pre-V;

(20) $[\text{Dieci bombe}]_j \dots [\text{Tre } [_{NP} \text{ bombe}]] \text{ sono esplose oggi.}$
 Ten bombs \dots $[\text{Three } [_{NP} \text{ bombs}]] \text{ are exploded today.}$

② picked up by *ne* in post-V position

(21) $[\text{Dieci bombe}]_j \dots \text{Oggi } ne_i \text{ ho sentite } [\text{tre } t_i].$
 $[\text{Ten bombs}]_j \dots \text{Today } ne_j \text{ I have heard } [\text{three } t_i].$

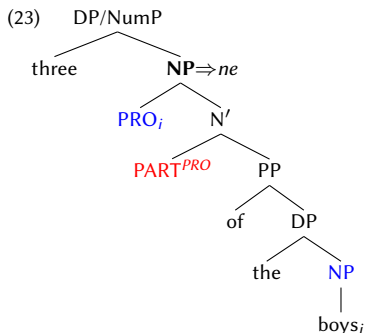
We assume that *ne* is a pro-NP here (Belletti and Rizzi 1981; Cordin 1988; Falco and Zamparelli 2016).

Analysis: DL with numerals

Noun-less DPs with D-Linked readings are *covert partitives* (22):

(22) [_{DP} three ~~of the bombs~~]

We make use of the structure and the semantics for overt partitives proposed in Falco and Zamparelli (2019). Assumptions:



- Partitives contain a silent noun (**PART^{PRO}**) (see Jackendoff 1977; Giusti 1991) which selects an *of*-marked definite DP and a silent **pro-NP** (in Spec) coindexed with the NP inside the low DP

- PART^{PRO} has a subtractive semantics:
 $\llbracket \text{of the boys} \rrbracket = \text{Pl}(\llbracket \text{boy}+s \rrbracket) - \text{Max}(\text{Pl}(\llbracket \text{boy}+s \rrbracket))$
 'the plural denotation of boys+s, minus its maximal element'

This derives *proper partitivity* (Barker, 1998), and the pattern in (24)

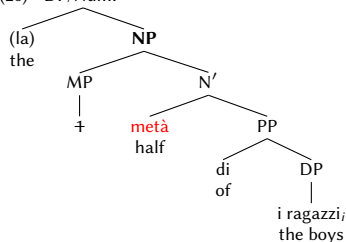
- (24)
- Two friends of John's
 - *Two of Mary, the boy and the dog

Proportions: obligatory partitives

Metà ‘half’ only selects a partitive (25d). Other possibilities are ungrammatical or have a different meaning (25a). We treat *metà* and as a PART^{pro} alternative (26).

- (25)
- | | | | |
|----|---------------------------------------|-------------------------|-------------------------------|
| a. | La metà bomba _{sing} | ‘the half bomb’ | <i>mereological half</i> |
| b. | *La metà bombe _{plur} | ‘the half bombs’ | <i>cf. ‘those half bombs’</i> |
| c. | *La metà di bombe _{plur} | ‘the half of bombs’ | |
| d. | (La) metà delle bombe _{plur} | ‘the half of the bombs’ | |

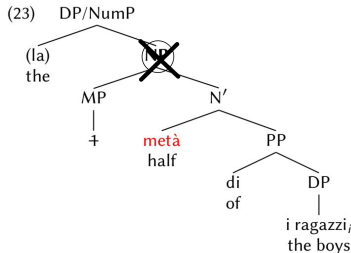
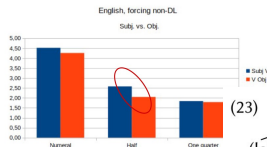
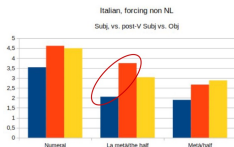
(26) DP/NumP



- The relational N *half* takes a definite PP and unit MP (silent when singular, but see *the two halves of the keyboard*)
- $\llbracket \text{half} \rrbracket = \lambda e \lambda n \lambda x \exists u [x \leq e \wedge \text{AMOUNT}(x, u) = \text{AMOUNT}(e, u) \times n/2]$
- $\llbracket (1) \text{ half of the boys} \rrbracket = \lambda x \exists u [x \leq a \wedge \text{AMOUNT}(x, u) = \text{AMOUNT}(a, u) \times 1/2]$

nDL with proportions

- If proportions like *metà* ‘half’ or *quarto* ‘quarter’ always select partitives, we predict that they should always trigger a D-Linked reading.
- This seems correct for English, but in Italian, a nDL reading is quite acceptable in *post-V* position, with *ne*.



Three questions with proportions

- 1 How is the nDL possible?
- 2 Why only post-V?
- 3 What is the source of *ne*? (*not NP*)

The answer: Italian two *ne*-s

Italian has (at least) two *ne*-s Cordin (1988).

- ❶ **a pro-NP** (cf. Eng. ‘one(s)’), found only after indefinite Ds and in non-predicative position (27).

(27) Amici, **ne** {ho tre / *ho ognuno / *sono tre}
 friends, **ones** {I have three / have every-one / are three}

- ❷ **a pro-PP** found after relational nouns, which can move out of predicates and over strong Qs (28).

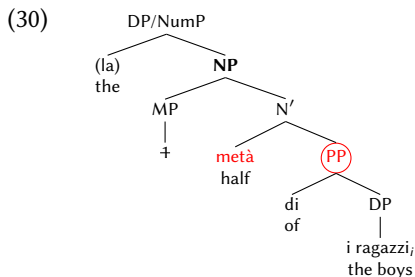
(28) Quel quadro? Ugo **ne** {è l'autore / conosce ogni dettaglio}
 That painting? Ugo **of it** {is the author / knows each detail}
 ‘That painting? Ugo is the author **of it** / knows every detail **of it**.’

La metà + pro-PP *ne* \Rightarrow partitive-based DL reading

- **La metà** is a **relational noun**, so it can license **pro-PP *ne*** in our DL tree and permit its extraction even from predicate nominals: (29).

(29) Vedi quello spago? Questo pezzo **ne** è la metà esatta.
 See that string? This piece **of it** is the half exact
 ‘See that string? This piece is the exact half of it;’

- **Proposal:** The *ne* we see with proportions in the DL reading is the partitive PP argument of *metà*:



Remaining problem: nDL readings with *ne*

Problem

How could we explain the non D-Linked reading with (*la metà* emerging **i.**) only in Italian, and **ii.**) only post-V?

- Pro-PP *ne* would predict the wrong reading (DL).
- Pro-NP *ne* has nothing to pick up inside the proportion. In fact, *la metà* may be followed by a demonstrative, and pro-NP *ne* cannot be extracted from under a demonstrative.

(31) Dieci bombe_{*i*} ... (Bombs), oggi **ne** sono esplose la metà di quelle_{*i*}.
 Ten bombs_{*i*} ... (Bombs), today **ne** are exploded the half of those_{*i*}.

Analysis: *metà* as an amount relative

- In Italian, proportions can be used within relative clauses as Measure Phrases. When they modify a DP consisting of a numeral+NP, the only meaning is *distributive* (size of individual bomb).

(32) Ho visto tre bombe (che erano) la metà di quelle.
 I have seen three bombs (that were) the half of those.
 ‘I have seen three bombs, each of which was half the size of those (other) bombs.’

- **Proposal:** when no numeral is present (or when the NP outside is replaced by *ne*) the proportion may act as a type of (reduced) *amount relative* (33), where *la metà* sets the size of an external Bare Plural targeted by *ne* (34).

(33) They will never put together the troopers they had in WW2. *amount*

(34) ... (bombe,) **ne** ho viste $[[_{NumP} t_i [_{RC} la \text{ metà } [_{PP} \text{di-} \cancel{quella} \text{ bombe}_i]]]]$
 ... (bombs), **ne** I have seen $[[_{NumP} t_i [_{RC} \text{the half } [_{PP} \text{of} \cancel{those} \text{ bombs}_i]]]]$

Quantifiers: partitives vs. non-partitives

Prediction: if a DET does not license a partitive, it should not be able to have a DL reading. This can be tested with *quantifiers that do or don't take partitives*.

Quantifiers	part-DET (PD)	non part-DET (NPD)
English	some (of the people)	somebody (*of the ...)
	each (of the people)	everybody (*of the ...)
	none (of the people)	nobody (*of the ...)
	...	nothing (*of the ...)
Italian	nessuno 'no/no-one' (✓ +part)	nulla 'nothing' (*+part)
	qualcuno 'some/someone' (✓ +part)	niente 'nothing' (*+part)
	...	entrambi 'both' (*+part)

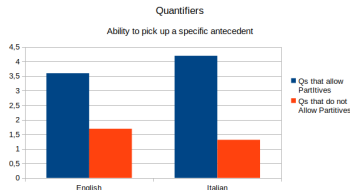
Assumption: Qs that cannot take partitives do so because they incorporate a **nominal** element (*every-thing*, *some-body*, *some-one*: the *one* of *A tall one*), which replaces the $PART^{pro}$ operator in N.

Judgment pools

Given a context like (35), we asked 24 native speakers to judge if the sentences with part-DETS (35a) and non part-DETS (35b) meant “DET person in the courtyard PRED” vs. “DET girl PRED”.

- (35) Three boys were waiting in the courtyard when five girls arrived.
- a. [Some / None] {had a colorful hat / spoke for a while}. **part DET**
 - b. [Someone / Everybody / Nobody] {had a colorful hat / spoke for a while}. **non-part DET**

Result: the non-partitive determiners in (35b) cover the whole group (the persons, not just the girls). The others can target the girls.
Analogous results in Italian (with *nulla* ‘nothing’ vs. *nessuno* ‘no-one’).



A note on domain restriction

- Quantifiers are normally used with (implicit) *domain restrictions*

(36) Everybody came to my party!

- In (36) *everybody* refers to every person in a contextually restricted set (e.g. my friends).
- It would be tempting to render the DL / nDL distinction in terms of *narrower* or *wider* implicit domain restrictions.
- But consider pairs like *some/someone* or *none/nobody*. The latter is restricted to [+HUMAN], but it is mysterious why only the less restricted form should be able to zoom onto a specific subset of humans.
- Only the partitive account of D-Linking can give a principled account of these contrasts.**

Thanks for listening



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References I

- Barker, C. (1998). Partitives, double genitive and anti-uniqueness. *Natural Language and Linguistic Theory* 16, 679–717.
- Belletti, A. and L. Rizzi (1981). The syntax of *ne*: some theoretical implications. *The Linguistic Review* 1, 117–154.
- Cordin, P. (1988). *La frase. I sintagmi nominale e preposizionale*, Volume 1 of *Grande grammatica italiana di consultazione*, Chapter II clitico "ne", pp. 633–641. Bologna: Il Mulino.
- Falco, M. and R. Zamparelli (2016). The only real pro-nouns: Comparing english *one* and italian *ne* as noun phrase pro-forms. In P. Grosz and P. Patel-Grosz (Eds.), *The Impact of Pronominal Form on Interpretation*, pp. 107–134. Berlin/New York: De Gruyter.
- Falco, M. and R. Zamparelli (2019). Partitives and partitivity. *Glossa: a journal of general linguistics* 4(1), 1–49.
- Giusti, G. (1991). The categorial status of quantified nominals. *Linguistische Berichte* 136, 438–452.
- Jackendoff, R. (1977). *X' -Syntax: A Study of Phrase Structure*. Cambridge: MIT Press.
- Pesetsky, D. (1987). Wh-in-situ: Movement and unselective binding. In E. Reuland and A. ter Meulen (Eds.), *The Representation of (In)definiteness*, pp. 98–129. Cambridge, Massachusetts: MIT Press.