

# **Subject Object Asymmetries in relative clauses: An investigation into three new empirical domains\***

*Emanuela Sanfelici, Irene Caloi, Cecilia Poletto*

(Goethe Universität, Frankfurt am Main)

## **1. Introduction**

This paper investigates subject and object restrictive relative clauses and the role played by the CP layer in such extractions. Our point of departure is the well-known observation reported in many studies across a variety of languages and in different linguistic subfields that there is an asymmetry between subject and object extraction in relative clauses. Subject relative clauses, , appear to be less difficult than object relative clauses in various respects, such as processing, comprehension, and production in both adults (cf. Frauenfelder, Segui & Mehler 1980; Clifton & Frazier 1989; Traxler, Morris & Seely 2002, among others) and children (cf. Tavakolian 1981; Hamburger & Crain 1982; Diessel & Tomasello 2005; Belletti, Friedmann, Brunato & Rizzi 2012, among many others). The contribution we aim to bring in this paper is, on the one hand, to confirm the observation on the basis of a different set of data, and, on the other hand, to underline the role played by the Agree mechanism in the CP layer as a purely syntactic factor enhancing the asymmetry.

We intend to broaden the field of investigation including three empirical domains in which the asymmetry has not been observed yet. The three domains of investigation are: (i) language impairment due to Alzheimer's Disease, (ii) synchronic, and (iii) diachronic microvariation across Italian dialects. Crucially, the three domains we chose involve not only different languages, i.e. (i) Standard Italian, (ii) synchronic Italian varieties and (iii) Old Florentine, but also allow us to test three different linguistic abilities: (i) comprehension; (ii) oral production; (iii) written production. In fact, if we assume the use of different processing strategies for different tasks, it is important not to take the asymmetry for granted in all

---

\* This work was presented at the VII Workshop European Dialect Syntax in Konstanz and at the XIX Giornata di dialettologia in Padova; we are grateful to those audiences for their comments. Moreover, we would like to thank Adriana Belletti, Imme Kuchenbrandt and Esther Rinke for the fruitful discussion of this material. We also wish to thank Giovanni Pescolderung and Diego Clara, our main informants from San Vigilio di Marebbe. For the concerns of the Italian academy, Irene Caloi takes responsibility for sections 2.1, 2.3 and 3, Emanuela Sanfelici takes responsibility for sections 2.2, 2.4, 4 and 5, and Cecilia Poletto takes responsibility for sections 1 and 6.

conditions, but to try to verify it in the wider possible range of domains. Furthermore, if the asymmetry is found in all types of task, this means that it does not concern the processing strategy used, but is a deeper, in our view, syntactic, process. Our results are striking. All the three empirical domains of investigation display astonishing similarities in terms of a distinction between subject and object relative clauses, confirming the asymmetry and the special status of subject relatives. This leads us to conclude that the asymmetry is independent from the stage of the language as well as from the specific type of abilities used in different types of tasks, and suggests that we have to look for a principled and purely syntactic explanation.

The subject/object asymmetry has been accounted for in various ways including frequency, cognitive demands, movement span, locality effects (see for instance Bever 1970; MacWhiney 1977, 1982; Rizzi 1990; De Vincenzi 1991; O'Grady, Mison & Miho 2003; Gibson 1998, 2000). Independently of the specific implementation, all these proposals pointed out that the asymmetry is ultimately due to universal factors.

Here, we would like to rethink this conclusion and suggest that there may also be language specific factors that render subject relatives so special. Indeed, data coming from synchronic and diachronic Italian varieties point out that in addition to locality considerations and processing factors, a further factor has to be taken into account to explain the asymmetry between subject and object relative clauses. This is a purely morphosyntactic factor, i.e. an agreement component realized on the complementizer in the low CP area which encodes some of the features of the subject and facilitates its extraction. This agreement is independent from the agreement relation between the subject and the verb inside TP and does not replicate the same features found in the TP layer, but expresses some of the features found in the nominal domain, such as [gender], [animacy], [participant]. Hence, extracting a subject is a phenomenon similar to A-movement of the subject to a position where its agreement features are checked. Following Shlonsky (1994), the position where agreement between the complementizer and the subject is marked is here referred to as AgrC. The evidence for the activation of the AgrCP comes from diachronic and synchronic Italian varieties, which exhibit a form of the complementizer different from the one found in complement clauses and morphologically marked for some features in agreement with the extracted subject. Crucially, under our account, the asymmetry is not entirely due to a universal strategy as in the case of locality or processing accounts, but it may also be enhanced by a language specific phenomenon that depends on the activation of an Agree procedure in the low CP area (lower than whP but higher than ModP).

The paper is organized as follows. In section 2, we investigate the subject-object asymmetry in three new domains: in 2.1 we present data on elderly patients affected by Alzheimer's disease; then, in 2.2, we show the results from the survey of the ASIt database; finally, in 2.3 we outline the asymmetry in Old Italian, analysing one Renaissance Italian text, i.e. Machiavelli's *Il principe*. Section 3 is devoted to a brief revision of the previous accounts on the asymmetry. Then, we focus only on subject relative clauses and looking at diachronic as well as synchronic data coming from Italian dialects we provide evidence for the activation of an AgrCP in Italian varieties (section 4). In section 5, we individuate the position of the agreement component in the CP layer, proposing that it occupies a position higher than FocusP but lower than whP. In section 6, then, we draw our preliminary concluding remarks with some questions left open for further research.

## **2. The subject and object asymmetry in three different domains**

In this section we present data coming from the three empirical domains we selected in order to test whether the asymmetry between subject and object extraction in relatives holds. By designing a comprehension task based on picture mapping, we tested the comprehension of subject and object relative clauses in case of language impairment caused by Alzheimer's disease (2.1). Moreover, we surveyed the database of synchronic Italian varieties provided by the ASIt project (2.2). We investigated the oral production of relative clauses, more precisely how often the subject and the object relative clauses were translated as such by dialectal speakers. Finally, we addressed the asymmetry in Old Italian by running an analysis on the use and distribution of subject and object relative clauses in Machiavelli's *Il Principe* (2.3). This allows us to test the asymmetry in written production, an ability almost excluded by the research, with a few exception (such as Belletti & Chesi 2011). Our results from the three domains provide further evidence for the subject/object asymmetry, confirming the privileged status of subject relatives.

### *2.1 Subject object relative clauses in elderly speakers*

The data we display were collected through a sentence to picture matching task, which sampled the oral comprehension of subject and object relative clauses in two groups of aging speakers: on one side healthy controls, on the other, elderly speakers whose aging process was pathologically characterized by cognitive impairment. Among the broad range of possible

forms of dementia threatening elderly speakers, we decided to focus on Alzheimer's disease, because of its extremely high level of incidence among the aging population.<sup>1</sup>

For the purpose of the present work, it is useful to recall that Alzheimer's Disease is a senile neurodegenerative disease, associated to progressive brain atrophy and an overall cognitive impairment concerning a variety of abilities, including the linguistic faculty: language is mainly affected in its lexical-semantic component by anomia (Luzzatti 1999; Chertkow & Bub 1990), while regular verbal morphology seems to be spared (Walensky, Sosta, Cappa & Ullman 2009).<sup>2</sup> The present work provides new empirical insights into patients' syntactic competence, a barely addressed issue in previous literature.

In doing so, the study also offers the chance to take into account age-related factors; the collected data will supply the opportunity to reconstruct a complete overview of the asymmetry and its evolution across the life-span: information on language acquisition and adult speakers will be enriched with that coming from a study on elderly speakers, in order to complete the picture. Detailed information and results from the test on the comprehension of subject and object relative clauses in elderly speakers are displayed in Section 2.1.1.

### *2.1.1 Design and results*

The test in use was a sentence to picture matching task, built on the original materials from BAMBI (Friedmann, Novrogradsky, 2002). Among the original material, 15 pairs of pictures were chosen to be displayed during the experiment in association with orally performed sentences. Each pair of images depicted two characters involved in the very same action (e.g. kissing, pulling, etc.) but with reversed roles in the two versions (Figure 1). Subjects were then asked to point to the image portraying the sentence meaning.

---

<sup>1</sup> According to the *Alzheimer's Association*, the 18.5% of women and the 10.2% of men develop Alzheimer after the age of 75 and the risk increases with age.

<sup>2</sup> For a wider presentation of the symptoms of the disease in its linguistic aspects, the reader is addressed to Caloi (2013).

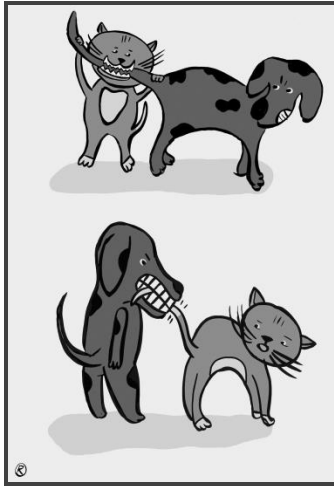


Figure 1. Sample from the experimental material

Each pair of images was displayed four times in association with four different sentences, each corresponding to a different syntactic condition, for a total of 60 experimental trials.

The following syntactic conditions were adopted on the base of their relevance for our study:

(1) SVO: Simple active clauses, with the unmarked Subject-Verb-Object constituents order.

- a. *Il cane morde il gatto*  
the dog bites the cat  
“The dog bites the cat.”

(2) SR: Subject relative clauses, the head of the relative corresponds to the object of the matrix clause.

- b. *Mostra-mi il cane che morde il gatto*  
show-me the dog that bites the cat  
“Show me the dog that bites the cat.”

(3) OR: Object relative clauses, the head of the relative corresponds to the object of the matrix clause.

- c. *Mostra-mi il cane che il gatto morde*  
show-me the dog that the cat bites  
“Show me the dog that the cat bites.”

(4) POR: Passive Object Relative clauses, namely, object relative clauses with a passive voice, according to the definition given in Belletti (2009).

- d. *Mostra-mi il cane che è morso dal gatto*  
 show-me the dog that is bitten by.the cat  
 “Show me the dog that is bitten by the cat.”

The experimental group was composed of 10 speakers of Italian, 9 women and 1 man, with a diagnosis of probable Alzheimer’s Disease (PAD) according to the NINCS-ARDRA<sup>3</sup> criteria and no other detectable alternative causes to the dementia. The Mini Mental-Examination Test<sup>4</sup> (MMSE) was run on each patient in order to assess their level of dementia, which overall resulted in a range from mild to severe. The control group included 5 healthy elderly speakers, whose cognitive intactness was verified through the same test in use with patients.

Overall, the two groups displayed equivalent characteristics for what concerns age and level of education: patients’ mean age was of 82;2 years, with 5 years of formal education; controls’ were on average slightly younger, 81;7 years old, and with a comparable level of education, namely 4;7 years.

Overall, all participants from both groups were able to comprehend and complete the task<sup>5</sup>, although with different levels of accuracy; percentages of the distribution of correct responses across the four experimental conditions are reproduced for the two groups in Table 1 and Figure 2:

	CO	PAD
SVO	100 %	86.50%
SR	98.60%	81.70%
OR	94.30%	57.10%
POR	97.10%	77.00%

<sup>3</sup> The NINCS-ARDRA criteria were formulated in 1984 and proposed by the *National Institute of Neurological and Communicative Disorders and Strokes* and the *Alzheimer’s Disease and Related Disorders Association* in order to establish common and reliable parameters to be used for the diagnosis of the disease in absence of laboratory assessments (McKhann G., Drachman D., Folstein M., Katzman R., Price D., Stadlan E.M., 1984).

<sup>4</sup> The Mini Mental-State Examination (MMSE) is a test based on thirty items, created to screen for cognitive impairment. It samples functions and abilities including spatial and temporal orientation, language, memory, arithmetic and constructional apraxia (Folstein *et alii*, 1975).

<sup>5</sup> Only one subject from the AD group dropped out the experiment because her level of glycemia was proved to be abnormal while taking part in the test, with subsequent potential alteration of her performance.

Table 1. Results from the performance of patients with Alzheimer's (PAD) and healthy controls (CO) on oral comprehension

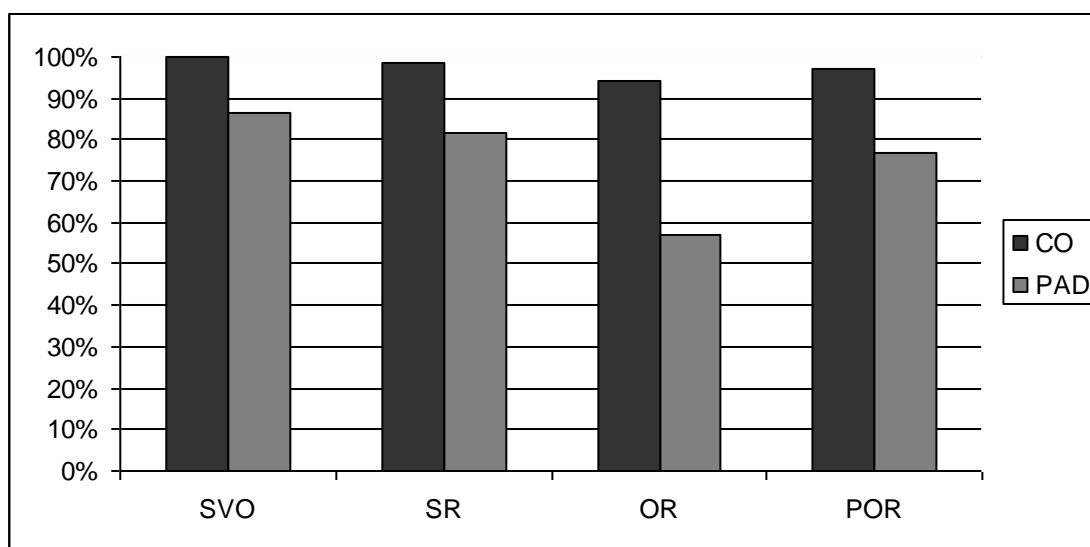


Figure 2. The graph displays the results from the two experimental groups

The performance of our control group was excellent in all conditions, given that their levels of accuracy were well above 90% and even reached ceiling on SVOs and SRs (100% and 98.60%, respectively), which confirms that the task was easily performable by healthy participants, though not trivial, as proved by the slight decrease in proficiency on the comprehension of ORs (94.30%).

The task was adequate for speakers affected by Alzheimer's disease too: the claim is based on levels of accuracy that reached above 80% in at least two conditions. No wonders that patients performed at their best on SVOs (86.50%) and SRs (81.70%); a slight decrease was recorded on PORs (77.00%), while the data that stood out the most is the one concerning ORs: in this last condition patients' level of accuracy did not reach above chance level (57.10%), which means they were actually not able to correctly understand and interpret experimental sentences characterized by pure object extraction. From the statistical point of view, the 20-point gap between PORs and ORs (77.00% vs 57.10%) enhances the idea of patients' sensibility to syntactic manipulation and in particular reveals their specific impairment on object relatives, thus producing further evidence for the discussed asymmetry between subject and object relatives.

We would now like to point out how patients' proficiency closely resembles the one of children under the age of 7 in the oral comprehension of relative clauses. In claiming so, we particularly refer to the data provided by Contemori and Belletti (2013) on the comprehension

of ORs and PORs in young speakers. The tasks in use in the two studies (ours and Contemori & Belletti 2013) is based on the same design and materials, with just a few dissimilarities concerning the number of conditions included and the range of displayed pictures, thus fostering a fruitful comparison between the groups:

	CHILDREN 6;5 – 6;11	CO	PAD
OR	63.00%	94.30%	57.10%
POR	79.00%	97.10%	77.00%

*Table 2. Our data compared to children's performance in Contemori & Belletti (2013)*

As displayed in Table 2, children under the age of 7 and PADs are characterized (unlike COs) by similar levels of proficiency in the comprehension of ORs and PORs: both groups master the latter, while experiencing difficulties with the former, further confirming the claimed asymmetry between subject relatives (to which PORs can be brought back thanks to the special status licensed by the passive voice) and object relatives.

If we now rethink the data by taking into account the mean age of the participants as main factor, we can retrace the tendency of the asymmetry throughout the life span: ORs certainly represent a big difficulty in the first acquisitional stages and are only gradually mastered; as a result, the asymmetry in performance between different kinds of relatives is initially very wide, both in comprehension and in production (Contemori & Belletti 2013); the gap is thus intended to be progressively reduced later on, during school years, when an adult-like performing profile is finally achieved. On the basis of these remarks and the data we displayed for PADs, we would like to suggest here that the asymmetry is only partially recovered and balanced in the adult speaker and it persists in the linguistic system, liable of re-emerging: a scenario that the speaker faces, for example, in conjunction with dementia. As testified by patients affected by Alzheimer, the asymmetry dramatically increases in case of cognitive impairment, in forms that closely resemble the one attested in children.

## *2.2. The subject/object asymmetry across synchronic Italian varieties*

Studies on production and comprehension of Italian relative clauses address the asymmetry mainly from a language acquisition perspective (Guasti & Cardinaletti 2003, Utzeri 2007, Contemori & Belletti 2013, among others). Nonetheless, we can gain information also on the adults' behaviour from these studies, given that adults are generally used as control group.



Taken together children's and adults' data, a robust finding emerges: subject relative clauses are more frequently and accurately produced and easily comprehended than object ones. Whereas these results concern Standard Italian relative clauses, no studies we are aware of have been performed on Italian varieties. Thus, in order to test whether the asymmetry holds in the synchronic microvariation across Italian dialects or if it is limited to Standard Italian, we made a survey of the data provided by the ASIt project, a syntactically-annotated database of Italian dialects provided by the University of Padua and freely available on the web. The ASIt project adopts an elicited production task, based on questionnaires containing Italian restrictive and appositive relative clauses as input. Speakers were asked to translate the inputs into their dialectal variety.<sup>6</sup> The questionnaire consists of a total of 26 items composed in the following way: 8 appositive clauses, 4 subject as (5), 4 object as (6), plus 18 restrictive relative clauses, 8 subject as (7) and 10 object as (8).

(5) *Carlo, che mangia molto, è più magro di te*  
 Carlo who eats a.lot is more thin of you  
 “Carlo, who eats a lot, is thinner than you.”

(6) *Maria, che conosci anche tu, è a Napoli*  
 Maria who know:2sg also you is at Naples  
 “Mary, who you also know, is in Naples.”

(7) *L'uomo che pulisce le scale è malato*  
 the man that cleans the stairs is sick  
 “The man that cleans the stairs is sick.”

(8) *Il bambino che ho visto ieri è partito*  
 the boy that have:1sg seen yesterday is left  
 “The boy that I saw yesterday left.”

In the ASIt 17 regions are represented. From variety to variety the number of informants varies from 1 to 7 circa. The total input sentences amounts to 3092 relative clauses across all regions: 2088 restrictive relative clauses, among which 1045 subject relatives and 1037 object

---

<sup>6</sup> For further details on the empirical work and a justification of the translation task see Cornips and Poletto (2005).

relatives; 1004 appositive relative clauses, among which 485 are subject and 519 are object relatives.

The amount of relative clauses in the output is 3016. Although the corpus is not uniform, since for some regions such as Veneto we have more than thousand examples while for some others, such as Basilicata, the total of items is less than 15, we could still draw some generalizations from the data, in particular for what concerns the translation strategies adopted by the participants. It appears that the dialectal realization of a given input as relative clause or by means of other strategies depends on the interplay of two parameters: the type of relative clause and the type of extraction. We leave aside the first parameter and we focus instead on the second one, which is relevant for the discussion here.<sup>7</sup> Indeed, despite the different types of relatives, what is relevant here is to notice that in both restrictive and appositive relatives subject relative clauses are mainly translated as such by informants as in (9b), while object relatives are more frequently translated by means of a different structure (60 times), as in (10b).

(9) a. INPUT

*La donna **che** pulisce le scale è malata*

the woman REL cleans the stairs is sick

“The woman that cleans the stairs is sick.”

b. OUTPUT

*A fimmina **ca** lava i scali è malata*

the woman REL washes the stairs is sick

“The woman that cleans the stairs is sick.” (Catania, Sicilia)

(10) a. INPUT

*Il bambino **che** ho visto ieri è partito*

the boy REL have:1sg seen yesterday is left

“The boy that I saw yesterday left.”

---

<sup>7</sup> As for the type of relative clause, the data show a slight tendency to translate appositive relative clauses by means of other strategies (mostly coordinate structures) more frequently than their restrictive counterparts: 6.8% in the case of appositive relative clauses as input, contra 0.8% for restrictive relative clauses. This seems to support the claim that the two types of relative clause display a different structure along the lines proposed in de Vries (2002).

b. OUTPUT

*U picciriddu d'aieri pattiu*

the boy of yesterday left

“The boy from yesterday left.”

(Catania, Sicilia)

The overview of the data collected by our survey is summarized in table 3.

RELATIVE CLAUSES	INPUT	OUTPUT	
		AS RELATIVE CLAUSE	AS DIFFERENT STRUCTURE
Subject-Relatives	1530	1520 (99%)	10 (1%)
Object-Relatives	1562	1497 (96%)	67 (4%)
Total	3092	3017 (98%)	77 (2%)

Table 3. Total of relative clauses (Subj/Obj) in both the input and the output (%)

Table 3 shows that informants usually translate RCs as such in their dialectal variety. The high range of RCs in the output is most probably due to the fact that the informants are explicitly requested to be as close as possible to the syntactic structure of the test item in their translation. The low percentages of outputs containing “different structures” can be explained in the same vein.<sup>8</sup> However, it is precisely because of the procedure adopted in this test that these percentages become relevant for us. These results suggest that the syntactic function of the *wh*- element may play a role in the way the stimulus is encoded. We interpret the slight tendency to use other strategies in object relatives as a sign of a preference to avoid them. In this sense, these results pair those on Standard Italian and other languages, the data from language acquisition studies, as well as the data presented in the previous section on Alzheimer’s patients.

We will come back to the dialectal variation in section 4, where we will provide evidence for different realizations of the complementizers in subject and object relatives.

### 2.3. The subject/object asymmetry in Old Italian: Niccolò Machiavelli’s *Il Principe*

The third domain of investigation is the diachronic microvariation in Italian varieties. We intended to verify whether the asymmetry holds also in previous linguistic stages or if it is limited to modern Standard Italian and Italian varieties. To achieve this purpose, we ran an

<sup>8</sup> A more sophisticated statistical analysis cannot be properly applied to the data given the lack of homogeneity and balance in the corpus.

analysis on the use and distribution of relatives in Renaissance Italian focusing on one single text, namely *Il Principe*. This also offers us the opportunity of focusing on written production, as a separate ability, which has not been investigated so far. The text is a political treatise written at the beginning of the XVI century<sup>9</sup> by the Tuscan diplomat and political theorist Niccolò Machiavelli; the volume is highly valued for being the founding text of modern political theory and also for its author's linguistic choice, which awakened much interest among intellectuals: old Italian substituted Latin in a technical text, expected to have a wide distribution across borders. The volume is then a valuable testimony of the vernacular spoken at that time in Florence and a reliable source of diachronic data for linguistics.

Thus, in order to pursue our double goal of testing the asymmetry under a diachronic perspective with a specific focus on writing, a list consisting of all relative clauses to be found in *Il Principe* was first collected by Fridjoi (2012) and organized into a small corpus. As a result, the total amount of 729 items was achieved and a first rough analysis was run by the author herself on a subgroup of 567 elements in order to subdivide the material into two macro-categories, according to the syntactic function corresponding to the internal gap in the relative clause: the occurrences were thus categorized into subject relatives (11) and object relatives (12):<sup>10</sup>

(11) *perché quelli populi **che** gli avevano aperto le porte*  
 because those people that to.him had:3PL opened the doors  
 “Because those populations that had opened their doors to him.” (p. 59, 1-2)

(12) *che Lei pervenga a quella grandezza **che** la fortuna e le altre sue qualità gli*  
 that He reaches to that majesty that the luck and the other his qualities to.him  
*promettono*  
 promise:3PL  
 “That He reaches the majesty that he deserves according to his good luck and other qualities.” (p. 5, 1-3)

---

<sup>9</sup> A first version of the volume was released in 1513, the final version published in 1532.

<sup>10</sup> We excluded from our analysis the third category that Fridjoi 2012 individuated, namely oblique relative clauses. We did this in order to present homogeneous data in comparison with the other two domains for which only subject and direct object relative clauses were analysed. For the sake of completeness, the total of occurrences found in her corpus of oblique relative clauses amounts to 63, which is the 11% of the overall number of relative clauses (N=567).

Taking the relativization site as the only classifying factor, the following data were initially extracted from the sub-corpus (Fridjoi 2012): in table 4, occurrences for the two kinds of relatives are provided in the second column, followed by their counter values, measured as the percentage of occurrences with respect to the total amount of relatives under analysis:

RELATIVE CLAUSES	OCCURRENCES	%
Subject-Relatives	389	77%
Object-Relatives	115	23%
Total	504	100%

Table 4: Amount of subject and object relative clauses in “*Il Principe*”

Following this method of analysis, it results that subject relatives cover more than the two thirds (77%) of the relatives included by Machiavelli in *Il Principe*; while only the 23% consists of object relatives. In the corpus-based analysis then, the asymmetry between relatives is inferred through the distribution and frequency of the different conditions, with a high prevalence of subject relatives over object relatives.

The analysis run by Fridjoi (2012) includes a few confounding factors, though, which are due to the absence of fine classifying parameters, capable of grasping important syntactic differences among structures; for this reason, we decided to run a second analysis on the collected material, adopting stricter parameters along the classification process. We started by reviewing the all set of clauses (729 items) and collecting all relatives with an extracted subject for a total of 440 subject relatives, among which a high variety of structures could be identified. In order to distinguish between the many different sentences labelled under “Subject relatives”, we proceeded by reanalysing all items, sharply distinguishing between different verbal structures. Within the “Subject relative” group we identified then at least eight different categories, exemplified as follow:

i) Transitive Subject Relatives: Subject relatives with a transitive verb

(13) *la linea del principe che li dominava*  
 the line of.the:M.SG prince that them dominated:3.SG  
 “The line of the prince who dominated them” (p.12, 5/6)

ii) Unaccusative Subject Relatives: Subject relatives with an unaccusative verbal structure

(14) *gli stati che vengano subito*  
the states that come:3PL immediately  
“The states that immediately come” (p. 33, 1/4)

iii) Inergative Subject Relatives: Subject relatives with an inergative verbal structure

(15) *una regola generale, la quale mai o raro falla*  
a rule general, the which never or rarely fail:3SG  
“A general rule, which never fails or rarely does” (p.20, 9/19)

iv) Oblique Subject Relative: Subject relatives with a verb that selects indirect object-DPs

(16) *quegli imperatori che [...] parvenivano allo imperio*  
those imperators that [...] reached:3PL to.the empire  
“Those Imperators who reached the empire” (p.32, 12/14)

v) Copular Subject Relatives: Subject relatives characterized by a copular construction

(17) *le mostrano quello che elle erano*  
her show what that they.FM were  
“They showed her what they were” (p.61, 19/21)

vi) Reflexive Subject Relatives: Subject relatives with a reflexive verb

(18) *e quel principe che si è tutto fondato in sulle parole loro*  
and that prince that REFL is all founded in on.the words their  
“The prince who completely trusted their words” (p.83, 21/23)

vii) Infinite Subject Relatives: subject relatives with a verb that introduce an infinitive clause

(19) *colui, adunque, che vuole non potere vincere*  
the.one indeed that want not can.INF win.INF  
“The one who indeed doesn’t want to be able to win” (p.68, 12/13)

viii) Passive Object Relatives (POR): Subject relative characterized by a passive voice

(20) *intra le altre laude che dagli scrittori gli sono date*  
among the other.PL praises that by.the writers him are given

“Among other praises that are expressed for him by other writers” (p.74, 6/7)

The presence of a wide variety of sentences under the broad “Subject relative” label certainly provides a first explanation for the high incidence of this kind of relatives across the corpus: subject relatives are over-represented due to the presence of clauses that could not be differently realized, as in the case of unaccusative (14), inergative (15), copular (17), reflexive (18) and infinitive (19) predicative structures. In all the mentioned cases there is no possibility to perform the extraction of an object DP; which means the use of a subject relative is obligatory and can therefore not be taken into account as proof of dispreference towards object relatives.

Still, a closer look at the distribution of the different structures roughly classified as subject relatives can help draw some generalization on the asymmetry between subject and object relative clauses:

CLAUSE TYPE	OCCURRENCES
i) Transitive s. r.	177
ii) Unaccusative s. r.	37
iii) Inergative s. r.	21
iv) Oblique s.r.	26
v) Copular s. r.	109
vi) Reflexive s.r.	19
vii) Infinitive s.r.	22
viii) Passive object relative	29

*Table 5. Sub-classification of Subject relatives in “Il Principe”*

As we can see in the data, subject relatives with a transitive verbs are unarguably still the most represented type of subject relatives, followed by clauses characterized by a copular structure.

Our re-analysis also individuated the total amount of 96 object relatives; thus, if we focus our attention on clauses with a transitive verbal structure we see that the number of sentences realized as subject relatives almost doubles sentences realized through object relatives (177 against 98), which means that, even with a more fine-grained analysis, the asymmetry between subject and object relatives still holds and can be over-generalized. In other words, the data further confirm the phenomenon to be diachronically present in the Italian language and to emerge with characteristics which can be considered ability-independent, in the sense that it affects written production as well as oral comprehension and production.

#### *2.4. Conclusion ad interim on the subject/object asymmetry*

The results coming from the three new empirical domains are robustly stable, confirming the subject/object asymmetry discussed in the literature. Subject extraction in relatives is by no means the privileged one, whereas object extraction is generally dis-preferred. This finding is independent of the ability we tested – whether comprehension, oral or written production, irrespective of the type of population we tested – whether healthy or impaired speakers, and independent of the stage of the language we investigated – whether synchronic or diachronic Italian varieties. Healthy elderly speakers have a slightly lower accuracy on object relative comprehension; 94% vs 98% on subject relative. The asymmetry is enhanced in case of major cognitive impairments due to Alzheimer’s disease, as patients score short above chance level on object relatives comprehension, despite a good performance on subject relatives (section 2.1). This is a phenomenon which pairs directly with the well-known observation that children produce subject relative clauses much earlier than object relative clauses (Contemori & Belletti 2013). Speakers of different dialectal varieties adopt different strategies when asked to translate Italian object relatives into their dialectal counterparts, which we interpreted as a sign of a tendency to avoid them. On the contrary, the subject counterpart is usually translated as a relative clause, as shown in section (2.2.). The same asymmetry is also found in diachronic stages of Italian. Machiavelli’s *Il principe* text displays a clear predominance of subject over object relative clauses (section 2.3).

On the basis of these results, we conclude that the asymmetry between subject and object relatives cannot be considered as a pure developmental issue limited to language acquisition or as an ability-dependent issue, and its explanation calls for a much deeper explanation.

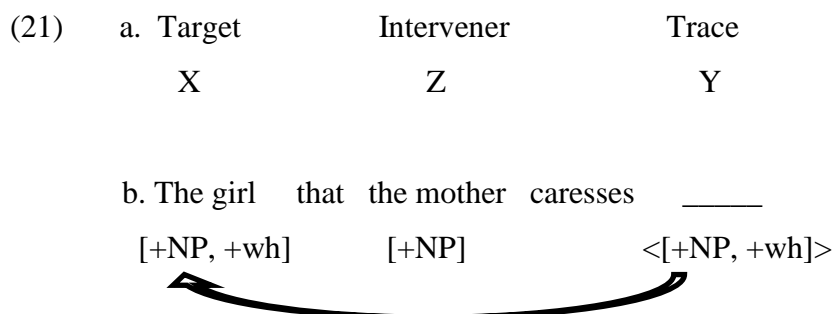


### 3. Previous accounts for the subject/object asymmetry in relative clauses

In the past 40 years linguists have dedicated much attention to the issue of the asymmetry between subject and object relatives, with a specific focus devoted at individuating the cause(s) at the origin of the facilitating effect connected to structures in which the subject of a relative clause is extracted from its original position. A variety of accounts has been provided throughout the decades, along with a considerable amount of data supporting alternative theories; being impossible here to provide a complete and exhaustive picture of the previous works, we will limit ourselves to briefly sketch the main families of accounts.<sup>11</sup>

Most accounts can be grouped into two different classes, representing alternative approaches to the issue. One group argues that the asymmetry stems from fundamental structural properties of subjects and objects and has therefore to be investigated in a syntactic-cartographic perspective. The second group claims that the asymmetry is actually related to enhanced processing difficulties for object relatives, therefore, questions on the roles of components like working memory and the information integration process in the processing of relative clauses have to be addressed.

As for the first group, we here draw upon the *Principle of Relativized Minimality* (Rizzi 1990), which has been recently called into account in order to offer a key explanation for the asymmetry. Relativized Minimality states that a chain cannot be formed between X and Y in the configuration in (21a) if the intervening element Z has the same properties as the target X. If only some morphosyntactic characteristics are shared between the intervener and the target X, a chain can be formed but is difficult to process in adults and difficult to interpret in children. In (21b) a chain is formed between the trace in Y and the head of the relative clause *the cat*.



<sup>11</sup> We refer the reader to Laka (2012) for an overview.

The asymmetry in relative clauses is the result of an intervention effect of the subject which interferes in the movement path of the operator/relative pronoun starting from the object position. No such intervention is found in subject relatives, as the subject does not cross the object position in its movement from its basic position to SpecForce simply because the subject is initially merged higher than the object. More recently, the Relativized Minimality account has been adopted to explain children's difficulty with object relative clauses by Friedmann, Belletti, Rizzi (2009) according to whom the extraction of the Object-DP in relative clauses is precisely turned into a problematic operation by the presence of a full Subject-DP between the VP-internal position and the head of the relative. Hence, locality effects would arise as a consequence of the similarity in features between the two DPs (subject and object), potentially competing for the same goal position. The hypothesis has gained much support and is currently adopted in order to explain a variety of data collected in studies on language acquisition (Adani et al. 2010, Contemori & Belletti 2013, cf. COST Action 33, Friedmann *et al.* in prep.).

Within a syntactic-minimalist approach, the asymmetry has also been accounted for in terms of length of movement: extracting a subject is more economic because the movement span is shorter than in the case of object extraction (see O'Grady *et al.* 2003). More precisely, the asymmetry is to be associated to the number of nodes intervening between the gap and the filler, thus determining the depth of the former with respect to the latter. A deeper syntactic relation, as in the case of object extraction, is therefore held as more difficult than a shorter one starting from the subject position. In other words, the depth of the gap corresponding to the relativized DP determines how difficult a relative clause is (O'Grady *et al.* 2003). The proposal is also known as the *Structural Distance Hypothesis*, in order to underline that the distance is not to be intended and measured in a linear fashion, but rather counted on a hierarchical basis.

The issue of the distance between filler and gap is central also in the processing-based account proposed by De Vincenzi (1991, 1996): according to her *Minimal Chain Principle*, holding in mind an unassigned filler phrase is highly expensive for the working memory; as a consequence, the parser aims at building the shortest possible chain for its elements, in order to maintain the working load as low as possible. De Vincenzi's *Principle* (1991) is formulated as follow:

- (22) *Minimal Chain Principle*: avoid postulating unnecessary chain members at surface structure, but do not delay required chain members.

According to De Vincenzi (1991, 1996) the parser indeed tends to solve the chain as soon as possible by assigning the filler the first potential gap, namely the one corresponding to the subject position in the relative clause. This happens in order to quickly get rid of the unsigned element, given that postponing the operation would in principle increase the load in the working memory; as an immediate consequence, subject relatives are preferred in accordance to their limited processing costs.

Processing factors were early postulated by Clifton and Frazier (1989) too in order to explain the asymmetry; the authors claimed that speakers tend to systematically take the head of the relative as the subject of the relative clause, thus casting out at first the reading of an object relative. Thus, the procedure, named *Active Filler Strategy* by the authors, causes a sequence of syntactic misanalysis and recoveries: in the case of object relatives, the default processing operation leads directly to a misanalysis, which requires the sentence to be repaired, thus increasing the processing duration and loads. Similarly, processing strategies were also advocated in the *Perspective-shifting account* postulated in 1982 by MacWhinney, who suggested that the speaker is biased by the sentential subject which is ultimately adopted as the main perspective; object relatives would then require a perspective-shifting to a new subject, an operation presumed to be time-consuming and highly demanding.

All the above illustrated positions certainly succeeded in singling out different factors presumably responsible for establishing the special status of subject relatives as opposed to the more problematic object relatives, so that different aspects of the phenomenon have already been pointed out, namely important asymmetries in the syntactic configurations characterizing the two structures and not-irrelevant processing factors. It seems then plausible to conclude that the subject/object asymmetry found in relative clauses is due to a series of cumulative factors. Crucially, independently of the specific foci in each account, the revised proposals identify the fundamental reason of the asymmetry in universal factors. Here, we claim that there is at least one further possible factor that has to be taken into account to explain the asymmetry between subject and object relative clauses. This is a purely morphosyntactic factor, namely an agreement component in the CP layer, and, hence, a language specific factor. In what follows we provide empirical evidence for supporting and refining our claim.

#### **4. Agreeing complementizers**

Adopting a cartographic approach, we shift the attention to the CP layer, as the part of the structure in which the crucial asymmetry between subject and object relatives arises. Building on works by Bayer (1984), Shlonsky (1994) and Taraldsen (1980, 2001), we propose that inside the CP layer there is a dedicated position where agreement with the subject is marked, independently from the agreement relation between the subject and the verb inside TP, which we label AgrCP following Shlonsky (1994).<sup>12</sup> From this agreement procedure, subject extraction benefits rendering subject relative clauses in languages that allow for such procedure easier than object relatives. Indeed, whereas extracting an object involves operator movement, the agreement procedure renders extracting a subject a movement similar to A-movement of the subject to a position where it checks its agreement features. Crucially, contrary to the previous accounts, according to which the factors for the asymmetry are various but crucially universal, we suggest that there could also be a language specific factor, which has to do with the activation of an agreement projection containing the subject features which facilitates the extraction by means of an additional agreement component. In the following sections we present empirical evidence for supporting this claim: we show that if a language has two forms of complementizers in relative clauses, the marked one is used for introducing subject relatives, whereas the unmarked form of the complementizer, also found in complement clauses, introduces object relatives. This is rather unexpected on the view that subject relatives involve “less work” than object relatives. Furthermore, we illustrate that the agreement between the extracted subject and the complementizer is different from the one found in the verbal/tense domain. Indeed, it involves features that generally pertain to the nominal domain, such as [gender], [animacy], and [participant].

With respect to the different types of agreement between the subject and the complementizer, we are able to identify four types of languages, for each of which the features specified on the agreeing complementizer differ.

(a) Type 1, where the complementizer is sensitive only to the syntactic function of the extracted DP and displays a marked form only for subject relatives. An example is Vallader, which exactly matches the French *qui/que* alternation (section 4.1).

(b) Type 2, such as Old Neapolitan, where the complementizer in subject relative clauses is marked for gender in agreement with its head (section 4.2).

---

<sup>12</sup> For the purposes of the present paper, we adopt the label used by Shlonsky. However, we believe that the projection has more than only an “agreement” value. It is probably a position where some of the interpretive features of the subject are identified. The data for Marebbano described below, for instance, suggest that this AgrCP projection has to do with the participant feature.

(c) Type 3, where the complementizer is sensitive to the [+/- animacy] feature of the subject head (section 4.3). Examples of this type are the Medieval North Western Italian dialects.

(d) Type 4, such as Marebbano, where the complementizer in subject relatives is sensitive to the [+/- participant] feature of the antecedent (sections 4.4), i.e. first and second person are distinguished from third person.

#### 4.1 Type 1: sensitivity to the type of extraction

Type 1 Languages have two forms of complementizers, which differentiate subject from object (and oblique) relative clauses, independently from the type of relative clause (restrictive vs. appositive). The form found in object relative clauses is identical to the complementizer of complement clauses, while the form of subject relative clauses is different. An example of type 1 language is Vallader, a Rheto-Romance variety, spoken in the Engadine. Vallader shows two forms of complementizers: *cha*, which is the unmarked form found in complement clauses (23a) as well as in object relatives (23b), and *chi* the marked form introducing subject relative clauses (23c).

(23) a. *El a dit **cha** il cudisch ej mes*  
he has said that the book is mine  
“He said that the book is mine.”

b. *Qual cudesch crajast **cha** las mattas cumpraran?*  
which book think:2SG that the girls buy:FUT.3PL  
“Which book do you think the girls will buy?”

c. *Qualas mattas crajast **chi** cumpraran quell cudesch?*  
which girls think:2SG that buy:FUT.3PL that book  
“Which girls do you think will buy that book?” (Taraldsen 2002:31)

We conclude that in languages of type 1 the agreeing complementizer is specified for case.

#### 4.2. Type 2: sensitivity to the [gender] feature

In languages of this type, the complementizer in subject relatives is morphologically marked for gender in agreement with the extracted subject. It thus displays two different forms: one

for the masculine antecedent and another for the feminine. An example is Old Neapolitan, a Romance variety attested from the X century.

In Old Neapolitan, two complementizers in complement clauses are attested: *che* and *ca* (also attested as *cha*).<sup>13</sup>

(24) a. *prego che li boni lecture piglieno da lor consiglio*

beg:1SG that the good readings take:3PL from them counsel

“I beg that the good readings would take advice from them.”

(Brancati 189 v.34)

b. *respondimo-ve cha ne par(e)*

reply:1PL-to.you that SCL seems

“We reply to you that it seems [...]”

(Lettera 126.15-16)

Also the complementizer introducing relative clauses displays two different forms: *chi*, in subject extractions (25a), and *che*, in object extractions (25b) (Formentin 1996).

(25) a. *quilli Grieci, chi navegavano in altra parte*

those Greeks that sailed in other area

“Those Greeks, who have sailed in other areas [...]”

(Libro de la destructione de Troya 76. 21-22)

b. *le iniuriose parole che avea in bocha*

the insulting words that had:3SG in mouth

“The insulting words, that he pronounced [...]”

(Libro de la destructione de Troya 111. 23)

Interestingly, a closer look at the texts reveals that the complementizer in subject relatives is morphologically marked for gender and agrees with the extracted subject. Indeed, when the subject is masculine, the relativizer is *chi*, while, when feminine, it is *che* (< lat. QUAE, Formentin 1996: 139). Compare for instance (26) with (25a).<sup>14</sup>

<sup>13</sup> The different forms of complementizer is related to modality. On this topic we refer back to Ledgeway (2009).

<sup>14</sup> Nonetheless, it would be worthwhile stressing that examples of *chi* with feminine head nouns are also found: 10 times in the LTD according to Formentin (1996). The author suggests that this pattern is the result of an analogical generalization of *chi* as relativizer for subject, originally only masculine, lat. QUI > *chi*: “in altre

(26) *Questa Medea **che** desiderava tanto la soa dolce partenza*

This Medea that desired a lot the her sweet departure

“Medea, who really desired her sweet departure [...]”

(Libro de la destructione de Troya 67.24)

Hence, we conclude that in Old Neapolitan the agreeing complementizer in subject relatives is specified for both case and gender.

#### 4.3. Type 3: sensitivity to the [animacy] feature

Type 3 languages display a complementizer in subject relative clauses which is morphologically marked for case and animacy. Medieval Northern Western Italian dialects belong to this type. Here, we chose two varieties to illustrate the system, namely Old Ligurian and Old Piedmontese. In these dialects the form of the complementizer in complement clauses is *che/que* (27).

(27) *saveien **que** Deus aveva recue lor sacrifice*

know:3PL that God has received their sacrifice

“They know that God received their sacrifice.”

(Sermoni Subalpini, 1, 220)

Parry (2007) noticed that in the XIII century texts the same unmarked form of the complementizer is also found in object relative clauses ((28a) for Old Ligurian and (28b) for Old Piedmontese), whereas a different form, *chi*, introduces subject relatives (29).

(28) a. *Semo contenti che ogni terra **che** tenen li Venecian sea de lo Rey*

are:1PL happy that each land that have the Venetian is:SUBJ of the king

“We are happy that each land that the Venetian have is owned by the king.”

(Proposizioni fatte dal Comune di Genova al re d'Ungheria, 24:15)

b. *era figura de la novela **que** Christ fis e comandè*

was image of the novel that Christ did and ordered

---

parole, in casi come *co-la soa muglyere chi se clamava Thetis*, potremmo trovarci di fronte a un fenomeno di generalizzazione analogica di un *chi* soggetto in origine solo maschile” (Formentin *ibid.*: 140).

“It was image of the novel that Christ did and ordered.”

(Sermoni Subalpini 10, 252, 11-14)

(29) a. *ogni lavorao **chi** lavore a lo Ponte de lo Peago*

every worker that works at the Ponte of the Peago

“Every workers that works at Ponte of Peago [...].”

(Statuti della Compagnia dei Caravana, 9:17-18)

b. *Car no serà neun **qui** sia blanquì per baptisme, **qui** no veigna*

there not be:FUT nobody that is:SUBJ purified for Baptism that not comes:SUBJ

“There will be nobody that is purified for the Baptism and that would not come.”

(Sermoni Subalpini 5, 233:36-37)

However, already in the XIII century texts and more frequently in the XIV-XV texts, the marked form *chi* appears only in restricted contexts, namely when the subject antecedent is animate as in the examples in (29). Otherwise, when the subject antecedent is inanimate, *che* is found as in (30).<sup>15</sup>

(30) a. *questa cità **que** aveva num Iherico*

this city that had name Gericho

“This city that was named Gericho [...].”

[feminine, – animate]

(Sermoni Subalpini 9, 246, 12-13)

b. *lo ferramento **che** en cotae cosse se usa*

the iron that in such thing is used

“The iron that is used in such occasions.”

[masculine, – animate]

(Anonimo Genovese 191, 16: 281-282)

We can conclude that in the XIII-XIV century texts, the complementizer in subject relatives is simultaneously marked for case and for animacy.

---

<sup>15</sup> As Parry (2007) pointed out, during the XIV century, we assist to the rise and spreading of the uninflected relativizer *che*. This might have to do with the more general weakening of the CP layer, since this is exactly the period when the V2-like property is lost.



#### 4.4. Type 4: sensitivity to the [participant] feature

The type 4 languages show two forms of the complementizer in subject relative clauses which vary according to the feature [deixis]. An example of type 4 languages is Marebbano, a V2 Ladin variety spoken nowadays in Val Badia.

Also in Marebbano two complementizers in relative clauses are attested: one for object relatives which is morphologically identical to the complementizer of complement clauses, *che* (31a/b), and the other for subject relatives, which has the form *co* (31c).

(31) a. *I jogn dij **ch'al** mangia massa ćern*

the boys tell that scl:3SG eats too.much meat

“The boys tell that he eats too much meat.”

b. *La ěra **che** te ćs encuntė ennier ćianta pal cor*

the lady who scl have:2SG meet yesterday sings for.the chorus

“The lady you met yesterday sings in the chorus.”

c. *La ěra **co** puzenėia les stighes ě pūra*

the lady who cleans the stairs is ill

“The lady who cleans the staircase is ill.”

(San Vigilio di Marebbe)

However, *co* only appears in a subset of subject relatives: it is used only when the extracted subject is 3<sup>rd</sup> person singular/plural (32a), otherwise *che* plus a subject clitic is found in the case of first and second person. (32b).

(32) a. *I jogn **co** laora a Milan va vigne dė con la ferata*

the boys that work in Milan go every.day morning with the train

“The boys that work in Milan take the train every morning.”

b. *Tő, **che** te manges vigne dė ćern, cumpres pūćia ordōra*

you that scl:2SG eat:2SG each.day of meat buy:2SG less vegetable

“They, who eat meat every day, buy few vegetables.”

Notice that *co* is both used in the case of restrictive (33a), as well as appositive relative clauses (33b).

- (33) a. En möt co conësc trec lingac, ciafarà saorì laûr  
a boy that knows many languages finds:FUT easily work  
“A boy that knows many languages will easily find to work.”
- b. Maria, co è apasionada de ert, vijihtëia trec musei.  
Maria that is passionate of art visits many museums  
“Mary, who is passionate about art, visits many museums.”

Furthermore, our claim that *co* is an agreeing complementizer sensitive to the feature [-participant] and not a fused form of complementizer plus a subject clitic is supported by the fact that the third person subject clitic in Marebbano is *al*.

For the moment, we conclude that in Marebbano the agreeing complementizer is sensitive to the feature [+/- participant]: *co*, when the subject is not present in the discourse, namely when it is not a participant; *che* plus subject clitics when it is either the speaker or the hearer, thus a participant. In section 5, we suggest a plausible position in the CP layer for the agreeing complementizer *co*.

#### 4.5. Conclusion ad interim on agreeing complementizers

In section 2, we presented data from experimental works on elderly speakers affected by Alzheimer’s disease as well as from synchronic and diachronic Italian varieties. On the basis of those data we have confirmed the observation that subject relative clauses have a privileged status irrespectively of the ability tested, whether oral or written production or comprehension, and independently from the stage of the language investigated. In this section, we focused on the form of the complementizer found in subject relative clauses and we proposed that subject extraction benefits from the fact that the subject has a dedicated position in the CP layer where agreement with the complementizer is marked. We provided empirical evidence for this claim by looking at diachronic and synchronic varieties of Italian dialects. With respect to the type of features overtly marked on the complementizer in agreement with the subject, we identified four types of languages: (a) type 1, where the complementizer marks the syntactic function (section 4.1); (b) type 2, where the complementizer agrees with the subject in gender (section 4.2); (c) type 3, where the

complementizer is marked for the feature [animacy] (section 4.3); (d) type 4, where the feature on the complementizer is [participant]. Table 6 offers an overview of the four language types.

	SYNTACTIC FUNCTION	GENDER	ANIMACY	PARTICIPANT
<b>TYPE 1</b> (Vallader, French)	+	–	–	–
<b>TYPE 2</b> (O. Neapolitan)	+	+	–	–
<b>TYPE 3</b> (Med. North. It. dial)	+	–	+	–
<b>TYPE 4</b> (Marebbano)	+	–	–	+

Table 6. Features of the extracted DP specified on the complementizer

Adopting the by now standard assumption of a split CP for Romance, we argue that the dedicated position where the agreement between the subject and the complementizer is realized is AgrCP. In the following section we tentatively identify where the agreeing complementizer is located in the CP layer.

## 5. The position of agreeing complementizers in the CP layer

In order to identify the position of AgrCP we limit our scope to the case of *co*, the complementizer attested in Marebbano. We have chosen this dialect since it is the only synchronic variety for which the morphologically marked agreeing complementizer is attested. As already illustrated in section 4.4, we recall here that Marebbano is a V2 language and that the agreeing complementizer is *co* under two circumstances:

- (i) the DP extracted is the subject;
- (ii) the DP extracted is not a participant, being thus 3<sup>rd</sup> person singular/plural.

Since subject extraction can also occur in interrogatives, we expect *co* to occur in embedded interrogatives too. The prediction is borne out, and interestingly *co* is lower than the interrogative *wh*-. Indeed, it occurs after the *wh*-element in indirect questions both in *who*- (34a) and in *what*-questions (34b).

- (34) a. *Poste mo dì chê co vën a cëna*  
 could:2SG me tell who that comes to dinner  
 “Could you tell me who comes for dinner?”
- b. *Poste mo dì ci che Mario mangia*  
 could:2SG me tell what that Mario eats  
 “Could you tell me what Mario eats?”

Furthermore, *co* is higher than a focalized element as shown in (35), where *co* precedes the focalized adverb *enier* “yesterday”, located at the IP border.<sup>16</sup>

- (35) *Mario, co ENIER à boü massa bires, se sta mal desco en cian ENCÖ.*  
 Mario that yesterday has drunk too.many beers cl. is bad as a dog today  
 “Mario, who YESTERDAY drank too many beers, feels badly TODAY.”

In the same vein, *co* also occurs before the highest adverbs, like the speaker-oriented ones as in (36).

- (36) *Gianni y Franco co onestamonter laora poc è dagnara massa tardîs*  
 Gianni and Franco that honestly work little is always very late  
 “Gianni and Franco, who honestly work too little, arrive always late.”

In conclusion, we tentatively propose that *co* occupies a position higher than the FocusP found in embedded V2 contexts, but lower than whP. We adopt the modification proposed in Benincà & Poletto (2004) of the split CP analysis originally formulated by Rizzi (1997), according to which this domain is split into functional subheads.

- (37) [CP ForceP [HTP [Scene Setting ...[LD ... [whP [FocusP [ModP...[FinP...[TP]]]]]]]]

Moreover, following Rizzi (2004) and Haegeman (2006), we adopt the idea that the split CP contains a Modifier phrase (ModP in (40)), i.e a non-criterial position where adverbials – which are usually related to the modal categories outlined by Cinque (1999) – can front and

<sup>16</sup> See Benincà and Poletto (2004) on a discussion on the position of this adverb in Northern Italian varieties.



some of the interpretive features of the subject are checked. Crucially, under our account, the asymmetry is not only due to a universal strategy as in the case of locality or accounts based on processing strategies, but it can also be accounted for as a language specific phenomenon which depends on the activation of an Agree procedure in the low CP area (lower than whP but higher than ModP). Our analysis makes a prediction that the other analyses do not make: the asymmetry should be confined to those languages where the AgrC is active, in other languages the asymmetry should not be present or should be weak. This seems to be the case of Basque, as argued in Laka (2012): an ergative language, where relatives on the element marked with ergative (the case of the agent, which is generally inserted higher in the structure) are more costly than relative on the element marked with absolutive (inserted lower in the thematic portion of the clause). Hence, it is possible that the subject/object asymmetry found in relative clauses is rooted in a conjunction of factors, some of which are universal, but our data revealed that there is at least one further reason, which is language specific. This specific factor has to do with the activation of an AgrC projection containing the subject features which facilitates the extraction by means of an additional agreement feature. If this is so, the effects of the asymmetry can be modulated depending on the case system a language adopts. It would be interesting to further test whether in languages with an Agree procedure subject relatives are easier than in languages without AgrCP activated.

As a side issue, our data and our proposal raise a more general question, namely the nature of the complementizer introducing relative clauses. Indeed, according to the standard analysis two types of elements can appear in the left periphery of a RC (Klima 1964, Kayne 1975, Radford 1981): (i) relative pronouns and (ii) complementizers. Whereas relative pronouns show case features, are sensitive to animacy and can be selected by prepositions, complementizers display the opposite behaviour. The difference +/- animate does not play any role for relative complementizers, which also do not show any case features and cannot be selected by prepositions. The agreeing complementizers we presented in section 4 challenge the standard dichotomy since, although they cannot be selected by prepositions, they are nonetheless specified for features such as case, gender, animacy and deixis. Whether the presence of agreeing complementizers can be explained in terms of diachronic change – as a kind of residue of an earlier system, or whether this implies that all the complementizers are indeed pronouns as recently claimed by Kayne (2008, 2010) and Manzini & Savoia (2011) will be the topic of our future research.

## References

Database

ASIt Atlante Sintattico d'Italia. University of Padua: <http://asit.maldura.unipd.it>

- Adani Flavia, van der Lely Heather K.J., Forgiarini Matteo & Maria Teresa Guasti (2010). Grammatical feature dissimilarities make relative clauses easier: A comprehension study with Italian children. *Lingua* 120. 2148–2166.
- Alzheimer's association (2014). 2014 Alzheimer's Disease facts and Figures. *Alzheimer's and Dementia*, 10:2.
- Bayer Josef (1984). Comp in Bavarian Syntax. *The Linguistic Review* 3: 209-274.
- Belletti Adriana & Carla Contemori (2010). Intervention and attraction. On the production of subject and object relatives by Italian (young) children and adults. In: Costa J. *et al.* (eds.). *Language Acquisition and Development*. 3. Proceedings of Gala 2009. Cambridge: CSP. pp. 39-52.
- Belletti Adriana & Cristiano Chesi (2011). Relative clauses from the input: syntactic considerations on a corpus-based analysis of Italian. *Studies in Linguistics, CISL Working Papers*.
- Belletti Adriana, Friedmann Naama, Brunato Dominique & Luigi Rizzi (2012). Does gender make a difference? Comparing the effect of gender on children's comprehension of relative clauses in Hebrew and Italian. *Lingua* 122. 1053-1069.
- Benincà Paola & Cecilia Poletto (2004). Topic, Focus and V2: Defining the CP sublayers. In: Rizzi L. (ed.). *The structure of CP and IP*. Vol. 2. 52-75. Oxford: Oxford University Press.
- Caloi Irene (2013). The comprehension of relative clauses in patients with Alzheimer's disease. *STil-Studies in Linguistics, CISCL WP Vol.5*.
- Chertkow Howard, Bub Daniel (1990). Semantic memory loss in dementia of Alzheimer's type. What do various measures measure?. *Brain*, 113, 397-417.
- Cinque Guglielmo (1999). *Adverbs and Functional Heads: a Cross-linguistic Perspective*. Oxford: Oxford University Press.
- Clifton Charles Jr. & Lyn Frazier (1989). Comprehending sentences with long distance dependencies. In Gregory N. Carlson & Michael K. Tanenhaus (eds.), *Linguistic structure in language processing*, 273-317. Dordrecht: Kluwer.

- Contemori Carla & Adriana Belletti (2013). Relatives and Passive Object Relatives in Italian speaking children and adults: Intervention in production and comprehension. *Applied Psycholinguistics* (FirstView). DOI: <http://dx.doi.org/10.1017/S0142716412000689>.
- Cornips Leonie & Cecilia Poletto (2005). On standardizing syntactic elicitation techniques. *Lingua* 115, 7. 939-957.
- De Vincenzi Marica (1991). *Syntactic Parsing Strategies in Italian*. Dordrecht: Kluwer.
- De Vincenzi Marica (1996). Syntactic analysis in sentence comprehension: Effects of dependency types and grammatical constraints. *Journal of Psycholinguistic Research* 25(1). 117-133.
- Diessel Holger & Michael Tomasello (2005). A new look at the acquisition of Relative clauses. *Language* 81. 882-906.
- Folstein Marchal F., Folstein Susan E. & Paul R. McHugh (1975). Mini Mental State. A practical method for grading the cognitive state of patients for the clinician. *Journal of Psychiatric research* 12 (3). 189-198.
- Formentin Vittorio (1996). Flessione bicasuale del pronome relativo in antichi testi italiani centro-meridionali. *Archivio Glottologico Italiano* 81: 133-176.
- Frauenfelder Ulrich, Segui Juan & Jacques Mehler (1980). Monitoring around the relative clause. *Journal of Verbal Learning and Verbal Behavior* 19. 328-337.
- Friedmann Naama & Rama Novogrodsky (2002). *BAMBI: Battery for assessment of syntactic abilities in children*, Tel Aviv University.
- Friedmann Naama, Adriana Belletti & Luigi Rizzi (2009). Relativized relatives: Types of intervention in the acquisition of A-bar dependencies. *Lingua* 119(1). 67-88.
- Friedmann Naama *et al.* (in prep.). The acquisition of relative clauses in sixteen languages. *Final paper of WG-3 of the European COST Action/33*.
- Fridjoi Ana (2012). *La frase relative nell'Italiano rinascimentale di Niccolò Machiavelli*. MA Thesis, Goethe Universität Frankfurt am Main.
- Guasti Maria Teresa & Anna Cardinaletti (2003). Relative clause formation in Romance child production. *Probus* 15. 47-89.
- Haegeman Liliane (2006). Argument fronting in English, Romance CLLD and the left Periphery. In: Zanuttini R., Campos H., Herburger E. & P. Portner (Eds.). *Negation, Tense and Clausal Architecture: Cross-linguistic Investigations*. 27-52 .Georgetown University Press.



- Hamburger Henry & Stephen Crain (1982). Relative acquisition. In Stan A. Kuczaj, II (ed.), *Language Development*, vol. I: *Syntax and Semantics*, 245-274. Hillsdale, NJ: Erlbaum.
- Kayne Richard (1975). *French Syntax*. Cambridge (Mass.): MIT Press.
- Kayne Richard (2008). Antisymmetry and the lexicon. *Linguistic Variation Yearbook*. 8: 1-31.
- Kayne Richard (2010). Why isn't This a complementizer?. In: Kayne Richard (ed.). *Comparison and contrasts*. 190-227. Oxford: OUP.
- Klima Edward Stephan (1964). *Studies in Diachronic Transformational Syntax*. Doctoral dissertation. Harvard University. Cambridge, Mass.
- Ledgeway Adam (2009). *Grammatica diacronica del napoletano*. Tübingen: Niemeyer Verlag.
- Luzzatti Claudio (1999). Language disorders in Dementia. In: Denes G. & Pizzamiglio G. (eds). *Handbook of clinical and experimntal neuropsychology*. Psychology Press.
- MacWhinney Brian (1982). Basic syntactic processes. In: Kuczaj S. (ed.). *Language acquisition: Syntax and semantics*. Hillsdale, NJ: Lawrence Erlbaum. Vol. 1. 73-136.
- Manzini Rita & Leonardo Savoia (2011). *Grammatical Categories*. Cambridge: Cambridge University Press.
- McKhann Guy, Drachman David, Folstein Marshall, Katzman Robert, Price Donald & Emanuel Stadlan (1984). Clinical diagnosis of Alzheimer's disease: report of the NINCDS-ADRDA Work Group under the auspices of Department of Health and Human Services Task Force on Alzheimer's Disease. *Neurology* 34 (7). 939-44.
- O'Grady William, Miseon Lee & Mi-ho Choo (2003). A subject-object asymmetry in the acquisition of relative clauses in Korean as a second language. *Studies in Second Language Acquisition* 25. 433-448.
- Parry Mair (2007). The interaction of Semantics and Syntax in the spread of relative *che* in Early Vernaculars of Italy. In: Bentley D. & A. Ledgeway (eds.). *Sui dialetti italaromanzi. Saggi in onore di Nigel B. Vincent*. 200-219. Norfolk: Bidles.
- Radford Andrew (1981). *Transformational Syntax*. Cambridge: Cambridge University Press.
- Rizzi Luigi (1990). *Relativized Minimality*, Cambridge, MA: MIT Press.
- Rizzi Luigi (1997). The fine structure of the left periphery. In: Haegeman L. (ed.). *Elements of Grammar*. 281-337. Kluwer: Dordrecht.
- Shlonsky Ur (1994). Agreement in comp. *The Linguistic Review* 11. 351-375.

- Taraldsen Knut T. (1980). On the nominative island condition, Vacuous Applications and the That-trace Filter. Distributed by the *Indiana University Linguistics Club*.
- Taraldsen Knut T. (2001). Subject Extraction, the Distribution of Expletives, and Stylistic Inversion. In: Hulk A. & J.Y. Pollock (eds.). *Inversion in Romance*. 163-182. Oxford: Oxford University Press.
- Taraldsen Knut T. (2002). The que/qui alternation and the distribution of expletives. In: Svenonius P. (ed.). *Subjects, Expletives and the EPP*. 29-42. Oxford: Oxford University Press.
- Tavakolian Susan L. (1981). The conjoined-clause analysis of relative clauses. In Susan L. Tavakolian (ed.). *Language Acquisition and Linguistic Theory*, 167-187. Cambridge, MA: MIT Press.
- Traxler Matthew, Robin Morris & Rachel Seely (2002). Processing subject and object relative clauses: Evidence from eye movements. *Journal of Memory and Language* 47. 69-90.
- Utzeri Irene (2007). The production and acquisition of subject and object relative clauses in Italian. *Nanzan Linguistics Special Issue* 3. 283-314.
- Vries de Mark (2002). *The Syntax of Relativization*. Utrecht: LOT.
- Walenski Matthew, Sosta Katuscia, Cappa Stefano & Michael T. Ullman (2009). Deficits on irregular verbal morphology in Italian speaking Alzheimer's disease patients". *Neuropsychologia* 47 (5). 1245-1255.