

# Italian Proportions: Definiteness, Agreement and Non-Conservativity

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## Abstract

This paper offers a description of the morpho-syntax and interpretation of Italian proportional measure phrases (*proportions*), namely fractions and percentages. Ahn (2012) and Sauerland (2014) first observed that the restrictor and the predicate of these structures can be switched by minimal morpho-syntactic modifications, and they identified quantifier floating for Korean and case for German as the morpho-syntactic markers of this reversal. Italian shows four novel morpho-syntactic factors: definiteness of the inner nominal, definiteness of the outer determiner, main clause verbal agreement and subordinate clause verbal agreement. Ahn (2012) and Sauerland (2014) observed also the relevance of a non morpho-syntactic factor affecting the reversal, namely Focalization. This paper uncovers two additional semantic factors, non specific of Italian: the accessibility of the complement set, and the individual/stage level distinction. These intertwined markers remain unaccounted for by the few theories of the restrictor and predicate reversal proposed so far.

**Keywords:** measurements; percentages; fractions; conservativity; determiners; agreement; Italian

## 1 Introduction

Ahn (2012) and Sauerland (2014) first observed that proportional measurement (PM) phrases (*proportions*), namely fractions (e.g. *two thirds* in (1a)) and percentages (e.g. *seventy percent* in (1b)), showcase a very interesting property when they are part of a sentence: their restrictor and predicate can be switched by minimal morpho-syntactic modifications, beyond word order variations and in turn this switch poses a challenge for the current understanding of determiners semantics. This observation began an ongoing thread of research which produced already a detailed and systematic description of PM structures in Korean and in German, as well as possible formal models of how the reversal of restrictor and predicate could come about (Ahn & Sauerland 2015b, Ahn & Sauerland 2015a, Ahn & Sauerland 2017, Pasternak & Sauerland to appear).

- (1) a. two thirds of [the nurses]
- b. seventy percent of [the nurses]

The present article contributes to this recent research line providing the first detailed empirical description of the morpho-syntax and interpretation of Italian PM structures observed through the restrictor and predicate reversal phenomena lens. Actually, these Italian structures were previously discussed in Falco & Zamparelli (2019:§4), however in that analysis the reversal phenomena were not considered.

Following the terminology adopted there (Falco & Zamparelli 2019:§4), we will designate the nouns inside the square bracket as “inner nominals” and their determiners as

the “inner determiners”.<sup>1</sup> The fraction nominal (*thirds*) and the percent adverb (*percent*) will be referred to as “outer nominals”, and the numerals *two* and *seventy* will be simply called “numerals”. Exploring the Italian data, sometimes we will see also a determiner on the left of the numerals, and this will be called the “outer determiner”.

While in Korean overt quantifier floating and in German case are the morpho-syntactic markers for the restriction and scope switch, a detailed investigation of Italian shows four novel morpho-syntactic factors: definiteness of the inner nominals, definiteness of the outer determiner, main clause verbal agreement and subordinate clause verbal agreement.

The interpretation of PM structures, like other quantifiers structures, depends on which phrase is interpreted as restrictor and which phrase is interpreted as predicate. Generally, restrictor and predicate are determined by their linear position and inverting their order produces sentences with completely different meanings as shown for Italian and for the English translations in (2): while (2a) is plausible, (2b) is definitely false.<sup>2</sup>

- (2) a. Due terzi degli infermieri sono donne.  
Two thirds of the nurses are women.  
‘Two thirds of the nurses are women.’  
b. Due terzi delle donne sono infermieri.  
Two thirds of the women are nurses.  
‘Two thirds of the women are nurses.’

The omission of the definite determiner preceding the inner noun *women* in the Italian example (3a) brings about the *reversed interpretation* in (3b), as the translation shows: *people hired*, that is the set denoted by the predicate *hired*, is interpreted as restrictor of *two thirds*, while *women* is interpreted as its predicate, even though it linearly comes after *people hired* and it is adjacent to the percentage it is not interpreted as its restrictor (cf. Ahn & Sauerland 2015b:ex. 20).<sup>3</sup> In all languages, the distinction between the linear and the reversed interpretation correlates also with a difference in focus placement as indicated in (3): the reversed interpretation requires contrastive focus on the inner noun, while the linear interpretation allows different focus placements. The basic intuition is that focus on a word facilitates the access to its complement set which functions as restriction, that is *men* as opposed to *women* in (3b).<sup>4</sup>

<sup>1</sup> Pasternak & Sauerland (to appear) refer to the “inner nominals” as “substance nouns” and to “inner determiners” as the “substance nouns determiners”.

<sup>2</sup> Of course, the linear order of restrictor and scope is reversed in left branching languages.

<sup>3</sup> In English the reversed interpretation is obtained by removing also the preposition *of* in (3b), so that the corresponding English sentence is *The university hired two thirds women* (cf. Ahn & Sauerland 2015b:ex. 20).

<sup>4</sup> The PM phrase in (3) is in object position, contrary to (2) because the reversed reading emerges more clearly in this case, than in subject position. This is possibly due to a greater difficulty in focalising the subject as opposed to the object, certainly to a gender agreement (infermieri<sub>Pl.Masc</sub> vs. infermiere<sub>Pl.Fem</sub>) interference with the reversal, and of the fact that individual level predicates block the reversal. As a matter of fact, an example such as (i) with an indefinite *di donne*, a post-verbal subject, masculine agreement on the predicate and a stage level predicate does get the ‘reversed’ meaning, as shown by the free translation. The role of focus will be discussed in §§3.2, the role of agreement in §4 and the role of the type of predicate in §§4.1.

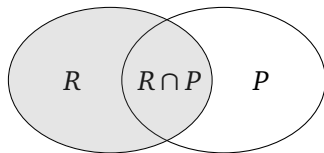
- (i) Sono entrati<sub>Pl.Msc</sub> in ospedale [due terzi di [donne]<sub>Pl.Fem</sub>]<sub>Pl.Msc</sub>.  
Are entered in hospital two thirds of women.  
‘Two thirds of the people who entered the hospital are women.’

- (3) a. L'ospedale ha assunto due terzi delle donne.  
The hospital has hired two thirds of the women.  
'The hospital has hired two thirds of the women'
- b. *Reversed:*  
L'ospedale ha assunto due terzi di [donne]<sub>F</sub>.  
The hospital has hired two thirds of women.  
'Two thirds of the people hired by the hospital are women'

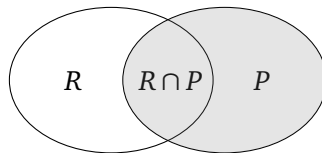
The *reversed interpretation* we just saw (3b) is limited to PM phrases.<sup>5</sup> In sentences containing absolute measure phrases (e.g. *un centinaio* - *about a hundred*), the same definite and indefinite alternation is possible (4), but it is impossible to detect a reversal of restriction and predicate in the presence of an indefinite inner noun, as indicated in the translation of (4b).

- (4) a. L'ospedale ha assunto un centinaio delle donne.  
The hospital has hired a about a hundred of the women.  
'The hospital has hired about one hundred of the women'
- b. L'ospedale ha assunto un centinaio di donne.  
The hospital has hired a about a hundred of women.  
'The hospital has hired about one hundred of women'

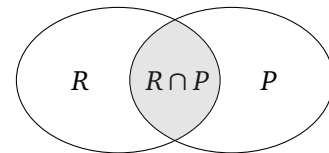
At first glance, it may seem that an ad-hoc structure for PM structures (95), different from absolute measurements structures (4), is necessary to account for the reversed reading emerging only in the first (3b). However, the semantics of the two measurements structures explains this difference thus pointing to structural uniformity (Ahn & Sauerland 2015a:§§2.2). As represented in the figures below, the two construals of a PM such as (95) consider the relation between the intersection of the restrictor (R) and the predicate (P) sets to either one of the two, namely for (3a) figure 1 and for (3b) figure 2. However for an absolute measure, be it with a definite or indefinite inner noun, only the intersection itself enters the truth-conditions as shown by figure 3. Therefore, we can assume that the structure of relative and absolute measure phrases is the same and the structural and interpretive mechanism at play in (3b) are at play also in (4b), but apply vacuously, without producing an interpretive difference. In any case, the systematic presence of reversed readings (3b) raises the question of how to derive their interpretation from the syntax/semantics.



**Figure 1:** Linear.



**Figure 2:** Reversed.



**Figure 3:** Intersective.

<sup>5</sup> The same reversed interpretation can be obtained using a prepositional phrase and removing *of* in front of the inner noun. In these cases the PM (*per due terzi*) becomes a modifier of the predicate, while *donne* (women) alone is the object of the clause.

- (i) L'ospedale ha assunto per due terzi donne.  
The hospital has hired for two thirds women.  
'Two thirds of the people hired by the hospital are women'

Reversed interpretations cases such as (3b) are crucial for our understanding of determiners interpretation and quantification in general, as they seem counterexamples to the so called *conservativity hypothesis* (7), proposed by Keenan & Stavi (1986:260). Conservativity is a property that could restrict the range of functions denoted by determiners. This property is illustrated for the determiner *every* by the informal equivalence (5), formalised in (6):

- (5) Every determiner is conservative = Every determiner is a conservative determiner
- (6) Conservativity = A function  $f$  is conservative iff for all  $A, B$ :  $f(A)(B) = f(A)(A \cap B)$
- (7) Conservativity hypothesis: extensional determiners in all languages are always interpreted by conservative functions.

The conservativity hypothesis is at least apparently contradicted by the *reversed interpretation* sentences. Consider the sentence (3b) in light of the conservativity definition (6): *people hired* corresponds to  $A$  and *women* corresponds to  $B$  and *sixty percent* corresponds to the function.

- (8) a.  $\llbracket \text{two thirds}^{\text{standard}} (\text{of the women}) (\text{hired persons}) \rrbracket$  is true iff 2/3 of women are hired persons
- b.  $\llbracket \text{two thirds}^{\text{reversed}} (\text{women}) (\text{hired persons}) \rrbracket$  is true iff 2/3 of hired persons are women

To test for conservativity, we can check if we get the same result if we replace  $\llbracket \text{hired persons} \rrbracket$  with  $\llbracket \text{women} \rrbracket \cap \llbracket \text{hired persons} \rrbracket$  i.e., the set of women who were hired. For  $2/3^{\text{standard}}$ , it is indeed the case that 2/3 of the women were hired if and only if 2/3 of the women are women who were hired. This is false for the reversed case  $2/3^{\text{reversed}}$ : 2/3 of the women who were hired are women, a near-vacuous interpretation. Given this difference with respect to conservativity, the reversed interpretations can be named *non-conservative*, and the non-reversed interpretations *conservative*.

In summary, the non-conservative case poses an issue for the *conservativity hypothesis* and raises the question if the hypothesis is actually invalid and should be discarded, or if the non-conservative cases actually respect conservativity, through invisible operations at the syntax/semantics interface.

Until the present special issue, non-conservative interpretations with PM have been systematically investigated only in Korean and in German (Sauerland 2014; Ahn & Sauerland 2015b; a; 2017; Pasternak & Sauerland to appear). In these two languages quantifier floating and case marking respectively play a crucial role in determining the two interpretations. For example Ahn & Sauerland (2017:p. 219) report the following distinction in German between genitive conservative and nominative non-conservative measurement structures with proportion nouns.

- (9) a. *Genitive: conservative*  
Dreißig Prozent der            Studierenden arbeiten.  
thirty    percent the.GEN students.GEN work  
‘Thirty percent of the students work.’
- b. *Nominative: non-conservative*  
Dreißig Prozent [Studierende]<sub>F</sub>    arbeiten hier.  
thirty    percent [students.NOM]<sub>F</sub> work    here  
‘Thirty percent of the workers here are students.’

As we saw in the examples above involving fractions (3a) vs (3b) Italian marks the conservative/non-conservative distinction through definite/indefinite determiners on the inner noun. The facts are more complex and interesting when we consider also percentages, the second type of PM structures. In fact, Italian percentages require the presence of an overt definite or indefinite article (10), differently from English, as already noted in Falco & Zamparelli (2019:ex. 55).

- (10) {il / un / \*∅} dieci percento  
       {the / a / \*∅} ten percent

In turn the definite/indefinite alternation of the outer determiner affects the possibility of the inner noun (*studenti*) to be indefinite, and thus exhibit a non-conservative interpretation. As a matter of fact, *di* is unacceptable in (11) when it is preceded by a definite article, and it is possible only in (12).

- (11) il dieci percento {\*di / degli} italiani  
       the ten percent {of / of the} Italians
- (12) un dieci percento {di / degli} italiani  
       the ten percent {of / of the} Italians

Looking beyond the DP level, in the indefinite cases, when verbal agreement with the whole PM DP or with the inner NP is present, it determines the conservative/non-conservative marking ((13) vs. (14)). Actually, in (13) agreement with the inner indefinite noun is marginal, but to the extent that it is acceptable it erases the non-conservative interpretation reinstating the conservative reading, while in (14) verbal agreement with the whole fraction DP let emerge the non-conservative interpretation.<sup>6</sup>

- (13) ??Sono state assunte [[un terzo] di donne].  
       Were been<sub>Pl.Fem</sub> hired<sub>Pl.Fem</sub> [[a third]<sub>Sng.Msc</sub> of women<sub>Pl.Fem</sub>]<sub>Sng.Msc</sub>.  
       ‘One third of the women were hired’
- (14) È stato assunto [[un terzo] di donne].  
       Is been<sub>Sng.Msc</sub> hired<sub>Sng.Msc</sub> [[a third]<sub>Sng.Msc</sub> of women<sub>Pl.Fem</sub>]<sub>Sng.Msc</sub>.  
       ‘One third of the people hired here are women’

Finally, looking beyond the simple clause into complex sentences showcasing verbal agreement in Italian such as relative clauses, interesting patterns emerge when relative clauses are headed by PM phrases. If the relative clause verb attaches and agrees with a definite or marginally with an indefinite inner NP, the sentence has a conservative interpretation (15). Instead, when the relative clause attaches to and its verb agrees with the whole PM DP, this must be headed by a definite and the relative clause gets a non-conservative interpretation, despite the definite determiner (16).

- (15) *Indefinite inner noun - Plural agreement:*  
       Il dieci percento {delle/?di} donne che hanno superato l’esame  
       [The ten percent {of the/of} women<sub>Pl</sub>]<sub>Sg</sub> who have<sub>Pl</sub> passed the exam

<sup>6</sup> In this introductory paradigm a passive verb is used, however agreement patterns showcase variation on the basis of the type of predicate. Furthermore, we present the contrast with fractions in order to avoid complications at this level. The full paradigm with percentages will be described in §4.2.

scritto ha superato anche l'orale.  
 written have passed also the oral.  
 'Ten percent of the women who passed the written exam passed also the oral exam.'

(16) *Indefinite inner noun - Singular agreement:*

Il dieci percento di donne che ha superato l'esame scritto ha  
 [The ten percent of women<sub>pl</sub>]<sub>sg</sub> who has<sub>sg</sub> passed the exam written have  
 superato anche l'orale.  
 passed also the oral.  
 'Ten percent of all people who passed the exam were women and those women students passed also the oral exam.'

To summarise, the four main empirical issues on the morpho-syntax and interpretation of Italian PM structures were introduced: the obligatoriness of an overt definite or indefinite article with percentages, the patterns of definite/indefinite outer determiner and of its inner NPs, the verbal agreement patterns with the main PM phrase, or with its embedded inner NP, in main clauses, and the verbal agreement patterns in relative clauses (Table 1). As we have already seen in the few examples introduced so far, these four issue showcase complexities and mutual interactions and restrictions which are to be uncovered.

<b>Morpho-syntactic factors</b>	<b>Conservative interpretation</b>	<b>Non-Conservative interpretation</b>
<i>inner noun determiner</i>	definite	absent
<i>outer noun determiner</i>	definite	absent/indefinite
<i>main clause verbal agreement</i>	with inner noun	with indefinite PM phrase
<i>subordinate clause verbal agreement</i>	with inner noun	with definite PM phrase

**Table 1:** Morpho-syntactic factors and conservative/non-conservative interpretations.

Apart from the four morpho-syntactic features peculiar of Italian which are the focus of the present contribution, we will see that three other factors pertaining to other linguistic domains affect the conservative vs. non-conservative interpretation: the lexical semantics of the inner nouns in the PM phrase, the lexical semantics of the verbs involved in the sentences containing the PM phrase, and focalisation of the inner nouns, an observation already in the literature (Table 2). Putting it all together, we end up with a matrix of seven intertwined factors.

<b>Non morpho-syntactic factors</b>	<b>Conservative</b>	<b>Non-conservative</b>
<i>inner noun lexical semantics</i>	inaccessible complement set	accessible complement set
<i>verb lexical semantics</i>	individual level property	stage level property
<i>inner noun focalisation</i>	non-focalised	focalised

**Table 2:** Non morpho-syntactic factors and conservative/non-conservative interpretations.

In the rest of the article, each of the four morpho-syntactic issues (Table 1) is analysed in detail. Preliminarily, the background on the morphosyntax of Italian measures struc-



tures in general (§2) and specifically on fractions (§§2.2) and on percentages (§§2.3) is laid off as the basis for the discussion. §3 introduces the definiteness patterns between the outer and the inner determiner and §§4.2 shows how they shape the conservative and non-conservative interpretations, which can be facilitated by the inner noun lexical semantics. §§3.2 presents data on complex inner NPs including an adjective which highlight the role of focalisation. §4 zooms out of the DP and introduces the verbal agreement patterns with complex NPs in main clauses. Then, we study how these patterns determine the conservative vs. non-conservative interpretation of main clauses in §§4.1 and of complex sentences including a relative clause in §§4.2, showing also the relevance of the verbal lexical semantics. To conclude the section, §§4.3 building on the discussion in §§4.2 and in §§3.2 presents complex data involving both relative clause agreement and focalisation patterns. The final section (§5) illustrates why current theories advanced for PM structures in other languages, as well as the only analysis proposed for Italian PM structures so far fail to account for the data uncovered in the paper, which thus call for a novel theoretical proposal.

## 2 Background on Italian Proportions

In this section the background on Italian measures structures, both absolute and relative, is introduced with a gradual approach. The section begins presenting Italian measures structures in relation to absolute measure and to counting structures §§2.1. At this level, the forms the different structures exhibit is considered abstracting away from restrictions some of these forms impose on the DP ‘internal’ morpho-syntax and on the sentential syntax. The lexical meaning of fractions DPs and percent DPs are described in §§2.2 and in §§2.3, taking into account also the DP ‘internal’ morpho-syntactic restrictions, but not sentential syntax. The DP ‘external’ morphology and syntax of PM structures, that is how these DPs affect the morphology and the syntax of the whole sentence they appear in, will be the topic of the subsequent sections discussing non-conservative interpretations §3 and verbal agreement patterns §4.

### 2.1 Measurement Structures

Paradigmatic measurement structures involve mass nouns (*water, sugar, rice, ...*) and measure terms (17) or container nouns (18) or classifiers (19) plus numeral modifiers. Plural measurements structures, as indicated by the determiners in round parenthesis in the three examples, can be bare, without an overt definite article, or they can be preceded by a definite plural or indefinite determiner. When the indefinite determiner *un* introduces a counting structure, it has a meaning of approximation which can be expressed in English by the adverb *about*, but it has the grammatical role of the determiner, as shown in the translations and glosses respectively.<sup>7</sup> Note that some examples in the text impose requirements on the wider DP syntactic environment they occur in, however at the present introductory level the possible forms are presented abstracting away from the requirements some of these forms impose. These will be introduced in subsequent §§2.2

<sup>7</sup> The approximation meaning emerges clearly by the unacceptability of the sentence in (i) involving the adverb *exactly*.

- (i) \*Ci sono esattamente una ventina persone.  
 There are exactly a some twenty persons.  
 ‘There are exactly about twenty persons.’

and §§2.3. Given the appropriate structural context, all the four combinations created by the two binary options indicated by the braces in the examples in the text are possible.<sup>8</sup>

- (17) *Measure term:*  
 ({i / un}) due litri {di / dell'} acqua  
 ({the / a}) two liters {of / of the} water  
 '({the / about}) two liters {of / of the} water'
- (18) *Container noun:*  
 ({i / un}) due cucchiaini {di / dello} zucchero  
 ({the / a}) two teaspoons {of / of the} sugar  
 '({the / about}) two teaspoons {of / of the} sugar'
- (19) *Classifier:*  
 ({i / un}) due chicchi {di / del} riso  
 ({the / a}) two grains {of / of the} rice  
 '({the / about}) two grains {of / of the} rice'

Quantities of plural count nouns can be counted as well, as illustrated in (20): the classifier (*boxes*) 'repackages' pluralities into higher order entities which can be counted.<sup>9</sup>

- (20) *Classifier and count noun:*  
 ({le / un}) due scatole di libri  
 ({the / a}) two boxes of books  
 '({the / about}) two boxes of books'

Measurements structures in Italian and in English contrast with simple counting structures which typically involve count nouns (*cats, books, ...*) and numeral modifiers directly modifying the count nouns as in (21).

- (21) *Count noun:*  
 ({i / un}) tre gatti / libri  
 ({the / a}) three cats / books  
 '({the / about}) three cats / books'

Counting structures involving a substance expressed by mass nouns are ungrammatical with a basic counting meaning (22). However, mass nouns are possible in *prima facie* counting structures when they receive a kind interpretation (23), namely *types of sugar* and *types of rice* (as shown by the translation of (23)) and the counting operation applies

<sup>8</sup> Note that the cases with inner and outer definite determiners have a peculiar interpretation. Consider for example (i). This DP is felicitous only if the water is specific and it is liters in total. The DP thus refers to the measure not to the substance measured and is natural with a continuation such as *have been precisely measured*.

(i) i due litri dell'acqua  
 the two liters of the water  
 'the two liters of the water'

<sup>9</sup> Note that in the case with a definite inner determiner and a classifier (i) the relation expressed by the DP between the two nouns is not one of measure, but of possession. For this reason we excluded it in the paradigm in the text.

(i) le due scatole dei libri  
 the two boxes of the books  
 'the two boxes of the books'



to these higher order entities. This shift through the presence of a silent classifier (*types*) in (23) makes it parallel to the classifier measure structure with a mass noun (19) above. Therefore, the same DP in the two structures below is ungrammatical as a basic counting structure (22), but it is acceptable as an absolute measurement structure (23) involving a silent classifier.<sup>10</sup>

- (22) *Mass noun:*  
 \*({i / un}) tre zuccheri / risi  
 ({the / a}) three sugars / rices  
 '({the / about}) three sugars / rices'
- (23) *Mass noun - kind interpretation:*  
 ({i / un}) tre zuccheri / risi  
 ({the / a}) three sugars / rices  
 '({the / about}) three types of sugar / types of rice'

To summarise, counting structures involve count nouns whereas absolute measure structures involve mass nouns. If a count noun appears in an absolute measure structure, it must be 'repackaged' into a higher order entity through a classifier (20).<sup>11</sup> When a mass noun appears in a count structure, a silent classifier can be present at the interpretive level, thus shifting it from a counting structure (22) into an absolute measure structure (23).

Proportional (or relative) measurements are a special type of measurements where the measure is expressed in proportion to the quantity of the inner noun, instead of being expressed in absolute terms. PM come in two varieties: fractions (24) and percentages (25).

- (24) *Fraction of mass noun:*  
 ({i / un}) due terzi {di / dell'} acqua  
 ({the / a}) two thirds {of / of the} water  
 '({the / about}) two thirds {of / of the} water'
- (25) *Percentage of mass noun:*  
 {il / un} twenty percent {di / dell'} acqua  
 {the / a} twenty percent {of / of the} water  
 '({the / about}) twenty percent {of / of the} water'

Fractions (26) and percentages (27) similarly to absolute measurements can both involve also count nouns. However, differently from absolute measurements, thanks to their proportional nature, count nouns do not require the presence of a (overt or covert) classifier to be measured (26): {di / degli} italiani - {of / of the} Italians does not refer to *types of Italians* and it is perfectly formed.

<sup>10</sup> As a matter of fact, structures parallel to (23) in classifier languages do exhibit an overt classifier as shown by the obligatory status of the classifier *ge* in Mandarin Chinese (i) (for an overview see Scontras 2020:§5).

(i) san \*(ge) ren  
 three (CL) people

<sup>11</sup> By *higher order* we mean in terms of ontological abstraction, not in terms of semantic type, in fact the semantic type of the classifier is actually lower ( $< e >$ ) than the sets it applies to ( $< e, t >$ ).

- (26) *Percentage of count noun:*  
 ({i / un}) due terzi {di / degli} italiani  
 ({the / a}) two thirds {of / of the} Italians  
 '({the / about}) two thirds {of / of the} Italians'
- (27) *Percentage of count noun:*  
 {il / un} twenty percent {di / degli} italiani  
 ({the / a}) twenty percent {of / of the} Italians  
 '({the / about}) twenty percent {of / of the} Italians'

In the next two subsections the lexical meaning, the DP 'internal' morphology and the DP 'internal' syntax of fractions DPs §§2.2 and percent DPs §§2.3 is introduced. The DP 'external' morphology and syntax of PM structures, that is how these DPs affect the morphology outside of the DPs themselves and how the DPs behave in the syntax of the whole clause or sentence they belong to, will be the topic of the subsequent sections discussing non-conservative interpretations (§3) and verbal agreement patterns (§4).

## 2.2 Structure of Fraction DPs

Italian fractions are masculine nouns referring to the numerator of a fraction, while the fraction name is derived from its denominator.<sup>12</sup> For example, for the fraction noun *quinto* (fifth) the denominator is the number five from Latin *quinque*.<sup>13</sup> As NPs fractions exhibit a productive inflectional morphology and can be singular (28) or plural (29). Syntactically, the singular fraction NP is postponed to a singular indefinite article (28), while the plural fraction NP must be combined with a numeral expressing a integer equal or greater than 2 (29). In both cases, the DP formed with the numeral can be part of a more complex one, including an inner noun with or without determiner inside a prepositional phrase ({di / degli} *studenti* - {of / of the} *students* in (28) and (29)).

- (28) (\*un) un quinto {di / degli} italiani  
 about a/one fifth {of / of the} Italians
- (29) (un) due quinti {di / degli} italiani  
 (about) two fifths<sub>pl</sub> {of / of the} Italians

In addition to the bare cases illustrated in (28) and (29), fractions (plus numeral) can be preceded by various determiners. Interestingly, between the determiners choice on

<sup>12</sup> Italian fractions names under denominator 10 included are irregular in their morphological derivation from the denominator number name. Fractions names above denominator 11 included are derived by adding to the denominator number name *-esimo*: *undicesimo* - *eleventh* from *undici* - *eleven*, *dodicesimo* - *twelfth* from *dodici* - *twelve* etc.

<sup>13</sup> *quinto*, similarly to other Italian fraction names, can also be a noun with an ordinal meaning (i), designating the entity occupying the fifth position in a series. In this meaning the name can also be adjectivised as shown in (ii). Both the noun and adjectival ordinal meanings are not fractional, therefore they are not considered in the present discussion.

- (i) {il / la} {quinto / quinta} della fila  
 {the<sub>Msc</sub> / the<sub>Fem</sub>} {fifth<sub>Msc</sub> / fifth<sub>Fem</sub>} of the line
- (ii) la quinta parte  
 the<sub>Fem</sub> fifth<sub>Fem</sub> part<sub>Fem</sub>

Actually, Italian exhibits a lexical difference between fractional *mezzo* - *half* and ordinal *secondo* - *second*, while all the remaining fractions and ordinals are homophone. English has the same difference between *half* and *second*, in addition English has two distinct forms also for *quarter* and *fourth*.

the main DP and on the inner noun inside the PP there is a relation subject to restrictions banning some combinations. Singular fractions can be preceded by a definite article or demonstrative instead of the indefinite article, but in this case the inner nouns must be definite (30).

- (30) {l' / quel} (\*un) quinto (degli italiani) \*(che hanno votato)  
 {the / that} (a) fifth (of the Italians) (who have voted)

Also plural fractions can be preceded by a plural definite or demonstrative determiner and also in this case the inner noun must be definite. Contrary to the case of singular fractions (30), an integer must be present after the definite plural determiners or the determiner becomes ill-formed (*due* - *two* in (31)).

- (31) {i / quei} (\*due) quinti (degli italiani) (\* che hanno votato)  
 {the<sub>pl</sub> / those} (two) fifth (of the Italians) (\* who have voted)

In (30) *un* - *a* must be omitted because it is totally recoverable from the morphology of the singular fraction *quinto* - *fifth*, whereas in the morphology of the plural fraction *quinti* - *fifths* is compatible with an infinite number of numbers, therefore the number must be obligatorily specified.

Getting back to inflectional morphology, when definite determiners appear in Italian fractions they must agree in gender and number with the denominator noun *quinti* in (32), which means that they are *masculin plural*.

- (32) {i / \*il / \*le} due quinti delle donne  
 {the<sub>pl.Msc</sub> / the<sub>Sng.Msc</sub> / the<sub>pl.Fem</sub>} two fifths<sub>pl.Msc</sub> of the women

As we saw, when the whole fraction DP is headed by definite or demonstrative determiners, the inner NP must necessarily be headed by a definite determiner. Actually, in these cases also an indefinite modified by a relative clause produces a grammatical result (33) and (34). This is due to the semantics of the definite article, which comes with a familiarity (among others Heim 1982) and uniqueness (among others Russell 1905) requirement. As originally noted by Kayne (1994:Ch. 8) and discussed by Barker (1998) and Zamparelli (1998), the presence of the relative clause allows for these two requirements to be met, even in the absence of a definite determiner on the inner noun.<sup>14</sup>

- (33) {il / quel} \*(un) quinto di studenti \*(che hanno superato l'esame)  
 {the / that} (a) fifth of students (who have passed the exam)  
 (34) {i / quei} due quinti di studenti \*(che hanno superato l'esame)  
 {the<sub>pl</sub> / those} two fifth of students (who have passed the exam)

### 2.3 Structure of Percent DPs

Italian *percento* (sometimes also spelled *per cento*) lexically is an adverbial locution with the same meaning as English *percent*, that is *every one hundred*. Syntactically, *percento* is postponed to a number (*dieci* - *ten* in the example) which in Italian must be preceded by a determiner to form a DP. This DP can be part of a more complex one, including an inner

<sup>14</sup> As we will see in §§4.2, there are variations in the agreement patterns in relative clauses, namely the verb in the relative clause can agree with the entire PM DP, or with its inner noun. In the current section, we keep aside this complication for expositive reasons.

noun inside a prepositional phrase (*degli studenti*) (35). Morphologically, as an adverbial locution *per cento* does not exhibit productive inflectional morphology (36).<sup>15</sup>

- (35) {il / quel} dieci per cento (degli studenti)  
 {the / that} ten percent (of the students)

- (36) \*{i / quei} dieci percenti (degli studenti)  
 {the<sub>pl</sub> / those<sub>pl</sub>} ten percents<sub>pl</sub> (of the students)

In addition to the definite article and the demonstrative illustrated in (35), the determiners on the main percent DP can also be the indefinite article with a meaning of approximation we already saw (37), but an article must always be present.<sup>16</sup> In this case also the determiner inside the inner PP in addition to the definite determiner illustrated in (35) has the possibility of being absent (*di*).

- (37) {un / \*∅} dieci per cento {di / degli / quegli} studenti  
 {about / ∅} ten percent {of / of the / those} students

Interestingly, between the determiners choice on the main DP and on the inner noun inside the PP there is a relation subject to restrictions. When the whole percent is definite or demonstrative, the inner NP must necessarily be definite (38), or an indefinite modified by a relative clause (39), for the same reasons we saw for fractions in §§2.2.

- (38) {il / quel} dieci per cento {\*di / degli} studenti  
 {the / that} ten percent {of / of the} students

<sup>15</sup> Italian *per cento* can be nominalised and adjectivised assuming the form *percentuale*, corresponding to the English noun and adjective *percentage*.

As an adjective (i) *percentuale* means determined in the measure of a certain percent, or expressed with a denominator of 100. As an adjective *per cento* does agree with the noun it modifies (ii).

- (i) {un / il} punto percentuale  
 {a / the} point percentage
- (ii) {i / ∅} punti percentuali  
 {the<sub>pl</sub> / ∅} points<sub>pl</sub> percentage<sub>pl</sub>

As a noun *percentuale* has the same meaning of *percentage*, it refers to the number of elements taken into consideration out of a total of 100.

- (iii) {la / una} percentuale  
 {the / a} percentage
- (iv) {le / ∅} percentuali  
 {the<sub>pl</sub> / ∅} percentages<sub>pl</sub>

The noun *percentuale* itself produces through derivational morphology the adverb *percentualmente*, meaning according to a percent calculation.

Since only the adverbial locution meaning is a PM, the present contribution focuses only on it.

<sup>16</sup> One could wonder if this indefinite determiner keeps the same meaning of approximation we saw for absolute measurement phrases, or if this meaning is lost as the determiner is obligatory and may have a simple formal import. This can be easily tested by the unacceptability of (i) involving the adverb *exactly* and a precise number. The unacceptability of (i) shows that the approximation meaning linked to the use of the indefinite articles with measure phrases is preserved also in the case of percentages.

- (i) \*Ci sono esattamente un ventidue per cento di donne.  
 There are exactly a twenty two percent of women.  
 'There are exactly about twenty two percent of women,'

- (39) {il / quel} dieci percento di studenti \*(che hanno superato l'esame)  
 {the / that} ten percent of students (that have passed the exam)

There is one exception to the restriction between the main DP and the inner noun determiners just identified. Existential sentences involving percent structures with a mass inner noun (*zucchero*) allow the main DP to be definite and the mass inner noun to be indefinite (40). This is not the case for fractions (41), where the determiner can and must be dropped.

- (40) Nella marmellata c'è il dieci percento di zucchero.  
 In the jam there is the ten percent of sugar.  
 'In the jam there is ten percent sugar.'
- (41) Nella marmellata ci sono (\*i) due quinti di zucchero.  
 In the jam there are (the<sub>pl</sub>) two fifths of sugar.  
 'In the jam there are two fifths of sugar.'

Italian percentages always take singular number and masculine gender, even when the inner noun is feminine (42).

- (42) {il / \*le / \*la} venti percento delle donne  
 {the<sub>Sng.Msc</sub> / the<sub>pl.Fem</sub> / the<sub>Sng.Fem</sub>} twenty percent of the women<sub>pl.Fem</sub>

In singular percent DPs, also in the case of a singular numeral (*un percento* - *one percent*), an indefinite article beside the numeral must be present (*un* - *a*). This requirement contrasts with what we saw for fraction DPs, where in the same context an indefinite article cannot be present (28).

- (43) {un / \*Ø} un percento {di / degli / di queglii} studenti  
 {about / Ø} one percent {of / of the / of those} students

Finally, to reinforce the requirement of a (singular) determiner in percentages, in (44) we see that a plural outer determiner *due* - *two*, although not perfect and limited to peculiar contexts where the entirety is reached, is better than no determiner at all (Falco & Zamparelli 2019:ex. 66).<sup>17</sup>

- (44) ?{Due / \*Ø} cinquanta percento di un salario fanno un salario intero.  
 {Two / \*Ø} fifty percent of a salary make up a salary whole.  
 'Two fifty percents of a salary make up a whole salary.'

To conclude the section, a brief summary of the differences between fractions DPs and percent DPs is offered. The first difference lies at the lexical level: fractions are nouns whereas *percento* is an adverbial locution. This leads to the difference described at the morphological level: fractions are morphologically productive whereas *percento* is not. At the syntactic level, while fraction DPs can appear without a determiner, or with a singular or plural determiner, percent DPs always require the presence of a singular definite or indefinite determiner.

### 3 Proportions Interpretations: Conservative vs Non-Conservative

Having introduced the internal structure of Italian PM phrases in the previous sections, we are now ready to describe their interpretation focusing on how the structural possibilities

<sup>17</sup> Sentences such as (44) seem to be acceptable only if they are generic.

at the DP level determine a clear distinction between conservative and non-conservative interpretations. The conservative vs. non-conservative distinction in Italian is marked through the inner determiners which in turn is constrained by the outer determiners, that is the determiners of the whole measurement DP the inner noun is part of §§3.1, and through focalisation §§3.2.

Crucially, in order for the conservative vs. non-conservative interpretations to emerge we will need to zoom out beyond the DP internal level, which has been the focus of the description so far, to the clausal and sentential level including a predicate. When the clause and the sentence are considered, another structural marker of the conservative vs. non-conservativity come into play, namely verbal agreement. However, for the sake of clarity of presentation, in this section we abstract away from agreement patterns and focus on how the interpretation is shaped by the determiners choice. In the next section (§4), we introduce verbal agreement variation patterns and uncover how they shape the conservative vs. non-conservative interpretations, both in simple main clauses (§§4.1) and in sentences involving a relative clause (§§4.2).

### 3.1 *Definiteness of the Inner Noun*

In this subsection we describe how the conservative vs. non-conservative interpretation are shaped by the inner and outer determiners patterns in the PM DPs. Before focusing on the internal features of these DPs, two remarks on the properties of the linguistic environments where we will test the interpretations are in order. They concern the lexical choice and the position in the clause respectively.

Certain inner nouns get more easily contrasted with another set than others, since the properties they denote are decisively contrastive. These nouns include minorities, gender, sexual orientations, nationalities, social classes among others. For example, the set of black people easily evokes its complement set of non-black people or the set of women evokes its complement set of people who are not women, while the same cannot be said for a stage level property such as drunk or sleepy, which denote impermanent and nuanced properties.<sup>18</sup> Since this dimension seems tied to the lexical semantics and social aspects of language meaning, we will put aside the specific mechanisms at play here, assuming that they are not grammatical in nature.

- (45) **Semantic generalisation 1:** In order to get a non-conservative interpretation the lexical semantics of the inner noun must evoke its complement set.

The PM DPs in this section are placed in the object position of the clause they belong to, since this favours the focalisation needed for the non-conservative interpretation. It is much easier to access the non-conservative interpretation in the object focal position, while it is harder in the subject position, since it is by default topical (but they can be focused). This difference is probably due to the facilitation getting access to the complement of the set denoted by the property in focus, that is in object position. Furthermore, since the subject position in Italian triggers agreement on the verb, it introduces an additional complication, which we keep aside in this section. As planned, we will come to this remark in the next section (§4), after having described the impact of the relative DP structure on the interpretation.

<sup>18</sup> Predicates expressing temporary properties and events are called stage level predicates, while predicates expressing more permanent properties and characteristics are individual level predicates - see e.g. Milsark (1974), Carlson (1977). As we will see in §§4.1, the individual vs. stage level distinction for predicates in PM sentences is also relevant for the conservative vs. non-conservative interpretation.



If the whole PM DP has a definite determiner, then its inner noun must include a definite determiner as well, or an indefinite determiner modified by a relative clause for both fraction DPs (§§2.2) and percent DPs (§§2.3); the difference between the two DPs is that the main determiner is obligatory in the case of percentages, but optional in the case of fractions. If we insert this type of measure DP in a clause with a predicate we can evaluate how it affects the interpretation. In this configuration, with definite determiners, the interpretation of the PM phrase is obligatorily conservative, as shown for percent DPs in (46) and for fraction DPs in (47).

- (46) *Conservative:*  
 Hanno assunto il trenta per cento {dei / \*di} non vaccinati.  
 they have hired the thirty percent {of the / \*of} unvaccinated.  
 ‘They hired thirty percent of the unvaccinated.’
- (47) *Conservative:*  
 Hanno assunto i due terzi {dei / \*di} non vaccinati.  
 they have hired the two thirds {of the / \*of} unvaccinated.  
 ‘They hired two thirds of the unvaccinated.’

When the head of the whole percent DP is an indefinite determiner, the inner noun can either be introduced by a definite determiner, as in (48), or no (overt) determiner, as in (49). In the former case, the interpretation is again conservative, just like (46), while in the latter case, a non-conservative reading is forced.

- (48) *Conservative:*  
 Hanno assunto un trenta per cento dei non vaccinati.  
 they have hired a thirty percent of the unvaccinated  
 ‘They hired about thirty percent of the unvaccinated.’
- (49) *Non-conservative:*  
 Hanno assunto un trenta per cento di non vaccinati.  
 they have hired a thirty percent of unvaccinated  
 ‘About thirty percent of the people they hired were unvaccinated.’

The same pattern is found with fraction DPs. The inner determiner can be definite, as in (50), or no (overt) inner determiner is present, as in (51). In the former case, the interpretation is again conservative, just like (46), while in the latter case, the non-conservative reading comes about.

- (50) *Non-conservative:*  
 Hanno assunto (un) due terzi dei non vaccinati.  
 they have hired (a) two thirds of the unvaccinated  
 ‘They hired (about) two thirds of the unvaccinated.’
- (51) *Conservative:*  
 Hanno assunto (un) due terzi di non vaccinati.  
 they have hired (a) two thirds of unvaccinated  
 ‘About two thirds of the people they hired were unvaccinated.’

To summarise, in order to get a non-conservative interpretation the proportional measure DP must contain an indefinite inner noun and this in turn requires in the default cases that the main DP determiner is indefinite or absent, the latter is possible only in the case of fractions. However, there are two exceptions to the indefiniteness requirement for the main DP determiner, namely two contexts where the main DP is actually definite and the



inner determiner is nevertheless indefinite. The generalisation on the non-conservative reading remains valid also for these exceptional outer determiners patterns, as long as the inner determiner is absent the non-conservative reading comes about.

The first exception was illustrated already in (40) in §§2.3 and repeated in ((52). Existential sentences involving percent structures with a mass inner noun (*zucchero*) allow the main DP to be definite and the mass inner noun to be indefinite (52). As shown by the translation, the configuration produces a non-conservative interpretation.

- (52) Nella marmellata c'è il dieci percento di zucchero.  
 In the jam there is the ten percent of sugar.  
 'In the jam there is ten percent sugar.'

The parallel construction with a fraction illustrated already in (41) and repeated in (53)) does not constitute an exception to the DP determiners generalisation, in fact when the inner noun is indefinite the main DP determiner must be dropped or must be an indefinite, just like in (51).

- (53) Nella marmellata ci sono (\*i / un) due quinti di zucchero.  
 In the jam there are (the<sub>pl</sub> / a) two fifths of sugar.  
 'In the jam there are (about) two fifths of sugar.'

The second exception is the case of relative clause attached to measure DPs. In these cases in the presence of an indefinite inner noun there must be a definite PM DP to which the relative clause can attach. This requirement applies in the same way to percentages (54) and to fractions (55). As shown by the translations, both these constructions give rise to non-conservative interpretations. In these sentences it is crucial to have the relative clause verb agree with the DP head, otherwise other conservative interpretations come about. Agreement patterns in relative clauses are put aside in this section and will be analysed in detail §§4.2.

- (54) *Non-conservative:*  
 Hanno assunto il trenta percento di non vaccinati che ha avuto il Covid.  
 they have hired the thirty percent of unvaccinated who has had the Covid.  
 'Thirty percent of the unvaccinated had Covid and they hired those people.'
- (55) *Non-conservative:*  
 Hanno assunto i due terzi di non vaccinati che hanno avuto il Covid.  
 they have hired the two thirds of unvaccinated who have had the Covid.  
 'Two thirds of the unvaccinated had Covid and they hired those people.'

Given these exceptions in the determiners pattern, we reach the following two descriptive generalisations:

- (56) **Morpho-Syntactic generalisation 1:** In order to get a non-conservative interpretation the PM DP must contain an indefinite inner noun.
- (57) **Morpho-Syntactic generalisation 2:** When the inner noun is indefinite the outer determiner must also be indefinite unless its definiteness derives from other factors.

### 3.2 Multiple Non-Conservative Interpretations: Adjectives and Focus

Apart from the generalisation we arrived at concerning the indefinite inner noun and the Italian determiners pattern in PM phrases, there is another factor playing a crucial role at the DP level, namely contrastive focus. Actually, this factor is not specific of Italian. Furthermore, contrastive focus is generally marked phonologically, and not morpho-syntactically. However, there are theories incorporating it into the syntax starting from Rizzi's (1997) influential contribution.<sup>19</sup>

It has been noted already for the other languages documented so far that focus plays a crucial role in the emergence of the non-conservative interpretation. For example, reconsider the following German sentence from Ahn & Sauerland (2017:p. 219) which requires focus on the nominative inner noun, indicated by subscript F ((9b) repeated now with focus marking) .

- (58) *Nominative: non-conservative*  
 Dreißig Prozent [Studierende]<sub>F</sub> arbeiten hier.  
 thirty percent [students.NOM]<sub>F</sub> work here  
 'Thirty percent of the workers here are students.'

The relevance of focus is clear also for Italian, as a matter of fact we saw that it is more difficult to get the non-conservative reading in subject position in Italian and for this reason in the current section we are reporting how the PM DP internal structures affect conservativity placing them in object positions of transitive verbs. However, focus can be applied selectively also to subparts of the PM DP when this has a complex internal structure, including a modifier such as an adjective.

Non-conservative measure DPs with an indefinite inner noun and an adjective showcase three different interpretations when the focus is placed on the entire inner noun (59a), when it is restricted solely to the adjective (59b), and when it is restricted to the noun without the adjective (59c).<sup>20</sup>

- (59) a. {Un dieci percento / (Un) due terzi} di [virologi italiani]<sub>F</sub>  
       {a ten percent / (a) two thirds} of [virologists Italian]<sub>F</sub>  
       b. ?{Un dieci percento / (Un) due terzi} di [virologisti [italiani]<sub>F</sub>]  
       {a ten percent / (a) two thirds} of [virologists [Italian]<sub>F</sub>]  
       c. ?{Un dieci percento / (Un) due terzi} di [[virologi]<sub>F</sub> italiani]<sub>F</sub>  
       {a ten percent / (a) two thirds} of [[virologists]<sub>F</sub> Italian]<sub>F</sub>

In the paradigm presented in 3.1 we were dealing with two sets, one evoked by the inner noun inside the PM DPs and one evoked by the predicate of the clause, these two sets lead to a single non-conservative interpretation. Instead, in the paradigm we are looking at in this subsection, four sets are involved. We have the set evoked by the predicate of the clause, and three sets evoked by the modified inner noun: the set denoted by the entire inner noun including the adjective, the set denoted by the adjective alone and the set denoted by the inner noun alone. Each of these sets can give rise to a different non-conservative interpretation and be interpreted as the predicate of the PM instead of its restriction.

<sup>19</sup> In Rizzi (1997) the motivations for a Focus head are conceptual, except a brief mention of a particle in Gungbe which should be analysed as an overt Focus head.

<sup>20</sup> It is harder to get focus on the adjective and the noun alone in (59b) and (59c), excluding the other part of the inner NP. For this reason (59b) and (59c) get a question mark.

If we insert the two percentage DPs introduced in (59a), (59b) and (59c) as objects of a clause, we obtain the three interpretations in the free translations in (60), (61) and (62). They are all non-conservative but the complement set at stake changes according to focus placement: so in the example in (60) the set of Italian virologists is contrasted with the set of all the professionals who are not Italian virologists; in (61) it is contrasted with the set of virologists who are of other nationalities; finally, in (62) it is contrasted with the set of other Italian professionals.<sup>21</sup>

- (60) Hanno assunto un dieci percento di [virologi italiani]<sub>F</sub>, (non infermieri spagnoli).  
they have hired a ten percent of virologists Italian (not nurses Spanish).  
'About ten percent of professionals they hired were Italian virologists.'
- (61) ?Hanno assunto un dieci percento di [virologi [italiani]<sub>F</sub>], (non virologi spagnoli).  
they have hired a ten percent of virologists Italian, (not virologists Spanish).  
'About ten percent of virologists they hired were Italian.'
- (62) ?Hanno assunto un dieci percento di [[virologi]<sub>F</sub> italiani] (non infermieri italiani).  
they have hired a ten percent of virologists Italian, (not nurses Italian).  
'About ten percent of Italian people they hired were virologists.'

The same pattern is found if we insert the three fractions DPs introduced in (59a), (59b) and (59c). Parallel to (60), (63) the set of Italian virologists is contrasted to the set of professionals who are not Italian virologists. Like in (61), in (64) the set is contrasted with the set of virologists who are of other nationalities. Finally, parallel to (62), in (65) the set is contrasted with the set of other Italian professionals.

- (63) Hanno assunto (un) due terzi di [virologi italiani]<sub>F</sub>, (non infermieri spagnoli).  
they have hired (a) two thirds of virologists Italian, (not nurses Spanish).  
'About two thirds of the professionals they hired were Italian virologists.'
- (64) ?Hanno assunto (un) due terzi di [virologi [italiani]<sub>F</sub>], (non virologi spagnoli).  
they have hired (a) two thirds of virologists Italian, (not virologists Spanish).  
'About two thirds of the virologists they hired were Italian.'

<sup>21</sup> Rizzi (1997) observes that "focalization" (fronting of a focus) is only available for contrastive focus in Italian, and notes that there is another kind of focus which is not fronted (left *in situ*, and indicated by stress) and which may or may not be contrastive. Unfortunately, we cannot use Italian focus fronting possibility to test the role of focus with respect to conservativity, due to the obligatory insertion of *ne* when an *of*-phrase is fronted and the fact that *ne* reinstates a conservative interpretation as illustrated by the free translation of (i). For an in depth analysis of Italian *ne* see Falco & Zamparelli (2016).

(i) DI VIROLOGI ITALIANI *ne* hanno assunti un dieci percento, (non di infermieri spagnoli).  
of virologists Italian ones they have hired a ten percent, (not of nurses Spanish).  
'They hired about ten percent of the Italian virologists.'

- (65) ?Hanno assunto (un) due terzi di [[virologi]<sub>F</sub> italiani], (non infermieri italiani).  
 they have hired (a) two thirds of virologists Italian, (not nurses Italian).  
 ‘About two thirds of Italian people they hired were virologists.’

The same pattern we reported here for inner nouns modified by adjectives applies also to more complex inner noun modifiers such as relative clauses. However, before approaching systematically the topic of focus with relative clause modifiers (§§4.3) we need to study verbal agreement patterns and how they affect the conservative and non-conservative interpretation in main clauses §4.1 and in complex sentences with subordinate relative clauses §4.2.

For the time being, we can add to the three generalisations we arrived at in the previous section the following generalisation on the role of focalisation:

- (66) **Semantic generalisation 2:** In order to get a non-conservative interpretation at least part of the indefinite inner noun must be contrastively focalised and focalisation determines different non-conservative interpretations.

## 4 Proportions and Verbal Agreement

Italian adjectives which we introduced in the previous section (§§3.2) always agree both in number and in gender with the preceding noun. Therefore, when adjectives occur within a complex DP composed of multiple nouns, such as a measure phrase, they must agree with the adjacent name they modify. In the case of measure phrases this means that adjectives must agree with the inner noun as we saw throughout the previous section paradigms. Instead, agreement with the measure DP head is ungrammatical, as illustrated by the sharp ungrammaticality of the examples in (67), involving an absolute measure, a percentage and a fraction respectively.

- (67) a. \*[un centinaio]<sub>Sg.Masc</sub> di [donne<sub>Pl.Fem</sub> italiano<sub>Sg.Masc</sub>]  
           about a hundred of women Italian  
       b. \*[un dieci percento]<sub>Sg.Masc</sub> di [donne<sub>Pl.Fem</sub> italiano<sub>Sg.Masc</sub>]  
           about ten percent of women Italian  
       c. \*[due terzi]<sub>Pl.Masc</sub> di [donne<sub>Pl.Fem</sub> italiani<sub>Pl.Masc</sub>]  
           two thirds of women Italian

Contrary to adjectives, in colloquial Italian complex subject DPs, such as PM phrases, can trigger verbal agreement either with the head DP or with the inner NP in a number of different constructions. Crucially, object DPs do not trigger verbal agreement, in fact so far we discussed mainly measure phrases in object position since one of the elements which prevents non-conservative interpretations in subject position is precisely the verbal agreement variation, which we decided to keep aside for clarity of presentation until the current section.

The agreement patterns are introduced here with a passive construction built with a participle presenting both number and gender agreement in Italian. With the appropriate measure DP choice, this tense allows to explore the full spectrum of the agreement paradigm. Obviously, it is not necessary to see both agreements, and any mismatch, either of number or of gender, is sufficient to discriminate which is the agreement trigger.

In the following paradigms we aim to showcase the space of possibilities allowed by the agreements patterns with passive verbs without describing how these affect the conservative vs. non-conservative interpretations for PM phrases, at this introductory stage.

Due to this morphological focus, the examples are glossed, but the free translation is not provided, until §4.1.

For absolute measure phrases the pattern is illustrated in the examples in (68a) with verbal agreement with the inner noun, and (68b) with verbal agreement with the main DP. Since mass inner nouns are singular, we can appreciate the agreement mismatch for both number and gender using a plural measure phrase (*two kilos*).

- (68) a. ?[Due chili<sub>Pl.Msc</sub> {di / della} pasta<sub>Sg.Fem</sub>]<sub>Sg.Msc</sub> [è stata consumata]<sub>Sg.Fem</sub>.  
 [Two kilos {of / of the} pasta] [is been consumed].  
 b. [Due chili<sub>Pl.Msc</sub> {di / della} pasta<sub>Sg.Fem</sub>]<sub>Sg.Msc</sub> [sono stati consumati]<sub>Pl.Msc</sub>.  
 [Two kilo {of / of the} pasta] [is been consumed].

In percentage DPs which are always singular in Italian but can feature a countable plural inner noun, it is also possible to observe a mismatch in both number and gender. In fraction DPs it is possible to obtain the same contrast as in percentages when they denote one part and are thus singular ((69a) vs. (69b)). When fractions are plural, of course there is no mismatch with a plural inner noun. However, in the case of plural fractions a number and gender agreement contrast can be obtained with a singular mass inner noun ((70a) vs. (70b)).

- (69) a. [{[Il/Un dieci percento]<sub>Sg.Msc</sub> / [Un terzo]<sub>Sg.Msc</sub>} {di / delle} donne<sub>Pl.Fem</sub>]<sub>Sg.Msc</sub>  
 [{[The/A ten percent] / [A third]} {of / of the} women]  
 [sono state assunte]<sub>Pl.Fem</sub>.  
 are been hired.  
 b. [{[Il/Un dieci percento]<sub>Sg.Msc</sub> / [Un terzo]<sub>Sg.Msc</sub>} {di / delle} donne<sub>Pl.Fem</sub>]<sub>Sg.Msc</sub>  
 [{[The/A ten percent] / [A third]} {of / of the} women]  
 [è stato assunto]<sub>Sg.Msc</sub>.  
 is been hired.
- (70) a. [Due terzi {di / delle} pasta<sub>Sg.Fem</sub>]<sub>Pl.Msc</sub> [è stata consumata]<sub>Sg.Fem</sub>.  
 [Two thirds {of / of the} pasta] [is been consumed].  
 b. [Due terzi {di / delle} pasta<sub>Sg.Fem</sub>]<sub>Pl.Msc</sub> [sono stati consumati]<sub>Pl.Msc</sub>.  
 [Two thirds {of / of the} pasta] [are been consumed].

The appendix A shows that the same agreement possibilities with the full PM DP or with its inner noun we just presented for passive verbs are found with other types of verbs as well. There are quite a few psycholinguistic studies on agreement processing looking at verb agreement with complex subject DPs (*proximity concord* – for Italian, starting from Vigliocco et al. (1995)). These studies generally consider all the instances of agreement with the inner noun a processing errors. Actually, the majority of the examples these works discuss involve real processing errors, however, we maintain that in the structures we are studying here, namely PM DPs, there is an actual grammatical optionality with a different interpretation depending on the verbal agreement pattern. The interpretive import of this variation can actually be fully appreciated by looking at how the conservative vs. non-conservative interpretations are affected by the two agreement options. This is the topic of the next subsection.

#### 4.1 Verbal Agreement and (Non-)Conservativity in Main Clauses

This section illustrates the relevance of verbal agreement on top of the indefinite inner noun requirement for marking the conservative vs. non-conservative interpretation in main clause.

When the subject is a definite (71) or a conservative indefinite measurement structure (72), the predicate can agree with the head of the whole DP or with the inner noun but this is irrelevant for conservativity, as both cases remain conservative due to the presence of a definite inner noun (*degli studenti*) §3.

- (71) *Conservative:*  
 Il trenta per cento degli studenti {lavora / lavorano} qui.  
 The thirty percent of the students<sub>pl</sub>]<sub>Sng</sub> {works<sub>Sng</sub> / work<sub>pl</sub>} here.  
 ‘Thirty percent of the students work here.’

- (72) *Conservative:*  
 Un trenta per cento degli studenti {lavora / lavorano} qui.  
 [A thirty percent of the students<sub>pl</sub>]<sub>Sng</sub> {works<sub>Sng</sub> / work<sub>pl</sub>} here.  
 ‘About thirty percent of the students work here.’

Instead, if a non-conservative indefinite PM structure is the subject, agreement becomes relevant for the conservative vs. non-conservative distinction: agreement with the head of the whole determiner (73) forces a non-conservative interpretation, while agreement with the inner nouns leads to a conservative interpretation (74).

- (73) *Non-conservative:*  
 Un trenta per cento di studenti lavora qui.  
 [A thirty percent of students<sub>pl</sub>]<sub>Sng</sub> works<sub>Sng</sub> here.  
 ‘About thirty percent of the workers here are students.’

- (74) *Conservative:*  
 Un trenta per cento di studenti lavorano qui.  
 [A thirty percent of students<sub>pl</sub>]<sub>Sng</sub> work<sub>pl</sub> here.  
 ‘About thirty percent of the students work here.’

At this point we can introduce the relevance of the individual-level vs. stage-level distinction of the predicate for the conservative vs. non-conservative distinction. The terms individual-level and stage-level predicate were coined by Carlson (1977) (following the proposal of Milsark (1974)) in order to make a distinction between predicates that apply to an individual for the entire duration of its existence or just to a stage of its respectively.<sup>22</sup> The individual vs. stage level distinction is relevant for a number of grammatical phenomena. For example, individual-level predicates are not compatible with locative and temporal expressions, cannot occur in when-clauses, can be predicated only of strong subjects, and demonstrate lifetime effects; instead, stage-level predicates, are friendly towards locatives, when-clauses, can be predicated of strong and weak subjects and do not exhibit lifetime effects. We add to this list of phenomena also the conservative vs. non-conservative distinction: namely, individual level predicates give rise to a conservative reading, irrespective of the agreement pattern. In (75) the predicate *be Italian* does agree with the whole PM DP, but semantically it denotes an individual level property: the nationality is an inherent property which does not change during the lifetime of an individual, in peaceful times. Intuitively, individual level properties being

<sup>22</sup> More recent influential accounts are offered by Diesing (1992), Kratzer (1995), and Krifka et al. (1995).



inherent to the inner noun *students* have a strong tie to it and for this reason cannot be easily applied to the complement set of the inner noun, even if the structural requirement of agreeing with the entire PM DP is respected (is in (75)). Instead, stage level predicates (*works* in (73)) can easily be applied to the complement set of the inner noun, thus facilitating the non-conservative interpretation, when the structural requirement of agreement with the PM DP is respected.

- (75) *Conservative - individual level predicate:*  
 Qui un trenta percento di studenti è italiano.  
 Here [A thirty percent of students<sub>pl</sub>]<sub>Sng</sub> is<sub>Sng</sub> Italian.  
 ‘Here about thirty percent of the students are Italian.’

Therefore, we can add the semantic generalisation in (76), to the ones we already reached in the previous section.

- (76) **Semantic generalisation 3:** In order to get a non-conservative interpretation the main predicate must denote a stage level property.

As discussed in §3.1, since this distinction belongs to the lexical semantics of the predicates, we do not discuss it further in this paper. However, in order to study the role of the verbal agreement patterns in producing conservative and non-conservative interpretations, we will have to chose examples with stage level predicates.<sup>23</sup>

Having established the role of number agreement in (73)-(74), we can now study the role of gender agreement. The role of gender agreement can be tested in isolation in sentences involving the auxiliary *essere* (‘to be’), such as passives, and a singular mass nouns (such as *beer*). When the subject is a definite (71) or a conservative indefinite measurement structure (72) the predicate can agree with the head of the whole DP or with the inner noun, but this is irrelevant for conservativity, as both cases remain conservative (77).

- (77) *Conservative:*  
 {Il / Un} trenta percento della birra è {stata consumata /  
 [{The / A} thirty percent of the beer<sub>Fem</sub>]<sub>Masc</sub> is {been<sub>Fem</sub> consumed<sub>Fem</sub> /  
 stato consumato} alla festa.  
 been<sub>Masc</sub> consumed<sub>Masc</sub>} at the party.  
 ‘About thirty percent of the beer was consumed at the party.’

Instead, if the non-conservative indefinite measurement structure (parallel to (73)) is the subject, agreement becomes relevant for the conservative vs. non-conservative distinction: agreement with the head of the whole determiner (78) forces a non-conservative interpretation, while agreement with the inner noun leads to a conservative interpretation (79).

- (78) *Non-conservative:*  
 Solo un trenta percento di birra è stato consumato alla festa, (per  
 only [a thirty percent of beer<sub>Fem</sub>]<sub>Msc</sub> is been<sub>Msc</sub> consumed<sub>Msc</sub> at the party, (for

<sup>23</sup> Mikhailov (2008) shows that the individual vs. stage level semantic distinction could actually be morpho-syntactically marked in Russian. She describes copular sentences showing that nominative and instrumental predicates have the same semantic properties of individual and stage level predicates respectively. Crucially, the author proposes a structural difference between instrumental and nominative predicates that accounts for their difference in assuming Topic and Focus functions. She shows that nominative predicates (that is individual level predicates) cannot be assigned contrastive focus.



il resto bevande analcoliche.)

the rest non-alcoholic drinks.)

‘Only about thirty percent of what was consumed at the party was beer.’

(79) *Conservative:*

Solo un trenta percento di birra è stata consumata alla festa,

Only [a thirty percent of beer<sub>Fem</sub>]<sub>Msc</sub> is been<sub>Fem</sub> consumed<sub>Fem</sub> at the party,

(quella rimasta è nel fusto.)

(that remaining is in the keg.)

‘Only about thirty percent of the beer was consumed at the party.’

In conclusion, in this section we have reached the morpho-syntactic generalisation in (80):

(80) **Morpho-syntactic generalisation 3:** In order to get a non-conservative interpretation the main verb cannot agree with inner noun.

## 4.2 Verbal Agreement and (Non-)Conservativity with Relative Clauses

We can now zoom out of the simple clause to look at verbal agreement patterns in complex sentences including a subordinate relative clause. This will uncover a *prima facie* counterexample to the generalisation on the inner and outer determiners, namely that if the outer determiner is definite the inner determiner must be definite as well, or modified by a relative clause.

In a percent DP with a definite (81) or indefinite (82) plural count inner noun and a relative clause with plural agreement on the verb, the relative clause attaches to and restricts only the inner nouns *{degli / di} studenti*. As indicated by the free translations, the set of students who have passed the oral exam is a subset of the set of students who have passed the written exam, including only ten percent of those. In this case, the main clause verb can agree either with the entire singular percent DP (*ha*), or with the plural inner noun (*hanno*).

(81) *Definite inner noun - Plural agreement:*

Il dieci percento degli studenti che hanno superato l'esame scritto

[The ten percent of the students<sub>Pl</sub>]<sub>Sg</sub> who have<sub>Pl</sub> passed the exam written

{ha / hanno} superato anche l'orale

{has / have} passed also the oral

‘Ten percent of the students who have passed the written exam have passed also the oral exam’

(82) *Indefinite inner noun - Plural agreement:*

?Il dieci percento di studenti che hanno superato l'esame scritto {ha

[The ten percent of students<sub>Pl</sub>]<sub>Sg</sub> who have<sub>Pl</sub> passed the exam written {has

/ hanno} superato anche l'orale

/ have} passed also the oral

‘Ten percent of the students who have passed the written exam have passed also the oral exam’

In a percent DP with a definite (83) or indefinite (84) plural count inner noun and a relative clause with singular agreement on the verb, the relative clause attaches to and restricts the entire DP *il dieci percento {di / degli} studenti*. In both these cases, the main clause verb can agree only with the entire singular percent DP (*ha*), and plural agreement

with the inner noun (*hanno*) is not possible. As indicated by the free translations, the set of students who have passed the written exam is the same set of students who have passed also the oral exam. Therefore the sentences (83) and (84) denote a bigger set than (81) and (82). Interestingly, (84) with the indefinite inner noun has a non-conservative interpretation as indicated by the free translation: the restriction is the set of people who sat the exam, which can be accessed from the relative clause, and not the set of students.<sup>24 25</sup>

(83) *Definite inner noun - Singular agreement:*

Il dieci percento degli studenti che ha superato l'esame scritto  
 [The ten percent of the students<sub>pl</sub>]<sub>sg</sub> who has<sub>sg</sub> passed the exam written  
 {ha / \*hanno} superato anche l'orale  
 {has / \*have} passed also the oral  
 'Ten percent of all the students has passed the written exam and those students have passed also the oral exam'

(84) *Indefinite inner noun - Singular agreement:*

Il dieci percento di studenti che ha superato l'esame scritto {ha  
 [The ten percent of students<sub>pl</sub>]<sub>sg</sub> who has<sub>sg</sub> passed the exam written {has  
 / \*hanno} superato anche l'orale  
 / \*have} passed also the oral  
 'Ten percent of all the people who passed the exam were students (as opposed to non-students) and those students passed also the oral exam'

The same pattern we saw for percentages, applies to fraction DPs. While Italian percentages are always singular, fractions can be either singular or plural. In order to get a number mismatch, necessary for exploring the role of agreement, a plural inner noun must be present when the fraction is singular, and a singular mass inner noun must be

<sup>24</sup> The non-conservative meaning in the case with indefinite inner noun and singular agreement emerges more clearly in (i) where there is an adjective (*Chinese*) modifying the indefinite inner noun, or using a different inner noun which can more easily be contrasted (see the generalisation in (45) and example (16)).

(i) *Indefinite inner noun - Singular agreement*

Il dieci percento di studenti cinesi che ha superato l'esame scritto ha superato  
 [The ten percent of students<sub>pl</sub>]<sub>sg</sub> Chinese who has<sub>sg</sub> passed the exam written have passed  
 anche l'orale  
 also the oral  
 'Ten percent of all students who passed the exam were Chinese students and those Chinese students passed also the oral exam'

<sup>25</sup> As we saw in (40) in §2.3 percentages with a mass inner noun are an exception to the blocking effect of an indefinite inner noun: the clause in (i) with a definite article introducing the PM DP is grammatical and non-conservative, without the presence of a relative clause. Of course, the same pattern persists also in the presence of a relative clause (ii).

- (i) Le scorte alimentari contengono il/un dieci percento di riso  
 The reserves food contains the/a ten percent of rice  
 'Ten percent of the whole food reserves is rice'
- (ii) Il/un dieci percento di riso che fa parte delle scorte alimentari  
 The/about ten percent of rice that make part of the reserves food  
 'Ten/about ten percent of the food reserves is composed of rice'

It would be interesting to look at the patterns of verbal agreement and relative clause attachment identified here for PM constructions, in the context of partitive constructions to study how Barker's (1998) anti-uniqueness effect comes about.

present when the fraction is plural. For the sake of brevity, we omit the paradigms with definite inner nouns where agreement does not play any role: the singular fraction and plural count inner noun is reported in (85) and (86); the paradigm with the plural fraction and singular mass inner noun is reported in (87) and (88).

- (85) *Conservative – singular fraction and plural inner noun:*  
 Un terzo di studentesse che hanno superato l'esame scritto {ha /  
 [One third of students<sub>Pl.Fem</sub>]<sub>Sg</sub> who have<sub>Pl</sub> passed the exam written {has /  
 hanno} superato anche l'orale.  
 have} passed also the oral.  
 'One third of the students who have passed the written exam have passed also  
 the oral exam'
- (86) *Non-conservative – singular fraction and plural inner noun:*  
 Un terzo di studentesse che ha superato l'esame scritto {ha /  
 [One third of students<sub>Pl.Fem</sub>]<sub>Sg</sub> who has<sub>Sg</sub> passed the exam written {has /  
 \*hanno} superato anche l'orale.  
 have} passed also the oral.  
 'One third of the students who have passed the written exam have passed also  
 the oral exam'
- (87) *Conservative – plural fraction and singular inner noun:*  
 [Due terzi di birra<sub>Sg.Fem</sub>]<sub>Pl.Msc</sub> che [è stata bevuta]<sub>Sg.Fem</sub>  
 [The two thirds of beer<sub>Sg.Fem</sub>]<sub>Pl.Msc</sub> which [are been drunk]<sub>Sg.Fem</sub>  
 alla festa non {[è costata]<sub>Sg.Fem</sub> / [sono costati]<sub>Pl.Msc</sub>} molto.  
 at the party not {is costed / are costed} much.  
 'The two thirds of the beer which was drunk at the party did not cost much (one  
 third instad was not so cheap).'
- (88) *Non-conservative – plural fraction and singular inner noun:*  
 [?(I) due terzi di birra<sub>Sg.Fem</sub>]<sub>Pl.Msc</sub> che [sono stati bevuti]<sub>Pl.Msc</sub> alla festa  
 [The two thirds of beer<sub>Sg.Fem</sub>]<sub>Pl.Msc</sub> which [are been drunk]<sub>Pl.Msc</sub> at the party  
 non {[\*è costata]<sub>Sg.Fem</sub> / [sono costati]<sub>Pl.Msc</sub>} molto.  
 not {is costed / are costed} much.  
 'The two thirds of the drinks drunk at the party were beer and those beer did not  
 cost much.'

Looking at the paradigms we reach the following generalisation concerning the relative clause agreement patterns: while agreement with the inner noun makes it definite and allows it to occur in the context of a definite outer determiner, exactly as in main clauses 4.1, when the relative clause agrees with the whole DP, the relative clause itself satisfies the requirements of the definite article on the main DP, so that in this configuration the inner noun can be indefinite and thus give rise to the non-conservative interpretation.

In order to include the complex sentences with subordinate clauses, the descriptive generalisation we reached at the end of §§4.1 needs to be enriched with the descriptive generalisation (89).<sup>26</sup>

<sup>26</sup> The same distinction is marked in English by the presence (in (i) and (ii)) or absence (in (iii) and (iv)) of the definite article on the main percent DP. When there is a definite article on the PM DP the relative clause attaches to the entire DP, whereas when there is not the definite article on the PM DP the relative clause attaches lower to the definite (*of the students*) or indefinite (*of students*) inner noun. We leave the study of the role of verbal agreement in English in the main clause and in the relative clause to future investigations: English differentiates between singular and plural in past participles found with present perfect and past perfect, as shown in the examples ( {has / have} ).

- (89) **Morpho-Syntactic Generalisation 4:** In order to get a non conservative interpretation the subordinate clause verb must not agree with the inner noun.

### 4.3 Relative Clauses and Focus: Multiple Non-Conservative Interpretations

We can now go back to the final observation of §§3.2 concerning the role of focus on relative clause modifiers, instead of adjectives which were the topic of that subsection. At the same time, uncovering the role of focus on relative clauses adds another level of complication to the agreement patterns just discussed in §§4.2. In other words in this section we will see complex examples where all the factors in the descriptive generalisations we arrived at, both morpho-syntactic ((56), (57), (80), (89)) and semantic ((45), (66), (76)), come into play and interact with each others

Consider the case of percentages. When the verb agrees with a plural inner noun it behaves *de facto* as a definite, so that focus placement on the entire inner noun (90), on the relative clause (91), or on the head of the relative clause (92), does not make any difference on the interpretation cf. (74). Of course, this case does not arise with adjectives, as they do not showcase agreement variation.<sup>27</sup>

- (90) Hanno assunto [un/il dieci percento]<sub>Sg.Msc</sub> di [donne<sub>Pl.Fem</sub> [che parlano<sub>Pl</sub> italiano]]<sub>F</sub>.  
 they have hired a/the ten percent of [women who speak Italian]<sub>F</sub>.  
 ‘They hired ten percent of the women who speak Italian’

- (i) *Indefinite inner noun - definite percent:*  
 The ten percent of students who {has / have} passed the written exam {has / have} passed also the oral exam.  
 ‘Ten percent of all the students have passed the written exam and those students have passed also the oral exam’
- (ii) *Definite inner noun - definite percent:*  
 The ten percent of the students who {has / have} passed the written exam {has / have} passed also the oral exam.  
 ‘Ten percent of the students who have passed the written exam have passed also the oral exam’
- (iii) *Indefinite inner noun - determinerless percent*  
 Ten percent of students who {has / have} passed the written exam {has / have} passed also the oral exam.  
 ‘Ten percent of the students who have passed the written exam have passed also the oral exam’
- (iv) *Definite inner noun - determinerless percent*  
 Ten percent of the students who {has / have} passed the written exam {has / have} passed also the oral exam.  
 ‘Ten percent of the students who have passed the written exam have passed also the oral exam’

<sup>27</sup> The examples in the text are comparable to a case with adjective and definite inner noun, where focus on the adjective alone *virologi*, or on the entire PP *dei virologi italiani* cannot lead to an interpretive difference:

- (i) Hanno assunto un dieci percento dei virologi italiani.  
 They have hired a ten percent of the virologists Italian.  
 ‘They have hired about ten percent of the Italian virologists’.

- (91) Hanno assunto [un/il dieci percento]<sub>Sg.Msc</sub> di [donne<sub>Pl.Fem</sub> [che parlano<sub>Pl</sub> italiano]<sub>F</sub>].  
 they have hired a/the ten percent of [women [who speak Italian]<sub>F</sub>].  
 ‘They hired ten percent of the women who speak Italian’
- (92) Hanno assunto [un/il dieci percento]<sub>Sg.Msc</sub> di [donne<sub>Pl.FemF</sub> [che parlano<sub>Pl</sub> italiano]]<sub>F</sub>.  
 they have hired a/the ten percent of [women [who speak Italian]<sub>F</sub>].  
 ‘They hired ten percent of the women who speak Italian’

Instead when there is singular agreement with the main percentage DP, we get three different non-conservative interpretations depending on focus placement, as it happens in the case of adjectives seen in §§3.2: (60), (61) (62). The interpretations are all non-conservative but the complement set at stake changes according to focus placement: so in the example in (93) the set of Italian speaking women is contrasted with the set of all the other candidates, no matter their sex or spoken languages. In (94), where *women* is not contrastively focalised, the set of Italian speaking women is contrasted with the set of female candidates who speak other languages. Finally, in (95), the set of Italian speaking women is contrasted with the set of men who speak Italian, since *who speak Italian* is not contrastively focalised.

- (93) Hanno assunto [il dieci percento]<sub>Sg.Msc</sub> di [donne<sub>Pl.Fem</sub> [che parla<sub>Sg</sub> italiano]]<sub>F</sub>,  
 they have hired a/the ten percent of [women who speak Italian]<sub>F</sub>,  
 (non di uomini che parla russo).  
 (not of men who speak Russian).  
 ‘About ten percent of all the candidates are Italian speaking females and they hired those women.’
- (94) Hanno assunto [il dieci percento]<sub>Sg.Msc</sub> di [donne<sub>Pl.Fem</sub> [che parla<sub>Sg</sub> italiano]]<sub>F</sub>,  
 they have hired the ten percent of [women [who speak Italian]<sub>F</sub>],  
 (non di donne che parla russo).  
 (not of women who speak Russian).  
 ‘About ten percent of the female candidates are Italian speakers and they hired those women.’
- (95) Hanno assunto [il dieci percento]<sub>Sg.Msc</sub> di [donne<sub>Pl.FemF</sub> [che parla<sub>Sg</sub> italiano]]<sub>F</sub>,  
 they have hired the ten percent of [women<sub>F</sub> [who speak Italian]]<sub>F</sub>,  
 (non di uomini che parla italiano).  
 (not of men who speak Italian).  
 ‘About ten percent of the Italian speaking candidates are women and they hired those women.’

The same paradigm can be replicated for plural fractions with singular mass inner noun. With singular agreement with the inner noun the indefinite inner noun behaves as a definite and focus does not affect the interpretation, exactly as it happened respectively in (90), (91) and (92) (cf. (74)).

- (96) [I due terzi]<sub>Pl.Msc</sub> di [zucchero]<sub>Sg.Msc</sub> [che è<sub>Sg</sub> nella credenza]<sub>F</sub> {[è scaduto]<sub>Sg.Msc</sub>  
 The two thirds of sugar that is in the cupboard {is expired  
 / [sono scaduti]<sub>Pl.Msc</sub>}.  
 / are expired}.  
 ‘Two thirds of the sugar that is in the cupboard is expired’
- (97) [I due terzi]<sub>Pl.Msc</sub> di [zucchero]<sub>Sg.Msc</sub> [che è<sub>Sg</sub> nella credenza]<sub>F</sub> {[è scaduto]<sub>Sg.Msc</sub>  
 The two thirds of sugar that is in the cupboard {is expired  
 / [sono scaduti]<sub>Pl.Msc</sub>}.  
 / are expired}.  
 ‘Two thirds of the sugar that is in the cupboard is expired’
- (98) [I due terzi]<sub>Pl.Msc</sub> di [zucchero]<sub>Sg.MscF</sub> [che è<sub>Sg</sub> nella credenza]<sub>F</sub> {[è scaduto]<sub>Sg.Msc</sub>  
 The two thirds of sugar that is in the cupboard {is expired  
 / [sono scaduti]<sub>Pl.Msc</sub>}.  
 / are expired}.  
 ‘Two thirds of the sugar that is in the cupboard is expired’

When there is plural agreement with the main fraction DP, we get three different non-conservative interpretations depending on focus placement in parallel to what we just saw with percentages in (93), (94) and in (95), as illustrated by the free translations of (99), (100) and (101).

- (99) [I due terzi]<sub>Pl.Msc</sub> di [zucchero]<sub>Sg.Msc</sub> [che sono<sub>Pl</sub> nella credenza]<sub>F</sub> {\*[è scaduto]<sub>Sg.Msc</sub>  
 The two thirds of sugar that are in the cupboard {is expired  
 / [sono scaduti]<sub>Pl.Msc</sub>} (non di latte che sono nel frigo).  
 / are expired} (not of milk which are in the frigo).  
 ‘Two thirds of all the foods are sugar stored in the cupboard and those are expired’
- (100) [I due terzi]<sub>Pl.Msc</sub> di [zucchero]<sub>Sg.Msc</sub> [che sono<sub>Pl</sub> nella credenza]<sub>F</sub> {\*[è  
 The two thirds of sugar that are in the cupboard {is  
 scaduto]<sub>Sg.Msc</sub> / [sono scaduti]<sub>Pl.Msc</sub>} (non di zucchero che sono in cantina).  
 expired / are expired} (not of sugar which are in cellar).  
 ‘Two thirds of the sugar in the house are stored in the cupboard and those are expired’
- (101) [I due terzi]<sub>Pl.Msc</sub> di [zucchero]<sub>Sg.MscF</sub> [che sono<sub>Pl</sub> nella credenza]<sub>F</sub> {\*[è  
 The two thirds of sugar that is in the cupboard {is  
 scaduto]<sub>Sg.Msc</sub> / [sono scaduti]<sub>Pl.Msc</sub>} (non di latte che sono nella credenza).  
 expired / are expired} (not of milk which are in the cupboard).  
 ‘Two thirds of the things in the cupboard are sugar and those are expired’

The agreement mismatch with fractions can be obtained also using a singular fraction with a plural inner noun such as *one third of women*, since the agreement pattern and the interpretation mirrors the case of percentages which are singular ((93), (94), (95)), we do not report it here in detail.

## 5 Conclusions

In this paper, we have discussed in detail the conditions for the availability of non-conservative readings with precise measurements in Italian. We have argued for four morpho-syntactic conditions necessary to get a non-conservative reading:





out of the DP ([1.] and [2a.]). However, this theory has nothing to say concerning the agreement facts both in the main clause ([3.]) and in relative clauses and the possibility of non-conservative readings with a definite article when there is a relative clause ([2b.] and [4.]). Furthermore, Pasternak & Sauerland's (to appear) account of German data does not have anything to say about the requirement of a determiner in front of Italian percentages §§2.3.

Falco & Zamparelli (2019:§§4.1) are the only work so far on Italian percentages and fractions. The authors by comparing Italian and English advance a proposal to explain precisely the determiner requirement in Italian, but do not consider the conservative non-conservative distinction with proportions and therefore do not predict the empirical generalisations related to conservativity uncovered here.

Following Longobardi's proposal that Italian, contrary to English, is a *strong reference* language overtly associating both object- and kind-referential nouns (proper names and referential generics) with D, the authors propose that percentages, like proper names and referential generics, involve a *generic article*. This generic determiner is seen in (104) where no modifier is required. Instead English does have a non-generic definite determiner so that (105a) is ungrammatical, unless a relative clause is present (105b) (Falco & Zamparelli 2019: ex. (54), (55), (56)).

- (104) \* (Il) {✓quaranta percento / ✓cento percento} dei dottori raccomanda  
the {forty percent / one hundred percent} of the doctors recommends  
questo dentifricio ...  
this toothpaste ...  
'The {forty percent / one hundred percent} of the doctors recommends this  
toothpaste ...'
- (105) a. ??The {twenty percent / one hundred percent} of the doctors recommend  
this.  
b. The fifty percent of Americans who don't pay income tax will never be a  
good revenue source.

As we saw in the paper, when we consider indefinite inner nouns in percentage DPs, a relative clause is needed in Italian like in English ((39) repeated in (106)), but we would not expect this according to the hypothesis that the PM DP definite is a purely generic definite article. Only in the cases involving mass nouns (40), repeated in (107), the relative clause is not required and actually not allowed, therefore only this case perhaps involves the "generic definite" proposed by Falco & Zamparelli (2019:§§4.1).

- (106) {il / quel} dieci percento di studenti \*(che hanno superato l'esame)  
{the / that} ten percent of students (that have passed the exam)
- (107) Nella marmellata c'è il dieci percento di zucchero (\*che ho comprato).  
In the jam there is the ten percent of sugar (that have bought).  
'In the jam there is ten percent sugar (that I have bought).'

Even if they provide insights for analysis, none of the proposals advanced in the literature so far satisfactorily accounts for the empirical complexity uncovered in the present contribution, which thus calls for new theories.

Similarity between non conservative readings and pseudopartitives in the agreements patterns:

Un kilo di mele sono sono sul tavolo

Analysis reorder the elements at LF so that the sets involved end up in the right order of interpretation and the reversal is undone.

The cases where the reordering is not possible are due to

## A Verbal agreement patterns with different types of verbs

The paradigms presented in this appendix are made with stage and individual level predicates since the distinction is relevant for conservativity, as explained in §§4.1 and in particular (76).

With Italian verbs that do not take *to be* as their auxiliary, that is passives and unaccusatives, we cannot see gender mismatches, but only number.

There is an exception to agreement possibilities paradigm: “collective predicates” which allow only agreement with the full PM DP and not with its inner NP, both in sentences involving fraction DPs and percent DPs. Researching the reason for this empirical observation is left for future research.

### Transitives

#### Stage level

##### Fraction DPs

- (108) a. [Un terzo [di donne]<sub>Pl.Fem</sub>]<sub>Sg.Msc</sub> {ha<sub>Sg</sub> / ?hanno<sub>Pl</sub>} superato l’esame.  
 A third of women {has / ?have} passed the exam.  
 b. [Un terzo [delle donne]<sub>Pl.Fem</sub>]<sub>Sg.Msc</sub> {ha<sub>Sg</sub> / ?hanno<sub>Pl</sub>} superato l’esame.  
 A third of the women {has / ?have} passed the exam.

##### Percent DPs

- (109) a. [Un un percento [di donne]<sub>Pl.Fem</sub>]<sub>Sg.Msc</sub> {ha<sub>Sg</sub> / ?hanno<sub>Pl</sub>} superato l’esame.  
 A one percent of women {has / ?have} passed the exam.  
 b. [L’un percento [delle donne]<sub>Pl.Fem</sub>]<sub>Sg.Msc</sub> {ha<sub>Sg</sub> / ?hanno<sub>Pl</sub>} superato  
 The one percent of the women {has / ?have} passed  
 l’esame.  
 the exam.  
 c. [Un un percento [delle donne]<sub>Pl.Fem</sub>]<sub>Sg.Msc</sub> {ha<sub>Sg</sub> / ?hanno<sub>Pl</sub>} superato  
 A one percent of the women {has / ?have} passed  
 l’esame.  
 the exam.

### Individual level

##### Fraction DPs

- (110) a. [Un terzo [di donne]<sub>Pl.Fem</sub>]<sub>Sg.Msc</sub> {ha<sub>Sg</sub> / ?hanno<sub>Pl</sub>} gli occhi azzurri.  
 A third of women {has / ?have} the eyes blue.  
 b. [Un terzo [delle donne]<sub>Pl.Fem</sub>]<sub>Sg.Msc</sub> {ha<sub>Sg</sub> / ?hanno<sub>Pl</sub>} gli occhi azzurri.  
 A third of the women {has / ?have} the eyes blues.

##### Percent DPs

- (111) a. [Un un percento [di donne]<sub>Pl.Fem</sub>]<sub>Sg.Msc</sub> {ha<sub>Sg</sub> / ?hanno<sub>Pl</sub>} gli occhi  
 A one percent of women {has / ?have} the eyes  
 azzurri.  
 blue.

- b. [L'un   per cento [delle donne]<sub>Pl.Fem</sub>]<sub>Sg.Msc</sub> {ha<sub>Sg</sub> / ?hanno<sub>Pl</sub>} gli occhi  
The.one percent   of the women                   {has / ?have}   the eyes  
azzurri.  
blue.
- c. [Un un   per cento [delle donne]<sub>Pl.Fem</sub>]<sub>Sg.Msc</sub> {ha<sub>Sg</sub> / ?hanno<sub>Pl</sub>} gli occhi  
A   one percent   of the women                   {has / ?have}   the eyes  
azzurri.  
blue.

## Intransitives

### Stage level

#### Fraction DPs

- (112) a. [Un terzo [di donne]<sub>Pl.Fem</sub>]<sub>Sg.Msc</sub> {è<sub>Sg</sub> presente<sub>Sg</sub> / ?sono<sub>Pl</sub> presenti<sub>Pl</sub>}  
A   third of women                   {is   present   / ?are   present}  
alla   riunione.  
at the meeting.
- b. [Un terzo [delle donne]<sub>Pl.Fem</sub>]<sub>Sg.Msc</sub> {è<sub>Sg</sub> presente<sub>Sg</sub> / ?sono<sub>Pl</sub> presenti<sub>Pl</sub>}  
A   third of the women                   {is   present   / ?are   present}  
alla   riunione.  
at the meeting.

#### Percent DPs

- (113) a. [Un un   per cento [di donne]<sub>Pl.Fem</sub>]<sub>Sg.Msc</sub> {è<sub>Sg</sub> presente<sub>Sg</sub> / ?sono<sub>Pl</sub> presenti<sub>Pl</sub>}  
A   one percent of women                   {is   present   / ?are   present}  
alla   riunione.  
at the meeting.
- b. [L'un   per cento [delle donne]<sub>Pl.Fem</sub>]<sub>Sg.Msc</sub> {è<sub>Sg</sub> presente<sub>Sg</sub> / ?sono<sub>Pl</sub> presenti<sub>Pl</sub>}  
The.one percent   of the women                   {is   present   / ?are   present}  
alla   riunione.  
at the meeting.
- c. [Un un   per cento [delle donne]<sub>Pl.Fem</sub>]<sub>Sg.Msc</sub> {è<sub>Sg</sub> presente<sub>Sg</sub> / ?sono<sub>Pl</sub> presenti<sub>Pl</sub>}  
A   one percent   of the women                   {is   present   / ?are   present}  
presenti<sub>Pl</sub>} alla   riunione.  
present}   at the meeting.

## Individual level

#### Fraction DPs

- (114) a. [Un terzo [di donne]<sub>Pl.Fem</sub>]<sub>Sg.Msc</sub> {è<sub>Sg</sub> italiano<sub>Sg</sub> / ?sono<sub>Pl</sub> italiane<sub>Pl</sub>}.  
A   third of women                   {is   Italian   / ?are   Italian}.
- b. [Un terzo [delle donne]<sub>Pl.Fem</sub>]<sub>Sg.Msc</sub> {è<sub>Sg</sub> italiano<sub>Sg</sub> / ?sono<sub>Pl</sub> italiane<sub>Pl</sub>}.  
A   third of the women                   {is   Italian   / ?are   Italian}.

#### Percent DPs

- (115) a. [Un trenta percento [di donne]<sub>Pl.Fem</sub>]<sub>Sg.Msc</sub> {è<sub>Sg</sub> italiano<sub>Sg</sub> / ?sono<sub>Pl</sub> italiane<sub>Pl</sub>}.  
A thirty percent of women {is Italian / ?are Italian}.
- b. [Il trenta percento [delle donne]<sub>Pl.Fem</sub>]<sub>Sg.Msc</sub> {è<sub>Sg</sub> italiano<sub>Sg</sub> / ?sono<sub>Pl</sub> italiane<sub>Pl</sub>}.  
The thirty percent of the women {is Italian / ?are Italian}.
- c. [Un trenta percento [delle donne]<sub>Pl.Fem</sub>]<sub>Sg.Msc</sub> {è<sub>Sg</sub> italiano<sub>Sg</sub> / ?sono<sub>Pl</sub> italiane<sub>Pl</sub>}.  
A thirty percent of the women {is Italian / ?are Italian}.

### **Postverbal Subjects / Unaccusatives**

#### **Stage level, individual level not possible**

##### **Fraction DPs**

- (116) a. {?[Sono arrivate]<sub>Pl.Fem</sub> / [È arrivato]<sub>Sg.Msc</sub>} [un terzo [di donne]<sub>Pl.Fem</sub>]<sub>Sg.Msc</sub>.  
{?Are arrived / Is arrived} a third of women.
- b. {?[Sono arrivate]<sub>Pl.Fem</sub> / [È arrivato]<sub>Sg.Msc</sub>} [un terzo [delle donne]<sub>Pl.Fem</sub>]<sub>Sg.Msc</sub>.  
{?Are arrived / Is arrived} a third of the women.

##### **Percent DPs**

- (117) a. {?[Sono arrivate]<sub>Pl.Fem</sub> / [È arrivato]<sub>Sg.Msc</sub>} [un un percento [di donne]<sub>Pl.Fem</sub>]<sub>Sg.Msc</sub>.  
{?Are arrived / Is arrived} a one percent of women.
- b. {?[Sono arrivate]<sub>Pl.Fem</sub> / [È arrivato]<sub>Sg.Msc</sub>} [l'un percento [delle donne]<sub>Pl.Fem</sub>]<sub>Sg.Msc</sub>.  
{?Are arrived / Is arrived} the one percent of the women.
- c. {?[Sono arrivate]<sub>Pl.Fem</sub> / [È arrivato]<sub>Sg.Msc</sub>} [un un percento [delle donne]<sub>Pl.Fem</sub>]<sub>Sg.Msc</sub>.  
{?Are arrived / Is arrived} a one percent of the women.

### **Passives**

#### **Stage level, individual level not possible**

##### **Fraction DPs**

- (118) a. {?[Sono state assunte]<sub>Pl.Fem</sub> / [È stato assunto]<sub>Sg.Msc</sub>} [un terzo [di donne]<sub>Pl.Fem</sub>]<sub>Sg.Msc</sub>.  
{?Are been hired / Is been hired} a third of women.
- b. {?[Sono state assunte]<sub>Pl.Fem</sub> / [È stato assunto]<sub>Sg.Msc</sub>} [un terzo [delle donne]<sub>Pl.Fem</sub>]<sub>Sg.Msc</sub>.  
{?Are been hired / Is been hired} a third of women.

##### **Percent DPs**

- (119) a. {?[Sono state assunte]<sub>Pl.Fem</sub> / [È stato assunto]<sub>Sg.Msc</sub>} [un un percento [di donne]<sub>Pl.Fem</sub>]<sub>Sg.Msc</sub>.  
{?Are been hired / Is been hired} a one percent of women.

- b. {?[Sono state assunte]<sub>Pl.Fem</sub> / [È stato assunto]<sub>Sg.Msc</sub>} [l'un percento  
 {?Are been hired / Is been hired} the one percent  
 [delle donne]<sub>Pl.Fem</sub>]<sub>Sg.Msc</sub>.  
 of the women.
- c. {?[Sono state assunte]<sub>Pl.Fem</sub> / [È stato assunto]<sub>Sg.Msc</sub>} [un un percento  
 {?Are been hired / Is been hired} a one percent  
 [delle donne]<sub>Pl.Fem</sub>]<sub>Sg.Msc</sub>.  
 of the women.

### Existential sentences

#### Stage level, individual level not possible

##### Fraction DPs

- (120) a. {C'è<sub>Sg</sub> / ?Ci sono<sub>Pl</sub>} [un terzo [di donne]<sub>Pl.Fem</sub>]<sub>Sg.Msc</sub> in classe.  
 {There.is / There are} a third of women in class.
- b. {C'è<sub>Sg</sub> / ?Ci sono} [un terzo [delle donne]<sub>Pl.Fem</sub>]<sub>Sg.Msc</sub> in classe.  
 {There.is / There are} a third of the women in class.

##### Percent DPs

- (121) a. {C'è<sub>Sg</sub> / ?Ci sono<sub>Pl</sub>} [l'un percento [delle donne]<sub>Pl.Fem</sub>]<sub>Sg.Msc</sub> in  
 {There.is / There are} the one percent of the women in  
 classe.  
 class.
- b. {C'è<sub>Sg</sub> / ?Ci sono<sub>Pl</sub>} [un un percento [delle donne]<sub>Pl.Fem</sub>]<sub>Sg.Msc</sub> in  
 {There.is / There are} a one percent of the women in  
 classe.  
 class.
- c. {C'è<sub>Sg</sub> / ?Ci sono<sub>Pl</sub>} [un un percento [di donne]<sub>Pl.Fem</sub>]<sub>Sg.Msc</sub> in  
 {There.is / There are} a one percent of women in  
 classe.  
 class.

### Collective predicates

#### Stage level, individual level not possible

##### Fraction DPs

- (122) a. [Un terzo [di donne]]<sub>Sg.Msc</sub> {\*[sono troppo poche]<sub>Pl.Fem</sub> / [è troppo poco]<sub>Sg.Msc</sub>}.  
 A third of women {\*are too few / is too few}.
- b. [Un terzo [delle donne]]<sub>Sg.Msc</sub> {\*[sono troppo poche]<sub>Pl.Fem</sub> / [è troppo  
 A third of the women {\*are too few / is too  
 poco]<sub>Sg.Msc</sub>}.  
 few}.

##### Percent DPs

- (123) a. [Un un percento [di donne]<sub>Pl.Fem</sub>]<sub>Sg.Msc</sub> {\*[sono troppo poche]<sub>Pl.Fem</sub> / [è  
A one percent of women {\*are too few / is  
troppo poco]<sub>Sg.Msc</sub>}.  
too few}.
- b. [L'un percento [delle donne]<sub>Pl.Fem</sub>]<sub>Sg.Msc</sub> {\*[sono troppo poche]<sub>Pl.Fem</sub> /  
The.one percent of the women {\*are too few /  
[è troppo poco]<sub>Sg.Msc</sub>}.  
is too few}.
- c. [Un un percento [delle donne]<sub>Pl.Fem</sub>]<sub>Sg.Msc</sub> {\*[sono troppo poche]<sub>Pl.Fem</sub> /  
A one percent of the women {\*are too few /  
[è troppo poco]<sub>Sg.Msc</sub>}.  
is too few}.

## Abbreviations

ACC = accusative, DAT = dative, FEM = feminine, MSC = masculine, NOM = nominative, PL = plural, PM = proportional measurement, QR = quantifier raising, SG = singular

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## References

- Ahn, Dorothy. 2012. Reverse quantification in Korean. Term paper, Harvard University.
- Ahn, Dorothy & Uli Sauerland. 2015a. The grammar of relative measurement. In *Proceedings of SALT 25*. 125–142. Linguistic Society of America. <https://doi.org/10.3765/salt.v25i0.3062>.
- Ahn, Dorothy & Uli Sauerland. 2015b. Non-conservative quantification with proportional quantifiers: Crosslinguistic data [= reverse quantification with proportional quantifiers]. In Thuy Bui & Deniz Ozyildiz (eds.), *Proceedings of NELS 45*. 1–11. Amherst: GLSA, University of Massachusetts.
- Ahn, Dorothy & Uli Sauerland. 2017. Measure constructions with relative measures: Towards a syntax of non-conservative construals. *The Linguistic Review* 34(2). 215–248. <https://doi.org/10.1515/tlr-2017-0001>.
- Barker, Chris. 1998. Partitives, double genitives, and anti-uniqueness. *Natural Language and Linguistic Theory* 16(4). 679–717. <https://doi.org/10.1023/A:1005917421076>.
- Carlson, Greg. 1977. *Reference to kinds in english*. Amherst: University of Massachusetts. Published 1980 by Garland Press, New York.
- Diesing, Molly. 1992. *Indefinites*. Cambridge, Massachusetts: MIT Press.
- Falco, Michelangelo & Roberto Zamparelli. 2016. The only real pro-nouns. comparing English *one* and Italian *ne* as noun phrase pro-forms. In Patrick Georg Grosz & Pritty Patel-Grosz (eds.), *The impact of pronominal form on interpretation*, vol. 125 (Studies



- in Generative Grammar [SGG]), 107–134. Berlin: De Gruyter Mouton. <https://doi.org/10.1515/9781614517016-005>.
- Falco, Michelangelo & Roberto Zamparelli. 2019. Partitives and partitivity. *Glossa: a journal of general linguistics* 4(1). 1–49. <https://doi.org/10.5334/gjgl.642>.
- Heim, Irene. 1982. *The semantics of definite and indefinite noun phrases*. Amherst, Massachusetts: University of Massachusetts dissertation.
- Kayne, Richard. 1994. *The antisymmetry of syntax*. Cambridge, Massachusetts: MIT Press.
- Keenan, Edward L. & Jonathan Stavi. 1986. A semantic characterization of natural language determiners. *Linguistics and Philosophy* 9. 253–326. <https://doi.org/10.1007/BF00630273>.
- Kratzer, Angelika. 1995. Stage level and individual level predicates. In G. Carlson & F. J. Pelletier (eds.), *The generic book*, 125–175. Chicago: The University of Chicago Press.
- Krifka, M., F. J. Pelletier, G. Carlson, A. ter Meulen, G. Chierchia & G. Link. 1995. Generativity: an introduction. In G. Carlson & F. J. Pelletier (eds.), *The generic book*, 1–1–124. Chicago: The University of Chicago Press.
- Longobardi, Giuseppe. 1994. Reference and proper names: a theory of N-movement in syntax and Logical Form. *Linguistic Inquiry* 25(4). 609–665.
- Mikhailov, Victoria. 2008. *Russian copular sentences: Case and information structure*. Ben-Gurion University of the Negev MA thesis.
- Milsark, Gary. 1974. *Existential sentences in English*. Cambridge, Massachusetts: MIT dissertation.
- Pasternak, Robert & Uli Sauerland. to appear. German measurements structures: Case-marking and non-conservativity. *The Journal of Comparative Germanic Linguistics*.
- Rizzi, Luigi. 1997. The fine structure of the left periphery. In Liliane Haegeman (ed.), *Elements of grammar*, 281–337. Dordrecht: Kluwer. [https://doi.org/10.1007/978-94-011-5420-8\\_7](https://doi.org/10.1007/978-94-011-5420-8_7).
- Russell, Bertrand. 1905. On denoting. *Mind, New Series* 14(56). 479–493.
- Sauerland, Uli. 2014. Surface non-conservativity in German. In Christopher Piñón (ed.), *Empirical issues in syntax and semantics* 10. 125–142. Paris: CSSP.
- Scontras, Gregory. 2020. Measure phrases. In D. Gutzmann, L. Matthewson, C. Meier, H. Rullmann & T. Zimmermann (eds.), *The Wiley Blackwell companion to Semantics*, 1–29. John Wiley and Sons. <https://doi.org/10.1002/9781118788516.sem002>.
- Vigliocco, Gabriella, Brian Butterworth & Carlo Semenza. 1995. Constructing subject-verb agreement in speech: The role of semantic and morphological factors. *Journal of Memory and Language* 34(2). 186–215. <https://doi.org/10.1006/jmla.1995.1009>.
- Zamparelli, Roberto. 1998. A theory of kinds, partitives and OF/Z possessives. In Wilder Chris & Alexiadou Artemis (eds.), *Possessors, predicates and movement in the determiner phrase*, 259–301. Amsterdam: John Benjamins. <https://doi.org/10.1075/la.22.10zam>.