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Explicit syntactic teaching of
complex syntactic structures of
Italian: a case study on a bilingual
Arabic-Italian speaking girl with
ADHD

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Introduction

This study investigates the linguistic competence in the use of complex syntactic structures of Italian in a bilingual child (Arabic; Italian) aged 9;6 diagnosed with ADHD. The participant was exposed to her second language (Italian) for the first time when she was 2;6, therefore this research investigates a case of simultaneous bilingualism. The production and the comprehension of passive clauses, relative clauses and clitic pronouns in Italian have been evaluated through the administration of some non-standardized tests. This study aims at suggesting a tailor-made didactic intervention in order to improve the competence of Italian of the participant of this study, N. The didactic intervention focuses on the explicit teaching of three fundamental linguistic aspects: the argumental structure of the verb, the thematic theory and the syntactic movement (see Haegemann 1996, Donati 2002 and Cecchetto 2002 for an introduction on these topics).

Data have been collected during the sessions that were carried out in a quiet room in a speech therapy office. In addition to the data collected on N.'s competence, data concerning competence on the same complex syntactic structures of 4 monolingual Italian children (main age 9;5) which have been chosen as controls, have been collected in the same office.

One standardized test and five non-standardized tests were administered to all participants. The standardized test was the TROG-2 (Bishop 2009) which aimed at assessing the grammatical comprehension both in children, starting from the age of 4, and in adults. The non-standardized tests aimed at examining production and comprehension of passive clauses (Verin 2010), production and comprehension of relative clauses (Volpato 2010), and production of clitic pronouns (Arosio et al. 2014).

On the basis of the analysis of N.'s results on the tests, difficulties have been detected in all the examined structures. However, the most difficult structure to produce and comprehend has been the passive clause, followed by the relative clause.

After the testing sessions, a tailor-made didactic intervention has been administered to the participant. The didactic intervention was realized on the basis of previous studies on the topic: Levy and Friedmann (2009), an explicit syntactic teaching addressed to

SLI children, D'Ortenzio (2015), an explicit syntactic teaching addressed to a deaf child, and Bozzolan (2016), an intervention for a sequential bilingual child. Moreover, considering the attention deficit and hyperactivity disorder that N. has been diagnosed with, the whole teaching material has been created in order to be as challenging, stimulating, colourful, and interactive as possible.

The present work is divided in 7 chapters briefly described below.

In chapter 1, a general description of language acquisition and an analysis of bilingualism are provided. Moreover, the steps of linguistic development in bilingual children and the benefits of bilingualism are presented. Finally, some observations on bilingualism in immigration context are made.

In chapter 2, a description of the attention deficit and hyperactivity disorder (ADHD) is provided. After the diagnostic analysis, learning techniques used with ADHD children are presented.

Chapter 3 is devoted to a description of the syntactic structure of passive clauses and to the presentation of research carried out on the acquisition of this structure. Finally, a brief definition of Arabic passive clause structure is given in order to understand if this structure may have influenced N.'s acquisition of the Italian one.

In chapter 4, the characteristics of relative clauses are described. Firstly, their morphosyntactic features are presented and secondly, the typical pattern of acquisition of this structure is explained. Some linguistic hypotheses are taken into account in order to justify the difference in comprehension and production between subject and object relatives. Finally, a brief definition of Arabic relative clause structure completes the chapter.

Chapter 5 is devoted to the description of the main characteristics of strong and, especially, clitic pronouns in Italian. A comparison between direct object clitics and reflexive clitic pronouns in Italian is made, since these elements are the object of the present research. Moreover, the acquisition of this grammatical category in monolingual and bilingual acquisition is described. Finally, a brief description of the pronoun system in Arabic is provided.

In chapter 6, the participants of the study are presented and all tests that were administered to the participants are described. Furthermore, the results of the pre-teaching test administration are analysed. N.'s performance is compared with that of the control group in every test and pre-teaching conclusions are drawn in the final section of the chapter.

Chapter 7 is devoted to the presentation of the previous studies on explicit syntactic teaching which have influenced the realization of the didactic intervention. The core of the chapter is the presentation of all steps featuring the didactic intervention. In the final section of the chapter, a comparison between pre-teaching and post-teaching results is presented.

Chapter 1

The acquisition of language

1.1 To start with the basics

Language is a complex, specialized, human-specific skill, which develops in the child spontaneously through the exposure to linguistic input, on the basis of what children hear or see, if the language is signed (Guasti 2016). It develops without conscious effort of formal instruction, deploying without awareness of its underlying logic; it is a biological construction of our brain and embodies the system that people use to communicate and to live in a society.

The first to conceive language as an instinct was Noam Chomsky (Chomsky 1957). He highlighted two fundamental aspects of language: first, virtually every sentence that a person utters or understands is a brand-new combination of words, appearing for the first time in the history of universe; second, children develop a complex grammar rapidly and without formal instruction, so children must innately be equipped with a plan common to the grammars of all languages, the Universal Grammar (Pinker 1994). This faculty was conceived as a *language acquisition device* (LAD), an innate component of the human mind that yields a particular language through interaction with presented experience (Chomsky 1986).

The theory which has been shared by the majority of scholars is *Innatism* (Chomsky, 1957). It claims that every person already has universal rules in his/her mind since birth and these are called *principles*, namely the invariant properties common to all languages, which compose the UG. It also defines the possible forms of variation from one language to another through *parameters*, that are language-specific characteristics, they vary according to the language or languages children are exposed to (Guasti 2016).

To summarize, UG has two properties:

- It is composed of principles which do not change from one language to another;

- There are language-specific properties called parameters, which are not entirely determined by UG; UG provides a series of possible choices for them.

The linguistic properties which vary from one language to another are learned by the speaker as a consequence of the exposure to a specific linguistic environment. In order to make this clearer, one principle and one parameter are presented below:

- Recursiveness is a principle which can be found in every language, it is a universal principle. According to recursiveness, every grammatical sentence can be created within another sentence:

- Mary ate an apple.
- Luke said that [Mary ate an apple]
- Laura heard that [Luke said that [Mary ate an apple]]
- Mike was told that [Laura heard that [Luke said that [Mary ate an apple]]];

- *Pro-drop* feature is a parameter of some specific languages. According to this parameter, on one hand, some idioms can omit the subject in temporalized sentences and can also admit it in post-verbal position (e.g. Italian), on the other hand, others cannot do it because the omission or the post-position of the subject would involve the creation of ungrammatical sentences (e.g. English):

- Mangia un biscotto
‘*Eats a biscuit’
- E’ andata Maria
‘*Has gone Mary’

Therefore, our ability to speak a language is based on both innate principles and parameters of UG and on the exposure to a specific language (Haegeman 1996).



Figure 1 – Language acquisition (Haegeman 1996: 14)

Nevertheless, if every person has innate principles, parameters and gets exposed to certain languages, can one acquire those languages during all life or is it just learning? Why do we speak about first language acquisition, second language learning, bilingualism? Do children learn languages faster than adults? In order to answer these questions, it is necessary to introduce two basic concepts: language acquisition and language learning. The former is a subconscious and effortless process of linguistic knowledge. The latter is standardly held to involve both explicit and implicit psychological processes (Anderson Michaelmas 2007).

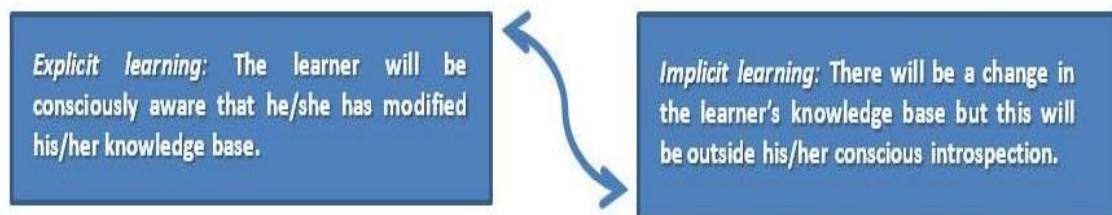


Figure 2 – Explicit and implicit learning (Anderson Michaelmas 2007: 1)

The acquisition of a language is limited to a specific period of time according to Lenneberg et al. (1967) who claimed that human language acquisition is an example of biologically constrained learning, acquired during a critical period beginning early in life and ending with puberty. He hypothesized that, after this time period, language acquisition would be more difficult and would imply a different learning process (Newport 2006). A study that supports the critical period hypothesis for first language acquisition is the case of Genie, a girl who was not exposed to either language or social interaction until her discovery at the age of thirteen (Curtiss 1977). After seven years of rehabilitation, the lack of linguistic competence was still really significant. Several years later, Newport and Supalla (1987) investigated American Sign Language (ASL)

acquisition in congenitally deaf people. They divided the subjects into three groups by age of exposure to ASL: native signers, early signers (exposed between the ages of 4 and 6) and late signers (exposed to ASL at the age of 12). The results showed a continuous linear decline in performance with increasing age of exposure. These data suggest that while the postpubescent subjects did not achieve a level of proficiency comparable to that of natives or early signers, language had not become completely unlearnable for them. This rules out any extreme interpretation of the critical period hypothesis (Johnson and Newport 1989). However, the issue is still widely debated. What is certain, is the fact that one can learn new languages during all his life, but that it is much simpler for a child than for an adult, and this is the reason why the difference between acquisition and learning is factual data (Guasti 2007).

1.2 Bilingualism

In this study, I will be concerned with the bilingualism phenomenon, that is the exposure to two or more languages with the same frequency from childhood; this will enable the child to acquire and develop two or more mother tongues.



Figure 3 - Why Bilinguals Are Smarter (Bhattacharjee 2012)

Giving a definition of bilingualism is really challenging. It was considered a native-like control of two (or even more) languages by Bloomfield (1933). In a sense, bilinguals are

seen as two monolinguals in one person (Grosjean and Li 2013). Grosjean (1992) and Cook (1992, 1993, 1995) criticized the monolingual view of bilingualism and proposed a more holistic view. With reference to Grosjean (1992), the competence of bilinguals should be judged in conjunction with the user's total linguistic repertoire. Cook (1992), has proposed the notion of "multi-competence" referring to a unique form of language competence that is not to compare with that of monolinguals. A common misconception is that bilinguals master two languages fluently; in fact, most of bilinguals do not have the same fluency in their languages and they use them for different objectives, in different situations, to accomplish different things. Moreover, the way they master a certain language is proportional to their need of using it (Grosjean and Li 2013). According to the Complementary Principle (Grosjean 1997) "bilinguals usually acquire and use their languages for different purposes, in different domains of life, with different people. Different aspects of life often require different languages" (Grosjean and Li 2013: 12). Having said this, the way Sorace (2011) conceives bilinguals seems quite fair: bilinguals do not know two (or more) languages perfectly, but they use more than one language regularly. This is also claimed by Bialystok et al. (2010) who support that since a bilingual child is exposed to two languages, he/she necessarily receives less total exposure to each of his/her languages than a monolingual child. This leads to unevenly distributed linguistic knowledge across the languages. Furthermore, the sets of linguistic structures to which bilinguals are exposed are more diverse than those to which monolinguals are exposed (Grosjean and Li 2013). A lot of bilinguals take the challenge and manage to develop linguistic systems that are equivalent to those of monolinguals at least in one language (MacLeod et al. 2011; Paradis 2009; Schaufeli 1992) or in both languages (Fabiano-Smith and Goldstein 2010; Mack 2003).

Therefore, the Complementary Principle (Grosjean 1997) explains a number of interesting phenomena and it is an important factor in bilinguals' life (Grosjean and Li 2013):

- The bilingual's level of fluency and use of language: when the number of contexts in which a language is used is very limited, it is probable that that language will be less frequently used and that fluency will be lower in that language and vice versa; indeed, it is also true that when a language is used in several contexts, it is probable that it will be more frequently used and that fluency will be higher. Additionally, if a language does not cover a certain context (for instance, if a person does not use a given language to talk about work or family or free time), then probably the bilingual subject will have a vocabulary gap. In fact, all bilinguals during their lives have had to face situations in which they were required to talk about a given theme in the "wrong" language, namely a language that they were not used to use in a specific context; this gap resulted in disjointed speeches and difficulty in finding the right word to express an idea;
- Translation: bilinguals are conceived as natural translator but care should be taken, because very often they find it difficult to translate words and sentences belonging to a certain situation. This does not make them less bilingual, this simply proves that their languages are distributed across different domains;
- Memory of events: if the language used to recall an event is the same of that in which the event took place, the event is better recalled (Marian and Neisser 2000).

Far from being a homogeneous and simple phenomenon, there are different and equally important ways to describe bilingualism. Indeed, it is possible to distinguish between:

- Balanced and dominant bilingualism, the former describes individuals whose bilingual abilities are great and have the same fluency level in all languages; however, even a category in which individuals show a non-perfect equivalence is one where most bilingual and multilingual speakers cannot be placed since the language abilities of most of the individuals that are reasonably defined as "bilinguals" are far from being

equivalent in all languages. The latter is concerned with individuals that performs better in a language than in others (Bhatia and Ritchie 2013);

- Receptive (or passive) vs. productive (or active) bilingualism: the former embodies the situation in which one can understand a language, both written and spoken, but has no success in producing it; in the latter case, bilingual individuals can do both (Bhatia and Ritchie 2013);
- Additive vs. subtractive bilingualism: these concern effects of L1 on L2 (Lambert 1974). In the former case, both languages continue to be useful and valued; the individual keeps improving both L1 and L2 competence. In the latter one, one language is more dominant than the other; while L2 improves, L1 get worse (Marini 2011);
- Primary vs. secondary bilingualism: the former case contemplates a double competence created through concrete contexts in a natural way; in the latter one competence is created through formal and systematic instruction (Bhatia and Ritchie 2013);
- Simultaneous vs. sequential bilingualism acquisition: the way in which two (or more) languages develop in a child's life is important to distinguish between them. In simultaneous bilingual acquisition, the acquisition of two languages starts at birth; individuals are said to have two native languages (de Houwer 2009; Meisel 2004). In sequential bilingualism, the acquisition of one language starts in childhood (after at least age 3–4 years), so the second language (L2) is acquired after the first language (L1) (Bhatia and Ritchie 2013).

With reference to the last distinction, the difference between simultaneous and sequential bilingualism, as mentioned above, is based on the age of onset (AO) of each linguistic system. Although the opinions related to this issue are not commonly shared, most researchers generally agree with an arbitrary cut off age, that is, approximately 3

years old (McLaughlin 1978). From this age, a situation of simultaneous bilingualism switches to sequential. This study will be considered as a case of simultaneous bilingualism as the participant, N., settled down in Italy at the age of 2;6. On one hand, she has never stopped speaking Arabic at home. On the other hand, at the age of 3 she was introduced in the educational system and she started to speak Italian with her peers.

1.3 Factors interfering with L2 acquisition

Four prevalent factors which interfere in bilinguals' language acquisition have been highlighted by Bhatia and Ritchie (1999):

- Quantity and quality of input from two or more languages: generally, bilinguals are surrounded by heterogeneous linguistic input. This input is characterized by division, that creates an irregular, and therefore minor, exposure of the child to the input of each language, and the difference between separate and mixed input source; in the former case parents or the groups in which the child is raised speak two different languages, in the latter one parents or the groups in which the child is raised speak alternately two languages;
- Unbalanced use of languages: there is always a language that is more present than the other(s). This is due to the fact that, as already mentioned, bilinguals use a precise language for a precise context (Grosjean 1997). However, these can change during life according to each individual's experience;
- Interaction (code mixing) and separation (code switching) among two or more linguistic systems: code mixing represents the situation in which lexicon and syntax of two different languages appear in the same sentence; code switching represents the dual use of two languages in the same discourse;

- Socio-psychological causes: these can seriously modify the use of certain linguistic systems according to the environment the individual is living in. For instance, with regards to the concrete situation that N., the protagonist of this research, had to face when entering the elementary school, she was ashamed when her peers listened to her conversations in Arabic with the father, as they ridiculed her. Therefore, she avoided conversations in Arabic at school and this represented an important cultural shock for her that could have affected her use of Arabic at home too.

It is evident, then, that the process of language acquisition, especially for bilinguals, is densely characterized by internal and external factors (Pichiassi 2009). Internal factors concern age of acquisition, namely children are more likely to develop a competence similar to that of native speakers than adults, personal motivation, which surely represents the “fuel” that guides the process of acquisition, it may be generated from personal desire, personal duty or personal need (Balboni 2005); linguistic predisposition, personal aptitude towards language learning. External factors concern the structure of the bilingual individual’s different languages, the quantity of input of languages, for instance in this research Italian was spoken at school and during recreational activities, while Arabic was used at home, the quality of input of languages.

Moreover, as stated by Genesee et al. (2006), language acquisition may be influenced by other external factors such as race, economic status, level of education of child’s parents, integration level of the child and the child’s family in the environment. These are features that play a crucial role in immigrant bilinguals’ life (see 1.7 for more details).

1.4 Phases of linguistic development in bilingual children

In the last forty years researchers have drawn a conclusion concerning simultaneous bilingualism: very early acquisition of two or more languages can be considered as the acquisition of several first languages. This statement is based on the idea that the development of each language and the competence of the bilingual child are

equivalent to those of monolinguals (Bhatia and Ritchie 2004). Even though in the first stages of acquisition the difference between bilinguals and monolinguals is slightly more evident, it can be claimed that phases of linguistic development in bilinguals are the same in monolinguals. Bialystok et al. (2009) have claimed that the phonological and morphosyntax development are similar in bilinguals (in both languages) and in monolinguals (Crescentini and Fabbro 2014).

1.4.1 Phonology

As far as phonology is concerned, the bilingual child undergoes through the same process of monolinguals in order to produce phonemes. As a proof, Fantini (1985) presents a lot of data concerning the bilingual development (Spanish, English) of his son. At the age of 4 months, the child recognized the parents' voices and when he was 1 year old he produced sounds that resembled real words, even though they did not have much meaning (Hoffman 1991).

Although this data proves that the bilingual development undergoes through the same processes of the monolinguals' one, many researchers claim that for bilinguals the process is more complicated as two or more phonetic systems are involved. This would create a demanding cognitive work for the bilingual child resulting in a linguistic delay (Hoffman 1991).

Conversely, Doyle, Champagne and Segalowitz (in Grosjean 1982) have proved that bilingual children produce their first words at 11;2 months and monolinguals at 11;6 months, then at very similar periods. Languages develop in a very similar way both in bilinguals and monolinguals as for phonetics, lexicon and morphosyntax: easier phonemes appear before more difficult phonemes (for instance the fricative /z/), words meaning are usually over used, sentences become longer and longer. Even though some researches have detected a linguistic delay in bilinguals, the delay is still considered in a period of normal development of monolinguals (Bhatia and Ritchie 2004).

Furthermore, being exposed to two languages, the phonological repertoire of bilingual children is richer than that of monolinguals. It has been proved that bilingual infants

react in different ways according to the language that the adult who is interacting with him/her speaks. Therefore, it seems that the bilingual child starts distinguishing between different linguistic expressions very early and that the phonological representation of languages begins in the period of lallation (Crescentini and Fabbro 2014).

1.4.2 Lexicon

Researchers that have been studying the bilingual linguistic development agree on claiming that at the beginning of the production of lexicon process, children use words in both languages without distinctions. This dual use has been analysed by Volterra and Taeschner (in Hoffman 1991). After the analysis the authors have drawn the following conclusions: at the beginning, the child has only one lexical system composed of words belonging to both languages; later, the development of different lexical systems begins, but the child continues to use the syntax of one language and not both; at the end, the child develops two different grammatical systems, creating two different linguistic systems.

This analysis has been criticized because it seems not to gather the typical phases of the bilingual development (Bhatia and Ritchie 2004). However, researches have proved that the distinction between linguistic systems is confirmed. For instance, studies on bilingual aphasic patients, namely individuals that after a brain injury in the linguistic areas of the brain show difficulties on linguistic production or comprehension, are very illustrative. Fabbro (2004) analysed the case of a patient that after a ganglia injury was not able to speak his first language anymore, but was completely able to speak his second language, although he used it less than his first one during his life. The ganglia injury, a procedural memory structure, compromised the use of the first language but not the use of the second one. Therefore, a brain injury may compromise in a selective way just one type of memory and just one language, leaving other memory systems available. Moreover, this aphasia case with second language retrieval proves that the age and the way a language is acquired are responsible for a different representation of languages in the brain.

Gollan and Kroll (2001) and Bialystok et al. (2008) claim that bilinguals' access to lexicon is slower and harder than monolinguals' one and that bilinguals make more mistakes in tests eliciting the rapid production of the name of an object. Moreover, if lexical development of bilinguals and monolinguals are compared, in the first stages of acquisition, the bilingual shows lacking abilities: a monolingual child at the age of 3 understands approximately 800/900 words; a bilingual child at the same age understands approximately 800/900 words belonging to both languages, therefore the abilities in a specific language are weaker than monolinguals (Crescentini and Fabbro 2014).

1.4.3 Morphosyntax

Burling (in Hoffman 1991) describes the case of bilingual his son (English, Garo). The child was exposed to a non-European language with a lot of declensions and with a complex linguistic code. Burling observed that the child started to acquire the morphology of Garo through the following productions: the suffix for several verbal tenses as the future, the past, the imperative and the present, negations and possessive adjectives. As for English, the child just produced possessive pronouns.

Therefore, generally speaking, the bilingual and the monolingual acquire morphosyntax through the same phases. However, the use of some morphemes is strictly linked with a specific language: according to the relevance that morphosyntax has in a given linguistic code, its correct forms are acquired in different moments. As for the mistakes that a bilingual child makes, they are the same in the monolingual child. The difference may be that mistakes persist more in a bilingual's language or even that they become typical features of bilingual's language (Hoffman 1991).

For a long time researchers have been wondering if grammatical categories appear in the same moment and in the same way both in monolinguals and in bilinguals. Meisel (in Hoffman 1991), after having compared his data on bilingual children with that of monolingual children, has drawn a conclusion: bilinguals acquire the same grammatical categories of monolinguals during the same period of time. Moreover, easier categories are acquired earlier. According to Serratrice et al. (2004), Sorace et al.

(2009) and Sorace (2011), bilinguals have difficulties in some morphosyntax aspects such as the production and comprehension of anaphoric expressions.

1.5 Benefits of bilingualism

Among parents and educators, early bilingualism has long been considered as something affecting the child’s language and cognitive development. During the first half of the 20th century, early bilingualism and second language acquisition were badly conceived as an interference with children’s capacity to develop normal cognitive functions and be good at their educational environments. Thanks to Peal and Lambert (1962), these opinions were drastically modified in favour of a general superiority of bilinguals over monolinguals in lots of intelligence tests. More recently, opinions have been more balanced, claiming that there are areas in which bilinguals are very good in and other areas in which the fact of being bilingual does not affect development (Bialystok 2017).

As well represented in the picture below, most of the population is bilingual or multilingual.

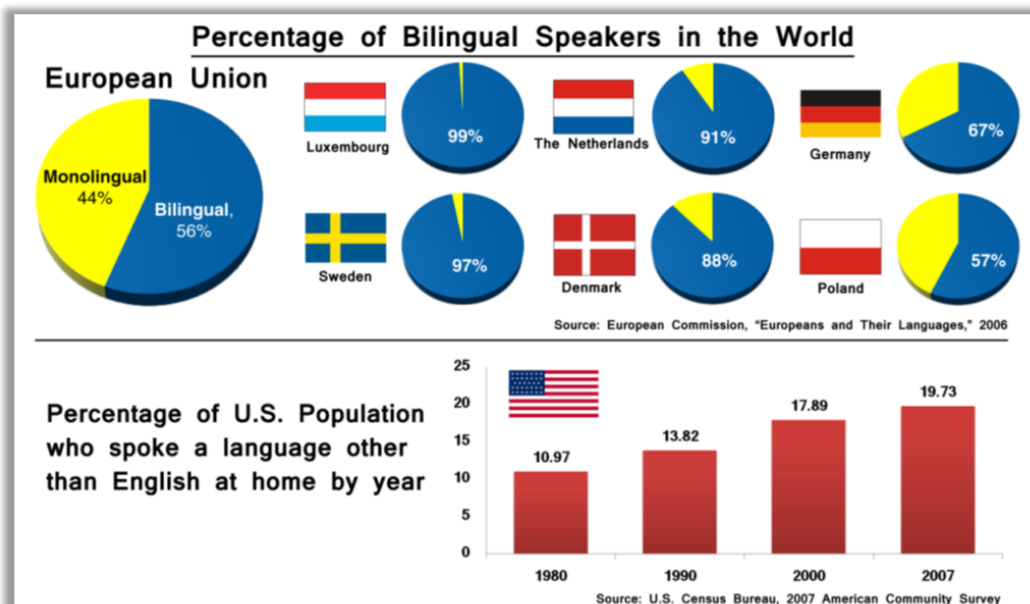


Figure 4 – Percentage of bilingual speakers in the world (U.S. Census Bureau 2007)

Some researchers have found out that when these people use one language, also the other(s) is activated. Moreover, these subjects benefit from cognitive and neurological advantages from childhood to old age due to a more efficient process of information by the brain with respect to monolinguals (Marian and Spivey 2003). What have been called interference by many should no longer be seen as an handicap but as a blessing in disguise (Bhattacharjee 2012).

In order to keep the two languages balanced, the brain of bilinguals needs to rely on a regulatory system of general cognitive capacities such as attention and inhibition, the latter being the capacity to exclude perceptual information and concentrate on what is relevant in a precise context. These control mechanisms are activated every time a bilingual speaks or listens to something and thanks to this activity, they are strengthened. Activities in which bilinguals have better results than monolinguals are listed by Marian and Shook (2012):

- They perform better on tasks that require conflict management;
- They have a better performance at tasks that tap into inhibitory control ability;
- They are more capable of switching between two tasks;
- The improvements in cognitive and sensory processing can help bilinguals to better process information in the context, leading to a clearer signal for learning.

Some studies that have investigated bilinguals and monolinguals' ability on defined tasks strengthen the hypothesis that being bilinguals is way more than just knowing two or more languages. Consider the following researches:

- At the University of Pompeu Fabra in Spain, Albert Costa (2015) compared Italian monolinguals with German-Italian bilinguals on monitoring tasks. His research group found out that bilinguals had a better performance and they also were more efficient at it; in fact, they did it with less effort of the brain area involved in monitoring (Bennett-Kastor 2015);

- At the International School for Advanced Studies in Trieste (Italy), Agnes Kovacs (2009) compared the ability of adapting to changing rules of little babies who were exposed to one and two languages. They first presented an audio track to the infants and then a visual reward, that in this case was a puppet that appeared randomly on the screen. The babies had to associate a precise sound to the appearance of the puppet in a precise position. All infants were able to anticipate the presence of the puppet. The difference between the two groups was that, when the puppet started to appear in another location of the screen, bilingual infants switched their anticipatory gaze, while monolingual infants kept looking at the original position of the puppet (Bhattachajee 2012);
- At the University of California, San Diego, Tamar Gollan, a famous neuropsychologist, thanks to a study on elderly Spanish-English bilinguals, discovered that individuals with a better level of bilingualism, measured through the evaluation of competence in each language, were less subject than others to the onset of dementia and other symptoms of Alzheimer’s disease, the age of onset was delayed (Bhattachajee 2012);
- At the Bar-Ilan University in Israel, Esther Adi-Japha (2010) noticed that monolingual children revealed less creativity than their bilingual peers in a drawing task which consisted in imagining a fantastical house of flower. Looking at the images, it becomes clear that monolinguals conceived a flower that does not exist as something without the flower part (Figure 5); on the contrary, bilinguals moved it in unusual contexts (Figure 6) (Adi-Japha et al. 2010).

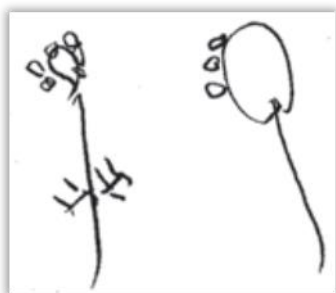


Figure 5 – monolingual child’s drawing;



Figure 6 – bilingual child’s drawing

1.6 Immigration and bilingualism

Most of the times, bilingualism is a necessity rather than a choice. This is the case of whole families that more and more frequently have to move into other countries due to political, social and economic reasons.

As far as adults are concerned, they leave their native country and take up residence in another one trying to adapt themselves to a new life. They are likely to keep using their first language in almost every context of their life, however, in all likelihood, due to working reasons, they will learn the language of the host country. Nevertheless, their acquisition of the L2 is rarely at high levels.

Another situational pattern characterizes immigrant children, especially if they moved at a very early age. They have not acquired completely their first language and are widely exposed to a second one. The social and educational situation that a child comes across in the host country plays an important role in his/her development. The most important factors that a child immediately perceives are:

- Geographical changes: re-adaptation to objects, environments, different places and the relationship with the “unconscious place” of his/her family;
- Linguistic changes: different non-verbal and verbal communication systems and cultural dimension of the language.

To this general mutating setting, it is necessary to add an estrangement sensation which affects mostly the linguistic area, creating a language shock. This shock is due to the communicative efficiency loss of the language that up to that moment had characterized every degree of experience. Moreover, the new situation does not involve a rapid transformation that suddenly deletes previous experiences. On the contrary, the phenomenon is more of a doubling reality called *biculturalism*.

This situation can lead to different consequences: psychological and practical refusal of L2, psychological and practical refusal of L1, more or less balanced coexistence of both L1 and L2.

If bilingualism and biculturalism are not taken into consideration by the host society the child is living in, such consequences are very likely to arise (Lupia 2012): previous linguistic and cultural competence loss, namely if the situation is not well managed, the result is the complete loss of L1, rather than the activation of a simple sum $1+1=2$ creating perfect competence in two languages (Iori 2005); mediocre acquisition of L2 due to the fact that instead of being perceived as a way of integration, is considered a sort of threat and difficulty; scission of the experience-based moments of life, classifying events in different mental sections (e.g. home, school) not communicating with each other; negative social opinion of the native culture may arise if the child's new environment is not hospitable, have preconceptions and judge the bilingual individual according to them; building of separate cultural identities that would create a dual pattern of behaviours according to the context increasing the perception of not belonging to either one of them.

There are cases in which two languages can coexist and improve a person's life. Li (1999) highlights the important role parents play in building the linguistic behaviour of their children. She claims that the attitude of parents with respect to L2, conceived as the expression of positive or negative feelings toward a language, can modify the speed and quality of the child's L2 acquisition.

Her daughter was exposed to both Chinese and English and she underlines the essential relation between the linguistic behaviour of the child and the parental L1 attitudes; precisely, she strongly supports that "Our children's attitudes toward, and the maintenance of their L1 depend mostly on how we parents look upon our L1, when and how often and with whom we communicate in L1 and with what we associate L1 – especially when our L1 is marginalized in the new culture" (Li 1999: 3).

Li adopted two language orientations, the integrative and the instrumental one with respect to L1 and L2 (Gardner and Lambert, 1972). The former is composed of a need for identification and inclusion in a language and a cultural group. The latter is pragmatic and aims at personal success. This technique was used in conjunction with her supporting and respecting both languages. She observed three main things that helped her daughter in L2 learning:

- Use and development of L1 thanks to family communication;
- Positive parental L1 and L2 attitudes;
- Active presence of parents during the child's linguistic progress (explanations, discussions).

Li's dedication to these matters resulted in her daughter's dual language learning in a situation in which the two languages are well balanced (Chumak-Horbatsch 2008).

Chapter 2

Attention-Deficit/Hyperactivity Disorder (ADHD)

2.1 Introduction

Considering that the participant of this research is a bilingual Arabic-Italian speaking girl aged 9 diagnosed with ADHD, it seems fair to devote a chapter to the description of the disorder. In order to define the Hyperactivity disorder, The *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5; American Psychiatric Association, 2013) has been taken into consideration. It is the most widely accepted nomenclature used by clinicians and researchers for the classification of mental disorders.

After the diagnostic analysis, learning techniques used with ADHD children, will be presented with reference to *Bambini disattenti e iperattivi, strategie di intervento a scuola* manual (Inattentive and hyperactive children, intervention strategies at school, Capodieci and Cornoldi 2013).

2.2 ADHD: Symptoms and diagnosis

2.2.1 Diagnostic Criteria

ADHD (Attention-Deficit/Hyperactivity Disorder) is a neurobiologically generated neurodevelopmental disorder which interferes with the normal psychological development of the child (DSM-5; American Psychiatric Association, 2013). It is characterized by:

- Inattention, which involves:
 - Failure to pay close attention to details and presence of careless mistakes;
 - Difficulty with sustaining attention in tasks or play activities (also during lectures and conversation);
 - The feeling that the subject is not listening when someone is speaking to him/her directly (even without distractions);

- Difficulty with following through on instructions and failure to finish homework or duties at work;
 - Difficulty with organizing tasks and activities;
 - The subject is unwilling to take part in tasks that require mental effort;
 - Loss of useful things for activities and forgetfulness of daily activities;
 - Easy distraction by irrelevant stimuli;
- Hyperactivity and impulsivity which give rise to:
 - Restless movements (tapping hands, squirming in seat);
 - Leaving seats in situations when remaining seated is expected;
 - Difficulty to take part in leisure activities quietly;
 - Talking inadequately;
 - Coming up with an answer before a question has been completed;
 - Interrupting conversations or activities.

It has to be underlined that several inattentive or hyperactive-impulsive symptoms can be found in two or more settings or situations, such as school, work, home or other activities. Moreover, these symptoms interfere with the quality of social, academic, and occupational functioning.

Delays in language, motor, or social development are not specific features of ADHD but often co-occur. Moreover, low frustration tolerance and irritability are often detected. Even without specific learning disorder, academic or work performance are impaired and cognitive problems on tests of attention, executive function, or memory are linked with an inattentive behaviour (DSM-5; American Psychiatric Association, 2013).

2.2.2 Functional Consequences of Attention-Deficit/Hyperactivity Disorder

Symptoms of ADHD put the quality of life of the subjects that are affected by them at risk. In fact, ADHD is associated with reduced school and work performance and social rejection. Children with ADHD are significantly more likely than their peers without ADHD to develop conduct disorders in adolescence and antisocial personality disorders

in adulthood. Furthermore, from a social point of view, inadequate or variable self-application to tasks that require sustained effort is often perceived as laziness and irresponsibility. Domestic environment could also be a problem because family relationships may be characterized by discord and negative interactions (DSM-5; American Psychiatric Association, 2013).

2.2.3 Development and Course

Most parents with a child diagnosed with ADHD experience excessive motor activity and hyperactivity in the first years of age. However, at this stage it is difficult to distinguish between normative behaviours and atypical ones. The disorder is often detected during elementary school, namely from around 4 to 10 years old, because inattention becomes more prominent and impairing. During early adolescence the disorder is relatively stable, however some subjects get worse as far as development of social behaviour is concerned. Later, with adolescence symptoms of motoric hyperactivity (e.g., running and climbing) become less obvious but difficulties with restlessness, inattention, poor planning, and impulsivity persist. Finally, in adulthood, along with inattention and restlessness, impulsivity may remain problematic even when hyperactivity has diminished (DSM-5; American Psychiatric Association, 2013).

2.3 ADHD and learning

In this section, learning techniques focused on the behaviour used with ADHD children, will be presented. The basic reference will be *Bambini disattenti e iperattivi, strategie di intervento a scuola* (Inattentive and hyperactive children, intervention strategies at school; Capodieci and Cornoldi 2013).

In order to help children with ADHD integrating in and properly interacting with the social environment (at school, at home, with peers), it is necessary to act at an environmental responses level, supporting the implementation of right behaviours and the decreasing of the wrong ones. The environmental modification has to be put in practice through the education of parents and teachers on rewarding techniques for expected behaviours (positive reinforcement) and privileges loss for failed objectives

achievement. The repeated application of rewards and punishments can progressively modify the behaviour (Agostinelli 2014). Since these techniques focus on behaviour, they originate from the *modification of behaviour* approach. These are more incisive if some metacognitive premises are clear and present during all interactions such as sharing of objectives and efforts with the child, helping the child understanding his/her problems and aims of activities, improving child's awareness of the fact that a great deal of effort can help him/her reducing failure (Capodieci and Cornoldi 2013).

In the following paragraphs some practical learning techniques to apply to work with a child who has been diagnosed with ADHD are presented.

2.3.1 Reinforcement and positive consequences

One of the several methods of intervention is based on positive consequences. It is well known that these strengthen the tendency of displaying the behaviour that preceded them. If proper behaviours are not usually followed by a positive consequence, the easiest strategy is to introduce it through gratification. However, this may be risky as the child may develop a dependence on external rewards; therefore, it has to be used when other alternatives are not available. Moreover, the gratification of positive actions strategy, even though the correct actions in the child's behavioural repertoire are very few, is a proper way to increase the frequency of them and is more efficient with respect to punishments that aim to eliminate improper actions. For this purpose it is necessary to identify positive actions to compensate rather than negative ones to punish, identify the action that will be systematically compensated, use objects or behaviour that are a compensation indeed, coherently compensate the same action every time it appears, compensate the child immediately and avoid false compensation (e.g. if a child cries, do not tell him that if he stops, he will play with the computer) (Capodieci and Cornoldi 2013).

2.3.1.1 Systematic compensation with a point system

The systematic compensation with a point system is useful in particularly difficult situations. The strategy consists of the identification of some actions of the child that

enable him to gain or lose points. These points could be turned into tangible compensation on daily or weekly basis; for instance, if in a week the child collects 50 points, then he will be allowed to do something important for him/her (cleaning the blackboard, making photocopies). Before creating the compensation point system, it is important to write an agreement with the child in which rules and behaviour are presented. Afterwards, some steps should be followed such as the identification of the evaluation system (token, sticker), agreement on scores related to a specific behaviour, choice of rewards and privileges with the pupil, agreement on exclusive points collection or contemplation of points loss too if there is a wrong behaviour (Capodieci and Cornoldi 2013).

2.3.1.2 Use of negative consequences

Negative consequences reduce the tendency of displaying the behaviour that preceded them. Close attention should be paid to the fact that negative consequences should not be perceived as punishments, but as feedback. The use of negative consequences includes a response cost, namely after an inadequate behaviour the pupil loses a privilege or a pleasant activity and the response cost has to be proportional to the import of the negative action; no consideration of tolerable inadequate behaviour and punishment of serious inadequate behaviour, that reduces the probability that the behaviour reappears. This last feature should be put into action through the deprivation of something that the child likes, the computer for instance, but not through giving a lot of homework as it results in the child's motivation decreasing (Capodieci and Cornoldi 2013).

2.3.1.3 Time-out

The time-out strategy is used especially to stop irascible behaviours and may be used with children from 3 to 12 years of age. To be totally efficient, the aims and procedures of the technique should be shared with the child through the description of situations in which the time-out is used (sports for instance). With this strategy, the child stays quietly seated in a chair for 3 or 4 minutes, without concentrating and doing nothing. It

is conceived as a suspension of attention and compensation, with the aim of stopping the problematic behaviour and helping the child develop self-control. In order to properly adopt this technique, it is necessary to choose some behaviours to which apply the time-out, identify a quiet location and explain to the child how the time-out works, if the child succeeds in the time-out challenge, it is important to discuss the reasons which have provoked it (Capodieci and Cornoldi 2013).

2.3.2 Lesson organization

Some important strategies regarding the organization of the lessons at school with children with ADHD have been analysed in order to properly adapt the sessions of the didactic intervention that has been created for N.

It is essential to provide a good environment characterized by precise and repeated rules. By doing this, the expected behaviour in each situation would be more predictable. Some useful activities to manage lessons at school are the identification of daily routine, taking several breaks, especially when doing boring activities, creating exciting lessons with new contents and verification of the complete comprehension of homework (to a maximum output, do this in early morning).

It is suitable to write rules that should be followed in a poster and to hang it in a visible wall in the classroom (Capodieci and Cornoldi 2013).

The rules poster used with N. during afternoon lessons is shown in the following picture:



Figure 7 – rules poster

(Stay seated during the lesson; 2. When in a group, wait for your turn to speak; 3. Raise your hand if you want to speak during the lesson; 4. Line up when exiting school; 5. Think before talking and acting)

2.3.2.1 Time and materials

Children with ADHD find it difficult to evaluate quantities, time, and sizes. Therefore, it is important to clearly define the necessary time to perform a task and the degree of difficulty of it. Moreover, the hyperactive pupil has difficulty in managing materials. To obviate this, the teacher should emphasize the importance of materials by dedicating 5 minutes per day to put them in order and creating strategies to do this autonomously. Some symbols that indicate the duration and the difficulty of activities help keeping the attention level as high as possible and making the teacher's instructions more effective (Capodieci and Cornoldi 2013).

During the afternoon lessons between N. and I, images representing duration and difficulty of a given activity were provided to N. at the beginning of the activity. A discussion regarding the images and the activity that was about to begin was held, as to help N. familiarising with the task.

Below, images used to evaluate the duration and the difficulty of an activity during the afternoon lessons are shown:

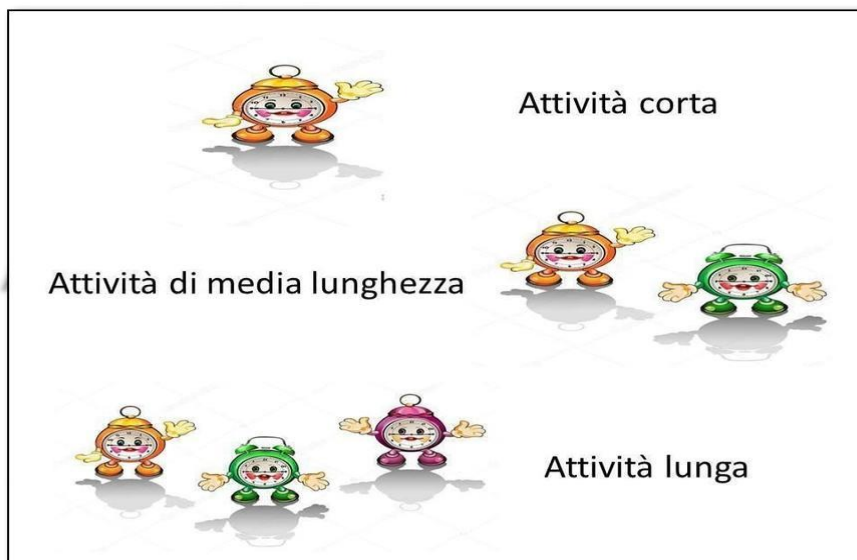


Figure 8 – images evaluating duration of activities
(Short activity, medium length activity, long activity)

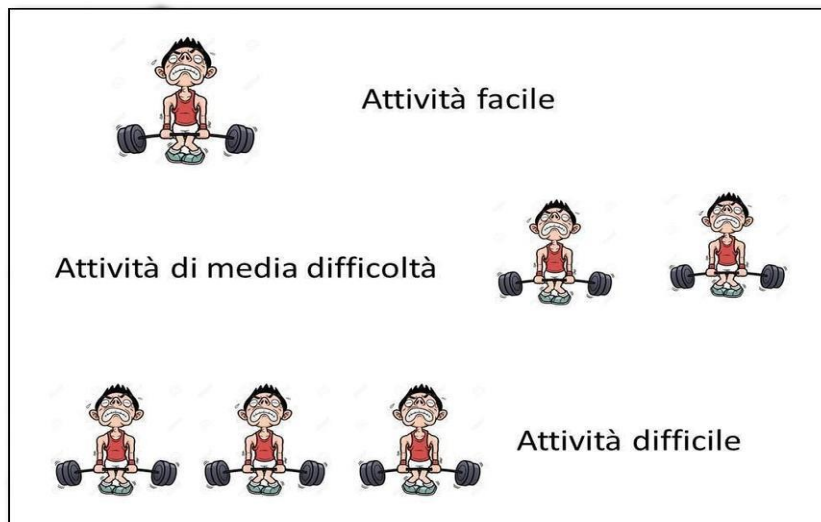


Figure 9 – images evaluating difficulty of activities
(Easy activity, medium difficulty activity, difficult activity)

2.3.3 Giving responsibilities and supporting social mediation situations

In the previous paragraphs, useful strategies to deal with hyperactive children have been described. What has not been considered until now, is the fact that the behaviour of the child is influenced by the peers' presence.

Children with ADHD, besides showing great need of building relationships with others and gaining approval, are characterized by low social skills. Specifically, they show low mastery of explicit and implicit communication rules which prevent them from properly interpreting non-verbal messages (Capodieci and Cornoldi 2013).

For this purpose, it is useful to adopt strategies that aim at reducing antisocial behaviour such as:

- Peer tutoring: tutoring among peers. It is an educational collaborative modality which support interactions by stimulating oral interaction and physical proximity. This technique is based on experimental evidence according to which if a person has a problem, he/she is likely to share the problem with a person he/she feels closer to. In this activity there are two fundamental roles: the tutor, who teaches and takes an active role in asking questions and the tutee, that is the addressee of the tutoring. It is

a didactic method in which the participants are a capable child that helps a less capable child in a specific task, ability or subject.

In this context the role of the teacher is important: he/she has to identify the subject and the themes that will be studied by peers and he/she has to be sure that the tutoring program has totally been understood. Afterwards, the tutor and the tutee choose the session frequency (daily or weekly) and the duration of it (20-30 minutes). The tutor creates a list of themes and questions that will be submitted to the tutee and the tutee can gain or lose points by answering correctly. A wrong answer will be corrected by the tutor who will also make sure that the questions has been understood (Capodieci and Cornoldi 2013);

- Cooperative Learning (CL): Cooperative learning is an educational approach which aims at organizing classroom activities into academic and social learning experiences in which students must work in groups to complete tasks collectively toward academic goals. In order to successfully use this strategy it is important to underline mutual dedication in which one pupil's effort is essential for the whole group, individual responsibility, reciprocal support among the group and self-evaluation of what has been done, analysing good and bad situations and trying to improve them.

In the cooperative learning approach the student-student relationship is enhanced rather than the student-teacher relationship. For this reason, it is important that students work face to face; therefore, a reorganization of the classroom is necessary in order to create a situation in which pupils are divided into groups to work together. It is essential to divide labours and roles among the pupils of a group and to reward the group once the work is finished (Capodieci and Cornoldi 2013).

One interesting strategy of cooperative learning is the Jigsaw (Aronson 1978): pupils are divided into groups of 4 or 5 and a specific theme, belonging to a wider topic explained during the lesson, is assigned to every pupil. Everybody works autonomously in order to become an expert in his/her theme; afterwards, he/she will have to share the acquired knowledge with the group and the other participants of the group will

share acquired knowledge with him/her. At the end of the process, the topic will be completely understood thanks to every pupil's effort.

2.3.4 Development of control of the impulse

A useful strategy to develop self-control and the control of impulse requires the teaching of instructions that the child should follow. Instructions that should be followed are:

- Think before starting an activity: it is important to take some time to think before starting an activity using the proper knowledge to do it;
- Understand the task: understanding the task is essential in order to get what the most proper strategy to use may be. If the task is not clear, then the choice of the strategy will not be functioning;
- Think through how to act: if a task requires reflecting, it is useful to ask the child or the class to argue about possible strategies to use;
- Perform your task without hurry.

For the purpose, a nursery rhyme has been presented to N. during the afternoon lessons (Figure 10, p. 32). The nursery rhyme, has been taken from Capodieci and Cornoldi (2013).

It is essential to always give positive or negative feedback to the child. For example, "Good job! You have performed your task taking your time, without hurry, you have listened to what you were expected to do, you have answered after a good reflection and, finally, you have verified your task". Moreover, it is useful to ask the child to evaluate him/herself helping him/her identifying good and bad aspects of the performance (Capodieci and Cornoldi 2013).



Figure 10 – nursery rhyme for the control of impulse (Capodieci and Cornoldi 2013: 87)

(My name is Pierina and I am a really good child. When I have to work, I want to do it with close attention, as not to have to do it all again. Dear friends, this is the reason why I do not want to make mistakes and before starting a task I want to totally understand it and do it calmly. The suggestion that Pierina gives to you is to reflect, think and then calmly act).

2.3.5 Development of attention control

The activities that are necessary in order to develop attention control have to be aimed at improving the child's ability to pay close attention to one single stimulus and inhibiting other distracting sources (Caponi et al. 2009).

Active listening strategies are fundamental for a child with ADHD. Therefore, through games and activities, the teacher should teach techniques that intervene in aspects linked with attention retention as the gaze, the posture and self-control.

In order to explain active listening techniques to the child, the following activity may be used: the teacher should get in a position where everybody can see him/her and he/she presents Pierina (a character that has been introduced in 2.3.4). Pierina tells that she really wants to learn and explains the strategies that she uses to keep concentrated. Before providing the strategies, Pierina asks the pupils if they already know how to keep concentrated and allows for brain storming. At this point, another nursery rhyme, represented in Figure 11, is presented, which contains strategies for active listening (at teacher's discretion, it is good to have children repeat the rhyme

and link some movements to the instructions; this could be repeated every day before starting the activity) (Capodieci and Cornoldi 2013).



Figure 11 – nursery rhyme for the development of attention control (Capodieci and Cornoldi 2013: 97)
(Here I am, I am back. I am Pierina the focused girl. I pay close attention to everything and I do not speak too much. With my ears open the lesson is funny. I keep quiet and seated and if I do not understand something a friend will help me)

2.3.6 Using technologies: computer, hypertexts and multimedia

Computers are very motivating thanks to the coexistence of colours, images and sounds, and allow certain level of independency as far as material choice and management are concerned. Offering to the ADHD child the possibility to spend some time working with the computer represents a good compensation as a consequence of an adequate behaviour.

In order to use computers smartly, the teacher has to direct and supervise activities and to give some feedback to pupils. Furthermore, he/she has to choose an adequate program that has to be flexible as to meet every degree of difficulty, and has to provide visual and auditory feedback. The use of computers has highlighted a general improvement in the extension of a positive behaviour on a given task and a decrease of negative behaviour. The possibility of creating individualized programs based on

feedback provided to the pupil's answers, allows for a monitoring action of improvements and for proper gratifications.

An hypertext is a textual structure that is not based on a prearranged order, as a standard text, and gives the possibility to present contents in different ways and orders. Cognitive advantages have been detected. For example, links in an electronic text provide valuable information about relations (subordinate, superordinate, association) among themes and allow a mental information representation kind of learning.

Multimedia is the presentation of the same kind of content through different modalities, typically through both visual channel and images. Students learn and remember more if exposed to materials which link text and image (Capodieci and Cornoldi 2013).

However, there are theories against the use of technologies claiming that these tools cause a stimuli overload and an obstacle to memorization of information. Generally speaking, the benefits of these technologies depend on the way they are built and on the individual characteristics of the child which can have a more verbalizing or visualizing way of learning (Cornoldi et al. 2009).

Children with ADHD seem to show positive effects if they use hypertexts. Specifically, the use of auditory and visual materials (rather than basically auditory) improves their performance and makes it more similar to the control group's performance. Really significant positive consequences concern information retention in a long-time distance (Fabio et al. 2001).

2.4 Conclusions

This analysis has provided the basic principles through which materials for the didactic strengthening program called *Impariamo ad imparare! (Let's learn how to learn!)* were created. The program, that will be in depth analysed in Chapter 7, works towards the improvement of the linguistic system of N., a bilingual Arabic-Italian speaking girl aged 9 diagnosed with ADHD. The environment in which activities were proposed, was shaped for N. in order to educate her also from a behavioural point of view as much as

possible. Most of the strategies described in the present chapter were used a lot during afternoon lessons between N. and I and helped improving N.'s level of attention and her control of the impulse (see Chapter 7).

Chapter 3

Passive clauses

3.1 Introduction

In this chapter, a description of the syntactic structure of passive clauses is given. Later, research carried out on the acquisition of this structure is described. Finally, a brief definition of Arabic passive clause structures completes the chapter.

3.2 Passive clauses structure

Passive clauses are complex structures characterized by long distance dependencies. In order to create a passive clause, a reorganization of the whole sentence is required: the object (theme) of the active clause becomes the grammatical subject of the passive clause and the verb changes its morphology since it agrees in gender and number with the theme. More specifically, the structural complexity is due to the following factors:

- Verbal morphology changes with respect to the active clause: the verb is composed of auxiliaries *essere* (to be) or *venire* (to come) and they are followed by the past participle of the lexical verb;
- Absorption of external thematic role of the verb: the external thematic role, namely the agent of the active clause, in a passive clause is not a DP anymore. Although it is not mandatory, it can be expressed through a PP, namely introduced by the preposition *da* (by). However, even though it is not pronounced, it is syntactically active;
- Absorption of the structural case of the verb;
- Movement of the internal thematic role NP towards a position in which it can receive case (the subject position of the passive clause is at first empty because no argument is filling it; after the movement, the NP occupies the subject position and receives nominative case). This movement is called A-movement (Haegeman 1996).

Examples of passive clauses (1-2) and their representation on the syntactic tree (Figure 12) are given below:

1) *Maria mangia la mela*

'Mary eats the apple' (active)

La mela è/viene mangiata da Maria

'The apple is eaten by Mary' (passive);

2) *Il papà pulisce l'automobile*

'The father cleans the car' (active)

L'automobile è/viene pulita dal papà

'The car is cleaned by the father' (passive).

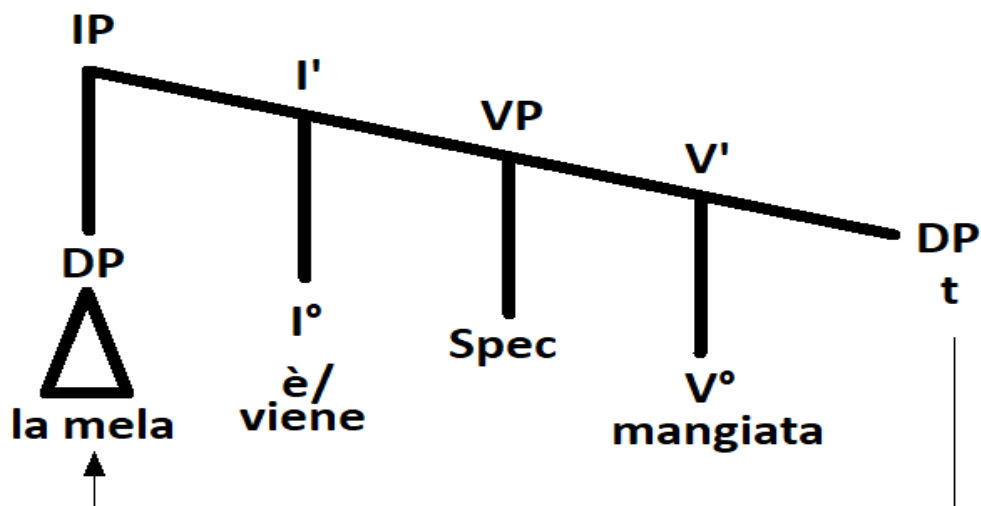


Figure 12 – passive clause

As it is evident from the representation in Figure 12, the NP object moves to the A-position SpecIP, and leaves a trace in the starting position. This process creates the so-called A-chain.

Although the grammatical functions change during this process and the word order is non-canonical, the two clauses describe just the same event, and this is proved by the fact that the roles in the argument structure are the same, in this case an agent and a theme/patient (Belletti and Guasti 2015).

According to Collins (2005), the derivation of passive clauses is more complicated and includes more steps than those mentioned before. Collins (2005) supports the *Smuggling* hypothesis that is presented as follows:

“Suppose a constituent YP contains XP. Furthermore, XP is inaccessible to Z because of the presence of W, some kind of intervener blocking any syntactic relation between Z and XP. If YP moves to a position c-commanding W, YP smuggles XP past W” (Collins 2005: 97)

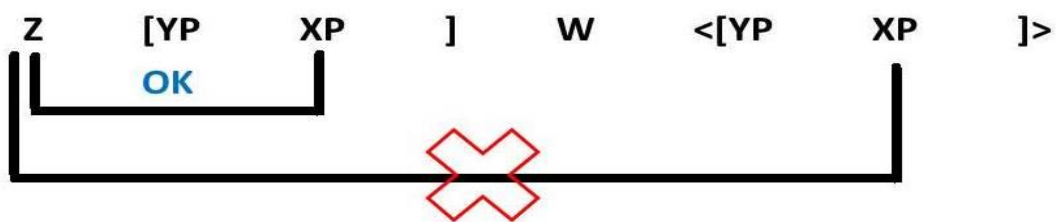


Figure 13 - Smuggling

According to the Relativized Minimality principle (Rizzi 1990), the movement of the internal argument, that is the theme, is blocked due to the presence of the external argument, that is the agent, because they share identical features. Smuggling is the process that avoids the violation of Relativized Minimality in a passive clause. It does so through two movements (Figure 14):

- The first one implies the movement of both the direct object and the verb together in the specifier of VoiceP (SpecVoiceP), whose head is the preposition *da* (by). By doing this, the direct object can overstep the external argument in vP without violating Relativized Minimality;
- The second one implies the movement of the direct object only in SpecIP, namely the subject position.

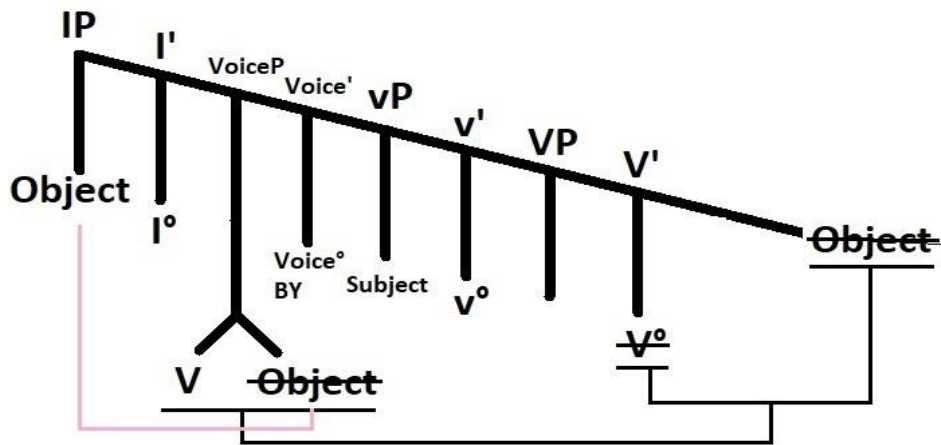


Figure 14 – movements that avoid RM in a passive clause

Another interesting characteristic of passive clauses in Italian is concerned with the choice of auxiliaries. In example (1) and (2), auxiliary verbs *essere* (to be) and *venire* (to come) are interchangeable, namely both of them are appropriate with sentences (1) and (2). However, this is not always the case because in some sentences a specific auxiliary verb would be more appropriate than the other one according to the lexical verb they appear with. Indeed, they have different characteristics: on one hand, auxiliary *essere* allows for a stative, resultative and eventive interpretation; on the other hand, auxiliary *venire* allows for an eventive one only. Moreover, when they occur with certain verbs, especially with present tense, *venire* is preferred over *essere* (Belletti and Guasti 2015). Consider the following examples:

- 3) a. *La porta è chiusa*
 'The door is closed'
- b. *La porta viene chiusa*
 'The door comes closed';
- 4) a. ? *La traduzione è trascritta in inglese*
 ? 'The translation is transcribed in English'
- b. *La traduzione viene trascritta in inglese*
 'The translation comes transcribed in English'.¹

¹ Examples taken from Belletti and Guasti 2015

Therefore, it can be claimed that the choice of the auxiliary in Italian depends on both the relevance of temporal/aspectual differences and the lexical features of the verbs (Belletti and Guasti 2015). The sentence in (3b) has an eventive reading and can only be considered a passive clause; conversely, the sentence in (3a) has a stative, resultative and eventive reading, therefore can be ambiguous.

The distinction between auxiliaries will be pointed out again in Chapter 6 in which the performance on comprehension and production of passive clauses of the participant of this research (N.) will be discussed. As it will be seen, her performance is influenced by the auxiliary verb of the passive sentence; if auxiliary *essere*/to be is used, she performs better (see 6.3.3.4; 6.3.4.3).

In Levin & Rappaport (1986: 623), the authors claim that “Wasow (1977) was the first to distinguish systematically between two kinds of passives, one that exhibits adjectival properties, the adjectival passive, and one that exhibits verbal properties, the verbal passive”.

Consider the following example:

5) *La finestra è aperta*

‘The window is open’.

This is a case of ambiguity. Giving the adjectival interpretation, the sentence allows for a stative reading and informs the reader about the state of the window, that in this case is open. Giving the verbal interpretation, it allows for an eventive reading, as it focuses on the moment of the window opening (by somebody).

Considering the syntactic representation of the two possible structures, the adjectival passive *aperta* (open) is the head of an Adjectival Phrase (AP), whereas the verbal passive is the head of a Verbal Phrase (VP). Moreover, the verbal passive derivation includes syntactic operations that allow the verb to maintain its argument structure and to assign thematic roles to its arguments. Adjectival passives, instead, are created in the lexicon. There is no assignment of thematic role to the external argument,

namely the agent, and the theme is projected into the subject position where it is generated (Wasow 1977; Williams 1980).

If the agent is added to the sentence in (5), the ambiguous interpretation is no longer possible because the reading can be eventive only: there is an agent, Tommaso in this case, that opens the window and the event is focused on the opening (see 6).

6) *La finestra è aperta da Tommaso*

'The window is open by Tommaso'.

3.3 Passive clauses acquisition

A lot of researches on passive clauses acquisition have been carried out and most authors agree upon claiming that, due to the complexity of derivation and re-organization of the clause, this structure is particularly difficult as far as both comprehension and production are concerned.

"The cross linguistic acquisition literature has agreed over the years that a full and productive mastery of passive is somewhat delayed until the age of 5 to 6 in typically developing children" (Belletti and Guasti 2015: 131). Studies on passive clauses acquisition on English (Borer and Wexler 1987; Maratsos et al. 1985) and Italian (Chilosi and Cipriani 1995; Volpato et. al 2015) prove that they are completely acquired around 5th year. This is due to the fact that at this age learners have access to the transformational mechanism which lies at the heart of passive clauses formation (Borer and Wexler 1987; Maratsos et al. 1985). As a consequence, children first comprehend and produce passive clauses which imply a stative interpretation because they are considered adjectives rather than verbs and they are created on lexicon. Passive clauses which imply an eventive interpretation describe a process and they require a syntactic transformation (Wasow, 1977).

However, the debate is still widely open since more recent studies on Italian children have proved that they are able to comprehend passive clauses with auxiliary verb *venire* that, as said in 3.2, focuses on the event and allows for an eventive reading only,

between 3;5 and 6 years. This means that from the first stages of acquisition children produce verbal passives (Volpato et al. 2015).

Interesting data has been collected by Maratsos et al. (1985) about the asymmetry of comprehension and production of passive clauses when it comes to actional (to hit, to chase) and non-actional verbs (to hear, to smell); children aged 4 to 5 showed more confidence and less problems with actional verbs rather than non-actional ones.

Research investigating comprehension of active and passive clauses by American learners aged 3 to 5 showed that active sentences are preferred over passive ones, actional verbs are preferred over non-actional ones, and passive clauses are more understandable if there is no by-phrase (Hirsch and Wexler 2006).

On the other hand, Fox and Grodzinsky (1998) assert that the problem does not lie in the presence or absence of the by-phrase: in both cases the sentence is understood by children. On the contrary, the difficulty would come from the type of verb.

As far as Italian is concerned, Chilosi and Cipriani (1995) showed that children aged 5 have a percentage of accuracy of 85% in passive clauses with irreversible verbs (*Il libro è letto dal papà* “the book is read by the father”) and later on, around 5;6 years old, they are able to comprehend passive clauses with reversible verbs (*Il bambino è inseguito dalla mamma* “the child is chased by the mother”) and not felicitous passive clauses, (*Il papà è imboccato dalla bambina* “the father is fed by the baby girl”) (Guasti 2002; 2007).

The conclusions that have been drawn are very different from each other and they have been justified by several hypotheses:

- Maturation Hypothesis (Borer and Wexler 1987): the competence on comprehension and production of passive clauses improves between 6 and 7 year. Before this age, learners can only understand adjectival passives due to the absence of the A movement in their linguistic system, which develops during childhood and is necessary to conceive a verbal passive (see 3.2). According to Borer and Wexler (1987), up to the above-mentioned age, only the adjectival interpretation is available, as this at syntactic level does not require the A movement;

- Theta-role transmission deficit theory (Fox and Grodzinsky 1998): according to this hypothesis, based on studies concerning children aged 3 to 5, the difficulty should not be ascribed to the impossibility of creating A chains but, instead, the complexity would come from the transmission of thematic role to the by-phrase. This theory is strongly supported by three assertions: children perform well on other structures that involve A chains, children make mistakes when dealing with structures that do not involve A movement but that are similar to passive clauses on some features, empirical evidence proves that the problems with passive clauses are not due to A chains;
- Canonical alignment hypothesis (Hyams et al. 2006): according to this theory, difficulties with passives do not lie in the inability of creating A chains in general, but rather in difficulty of creating them when it comes to a non-canonical alignment between thematic hierarchy and grammatical functions. Consider the following example:

7) a. *Giorgia lava Giovanni*

'Giorgia washes Giovanni'

b. *Giovanni è lavato da Giorgia*

'Giovanni is washed by Giorgia';

8) a. *La situazione è migliorata*

'The situation has improved'

b. *È migliorata la situazione*

'*Has improved the situation'.

The sentence in (7a) is an active clause and (7b) is the corresponding passive clause. The sentences (8a) and (8b) are equivalent sentences with an unaccusative verb, the former containing a pre-verbal subject, the latter a post-verbal one. In (7a) and (7b) a redefinition of grammatical functions transforms the patient into the subject and the agent into an optional prepositional phrase (PP). Therefore, the difficulty of children with this construction could be ascribed to this difference; generally speaking, the

agent is the hierarchically highest element to which the subject function is assigned. In fact, if an argument is the only one to be selected by the verb, usually it covers the agent thematic role. In passive clauses, this habitual association changes and this would create a delay in acquisition;

- Volpato et al. (2015): this research investigates the comprehension of passive clauses in a group of Italian children (3;4 - 6;2). It is particularly interesting because it considers several features of the clause: the degree of accuracy between sentences characterized by actional and non-actional verbs, sentences with and without by-phrase, passive clauses with auxiliary verbs *venire* and *essere*. As already mentioned in 3.2, the auxiliary *venire* allows for an eventive reading only, while the auxiliary *essere* allows for both adjectival and verbal interpretation creating ambiguity. The conclusions drawn in this research are:
 - Children prefer actional verbs over non actional-verbs;
 - Performances are not significantly different when it comes to presence or absence of by-phrase (long or short passives);
 - Children have better performances if the passive clause contains auxiliary verb *venire*. This suggests that children passive clauses would actually be eventive rather than adjectival ones, and that A movement is active in their grammar.

3.4 Passive clauses in Arabic

Arabic tends to use passive forms as little as possible in its sentences (Rosenhouse 1988).

The verbal system of Arabic is rich in morphology and the passive form is created through the addition of apophonic vowel transformation to the active form (9) or through the insertion of specific morphemes (10) (Khafaji 1996). Consider the following examples:

9) kataba

'He wrote'

kutiba

'It was written';

10) kasara

'It broke'

inkasara

'It was broken'.

Rosenhouse (1988) analysed the Arabic passive form in different kinds of texts. The author found that two alternative ways in order to avoid the passive form were used in most texts. The strategies consist in the use of an active form with a nominalized complement. Consider the following examples:

11) /qaama + bi

'Conducted';

12) /tamma

'Completed, finished'.

Rosenhouse (1988: 94) claims that "these are dummy verbs while their nominal complements serve as the nominalized passive verb".

In addition to a rich morphology, Arabic is provided with a quite free word order. These two characteristics of the language allow for other alternative ways to express the passive, instead of using the above mentioned passive form (9-10). Therefore, word order is essential and has grammatical purpose. Indeed, in Arabic a formal passive (14) and a notional passive (15) are marked by apophonic transformation and prefix insertion (Khafaji 1996). Consider the following examples:

13) kasara nabiil-un al-kas-a (active)

broke Nabil-nom def-glass-acc

'Nabil broke the glass';

14) kusira al-kas-u (formal passive; verb in passive form)

broken def-glass-nom

'The glass was broken';

15) inkasara al-kas-u (notional passive, verb in active form)

broken def-glass-nom

'The glass was broken' (Khafaji 1996: 23).

A list has been created by Wright (1975: 50) concerning the contexts in which a passive clause is produced in Arabic. According to this author, the passive form is used if God is the subject of the action, if the subject of the action is unknown, if the subject of the action does not want to reveal his/her name, if the attention is more focused on the patient of the action rather than on the agent. Similarly, Cantarino (1975) claims that the passive form is generally used in order to give more emphasis on the action and its object. The author also states that the passive form in Arabic generally appears without the agent, although the language has identified a way to insert the agent by using a PP with instrumental purpose.

This brief analysis of the passive clause in Arabic allows for some considerations. The passive form is rarely used and is substituted by alternative strategies, such as the use of active forms with nominalized complements and notional passives. Moreover, when it is used, it is formed through apophonic vowel transformation to the active form or through the insertion of specific morphemes. Finally, the agent in passive clauses is not usually contemplated. Therefore, it can be claimed that Italian and Arabic passive form are really different and used with different frequencies; this may explain N.'s poor performance on comprehension and production of passive clauses that will be presented in (see 6.3.3; 6.3.4).

Chapter 4

Relative clauses

4.1 Introduction

In this chapter, the characteristics of relative clauses will be described. Firstly, their morphosyntactic features will be presented and secondly, the typical pattern of acquisition of this structure will be explained. During the chapter, some linguistic hypotheses will be taken into account in order to justify the difference in comprehension and production between subject and object relatives. Finally, a brief definition of Arabic relative clause structure will complete the chapter.

4.2 Relative clauses structure

Relative clauses are subordinate clauses derived thanks to an A' movement (Haegeman 1996), namely a process that involves a Nominal Phrase (NP) and its movement towards a position in the left periphery of the sentence [Spec/CP]; this position is also called non-argument position and it characterises wh-questions and topicalized structures too (Donati 2002; Friedmann and Szterman 2006). In order to create A' movement it is necessary to activate the Complementizer Phrase (CP) projection and for this reason relative clauses are part of the syntactic category of CP (Cinque 1982; Rizzi 1997; Bianchi 1999).

The main characteristics of relative clauses in Italian are listed below and will be deeply discussed in the present paragraph:

- Manipulation of a NP;
- Embedded position of a complex DP;
- Complementizer *che* that has the aim of introducing them;
- Presence of a *gap* that has the purpose of indicating the starting position of the relativized constituent (this could be either the subject or the object position of the corresponding main clause) (Cinque 1978, 1982).

Furthermore, relative clauses are generally distinguished between appositive (16) and restrictive (17). Consider the following examples:

16) *La bambina, che sta piangendo, mangia la banana*

'The baby girl, who is crying, is eating a banana';

17) *La bambina che sta piangendo mangia la banana*

'The baby girl who is crying is eating a banana'.

Appositive relative clauses are subordinate clauses which add information. This piece of information is not essential for the purposes of the comprehension of the clause (16). Restrictive relative clauses directly modify the antecedent so that only through the relative clause it is possible to understand what or who one is talking about (17) (Bianchi 2004).

The goal of the present research is the investigation of restrictive relative clauses. The earliest theories on relative clauses claim that they are derived through *wh*- movement of a relative operator (Cinque 1978, 1982). According to this hypothesis, the relative operator moves from an embedded position in which is created to a higher position in the clause [Spec/CP] in which it is co-indexed with the head of the relative clause. Thereafter, a chain between the operator and the head of the clause is created. As mentioned in the elements listed above, the movement can involve the subject, that derives a subject relative clause (SR)(18), or the object, that creates an object relative clause (OR)(19).

18) *I lupi che <__> inseguono le pecore*

'The wolves that <__> chase the sheep (PL)'

[_{DP} I [_{CP} [_{NP} lupi_i [_{CP} OP_i che [_{IP} t_i inseguono le pecore]]]]]²;

² <__> indicates the gap, the position constituents had before movement.

19) *I lupi che le pecore inseguono* <__>

'The wolves that chase the sheep (PL) <__>'

[_{DP} I [_{CP} [_{NP} lupi_i [_{CP} OP_i che [_{IP} le pecore inseguono t_i]]]]].

On the other hand, more recent research proves that the movement of relative clauses is caused by the head of the relative clause rather than by a relative operator (Vergnaud 1985, Kayne 1994, Guasti and Shlonsky 1995, Bianchi 1999). According to these authors, the relative clause is selected by the head of an external DP, while the head of the relative clause that is a lexical NP generated in the site of relativization, moves to the higher position [SpecCP]. The origin position of the movement is marked by a trace (*t*) or it is considered as a silent copy of the moved element (Chomsky 1995). A co-indexed chain is created between the trace or copy of the moved element and the moved element itself. The derivation of a subject relative clause (20) and an object relative clause (21) is showed below.

20) *I lupi che* <__> *inseguono le pecore*

'The wolves that <__> chase the sheep (PL)'

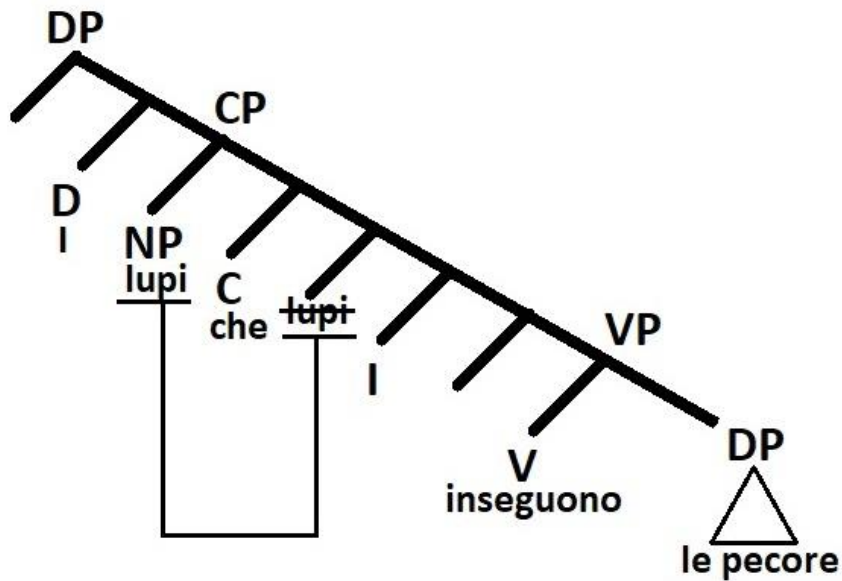


Figure 15 – Subject relative clause derivation

21) *I lupi che le pecore inseguono* <__>

'The wolves that chase the sheep (PL) <__>'

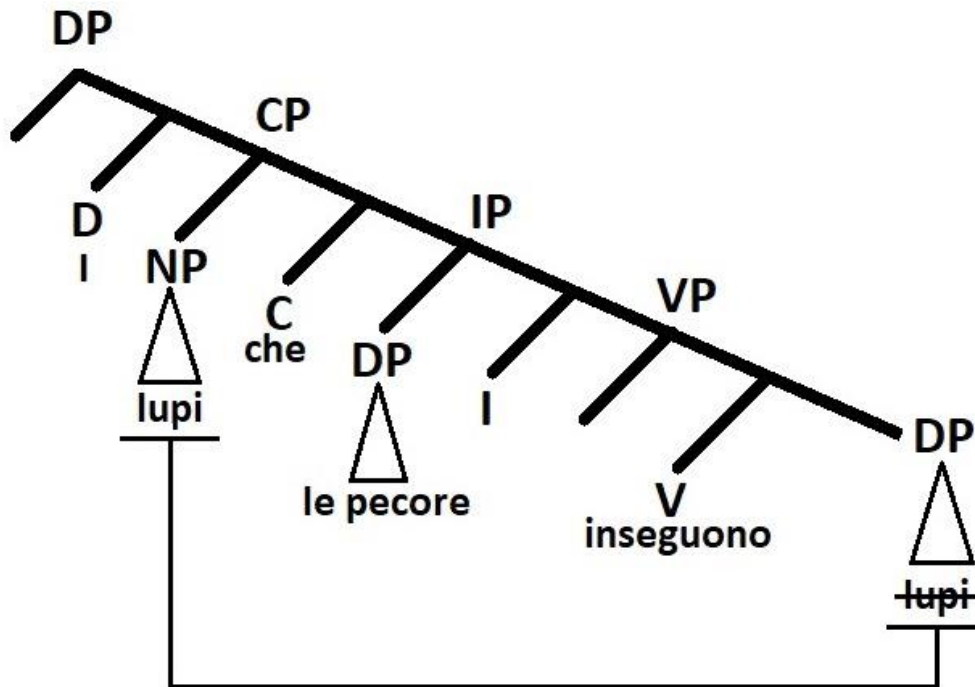


Figure 16 – Object relative clause derivation

4.3 Pro-drop parameter and the ORp

In 1.1, the pro-drop feature was mentioned as an example of parameter of Italian but not of English. It regulates the possibility of omitting the subject in temporalized sentences (22b), creating sentences with a null subject called (*pro*) and allows for the subject to occur in a post-verbal position (22c) (Haegeman 1996). Consider the following examples:

22) a. *Il cane ha mangiato*

'The dog has eaten';

b. *Ha mangiato*

'(It) has eaten';

c. *Ha mangiato il cane*

'*Has eaten the dog'.

Indeed, In Italian, in addition to the object relative clause with embedded subject in pre-verbal position, it is possible to have an object relative clause with embedded subject in post-verbal position, ORp henceforth. Two examples of ORp are presented below:

23) *La macchina che ha guidato Tommaso*

‘*The car which has driven Tommaso’;

24) *Il vestito che ha cucito la nonna*

‘*The dress which has sewn the grandmother’.

In (23-24) it is evident that *Tommaso* and *la nonna*/the grandmother are the subjects and *la macchina*/the car and *il vestito*/the dress are the objects of the clauses. These examples are easily understandable because the verbs are non-reversible ones.

On the other hand, in (25) it is not so simple to assign thematic roles, because the verb is a reversible one and this creates ambiguity. In fact, either *la mamma* or *the girl* could be the subject of the embedded verb. Two different interpretations are possible: if it is considered a SR, then *la mamma* is the agent and the gap (<__>) is situated in pre-verbal position (25a). Conversely, if it is considered an OR, then *la ragazza* is the agent and the gap (<__>) is situated in post-verbal position (25b).

25) a. *La mamma che <la mamma> chiama la ragazza*

‘The mother that <the mother> calls the girl’;

b. *La mamma che chiama la ragazza <la mamma>*

‘The mother that calls the girl <the mother>’.

There are two strategies, one morphological and one syntactic, that enable the disambiguation of this kind of sentences (Volpato 2010).

According to the former, it is easier to interpret a SR (26a-b) or an ORp (27a-b) if the number features of DPs are manipulated, since in Italian the verbal paradigm agrees in number with the subject.

- 26) a. *La mamma_i [che <la mamma> chiama_i le ragazze]*
 'The mother_i [that <the mother> calls_i the girls]
- b. *Le mamme_i [che <le mamme> chiamano_i la ragazza]*
 'The mothers_i [that <the mothers> call_i the girl]';
- 27) a. *La mamma [che chiamano_i le ragazze_i <la mamma>]*
 The mother [that call_i the girls_i <the mother>]
 'The mother that the girls call'
- b. *Le mamme [che chiama_i la ragazza_i <le mamme>]*
 The mothers [that calls_i the girl_i <the mother>]
 'The mothers that the girl calls'.

In the latter strategy, the pre-verbal positioning of the subject is contemplated (28).

- 28) *La mamma che la ragazza chiama <la mamma>*
 'The mother that the girl calls <the mother>'.

4.4 Relative clauses acquisition

"Relative clauses have been identified in the acquisition literature as some of the hardest structure to acquire, in the different languages studied over a long period of time (Friedmann and Novogrodsky 2004; Hakansson and Hansson 2000; Mc Kee et al. 1998; Tavakolian 1981)" (Belletti and Guasti 2015: 155).

According to Hammer (2010) the growth of syntactic processing and lexicon occurs in the last phases of the *analysis* period (20 and 36 months) because the child begins to analyse the structures that he/she has acquired in the previous phases, namely the *pre-lingual* and the *telegraphic language* periods. Therefore, relative clauses would be acquired by children between 30 and 34 months (Guasti 2000).

Relative clauses, namely just during the *analysis* period (20 and 36 months) in which, according to Hammer (2010), children start to analyse the structures they have acquired until that moment, creating the growing of lexicon and syntactic processing (Guasti 2000).

Recent cross-linguistic studies in English, French, Italian and Greek, have divided the acquisition period of relative clauses according to specific abilities: production of relative clauses occurs around 36 months (Crain et al. 1990, McKee et al. 1998, Pérez-Leroux 1995, Varlokosta and Armon-Lotem 1998); comprehension occurs around 72 months instead (Sheldon 1974, de Villier et al. 1979, Tavakolian 1981, Goodluck and Tavakolian 1982, Hakansson and Hansson 2000, Guasti 2000).

Moreover, in Ferreiro et al. (1976), production and comprehension of relative clauses in Spanish, French and English, have been analysed. Tests of comprehension, production and repetition of relative clauses together with a grammaticality judgments test investigating the same structure have been administered to children aged 48 to 120 months old. The results have shown that 48 months old children have good competence in relative clauses with canonical order of constituents. From 108 to 120 months of age children comprehend every kind of relative clause. Syntactic strategies are frequently used by children in the comprehension of a relative clause until 84 months; later, the strategies' use is less frequent and it disappears completely around 108 months. Therefore, the results of this research suggest that the competence of comprehension of relative clauses is proportional to the growing of the child.

Interesting data concern the existence of a difficulty gradient among SR, OR and ORp: production and comprehension of SRs seem easier than that of ORs, which in turn is easier than ORps (Friedmann and Szterman 2011, Volpato 2012, Volpato and Vernice 2014, D'Ortenzio 2015).

Why are these structures so different? What makes one sentence easier than another? In the following list several linguistic hypotheses will be described in order to justify the difficulty gradient:

- Minimal chain Principle (De Vincenzi 1991): this is one of the first hypotheses. According to it, the syntactic parser tries to put a *gap* in the first available position, so that it is possible to create a co-indexed chain as short as possible, between the moved element and its trace. Logically, short distance dependencies are easier than long distance ones. In the examples below, two kinds of co-indexed chains are shown:

29) a. *Tocca il gatto [che <e> insegue i topi]*

'Touch the cat [that <e> chases the mice]'

Short distance chain – <DP head, e> - SR;

b. *Tocca il gatto [che i topi inseguono <e>]*

'Touch the cat [that the mice chase <e>]'

Long distance chain - <DP head, e> - OR;

c. *Tocca il gatto [che pro inseguono i topi <e>]*

'Touch the cat [that *pro* chase the mice <e>]'

First chain: <DP head, e>; second chain: <pro, subject DP> - ORp.

In a SR the chain created between the moved element and its trace is short (29a), while in a OR the chain is longer and another NP intervenes creating a more costly processing of the sentence (29b) (Arnon, 2005). In ORps, there is a syntactic long dependence too (29c), the trace of the head of the relative clause is positioned in post-verbal position, creating two chains. The presence of two different chains in the same clause, requires a simultaneous computation of the relative clause and an inversion of thematic. This complicates even more the parsing process;

- Canonical order hypothesis (Friedmann e Szterman 2006): These authors claim that the different difficulty between SRs and ORs is due to the violation of the canonical order of constituents, that is the position constituents assume in simple sentences. For instance, if SVO is the canonical word order in simple affirmative sentences, and therefore the agent role precedes the verb and the theme role follows it, in an OR the canonical order is violated as the theme role precedes the verb which is followed by the agent role and this creates difficulties in the processing of the clause (30b). In ORp the canonical order is violated too (30c).

30) a. *Tocca il gatto [che <e> insegue i topi]* - SVO, SR

'Touch the cat [that <e> chases the mice]'

b. *Tocca il gatto [che i topi inseguono <e>]* – OSV, OR

'Touch the cat [that the mice chase <e>]'

c. *Tocca il gatto [che pro inseguono i topi <e>]* – OVS, ORp

'Touch the cat [that *pro* chase the mice <e>]'

- Relativized Minimality (Rizzi 1990; 2004): the difficulty gradient could be justified by the effects of an item interfering in long-distance dependency clauses. Relativized Minimality (RM from now on) is a locality principle which occurs in configurations as:

31) ...X...Z...Y...

Assuming that Y is the origin position and X is the landing position of the movement, in ORs the locality syntactic principle is violated due to the intervention of Z between Y and X that blocks their relation as it represents a potential participant in the same relation. RM takes place when the features of Z are identical to those of the moved element. The word structure includes all configurational features:

- Argument features: person, gender, number, case;
- Quantificational features: focus, Wh-, Neg, R;
- Modifiers: epistemic, Neg, frequentative, etc.;
- Topic.

In a relative clause, the head and its trace belong to the quantificational feature class (R), while the embedded DP belongs to the argument one. Mature systems are able to distinguish between the two features and to assign the correct morphosyntactic set to each DP. Consequently, the chain between the moved DP and its trace is created in the correct way:

32) *Tocca il gatto [che i topi inseguono <e>]*

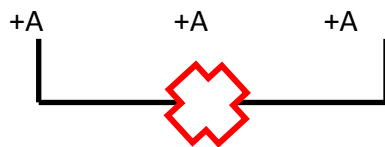
'Touch the cat [that the mice chase <e>]'

+R +A +R

In non-mature systems the limited processing abilities can influence the correct interpretation; even a partial identity of features can compromise the comprehension. In a SR there is no RM because there is no element blocking the relation between the moved element and its copy in the starting position. On the contrary, in an OR the interfering element and the partial identity of features complicates a lot the comprehension (33):

33) *Tocca il gatto [che i topi inseguono <e>]*

‘Touch the cat [that the mice chase <e>]’



- Lexical restriction (Friedman et al. 2009): the cause of the intervention on the co-indexed chain is due to the lexical restriction [+NP] which is present either on the head of the relative clause or on the intervening element:

34) *Tocca il gatto [che i topi inseguono <e>]*

‘Touch the cat [that the mice chase <e>]’

+R +NP +NP +R +NP

In mature systems, because the features of the intervening element (*i topi*/the mice) are different from those of the moved element (*il gatto*/the cat), the extraction of the object is possible despite the lexical restriction. However, in non-mature systems this extraction is particularly difficult because the intervening element shares some features (the DP features) with the moved element.

Friedman et al. (2009) changed the referential properties of the intervening element in order to confirm that the lexical restriction is responsible for the complexity of ORs. In fact, they showed a decrease of difficulty on ORs when the head of the relative clause did not share any feature with the intervening element;

- Influence of number features (Volpato 2010, Volpato 2012): in this research, the author describes a refined version of the lexical restriction. If in a clause, both DPs show similar number features, the comprehension becomes more complex as these features are intervening elements in the co-indexed chain which link the moved element and its trace:

35) *Il topo che il gatto insegue <il topo>*

'The mouse that the cat chases <the mouse>'

[-pl] [-pl] [-pl]

36) *I topi che i gatti inseguono <i topi>*

'The mice that the cats chase <the mice>'

[+pl] [+pl] [+pl]

Conversely, if the DPs have different number features the comprehension of ORs is easier because there they do not share features and there is no element intervening in the co-indexed chain (Adani et al. 2010; Volpato 2010; Volpato 2012). Furthermore, ORs turn out to be even easier if, in mismatch conditions, the embedded subject is plural (38):

37) *I topi che il gatto insegue <i topi>*

'The mice that the cat chases <the mice>'

[+pl] [-pl] [+pl]

38) *Il topo che i gatti inseguono <il topo>*

'The mouse that the cats chase <the mouse>'

[-pl] [+pl] [-pl]

The verb *inseguono* (they chase) is created by adding the suffix –no to the 3rd person singular *insegue* (he chases). The former, namely the plural, is the marked form in Italian. The latter, namely the singular, is the unmarked form. The reason that would

justify the fact that with [+pl] feature the comprehension is easier, is that this feature attributes more visibility and richness to the DPs thanks to the carried information.

4.5 Relative clauses in Arabic

Relative clauses in Arabic are subordinate adjective clauses that follow a relative noun. The relative clause aims at specifying the relative noun, that is preceded by a referent pronoun, and it is a meaningless word without the relative clause (Amer 2003). Consider the following example (Amer 2003: 9):

- 39) raʔaaytu attaliba allaDii qabaltu-*hu* ʔams
Saw-I the-student whom met-her yesterday
'I saw the student whom I met yesterday'.

In (39) *hu* is the object clitic pronoun that refers to *allaDii* which is the relative noun. In Arabic, there are two types of relative clauses: definite and indefinite. Both are verb-initial and more rarely subject-initial clauses. If a definite antecedent is present, then the relative clause is formed by *ʔalladi* and a clause with a resumptive clitic pronoun (40b) or a gap (40a) (Alqurashi and Borsley 2012: 28):

- 40) a. jaaʔa I-walad-u [lladi qaabala <__>
 came.3.M.SG DEF-boy-NOM that. M.SG met.3.M.SG
 I-malik-a] - DEF-king-ACC
 'The boy who met the king came';
 b. wajadtu I-kitab-a [lladi tuhib-**hu**
 found.1.SG DEF-book-ACC that. M.SG like.3.F.SG-3.M.SG
 Hind-un] - Hind-NOM
 'I found the book that Hind likes'.

ʔalladi is marked for number, gender and case, and agrees with the antecedent. For this reason, it is often considered a pronoun, but it is not; it is a complementizer instead. *ʔalladi* also agrees with the resumptive pronoun or the gap, which in turn agree with the antecedent.

If an indefinite antecedent is present, then *ʔalladi* does not appear in the sentence, which is a bare sentence, namely a sentence composed of two independent sentences, which are not linked by a pronoun, but by the meaning, because the second sentence refers to the first one. The bare sentence appears with a resumptive clitic pronoun (41b) or a gap (41a) (Alqurashi and Borsley 2012).

- 41) a. jaaʔa walad-un [qaabala <__> l-malik-a]
 came.3.M.SG boy-NOM met.3.M.SG DEF-king-ACC
 ‘A boy who met the king came’;
- b. wajadtu kitab-an [tuḥib-**hu** Hind-un]
 found.1.SG book-ACC like.3.F.SG-3.M.SG Hind-NOM
 ‘I found a book that Hind likes’.

The semantic purpose of the relative clause in Arabic is to link two sentences through a complementizer, in order to avoid the repetition of the head of the clause. In a definite relative clause, the movement of the antecedent does not modify the meaning because, as stated above, the sentence can begin with both a verb and, more rarely, with a subject (Amer 2003).

This brief analysis of the relative clause in Arabic allows for some considerations. The relative clause in Arabic modifies an antecedent. The definite relative clause adds fundamental, or optional, information regarding a definite antecedent, while the indefinite relative clause adds fundamental information regarding an indefinite antecedent. In definite relative clauses, a complementizer, which is marked for number, gender and case, introduces the sentence, while in indefinite relative clauses there is no complementizer introducing the sentence (Ibrahim Hassan 2013).

Chapter 5

Clitic pronouns

5.1 Introduction

The following chapter is devoted to the description of the main characteristics of strong and, especially, clitic pronouns in Italian. Later, a comparison between direct object clitics and reflexive clitic pronouns in Italian will be made, since these elements will be the object of the present research. Moreover, the acquisition of this grammatical category in monolingual and bilingual acquisition will be described. Finally, a brief description of the pronoun system in Arabic will be provided.

5.2 On the cliticization

This section is devoted to a brief description of the properties that characterize the clitic pronoun system.

Cardinaletti and Starke (1999) claimed that personal pronouns can be divided into three classes: clitic, strong, and weak pronouns. These pronominal classes differ in phonetic, morphological, semantic and syntactic features (Renzi 1988).

In Italian, there are two different classes of pronouns: the strong ones and the clitic ones. The former are stressed and can appear alone autonomously. They are generally used to mark something that needs to be highlighted. The latter are unstressed and cannot appear alone; it is a non-marked pronoun that leans against a preceding or successive verb (Renzi 1988). Table 1 (p. 61) illustrates a summary of the Italian pronouns.

As it can be seen in the table, “the standard Italian strong paradigm expresses both subject and complement pronouns, whereas clitics are just complement pronouns” (Belletti and Guasti 2015: 81). This characteristic comes directly from the fact that Italian is a pro-drop language (Svolacchia 2004).

Person	Strong pronouns		Clitic pronouns	
	Subject	Object	Subject	Object
1 st person singular	Io (I)	Me (me)	-	Mi
2 nd person singular	Tu (you)	Te (you)	-	Ti
3 rd person singular masculine	Lui, egli, esso (he)	Lui (him)	-	Lo, gli, si
3 rd person singular feminine	Lei, ella, essa (she)	Lei (her)	-	La, le, si
1 st person plural	Noi (we)	Noi (us)	-	Ci
2 nd person plural	Voi (you)	Voi (you)	-	Vi
3 rd person plural masculine	Loro, essi (they)	Loro (them)	-	Li, ne, si
3 rd person plural feminine	Loro, esse (they)	Loro (them)	-	Le, ne, si

Table 1 – Italian pronouns (Renzi 1988)

5.2.1 Italian strong pronouns

Italian strong pronouns are used in several contexts listed below (Renzi 1988):

- In answers composed by a word only that substitutes an entire clause:

42) *Chi ha lavato il bagno?*

‘Who cleaned the bathroom?’

Lei.

‘She did’;

- In sentences that include verbs that have the same form for several persons, for instance in the subjunctive:

43) *E’ necessario che io vada*

‘It is necessary that I go’;

- In contrastive contexts:

44) a. *Loro sono andati, noi no*

‘They have gone, we have not’

b. **sono andati, noi no*

‘*have gone, we have not’;

- As mentioned in 4.3, Italian is a pro-drop language, namely the subject can be omitted. Generally speaking, the subject is not expressed in non-marked clauses (45a); these can be changed into marked clauses by adding the subject (45b):

45) a. *Mangia la pizza*

‘Eats pizza’

b. *Lei mangia la pizza*

‘She eats pizza’.

In examples (44-45) the pronoun is used to either highlight the subject of the clause or to contrast between persons.

From a syntactic point of view, marked clauses are composed of constituents that do not occupy their canonical position: they have been moved in order to give a precise meaning in addition to the content of the clause (Renzi 1988). Object strong pronouns in Italian have a marked meaning and are used after prepositions (46) and if two or more complements depend on the same verb (47):

46) *Vieni con me?*

‘Are you coming with me?’

Sì, vengo con te

‘Yes, I’m coming with you’;

47) *Mi piacciono lei e lui*

‘I like her and him’.

5.2.2 Italian clitic pronouns

Clitic pronouns have several characteristics, different from those of strong pronouns and lexical DP. These characteristics are (Haegeman 1996):

- A clitic pronoun always appears together with a verb; this phenomenon is called cliticization:

48) *La chiamerò la prossima settimana*

'I will call her next week';

- It is not possible to use a clitic pronoun if there is not a verb:

49) *Chi hai chiamato?*

'Whom did you call?'

*Lei/la parrucchiera/*la*

'Her/the hairdresser';

- No element, except for other clitics, can interfere between the clitic pronoun and the verb:

50) *Gianni recentemente me la ha venduta*

Gianni recently to me it has sold

'Gianni has recently sold it to me'

**Gianni me la recentemente ha venduta*

Gianni to me it recently has sold

'Gianni has recently sold it to me';

- It is not possible to have a contrastive interpretation with a clitic pronoun in order to mean that the referent of the clitic pronoun is not expected in the communicative situation (51a), while it is possible with strong pronouns (51b):

51) a. **Giulio la vedeva raramente (la parrucchiera)*

Giulio her used to see rarely

'Giulio used to see her rarely'

b. *Giulio vedeva raramente lei (non lui)*

Giulio used to see rarely her and not him

'Giulio used to see her rarely';

- Clitic pronouns cannot be coordinated:

52) **Valentina ci e vi pensava sempre*

Valentina always thought about you and us;

- They have a precise order among themselves:

53) *Te la farò vedere domani*

I will show you tomorrow

**La te farò vedere domani*

I will show you tomorrow.

As already mentioned, Cardinaletti and Starke (1999) divide personal pronouns into three categories with different characteristics. From a syntactic point of view, a clitic pronoun is a head, whereas strong and weak pronouns are maximal projections; moreover, the authors provide a hierarchy of pronouns: on one hand, strong pronouns embody the widest domain form, as they have more distributional freedom (like NPs); clitic pronouns, on the other hand, are regulated by specific syntactic rules that make them belong to a more limited domain. Taking these assumptions into account, it is possible to compare them with all the preceding examples, that will confirm them.

Other characteristics of clitic pronouns arise from these considerations:

- The position of the clitic pronoun is totally linked with the finiteness of the verb. If there is a finite verb, then the clitic pronoun is normally located before it, in proclitic position (54a); if there is an indefinite or an imperative verb, then the clitic pronoun is located after the verb, in enclitic position (54b-55a):

54) a. *La mamma lo rimprovera*

'The mother scolds him'

b. *La mamma diceva di rimproverarlo*

'The mother said to scold him';

55) a. *La finestra è aperta. Chiudila!*

'The window is open. Close it!'

b. *La finestra è aperta. *La chiudi!*

'*The window is open. It close!';

- Clitic pronouns can occupy positions in the clause that strong pronouns cannot. This characterizes the category, as it is subject to movement rules:

56) *La mamma lava Giorgia/lei/*la*

*La mamma la/*Giorgia/*lei lava*

'The mother washes Giorgia/her';

- Clitic pronouns combined with modal verbs, can go back to pre-modal position (clitic climbing phenomenon):

57) a. *Stefania potrebbe apprezzarla*

'Stefania may appreciate it'

b. *Stefania la potrebbe apprezzare*

'Stefania may appreciate it'.

After all these considerations, one may ask: why do pronominal systems greatly differ? According to Cardinaletti and Starke (1999), the difference depends on their internal functional structure: weak and strong pronouns occupy an XP position, while clitic pronouns occupy an X° one and therefore, this phenomenon can be seen as a change in the structural representation during the derivation, from XP to X°; the effects of it on acquisition are outstanding: a good competence of pronouns implies a good

competence of the several syntactic structures that are at the base of the category of pronouns; therefore, they can be considered as an element of diagnosis of the presence of functional categories in a learner's grammar (Leonini 2006).

As far as the derivational process of clitics is concerned, Belletti (1999) provides an analysis that shows the great complexity of this grammatical category. The process of cliticization, that is composed of several movements, starts from the complement position in the VP and ends in the higher position of AgrOP where the agreement takes place. During this process, the clitic first moves into the AgrPartP specifier position as a DP. This movement justifies the agreement in gender and number of the clitic with the past participle, if occurring with a compound tense (58):

58) *L_a hanno vista/L_o hanno visto*

'They have seen her/they have seen him'.

Thereafter, the clitic goes to AgrOP where the cliticization to the verb takes place. Finally, verb and clitic move to the head of AgrSP position where the verb agrees with the subject. The following picture illustrates the movements of the clitic pronoun.

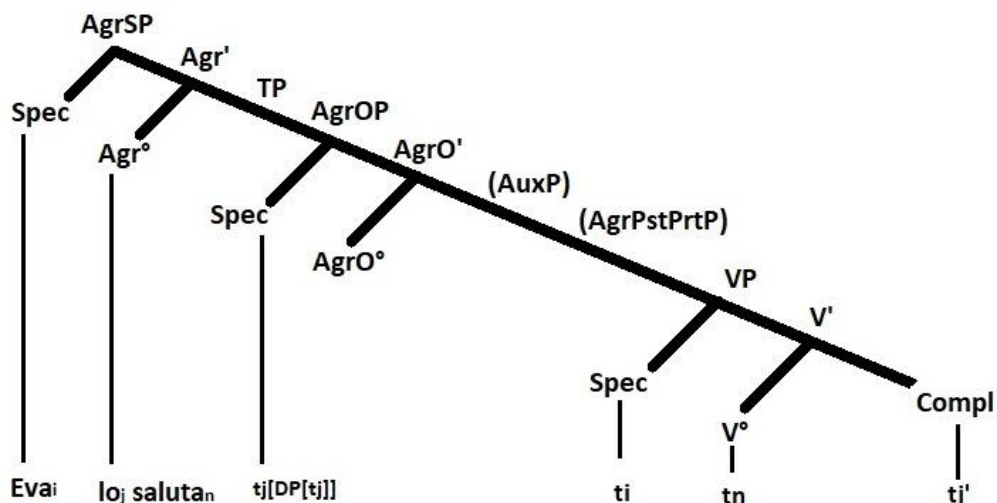


Figure 17 – Clitic pronoun (Belletti 1999)

Languages differ with regards to the active or non-active status of the functional head dedicated to the clitic; in fact, there are languages that have the clitic category and languages that do not have it.

In summary, considering this description of clitic pronouns, it is evident that it is far from being a simple category to acquire. Indeed, the morphosyntactic operations that are necessary for the production of clitic pronouns require great morphosyntactic competence organized in the different levels of the argumental properties, the syntactic representation of each functional category and the procedures for the creation of syntactic chains.

5.2.3 Direct object clitics and reflexive clitic pronouns in Italian

“Complement clitics have case morphology. They may have accusative masculine and feminine forms (corresponding to a DP object), sometimes distinct from dative, genitive/partitive/oblique, locative (corresponding to a PP argument) as in the case of the 3rd person” (Belletti and Guasti 2015: 81). In table 2 Italian clitic pronouns are presented:

Case	Masc.sing.	Fem.sing.	Masc.plur.	Fem.plur.
Accusative	Lo (him)	La (her)	Li (them)	Le (them)
Dative	Gli (to him)	Le (to her)	Loro (to them)	Loro (to them)
Genitive/ partitive	Ne _{pp-di, def/indef} (of him/a XP)	Ne _{pp-di, def/indef} (of her/a XP)	Ne _{pp-di, def/indef} (of them/some XP)	Ne _{pp-di, def/indef} (of them/some XP)
Oblique	Ne _{pp-da} (from XP)	Ne _{pp-da}	Ne _{pp-da}	Ne _{pp-da}
Locative	Ci _{pp-a} (to XP)	Ci _{pp-a}	Ci _{pp-a}	Ci _{pp-a}

Table 2 – Italian clitic pronouns (Belletti and Guasti 2015)

In this section, the properties of accusative clitics will be described, as they will be the object of the present research. Direct object clitics and reflexive clitic pronouns will be illustrated on the basis of what claimed in Renzi et al. (2001). As it will be seen, these are similar elements from a prosodic and pragmatic point of view; indeed, from the

pragmatic point of view, these elements refer to a referent that has been previously mentioned in the speech (as all pronouns). They also resemble as far as the position in the clause is concerned. On the other hand, they are different with regards to their syntactic structures.

Direct object clitics are phonologically weak and their position depends on the finiteness of the verb (see 54-55). Moreover, they are marked for person, gender and number, and if the tense of the clause is composed of auxiliary and past participle, there is number and gender agreement between these elements and the clitic (see 58). They refer to an element that has been already mentioned in the clause or in the context; therefore, in order to correctly interpret them, it is necessary to identify the referent in the clause or in the context.

Direct object clitics and reflexive clitic pronouns share similarities and differences:

- They are both located in pre-verbal position if the verb of the clause is a finite one (59a); they are both located in post-verbal position if the verb of the clause is a non-finite one (59b):

59) a. *La nonna si guarda allo specchio*

'The grandmother looks at herself in the mirror'

b. *La nonna diceva di guardarsi allo specchio*

'The grandmother used to look at herself in the mirror';

- Reflexive clitic pronouns are person and number marked, except for the third person *si* that is just person marked; in this they differ from direct object clitics:

60) a. *La nonna si guarda allo specchio*

'The grandmother looks at herself in the mirror'

b. *I nonni si guardano allo specchio*

'The grandparents look at themselves in the mirror';

- In clauses containing compound tenses, for instance the present perfect, reflexive clitic pronouns emerge with the auxiliary verb *be* only and the past participle agrees in number and gender with the subject of the clause. Reflexive clitic pronouns cannot be used in contrastive contexts (61a); the right pronoun to use in this situation is the tonic reflexive version (61b):

61) a. *La nonna si è guardata, *non il nonno*

‘The grandmother has looked at herself in the mirror, she has not looked at the grandfather’

b. *La nonna ha guardato sé stessa, non il nonno*

‘The grandmother has looked at herself in the mirror, she has not looked at the grandfather’;

- Reflexive clitic pronouns are interpreted as co-referent with the subject of the clause, while direct object clitics refer to a NP in the preceding clause or context.

5.3 Clitic pronouns acquisition

As far as the acquisition of clitic pronouns in Italian in monolinguals is concerned, children possess the distributional, morphological, phonological, and semantic properties necessary to the correct interpretation of clitics from the age of 2 (Cipriani et al. 1993; Cardinaletti and Starke 1999). Later on, children tend to optionally omit them until they are 4. Guasti (1993, 1994) claims that this optional omission period in a child’s life is due to a lacking competence regarding pronouns and nouns as far as the referential system is concerned. Positioning and morphological errors are very rare, and clitics are sometimes substituted by a full NP (Caprin and Guasti 2009; Guasti 1993; 1994; Leonini 2006; Moscati and Tedeschi 2009). In tests eliciting the production of a clitic pronoun, it is never used in place of a strong pronoun, and “this suggests that children know the different informational values that the different pronominal forms can carry from very early on indeed” (Belletti and Guasti 2015: 89).

It is now appropriate to mention bilingual acquisition of clitics as the participant of this research is a bilingual Arabic-Italian speaking girl aged 9. In order to do this, it is useful to examine the results of Ferrari's (2006) research that shows the results of spontaneous production tests in a bilingual context. The subjects of this study are Elisa (2;10-3;5) and Vincenzo (2;5-3;0), both German/Italian bilinguals.

The results of the study will be listed below:

- Both in Vincenzo and Elisa's productions, a very frequent use of lexical complements in place of a clitic pronoun has been found.

	+CL	-CL	Lexical NP
Elisa	59%	12%	29%
Vincenzo	57%	9%	34%

Table 3 – Percentages of clitic production or omission and percentages of lexical NP production in Elisa and Vincenzo performances, two bilingual children (Belletti and Guasti 2015: 103)

As it can be seen in the table, Elisa uses a clitic pronoun in 59% of the items, she omits it in 12% and produces lexical complements in 29% of the items. With regards to Vincenzo's performance, he uses a clitic pronoun in 57% of the items, he omits the clitic in 9% and produces lexical complements in 34% of the items. As a consequence, it can be claimed that the use of a lexical NP is the most recurring characteristic of bilingual children's production;

- No occurrence of clitic placement errors for both children. If clitics are produced, they are correctly positioned.

Comparing their performances with those of the monolingual child that Leonini (2006) studied, it is clear that the use of a lexical NP has a higher occurrence in bilinguals than in monolinguals: the subject of Leonini (2006) uses a clitic pronoun in 86% of the items, he omits the clitic in 11% and produces lexical complements in 3% of the items. The use of strong pronouns in place of a clitic one has no occurrence either for bilinguals or for monolinguals (Leonini 2006). The omission rate of the object is quite the same in

both groups, although bilinguals use the lexical NP to a larger extent. At similar ages, bilinguals possess a lower amount of object clitics compared with monolinguals (Belletti and Guasti 2015).

The overuse of lexical NPs in place of a clitic pronoun may depend on the cliticization process. The interesting issue now is to understand why cliticization is more difficult in bilinguals than in monolinguals. As reported before, the bilingual children of Ferrari (2006) know German and Italian. As it is well known, the former language is composed, differently from Italian, of strong and weak pronouns, but not of clitic ones. During the acquisition in bilingual contexts, the understanding of the nature and morphosyntax of the two pronoun systems is an essential process. Therefore, an intermediate strategy could be the omission of clitics as a consequence of their difficult morphosyntax (Belletti and Guasti 2015).

5.4 Clitic pronouns in Arabic

This section is devoted to the analysis of clitic pronouns in Arabic, therefore strong Arabic pronouns are just briefly mentioned.

Arabic personal pronouns can be detached pronouns, namely free morphemes, or attached pronouns, namely bound morphemes (Uroosa and Izzath 2010). Detached or strong pronouns behave as an independent word while attached or weak pronouns appear within other words as affix or clitics (Movrogiorgos and Marios, 2010). In both cases, pronouns are essentials in Arabic as they carry person, gender, and number features (JapenSarage and Kasiyarno 2015). Detached pronouns are usually employed in nominal sentences, not in verbal ones.

Attached pronouns perform the function of direct object and indirect object and always appear at the end of a word (a verb, a noun), and they are clitic pronouns or pronominal affix according to the verb tense they appear with (Al-Jarf 2010).

When an attached pronoun appears with a transitive verb, then it has accusative function (Veccia-Vaglieri and Avino 2011). Consider the following examples:

62) رايد ته

ra'aytu-hu

NOM see ACC

'I have seen him';

63) ضربتها

ḍarabtu-hā

NOM hit ACC

'I have hit her'.

When an attached pronoun appears with a noun, then it becomes a genitive phrase. The pronoun agrees with the noun it refers to and not with the noun it appears with (Baldissera, 2008).

When an attached pronouns appears with a preposition, then it can perform the function of various complements, according to the preposition it appears with (to me, with you).

In all the above mentioned cases, clitics become a part of morphology and of syntax (JapenSarage and Kasiyarno 2015).

The pronouns system in Arabic, along with English and Italian are presented below:

English pronouns	Italian Pronouns	Arabic pronouns
Me, my, mine	Me, mi, di me, mio, mia, miei, mie	أنا: -nā; نِي: -nī
You, your, yours	Te, ti, di te, tuo, tua, tuoi, tue	كَ: -ka
Him, his, his	Lo, gli, di lui, suo, sua, suoi, sue	هُ: -hu
Her, her, hers	La, le, di lei, suo, sua, suoi, sue	هَا: -hā
Us, our, ours	Ce, ci, di noi, nostro / a / i / e	نَا: -nā
You, yours, yours	Ve, vi, di voi, vostro / a / i / e	كُم: -kum
Them, their, theirs	Li, le, di loro due, loro	هُمَا: -humā

Table 4 – Pronouns system in Arabic

Because there are no possessive pronouns in Arabic, in order to translate them from Arabic to Italian it is necessary to create a periphrasis with attached pronouns, namely repeating the noun again and attaching the pronoun (a book of + belonging to her) (Veccia-Vaglieri and Avino 2011).

Arabic, as Italian, is a *pro*-drop language, therefore its verb paradigm discerns all persons (Al-Jarf 2010).

It is evident that Arabic and Italian share some similarities concerning the pronominal system, although important differences between them complicate the language elaboration of a bilingual Arabic-Italian child.

Chapter 6

Linguistic analysis before explicit syntactic teaching

6.1 Introduction

In this chapter, a linguistic analysis of the results of the tests administered both to N. and the controls will be carried out. The purpose of this analysis, is to compare N.'s competence of Italian with that of her peers, in order to understand if there is a difference in the quality of performances. Firstly, the TROG-2 (Bishop 2009) standardized test which aims at assessing grammatical comprehension has been administered. Secondly, production and comprehension of three complex syntactic structures of Italian, namely passive clauses, relative clauses and clitic pronouns, have been examined through non-standardised tests.

As it is evident, the evaluation session has started with a general test aimed at investigating the language in several grammatical aspects in order to identify the most critical issues and the nature of them. Later, tests focusing on the above mentioned structures have been submitted aiming at investigating the participant's implicit competence of language.

In the following sections, all the tests that have been submitted to the children will be described and the results will be analysed and compared with previous studies on the topic.

6.2 Participants

N. (S1) is the Arabic girl who participated in this research. The experiment lasted from January to April 2017 and in this period, her age varied from 9;5 to 9;9. Her performances have been compared with those of 4 Italian children that attended the same class (mean age: 9;5). Table 5 (p. 75) shows data regarding the age, the nationality and the first language of participants.

	Age	Sex	Nationality	First language
S1 – N.	9;5	F	Arabic	Bilingual Arabic/Italian
S2	9;11	F	Italian	Italian
S3	9;9	F	Italian	Italian
S4	9;7	M	Italian	Italian
S5	9;4	M	Italian	Italian

Table 5 - Age, nationality and first language of participants

N. has been living in Italy since the age of 2 and she speaks both Italian and Arabic like a native speaker. However, her parents are Arabic and only speak Arabic, therefore her family context does not offer input in Italian. N., then, has been exposed to Italian during afternoons at her village park where she could play with her Italian friends and, later, in kindergarten and primary school. As already said in 1.3, hers can be considered a situation of simultaneous bilingualism. As pointed out by de Houwer (2009) and Meisel (2004), people living a situation of simultaneous bilingualism, are said to have two first languages.

Furthermore, she was diagnosed with attention deficit disorder at the age of 6. As widely explained in chapter 2, from 4 to 10 years of age, inattention is prominent and impairing in a child with ADHD; due to this reason, she fails to give close attention to details, she makes careless mistakes, and she is easily distracted by irrelevant stimuli. This impairment is associated to delays in language, motor, and social development and to cognitive problems on attention or memory tests.

6.3 Materials

N.'s linguistic competence has been evaluated through the following tests:

- *TROG-2: Test for reception of grammar – 2nd version (Bishop 2009);*
- Production and comprehension test of passive clauses (Verin, 2010);
- Production and comprehension test of relative clauses (Volpato 2010);
- Production test of direct object clitics and reflexive clitic pronouns (Arosio et al., 2014).

In the following sections, tests and results will be presented. It is important to highlight that for all tests, the production task was submitted before the comprehension one. This is due to the fact that the comprehension task could have influenced the production one, as the participants would have been exposed to the target structures before producing them and the performance would not have been completely reliable.

6.3.2 TROG-2

The TROG-2 test aims at assessing the grammatical comprehension both in children, starting from the age of 4, and in adults; it has been created by Bishop (2009) to satisfy clinical necessities, namely the need to evaluate the comprehension of several grammatical structures as quickly as possible. When it comes to comprehension of grammatical structures, there are a lot of factors that might influence the performance: poor knowledge of words, scarce ability in auditory discrimination, poor verbal memory, grammatical limits, slow linguistic elaboration, problems in understanding the meaning from the context, scarce social cognition, and poor perception of non-verbal signals (Bishop 1997).

Bishop's test has been adapted to the Italian language by Suraniti et al. (2009). An essential aspect of the test, especially for those subjects that have problems in language production, is that there is no need for the test participant to use expressive language during the administration. As for vocabulary and pictures, the simplest and clearest lexicon and images have been chosen, with the aim of avoiding difficulties caused by complex words or scenes, and the images represent as implausible as possible events in order to exclude the influence of non-linguistic features in the answers.

The possibility of repeating the items twice, if demanded by the participant, is a good strategy in order to minimise mistakes caused by inattention. This characteristic of the test is particularly important for N. as she is affected by an attention deficit disorder. The authors of the test claim that repetitions do not necessarily represent a problem, as the participant may have asked to repeat the item because he/she is not sure about

it and this would detect a mature strategy of answer. However, an unusual number of repetitions may detect difficulties in verbal retrieval.

The test is composed of 80 stimuli, organized in 20 blocks and each block contains 4 items. For every item, 4 pictures are shown and the participant is expected to point at the right picture, after the experimenter has read a sentence. Each block aims at evaluating a specific grammatical structure. In order to pass a block, a subject has to answer correctly all 4 items contained in it.

As it will be seen, two types of evaluation can be made: one concerning the linguistic global level and one concerning the specific areas of language in which difficulties have been detected, identifying the origin of the potential problems. Among the possible answer choices there are lexical and grammatical distractors that are very useful in detecting the nature of the difficulty.

6.3.2.1 Procedure

The participants of the control group were tested individually for 20 minutes each. As for N., the test was submitted in a different way. Frequent breaks lasting 10 minutes were made in order to allow N. let off steam and to get her maximum attention in the following part of the test. During these intervals some physical activities were proposed. The breaks were essentials in order to help the participant answering the questions in the most reliable way, minimizing the number of wrong answers caused by attention lacks. The test has never been presented for more than 10 minutes and the items were submitted with the support of a Power Point presentation.

6.3.2.2 Results

In table 6 (p. 78), the participant's results of the pre-teaching administration of the TROG-2 test are shown. According to the normative data collected by Suraniti et al. (2009), typically developing children with N.'s chronological age pass 13 blocks out of 20.

TROG-2		
Correct answers	58/80	73%
Wrong answers	22/80	27%
Total blocks passed	8/20	40%
Standard score	67	
Percentile	1	
Equivalent linguistic age	5;8	

Table 6 – TROG-2 (Bishop 2009) pre-teaching administration results of the participant

As far as the rate of item repetition is concerned, according to the handbook, the sentence may be repeated without any problem. Indeed, the authors recommend not considering repetitions as a problem, as the participant may have asked to repeat the item because he/she is not sure about it and this would detect a mature strategy of answer. However, a high number of repetitions is unusual: normative data show that 5% of participants have asked for 8 repetitions (soft anomaly), 1% of participant have asked for 12 repetitions (serious anomaly). N. has asked for 15 repetitions (19%): this can be considered a very serious anomaly and is surely linked with her attention deficit disorder.

A qualitative analysis of mistakes makes it possible for the experimenter to understand the nature of the problem. As the authors suggest, if a participant makes mistakes in blocks A, D and F then problems in comprehension are due to non-grammatical features of language. As for N., she passed all these blocks, therefore difficulties with non-grammatical features can be excluded. As a consequence, if N. fails in other blocks, the problem is likely to be related to grammatical comprehension.

Considering now the blocks including lexical distractors (A, B, D, E, F, J, K), she passed all blocks apart from blocks J and K; according to the authors, a person with linguistic impairment may choose the picture with a lexical distractor. Indeed, this is the error made by N. in these 2 blocks.

Furthermore, it is interesting to consider the kind and number of mistakes that N. makes.

According to the authors, three error patterns can be detected: systematic, sporadic and random errors. A participant shows a systematic error pattern if he/she fails all the items in a block. In this case, the participant systematically interpret a structure wrongly. A sporadic error pattern shows a performance which is slightly better than a performance based on chance; however, an occasional wrong answer prevents the participant from passing the block. Finally, a random error pattern shows a performance which is based on chance. In this case, the mistakes suggest that the participant does not know the analysed structures at all.

In her performance, the participant has never failed 4 out of 4 items. However, in blocks N (*Congiunzione pronominale/pronominal conjunction*; 1) and S (*Preposizione relativa oggetto/object relative preposition*; 2) she has failed 3 out of 4 items. This pattern mistake shows a performance which is slightly better than a performance based on chance; namely, the participant does not simply guess the answer: he/she knows the presented structures but one wrong answer prevents her from passing the block. In this case, the performance is influenced by elaboration problems. An example for each one of these blocks is shown below:

64) *L'uomo vede che il ragazzo lo sta indicando*

'The man sees that the boy is pointing at him'

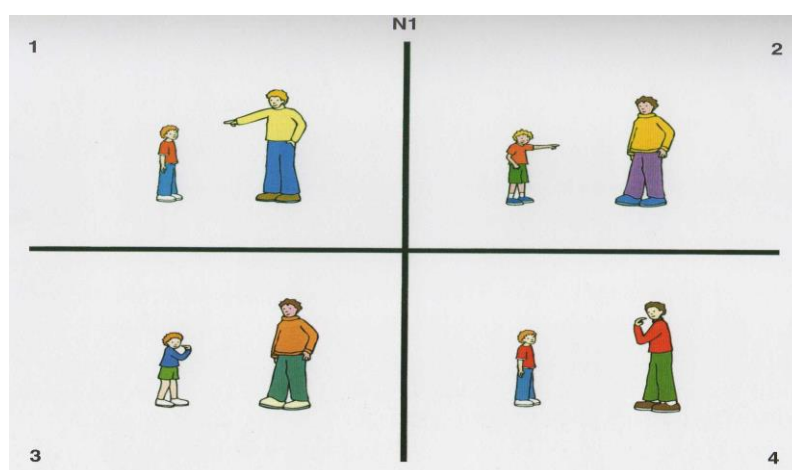


Figure 18 – TROG-2; Item investigating structures with pronominal conjunction

65) *La ragazza insegue il cane, che sta saltando*

'The girl chases the dog, that is jumping'

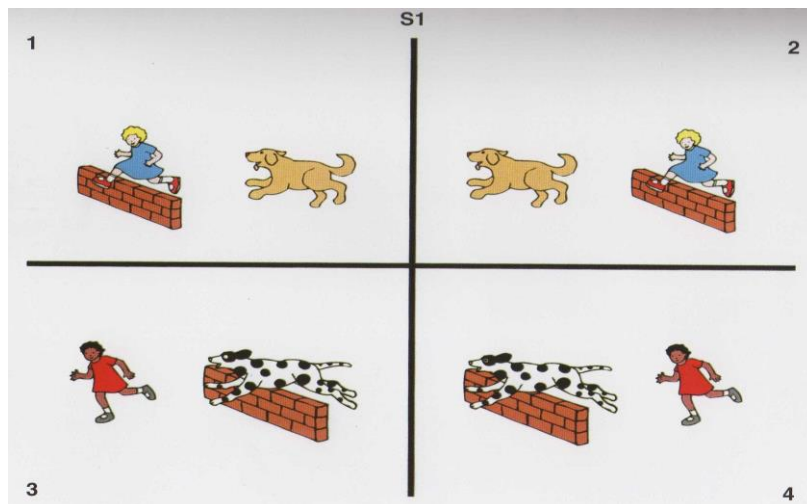


Figure 19 – TROG-2; Item investigating structures with object relative preposition

Considering the fact that N. passed 8 blocks out of 20, the authors suggest to count the number of errors in the last 5 blocks (P, Q, R, S, T). She made mistakes in 10 out of 20 administered items, therefore it can be claimed that her performance is better than a performance based on chance, because she does not answer randomly. Actually, it can be considered a sporadic error pattern and this suggests that an elaboration problem is present. These data have been observed in 98,1% of subjects with N.'s chronological age and in 86,8% of subjects with N.'s linguistic age. When facing complex grammatical structures, typically developing children make mistakes that are not due to a lack in grammatical competence but rather to limits in the elaboration of sentences.

In conclusion, even though N.' performance (8/20) is worse than the one of her peers (13/20), she shows an error pattern in the last 5 blocks that is in line with that of typically developing children. Her mistakes are related to limits in the elaboration of sentences due to the attention deficit disorder. Indeed, when she fails an item she tends to choose the image in which characters are positioned following the word order of the sentence. This highlights that low attention is paid to the grammatical structure and the answering strategy rely on the order in which words have been heard.

6.3.3 Test of passive clauses production (Verin 2010)

The purpose of this test is the elicitation of passive clauses through a picture description task. It is composed of 36 items:

- 12 items aim at eliciting passive clauses characterized by transitive, reversible and actional verbs (*inseguire/to chase, colpire/to hit, imboccare/to feed, baciare/to kiss, prendere a calci/to kick, spingere/to push*);
- 12 items aim at eliciting passive clauses characterized by transitive, reversible and non-actional verbs (*annusare/to smell, sentire/to hear, amare/to love, vedere/to see*);
- 12 items composed of filler sentences aiming at the production of active clauses.

Before starting the sentence administration, the characters and the verbs of the items are presented, in order to make the subjects familiar with these aspects.

The items were submitted with the support of a Power Point presentation. In the 24 experimental items, two images were represented. The experimenter described them through two active clauses. After the description, a question eliciting the production of a passive clause was asked. In some items the agent changes and the patient remains the same, therefore the by-phrase is mandatory (66). In others, the patient changes and the agent remains the same, therefore the by-phrase is not mandatory (4).

66) Example: *Nella prima foto Sara vede Marco. Nella seconda il papà vede Marco. Cosa succede a Marco nella prima foto?*

Target answer: Marco è/viene visto da Sara

'In the first image Sara sees Marco. In the second one, the father sees Marco. What happens to Marco in the first picture?

Target answer: Marco is seen by Sara'



Figure 20 – elicitation of passive clause with mandatory by-phrase

67) *Example: Nella prima foto Sara prende a calci Marco. Nella seconda Sara prende a calci la mamma. Cosa succede alla mamma?*

Target answer: la mamma è/viene presa a calci da Sara.

‘In the first picture Sara kicks Marco. In the second one Sara kicks the mother. What happens to the mother?’

Target answer: the mother is kicked by Sara’



Figure 21 –elicitation of passive clause with non-mandatory by-phrase

In the 12 items composed of filler sentences, three images were represented. The experimenter asked a question eliciting an active clause (68).

68) *Cosa succede nella prima foto?*

Target answer: Sara annusa un fiore

'What happens in the first picture?'

Target answer: Sara smells a flower'



Figure 22 – elicitation of a filler sentence

6.3.3.1 Procedure

The participants of the control group were tested individually for 30-40 minutes each. As for N., the test was submitted in a different way. Frequent breaks lasting 10 minutes were made in order to allow N. let off steam and to get her maximum attention in the following part of the test. During these intervals some physical activities were proposed. The breaks were essentials in order to help the participant answering the questions in the most reliable way, minimizing the number of wrong answers caused by attention lacks. The test has never been presented for more than 10 minutes and the items were submitted with the support of a Power Point presentation. The answers were recorded, transcribed and analysed (see Appendix 1).

6.3.3.2 Coding of answers

The strategies used by N. and the control group in place of the target answer have been divided into 6 different categories that will be listed below:

- Target: the passive clause is produced correctly with the same verb used by the experimenter.

Nella prima foto Marco spinge Sara. Nella seconda Marco spinge la mamma. Cosa succede alla mamma?

La mamma è/viene spinta da Marco.

'In the first picture Marco pushes Sara. In the second one Marco pushes the mother. What happens to the mother?

The mother is pushed by Marco'

- SVO: an active clause is produced with thematic roles correctly assigned.

Nella prima foto Marco ama Sara. Nella seconda il papà ama Sara. Cosa succede a Sara nella prima foto?

Succede che Marco ama Sara.

'In the first picture Marco loves Sara. In the second one, the father loves Sara. What happens to Sara in the first picture?

Marco loves Sara'

- SVO with reversed thematic roles: an active clause is produced with reversed thematic roles.

Nella prima foto il papà imbecca Sara. Nella seconda, Marco imbecca Sara. Cosa succede a Sara nella seconda foto?

Sara imbecca Marco.

'In the first picture the father feeds Sara. In the second one, Marco feeds Sara. What happens to Sara in the second picture?

Sara feeds Marco'.

- SVO with a non-target verb: an active clause is produced with a verb that is different from the one used by the experimenter.

Nella prima foto Marco annusa Sara. Nella seconda Marco sente il papà. Cosa succede al papà?

Allora il papà parla ad alta voce con Marco.

'In the first picture Marco smells Sara. In the second one, Marco hears the father.

What happens to the father?

Well, the father speaks out loud with Marco'

- Other:

Nella prima foto Marco annusa Sara. Nella seconda Marco sente il papà. Cosa succede a Sara?

Sara sa di pesce.

'In the first picture Marco smells Sara. In the second one, Marco hears the father.

What happens to Sara?

Sara smells of fish'

6.3.3.3 Results

In table 6, number and percentages of passive clauses occurrence are shown both for N. and the control group. As it will be seen, filler sentences have been excluded from the calculation, as they have been completely understood by everybody and have not created any kind of difficulty. N. refused answering two items because she considered them inappropriate for their meaning, therefore they will be excluded by the count. The two excluded items are shown below:

- *Nella prima foto Sara prende a calci Marco. Nella seconda Sara prende a calci la mamma.*

Cosa succede alla mamma?

La mamma è/viene presa a calci (da Sara)

'In the first picture, Sara kicks Marco. In the second one, Sara kicks the mother. What happens to the mother?

The mother is kicked by Sara';

- *Nella prima foto il papà sente Marco. Nella seconda Sara annusa Marco. Cosa succede a Marco nella seconda foto?*

Marco è/viene annusato da Sara

'In the first picture, the father hears Marco. In the second one, Sara smells Marco.

What happens to Marco in the second picture?

Marco is smelled by Sara'

In table 7, number and percentages of passive clauses occurrence are shown:

Quantitative analysis of passive clauses production		
	Score	Percentage
S1 N.	5/22	23%
S2	24/24	100%
S3	22/24	92%
S4	21/24	88%
S5	20/24	83%
S1	5/22	23%
Control group	87/96	91%

Table 7 - Number and percentages of passive clauses production

The results show a great difference between N.'s and the control group's performance. Indeed, N. has a percentage of accuracy of 23%, while for the control group, the percentage is 91%. A further investigation on the difference of performances can be made through the analysis of z-scores that allow to calculate how many standard deviations (SD) a value deviates from the average. The normality range is considered +/-1.5 SD. In this test, N. is -9,43 SD below the average of the control group³.

An analysis regarding the kind of verb used has been carried out. Consider table 8 (pg. 87):

³ The control group would technically be too small to conduct specific analysis (among which is z-score), however, since all children in the control group had very similar and close-range percentages, the z-score has been calculated regardless.

Qualitative analysis of verbs						
	Actional verb		Non-actional verb		Verb changed into actional	
S1 N.	4/5	80%	0/5	0%	1/5	20%
S2	12/24	50%	12/24	50%	0/24	0%
S3	14/22	64%	6/22	27%	2/22	9%
S4	12/21	57%	9/21	43%	0/21	0%
S5	12/20	60%	8/20	40%	0/20	0%
S1 N.	4/5	80%	0/5	0%	1/5	20%
Control group	50/87	57%	35/87	40%	2/87	2%

Table 8 – numbers and percentages of correct responses according to verb type

Most passive clauses are produced with an actional verb. In one sentence N. used an actional verb when a non-actional verb was expected instead (69).

69) *Nella prima foto Sara ama il papà. Nella seconda Sara ama Marco. Cosa succede al papà?*

Target: Il papà è/viene amato (da Sara)

S1 N.: Il papà viene abbracciato dalla Sara

'In the first picture Sara loves the father. In the second one, Sara loves Marco. What happens to the father?

Target: the father is loved by Sara

S1 N.: the father is hugged by Sara'

Children in the control group also prefer actional verbs rather than non-actional ones. This is a very common phenomenon in children productions (Volpato et al. 2015). Another analysis has been made according to the presence or absence of the by-phrase in all productions. In the left part of table 9 (p. 88), mandatory and non-mandatory presence of by-phrases is shown. In the right part, the occurrence in children's productions of by-phrases is described.

By-phrase								
Mandatory		Optional			Present by-phrase		Omitted by-phrase	
10/24	42%	14/24	58%	S1 N.	5/5	100%	0/5	0%
				Controlli	82/87	94%	5/87	6%

Table 9 - Presence or absence of the by-phrase

It is evident that both N. and the control group have used the by-phrase in most items. The items in which the by-phrase has been omitted by the control group were items with optional presence of the by-phrase, namely it was not mandatory.

Another phenomenon has been analysed: the occurrence of sentences containing the auxiliary verbs *essere*/to be and *venire*/to come. Consider the following table:

Auxiliary verb				
	Essere/to be		Venire/to come	
S1 N.	3/5	60%	2/5	40%
S2	8/24	33%	16/24	67%
S3	3/22	14%	19/22	86%
S4	1/21	5%	20/21	95%
S5	0/20	0%	20/20	100%
S1 N.	3/5	60%	2/5	40%
Control group	12/87	14%	75/87	86%

Table 10 - Occurrence of auxiliary verbs *essere*/to be and *venire*/to come

S1 N. seems to prefer the auxiliary verb *essere*/to be, contrary to the control group that clearly uses the auxiliary verb *venire*/to come more. Moreover, N. produces exclusively passive clauses with the present perfect tense, she never uses the present in a passive clause. An example of her productions is given below:

70) *Nella prima foto Marco colpisce Sara. Nella seconda, il papà colpisce Sara. Cosa succede a Sara nella seconda foto?*

Target answer: Sara è/viene colpita dal papà

N.'s answer: Sara è stata colpita dal papà

‘In the first picture Marco hits Sara. In the second one the father hits Sara. What happens to Sara in the second picture?’

Target answer: Sara is hit by the father

N.’s answer: Sara has been hit by the father’

In table 11, all the variables that have just been mentioned, are summarized both for N. and the control group.

	By-phrase	Actional verb		Non-actional verb		Verb changed into actional	
		Essere	Venire	Essere	Venire	Essere	Venire
S1 N.	Present	3/5	1/5	0/5	0/5	0/5	1/5
	Omitted	0/5	0/5	0/5	0/5	0/5	0/5
Control group	Present	8/87	40/87	3/87	29/87	0/87	2/87
	Omitted	0/87	2/87	1/87	2/87	0/87	0/87

Table 11 - Summary table of all variables

Analysing the table, the following data emerges:

- Actional verbs are definitely more frequent than non-actional ones in all participants;
- In the small amount of N.’s productions, auxiliary verbs are used with almost the same frequency, with a slight preference for *essere*/to be. Conversely, in the control group, *venire*/to come is present in most items;
- The by-phrase is rarely omitted by all participants;
- If there is a change of the verb, the tendency is to have an actional verb in place of a non-actional one, but not vice versa.

Finally, table 12 (p. 90) shows the answering strategies. As clearly shown in the table, there is a great difference between the production of target forms among the participants (N. 18%; control group 91%). Moreover, the most used alternative strategy by all participants is the production of an active clause in place of a passive one; this strategy is mainly used in clauses including a non-actional verb as *sentire*/to hear.

Answer strategies				
	S1 N.		Control group	
Target <i>La mamma è/viene spinta da Marco.</i> The mother is pushed by Marco	5/22	18%	87/96	91%
SVO <i>Marco ama Sara</i> Marco loves Sara	9/22	41%	5/96	5%
SVO with reversed thematic roles <i>Sara imbecca Marco.</i> Sara feeds Marco	3/22	14%	2/96	2%
SVO with a non-target verb <i>Il papà parla ad alta voce con Marco</i> The father speaks out loud with Marco	4/22	18%	2/96	2%
Other <i>Sara sa di pesce</i> Sara smells of fish	1/22	5%	0/96	0%

Table 12 - Answering strategies in passive production test

This kind of strategy is probably used due to the fact that some pictures of the test are not very effective in order to elicit a passive clause, creating a high occurrence of active clauses. Consider the following picture:



Figure 23 – item eliciting a passive sentence with a non-actional verb

This picture is aimed at eliciting a passive clause with the non-actional verb *sentire*/to hear. Participants were more likely to produce an active clause (*Marco sente il*

papà/Marco hears the father; *Marco sente Sara*/Marco hears Sara) rather than a passive one.

Demuth et al. (2010) and Messenger et al. (2009, 2012) claim that picture matching tasks investigating comprehension of passive clauses with non-actional verbs are not very effective. Indeed, the authors claim that the results on non-actional verbs would be an artefact of the experimental picture, due to the difficult representation of non-actional verbs. Messenger et al. (2009) have found out that if a picture matching task is used, even the comprehension of active sentences with non-actional verbs is difficult; conversely, if a priming task is used, effects linked to the kind of verb examined disappear.

The same considerations may be made for the test of passive clauses production used in the present research.

6.3.3.4 Discussion on the passive clauses production test

Interesting data come from the analysis of the different answer strategies, as already mentioned above. Even more interesting, is to compare these results with those of Volpato et al. (2015): N.'s percentage of occurrence of target passive clauses (18%) is very similar to those of the children in Volpato et al. (2015) (14%). The difference lies in the age of the participants: N., at the moment of test administration, was 9;5, while the other children have an age that varies between 3;5 and 4;3. The children in Volpato et al. (2015) use an active sentence in place of a passive one with a percentage of occurrence of 16%; conversely, N. does it with a much higher percentage (41%). As already said, these percentages could be due to the little relevance of some pictures. Differently from Volpato et al. (2015), neither N. or the controls use active sentences with clitic pronouns as a strategy. The absence of this strategy in N.'s performance is not expected. As it will be seen later on, she has had good performances in the clitic production test, therefore, being her competence in this matter better than in others, an occurrence of clitics in spite of passive clauses was expected. Furthermore, in N.'s productions, the two auxiliary verbs are used with almost the same frequency, with a slight preference for *essere*. Conversely, in the control group, *venire* is present in the

very majority of items. *Venire* is also preferred by the children of Volpato et al. (2015). *Venire* is more informal than *essere* and it is also the most used auxiliary verb in the dialects spoken in Veneto, region of origin of the control groups of both studies. Finally, it is worth mentioning the fact that N. uses the present perfect tense in the majority of her productions. She uses the passive form through this construction: *è stato + participio/has been + participle* (*è stato colpito/has been hit*); by doing this, she disambiguates more between the eventive and the stative reading that is difficult to comprehend in a passive clause with the present tense. On one hand, this would explain the slight majority of clauses with *essere/to be* over *venire/to come*. On the other hand, this could be considered a strategy to disambiguate this construction.

6.3.4 Test of passive clauses comprehension (Verin 2010)

The comprehension test of passive clauses (Verin 2010) is based on a sentence-picture matching

task. For every item, a slide showing three images has been created. The test is composed of 50 items:

- 24 items investigate the comprehension of passive clauses with actional verbs (the verb used are the same that have been used in the production test; for examples see 6.3.3);
- 16 items investigate the comprehension of passive clauses with non-actional verbs;
- 10 items composed of filler sentences aiming at the comprehension of active clauses with actional verbs, non-actional verbs, animate subjects, inanimate subject.

The auxiliary verb *venire/to come* characterizes a half of the experimental items. The other half is characterized by the auxiliary verb *essere/to be*. Moreover, 20 sentences have the by-phrase and 20 sentences do not have it. Table 13 (p. 93) shows all conditions.

<i>Actional verbs</i>	
<i>Essere/to be</i>	<i>In quale foto Sara è colpita?</i> 'In which image is Sara hit?'
<i>Essere/to be + by-phrase</i>	<i>In quale foto Sara è colpita da Marco?</i> 'In which image is Sara hit by Marco?'
<i>Venire/to come</i>	<i>In quale foto Sara viene colpita?</i> 'In which image is Sara hit?'
<i>Venire/to come + by-phrase</i>	<i>In quale foto Sara viene colpita da Marco?</i> 'In which image is Sara hit by Marco?'
<i>Non-actional verbs</i>	
<i>Essere/to be</i>	<i>In quale foto Marco è sentito?</i> 'In which image is Marco heard?'
<i>Essere/to be + by-phrase</i>	<i>In quale foto Marco è sentito da Sara?</i> 'In which image is Marco heard by Sara?'
<i>Venire/to come</i>	<i>In quale foto Marco viene sentito?</i> 'In which image is Marco heard?'
<i>Venire/to come + by-phrase</i>	<i>In quale foto Marco viene sentito da Sara?</i> 'In which image is Marco heard by Sara?'

Table 13 - Items of passive clauses comprehension test

Some pictures of the test are shown in the following examples: a slide corresponding to a sentence with by-phrase (71), one corresponding to a sentence without by-phrase (72) and a filler sentence (73).

71) *In quale foto Sara è colpita da Marco?*

'In which picture is Sara hit by Marco?'

Target answer: image number 2



Figure 24 - picture corresponding to a sentence with by-phrase

72) *In quale foto Sara è colpita?*

'In which image is Sara hit?'

Target answer: image number 3



Figure 25 - picture corresponding to a sentence without by-phrase

73) *In quale foto Sara bacia il cane?*

'In which picture does Sara kiss the dog?'

Target answer: image number 2

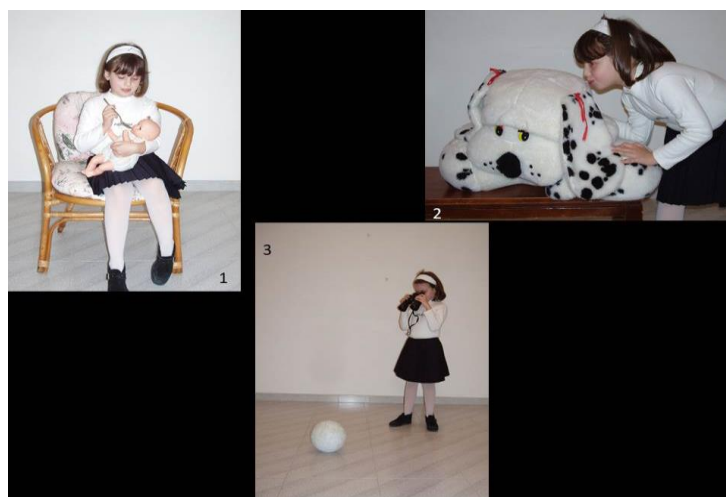


Figure 26 - picture corresponding to a filler sentence

6.3.4.1 Procedure

The participants of the control group have been tested individually for 30-40 minutes each. As for N., the test was submitted in a different way. Frequent breaks lasting 10

minutes were made in order to allow N. let off steam and to get her maximum attention in the following part of the test. During these intervals some physical activities were proposed. The breaks were essentials in order to help the participant answering the questions in the most reliable way, minimizing the number of wrong answers caused by attention lacks. The test has never been presented for more than 10 minutes and the items were submitted with the support of a Power Point presentation.

6.3.4.2 Results

In table 14, numbers and percentages of comprehended passive clauses are shown both for N. and the control group. As it will be seen, filler sentences have been excluded from the calculation, as they were completely understood by everybody and did not create any kind of difficulty.

The results will be divided between items including actional and non-actional verbs, *essere*/to be and *venire*/to come auxiliary verbs, and presence vs. absence of by-phrase.

Comprehension of passive clauses				
	S1 N.	%	Control group	%
Actional verb - <i>essere</i>	3/6	50%	23/24	95%
Actional verb - <i>venire</i>	4/6	67%	24/24	100%
Actional verb – <i>essere</i> – by-phrase	5/6	83%	24/24	100%
Actional verb – <i>venire</i> – by-phrase	3/6	50%	24/24	100%
	15/24	63%	95/96	99%
Non-actional verb - <i>essere</i>	2/4	50%	12/16	75%
Non-actional verb - <i>venire</i>	1/4	25%	13/16	81%
Non actional verb – <i>essere</i> – by-phrase	2/4	50%	14/16	88%
Non actional verb – <i>venire</i> – by-phrase	1/4	25%	15/16	93%
	6/16	38%	54/64	84%
Total	21/40	53%	149/160	93%

Table 14 – numbers and percentages of comprehended passive clauses

As the results immediately show, N.'s performance is definitely worse (53%) than those of the control group (93%). In this test, N. is -4,35 SD below the average of the control group being the normality range ± 1.5 SD⁴. More specifically, N.'s accuracy level increases if an actional verb is involved in the clause (63%); on the contrary, if there is a non-actional verb the accuracy level decreases (38%). She shows a very low level of comprehension of passive clauses; however, the control group, although with different accuracy levels, shows the same pattern: the comprehension of clauses with an actional verb is 99%, while for those with a non-actional verb it is 84%. Interestingly, the presence or absence of the by-phrase seems not to influence N.' performance: she comprehends a very low number of clauses either with or without the by-phrase. By contrast, in clauses including a non-actional verb, which created some problems to the control group, they perform better if the by-phrase is present (with: 88% - 93%; without: 75% - 81%). Finally, as far as the auxiliary verb is concerned, N. performs surprisingly better if *essere*/to be is present, rather than *venire*/to come. Conversely, control group's performances are more accurate if the auxiliary verb *venire*/to come is used.

Thanks to the binomial distribution statistical analysis, the identification of the types of sentences in which N.'s performance is above the chance level has been possible. In order to perform above chance level, a child should answer correctly at least in 5 out of 6 items with actional verbs and 4 out of 4 items with non actional verbs. Therefore, the participant performs below chance level in all examined structures, a part from sentences with actional verb, auxiliary *essere*/to be and by-phrase.

6.3.4.3 Discussion on the passive clauses comprehension test

These results are in line with the performance in the production test: in the small amount of N.'s productions, auxiliary verbs are used with almost the same frequency, with a slight preference for *essere*, while in the control group, *venire* is used in most

⁴ The control group would technically be too small to conduct specific analysis (among which is z-score), however, since all children in the control group had very similar and close-range percentages, the z-score has been calculated regardless.

items. The performance of the control group confirms the data collected by Volpato et al. (2015) and Manetti (2013): children have better performance if the passive clause contains the auxiliary verb *venire*. This suggests that children's passive clauses would actually be eventive rather than adjectival ones and that A movement is active in their grammar. Furthermore, children generally tend to use a colloquial register as much as possible: the auxiliary verb *venire*/to come is less formal than *essere*/to be in Italian (Volpato et al. 2015). N.'s performance differs from those of her peers.

With regards to the presence or absence of the by-phrase, this seems not to influence N.' performance, as mentioned before, confirming what Volpato et al. (2015) claim: the presence or absence of the by-phrase is not relevant in the comprehension of passive sentences.

Actional verbs are easier to comprehend than non-actional ones both for N. and the control group; however, the difference of accuracy is more evident in N., who comprehends correctly 63% of items containing an actional verb and 38% of items containing a non-actional verb than in the control group (99% vs 84%). Generally speaking, N. is -4,35 SD below the average of the control group, especially in passive clauses with non-actional verbs both with *venire*/to come (-7,31 SD) and *essere*/to be (-3,43 SD) auxiliary verbs.

N.'s poor performance may have been influenced by the structure of Arabic passive clauses. As stated in 3.4, the passive form in Arabic is rarely used, therefore a low exposure to the structure in her first acquired language may have caused poor sensitivity to the structure in Italian. Moreover, when it is used in Arabic, it is formed through apophonic vowel transformation to the active form or through the insertion of specific morphemes. Finally, in Arabic the agent in passive clauses is not usually contemplated. This would explain why N.'s performance seems not to be influenced by the presence or absence of the by-phrase.

6.3.5 Test of relative clauses production (Volpato 2010)

The purpose of this test is the elicitation of restrictive subject (SR) and object relative clauses (OR) through a preference task in which the participant is required to choose

the character that he/she prefers depending on what happens in the image in front of him. The test is administered through a Power Point presentation. The picture of a child or two children is shown in each slide of the test and the words 'child'/'children' are the heads of the relative clauses that are expected to be produced. The test is composed of 36 items:

- 12 items aim at eliciting the production of SRs (10);
- 12 items aim at eliciting the production of ORs (11);
- 12 items aim at eliciting the production of a filler sentence (12): SV or SVO sentences with transitive and intransitive verbs and inanimate object.

In order to avoid the tendency of deriving the meaning of the clauses through the semantic and pragmatic knowledge, the verbs used in the test are transitive reversible ones. Moreover, they are all conjugated in the present tense in order to avoid difficulties created by auxiliaries that are present in the compound tenses. A complete list of the verbs is shown below:

- *Seguire*/to follow, *punire*/to punish, *sgridare*/to scold, *alzare*/to raise, *visitare*/to visit, *baciare*/to kiss, *pettinare*/to comb, *portare*/to bring, *colpire*/to hit, *premiare*/to reward, *abbracciare*/to hug, *accarezzare*/to stroke, *rincorrere*/to run after, *fermare*/to stop, *tirare*/to pull, *inseguire*/to chase, *lavare*/to wash.

The experimental sentences test have been created using DPs with singular features and DPs with plural features. The aim of this manipulation is to investigate how these features influence the accuracy of the clause (Volpato 2010). In each slide with an experimental item, there are two situations represented; the experimenter describes the two situations and then asks a question. Conversely, in each slide with a filler item, only one situation is depicted and the experimenter asks to describe what the character is doing, thus expecting a simple active sentence. Examples are shown below:

74) *Experimenter: Ci sono 2 disegni. Nel primo i bambini inseguono le farfalle. Nel secondo, i bambini inseguono le api. Quali bambini ti piacciono di più? Inizia con “(Mi piacciono) i bambini...”*

Target answer: (Mi piacciono) i bambini che inseguono le farfalle/le api.

‘Experimenter: There are two pictures. In the first image, children chase butterflies. In the second one, children chase bees. Which children do you like most? Start with “(I like) the children...”’

Target answer: (I like) the children that chase the butterflies/bees’

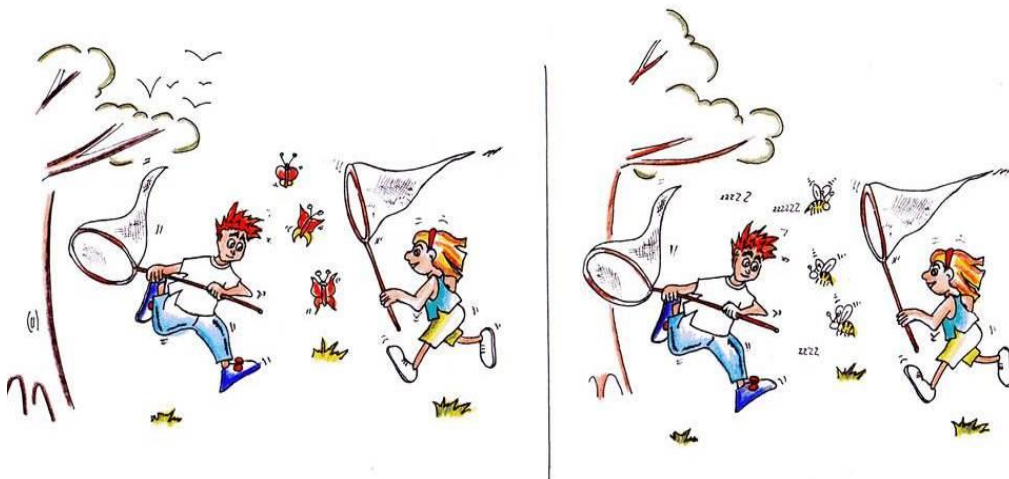


Figure 27 - picture eliciting a SR clause

75) *Experimenter: Ci sono due disegni. Nel primo la mamma abbraccia un bambino. Nel secondo la mamma bacia un bambino. Quale bambino ti piace di più? Inizia con “(Mi piace) il bambino...”*

Target answer: (Mi piace) il bambino che la mamma abbraccia/bacia.

‘Experimenter: There are two pictures. In the first picture the mother hugs the child. In the second one, the mother kisses the child. Which child do you like most? Start with “(I like) the child...”’

Target answer: (I like) the child that the mother hugs/kisses’

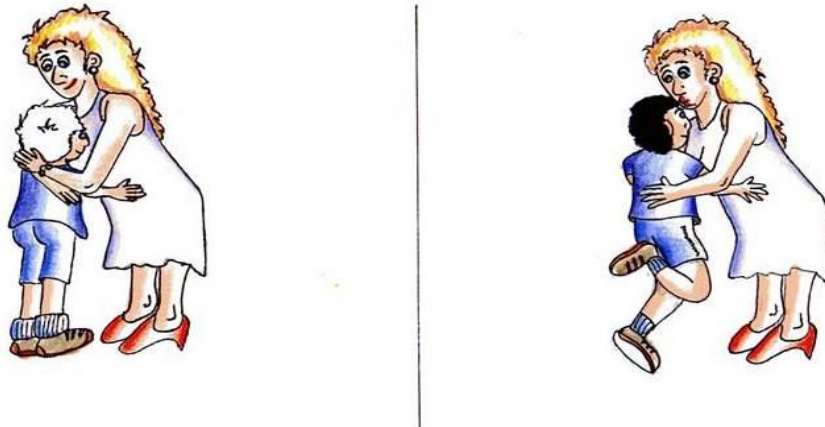


Figure 28 - picture eliciting an OR clause

76) *Experimenter: Cosa fa il vigile?*

Answer: Il vigile ferma le macchine

'Experimenter: What does the traffic policeman in this image?

Answer: The traffic policeman stops the cars'

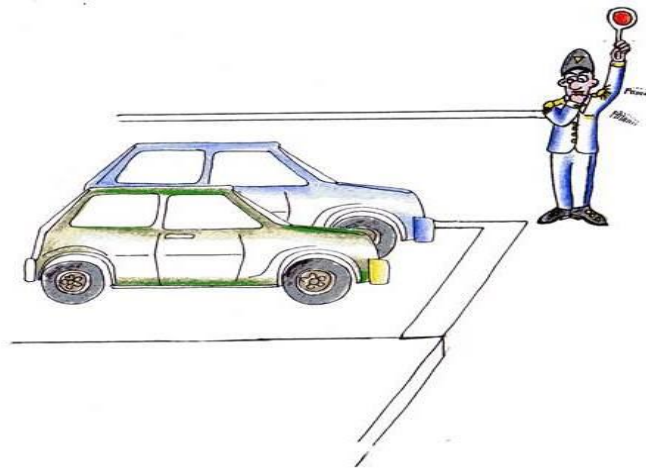


Figure 29 – picture eliciting a filler sentence

6.3.5.1 Procedure

The participants of the control group were tested individually. As for N., the test was submitted in a different way. Frequent breaks lasting 10 minutes were made in order to allow N. let off steam and to get her maximum attention in the following part of the

test. During these intervals some physical activities were proposed. The breaks were essentials in order to help the participant answering the questions in the most reliable way, minimizing the number of wrong answers caused by attention lacks. The test has never been presented for more than 10 minutes and the items were submitted with the support of a Power Point presentation. The answers were recorded, transcribed and analysed (see Appendix 2). Before starting the sentence administration, the characters and the verbs of the items are presented, in order to make the subjects familiar with these aspects.

6.3.5.2 Coding

As far as SRs production is concerned, an example of a target production and the only alternative strategy (77) used in place of a target answer (78) are shown below:

77) Target SR

Experimenter: Ci sono 2 disegni. Nel primo i bambini inseguono le farfalle. Nel secondo, i bambini inseguono le api. Quali bambini ti piacciono di più? Inizia con “(Mi piacciono) i bambini...”

Target answer: (Mi piacciono) i bambini che inseguono le farfalle/le api.

‘Experimenter: There are two pictures. In the first picture, children chase butterflies. In the second one, children chase bees. Which children do you like most? Start with “(I like) the children...”

Target answer: (I like) the children that chase the butterflies/bees’

78) Use of demonstrative adjective *quello*/that

Experimenter: Ci sono 2 disegni. Nel primo un bambino pettina la mamma e nel secondo un bambino pettina il cane. Quale bambino ti piace di più?

Non-target answer: Il bambino quello che sta pettinando la bambola

‘Experimenter: There are two pictures. In the first picture, a child combs the mother. In the second one, a child combs the dog. Which child do you like most?’

Non-target answer: The child that that is combing the mother’

With regards to ORs, several strategies have been used both by N. and the control group, although with different percentages. The two structures which have been considered as target answers are shown in examples (79-80). In the other examples answers strategies are shown:

79) Target OR

Ci sono 2 disegni. Nel primo i cani baciano i bambini. Nel secondo, i nonni baciano i bambini. Quali bambini ti piacciono di più?

(Mi piacciono) i bambini_(tema) che i nonni/i cani_(agente) baciano.

‘There are two pictures. In the first picture the dogs kiss the children. In the second one, the grandparents kiss the children. Which children do you like most?’

(I like) the children_(theme) that the grandparents/the dog_(agent) kiss’

80) Target ORp

Ci sono 2 disegni. Nel primo la maestra sgrida i bambini. Nel secondo, la maestra premia i bambini. Quali bambini ti piacciono di più?

(Mi piacciono) i bambini_(tema) che sta sgridando la maestra_(agente)

‘There are two pictures. In the first picture the teacher scolds the children. In the second one, the teacher rewards the children. Which children do you like most?’

(I like) the children_(theme) that is scolding the teacher_(agent)’

81) Passive OR: thematic roles are correctly assigned; although the answer is appropriate to the context, it is not considered a target answer as it implies the relativization of the subject creating a SR clause rather than an OR clause.

Ci sono due disegni. Nel primo il papà colpisce un bambino. Nel secondo il papà bacia un bambino. Quale bambino ti piace di più?

(Mi piace) il bambino_(tema) che è/viene baciato dal papà_(agente)

‘There are two pictures. In the first one, the father hits the child. In the second one, the father kisses the child. Which child do you like most?’

(I like) the child_(theme) that is kissed by the father_(agent)’

82) Reduced passive OR (no copula): thematic roles are correctly assigned, a past participle is used in place of the complete verbal form.

Ci sono due disegni. Nel primo il papà lava un bambino. Nel secondo il papà sporca un bambino. Quale bambino ti piace di più?

(Mi piace) il bambino_(tema) lavato dal papà_(agente)

‘There are two pictures. In the first picture the father washes the child. In the second one, the father dirties the child.

(I like) the child_(theme) washed by the father_(agent)’

83) OR with a clitic pronoun

Ci sono 2 disegni. Nel primo i cani baciano i bambini. Nel secondo, i nonni baciano i bambini. Quali bambini ti piacciono di più?

Mi piacciono i bambini_(tema) che i nonni_(agente) li baciano

‘There are two pictures. In the first picture the dogs kiss the children. In the second one, the grandparents kiss the children. Which children do you like most?’

I like the children_(theme) that the grandparents_(agent) kiss them’

84) Relative without head and with a full DP object⁵: there is no head of the relative and a full object DP is pronounced in the trace position. The child fails to produce a restrictive relative clause and produce instead a simple SVO sentence.

Ci sono 2 disegni. Nel primo, il padre pettina i bambini. Nel secondo, il barbiere pettina i bambini. Quali bambini ti piacciono di più?

Mi piacciono che il barbiere_(agente) pettina i bambini_(tema)

‘There are two pictures. In the first one, the father combs the children. In the second one, the barber combs the children. Which children do you like most?’

I like that the barber_(agent) combs the children_(theme)’

⁵ The name of this strategy has been taken from Friedmann and Szterman (2006).

85) OR>SR with thematic roles inversion: the agent of the clause that the experimenter has provided becomes the theme of the clause provided by the participant, and vice versa.

Ci sono due disegni. Nel primo l'orso_(agente) morde un bambino_(tema). Nel secondo l'orso_(agente) accarezza un bambino_(tema). Quale bambino ti piace di più?

Mi piace il bambino_(agente) che sta accarezzando l'orso_(tema)

'There are two pictures. In the first image the bear_(agent) bites the child_(theme). In the second one, the bear_(agent) caresses the child_(theme). Which child do you like most?

I like the child_(agent) that is caressing the bear_(theme)'

86) OR>SR with inversion of the head of the relative: thematic roles are correctly assigned, however the relativization of the object is avoided and a SR is produced instead.

Ci sono 2 disegni. Nel primo i vigili fermano i bambini. Nel secondo, i vigili salutano i bambini. Quali bambini ti piacciono di più?

Mi piacciono i vigili_(agente) che stanno salutando i bambini_(tema)

'There are two pictures. In the first picture the traffic policemen stop the children. In the second one, the traffic policemen greet the children. Which children do you like most?

I like the policemen_(agent) that are greeting the children_(theme)'

87) Object doubling⁶: the moved element is pronounced both in the position in which it is generated (the trace) and in the post-movement position.

Ci sono due disegni. Nel primo il papà lava un bambino. Nel secondo il papà sporca un bambino. Quale bambino ti piace di più?

Mi piace il bambino_(tema) che il papà_(agente) sta lavando il bambino_(t)

'There are two pictures. In the first picture the father washes the child. In the second one, the father dirties the child. Which child do you like most?

I like the child_(theme) that the father_(agent) is washing the child_(t)'

⁶ The name of this strategy has been taken from Friedmann and Szterman (2006).

88) Incomplete: the theme is absent in the sentence.

Ci sono 2 disegni. Nel primo un cane morde i bambini. Nel secondo, un cane insegue i bambini. Quali bambini ti piacciono di più?

Mi piacciono che il cane_(agente) sta inseguendo

‘There are two pictures. In the first picture the dog bites the children. In the second one, the dog chases the children. Which children do you like most?’

I like that the dog_(agent) is chasing’.

6.3.5.3 Results

Filler sentences have been excluded from the analysis because they have been correctly produced by every subject.

In Table 15, the number of SRs and ORs produced by N. and the control group is shown.

Quantitative analysis of relative clauses production				
	SRs	%	ORs	%
S1 N.	11/12	92%	1/12	8%
S2	12/12	100%	4/12	33%
S3	12/12	100%	2/12	17%
S4	12/12	100%	4/12	33%
S5	12/12	100%	2/12	17%
S1 N.	11/12	92%	1/12	8%
Control group	48/48	100%	12/48	25%

Table 15 – Number and percentage of relative clauses production

The results on the table completely confirm the asymmetry between SRs and ORs both for N. (SR: 92%; OR: 8%) and the control group (SR: 100%; OR: 25%): the production of SRs is definitely easier than ORs production. These results are in line with what has been claimed in previous studies investigating Italian as Guasti and Cardinaletti (2003), Belletti and Contemori (2010), Contemori (2011), Volpato (2010), Pivi and Del Puppo (2015). As it can be seen, on one hand in this test, all participants in the control group correctly produced all SRs and N. did not answered correctly once only. On the other

hand, percentages of occurrence of ORs are very low: most participants of the control group used alternative strategies in order to avoid the production of an OR, and N. produced one ORp.

Table 16 shows the occurrence of the strategies used in place of a target OR both for N. and the control group. See Appendix 2 for a detailed presentation of productions.

Answer strategies in ORs										
	S1 N.	S2	S3	S4	S5		S1 N.	%	Control group	%
Target OR	0/12	4/12	2/12	4/12	2/12		0/12	0%	12/48	25%
Target ORp	1/12	0/12	0/12	0/12	0/12		1/12	8%	0/48	0%
Passive OR	0/12	1/12	1/12	0/12	0/12		0/12	0%	2/48	4%
Reduced passive OR	0/12	1/12	0/12	0/12	0/12		0/12	0%	1/48	2%
OR with a clitic pronoun	0/12	4/12	6/12	3/12	6/12		0/12	0%	19/48	40%
OR>SR with thematic roles inversion	4/12	0/12	0/12	0/12	1/12		4/12	33%	1/48	2%
Relative without head and with a full DP object	4/12	0/12	0/12	0/12	0/12		4/12	33%	0/48	0%
OR>SR with inversion of the head of the relative	1/12	0/12	0/12	0/12	0/12		1/12	8%	0/48	0%
Object doubling	1/12	2/12	3/12	5/12	3/12		1/12	8%	13/48	27%
No theme	1/12	0/12	0/12	0/12	0/12		1/12	8%	0/48	0%

Table 16 - Strategies used in place of a OR

With regards to the control group, target ORs have been produced in the 25% of cases; the most used strategy to avoid the production of a target OR has been the use of an OR with a clitic pronoun (40%), followed by the use of object doubling (27%); the passive OR in place of a target OR has been used in the 4% of items. As for N., she used several strategies, among which the transformation of OR into SR with thematic roles inversion (33%) and the production of a relative without head and with a full DP object (25%).

6.3.5.4 Discussion on the relative clauses production test

As already mentioned, the results of this analysis confirm the asymmetry between SRs and ORs for all subjects, namely both in typical and atypical development. The asymmetry was expected because the analysed structures are very complex ones. As widely described in chapter 4, relative clauses are characterized by A' movement and a chain. However, SRs are definitely easier than ORs; in fact, the former are produced with very high percentages by every subject, the latter are almost never produced, and several alternative strategies are used instead. This happens because to produce an OR clause, a major amount of computational resources is necessary compared with SRs, as the relation between the antecedent of the relative and the position in which it is interpreted is longer in an OR (90) than in a SR (89) (De Vincenzi 1991).

89) I lupi che _ inseguono le pecore

[_{DP} I [_{CP} [_{NP} lupi [_{CP} che [_{IP} [_{DP} <i lupi>] inseguono le pecore]]]] - SVO



[_{DP} The [_{CP} [_{NP} wolves [_{CP} that [_{IP} [_{DP} <the wolves>] chase the sheep]]]];

90) I lupi che le pecore inseguono _

[_{DP} I [_{CP} [_{NP} lupi [_{CP} che [_{IP} le pecore inseguono [_{DP} <i lupi>]]]]] - OSV



[_{DP} The [_{CP} [_{NP} wolves [_{CP} that [_{IP} the sheep chase [_{DP} <the wolves>]]]]].

The asymmetry subject/object has been justified with structural terms (Friedmann et al., 2009; Relativized Minimality). In ORs, the presence of the NP *le pecore*/the sheep (90), that is the subject of the relative clause, between the head of the relative clause *i lupi*/the wolves and the internal position in which it is interpreted, creates interference. This interference is not present in a SR. Moreover, another important feature that makes ORs more complex than SRs is the order of constituents. ORs are composed of a non-canonical order of elements (OSV); conversely, in SRs the order is canonical, elements are distributed as they are in an active clause (SVO).

Analysing the strategies that have been used in place of an OR, the control group shows the following pattern: production of some ORs (25%), ORs with a clitic pronoun (40%), object doubling (27%) and few passive ORs (4%). ORs are usually produced, although with low percentages, by children; they are never produced by adolescent and adults that prefer to use passive relative clauses (Volpato 2010), because this structure is acquired later than relative clauses (Guasti and Rizzi 2002), it is composed by only one type of agreement, *AGREE*, and activates local movements (*Smuggling*, Collin 2005). It must be mentioned that a different performance was expected by the control group. Typically developing children in Volpato (2010), whose mean age was 6;8, showed high percentages of passive relative production; indeed, they produced 14% of passive relative clauses in order to avoid the production of an OR. Therefore, being the children of the control group of this study older than those in Volpato (2010), an higher production of passive relative clauses was expected.

The pattern of answering strategy is confirmed by the typically developing children in Pivi and Del Puppo (2015): they produced 24% of target ORs, 6% of OR with a clitic pronoun and 5% with object doubling. On the other hand, adults in that study produced 2% of target ORs and 94% of passive relative clauses.

Even though the control group and N. have the same age, they show different use of alternative strategies: in fact, although they both avoid strategies typical of adults, N.'s performances are very heterogeneous. She produced one ORp and the most used alternative strategies have been the transformation of an OR into a SR with thematic

roles inversion (33%) (91) and the use of a relative without head and with a full DP object (25%) (92). Some example of her productions are given below:

91) *Ci sono 2 disegni. Nel primo i leoni_(agente) inseguono i bambini_(tema). Nel secondo, i leoni_(agente) tirano i bambini_(tema). Quali bambini ti piacciono di più?*

Target answer: Mi piacciono i bambini_(tema) che i leoni_(agente) tirano

N.'s production: Mi piacciono i bambini_(agente) che stanno tirando i leoni_(tema)

'There are two pictures. In the first one, lions_(agent) chase the children_(theme). In the second one, lions_(agent) pull the children_(theme). Which children do you like most?

Target answer: I like the children_(theme) that the lions_(agent) pull

N.'s production: I like the children_(agent) that are pulling the lions_(theme)'

92) *Ci sono due disegni. Nel primo il leone_(agent) segue un bambino_(tema). Nel secondo il cane_(agent) segue un bambino_(tema). Quale bambino ti piace di più?*

Target answer: Mi piace il bambino_(tema) che il cane_(agente) segue

N.'s answer: Mi piace che il cane_(agente) sta seguendo il bambino_(tema)

'There are two pictures. In the first one, the lion_(agent) follows a child_(theme). In the second one, the dog_(agent) follows a child_(theme). Which child do you like most?

Target answer: I like the child_(theme) that the dog_(agent) follows

N.'s answer: I like that the dog_(agent) is following the child_(theme)'

N. resorted to the former strategy due to the difficulty in keeping the correct thematic roles in memory after the movement. The latter, has been observed also in children with hearing loss (Volpato 2010, Volpato and Vernice 2014) and children with SLI (Contemori, Garaffa 2010).

To explain the several types of relative clauses that can be produced, Belletti (2005) proposed the *copy + deletion* theory:

- a standard OR clause is created through a *copy + deletion* process
Example: *Mi piace il bambino che i nonni baciano*
'I like the child that the grandparents kiss';
- an OR with a clitic pronoun is created through a *copy + partial deletion* process
Example: *Mi piace il bambino che i nonni lo baciano*
'I like the child that the grandparents kiss him';
- an OR with a full DP is created through a *copy + no deletion* process.
Example: *Mi piace il bambino che i nonni baciano il bambino*
'I like the child that the grandparents kiss the child'

This hypothesis does not explain N.' performance, because in this case there is neither *no deletion* nor *copy*. It seems that her performance resembles that of Contemori and Garaffa's (2010) SLI children, who use a strategy that stops non-local chains and that makes them interpret a relative clause as a declarative one.

6.3.6 Test of relative clauses comprehension (Volpato 2010)

This test, realized by Volpato (2010), is an agent selection task: the participant listens to a relative clause and has to choose the correct referent among 4 possible choices. In the test, 80 stimuli are proposed: 20 filler sentences and 60 experimental items aiming at investigating the comprehension of relative clauses. There are 10 different kinds of relative clauses created by the manipulation of number feature on the DPs and for every kind of relative clause, 6 items have been created. In table 17 (p. 111) all experimental conditions of the tests are showed. The verbs used in the test are transitive, reversible, and conjugated in the present tense. Here is a list of all verbs: *baciare*/to kiss, *mordere*/to bite, *seguire*/to follow, *portare*/to bring, *toccare*/to touch, *fermare*/to stop, *tirare*/to pull, *beccare*/to peck at, *lavare*/to wash, *guardare*/to look, *colpire*/to hit, *pettinare*/to comb, *inseguire*/to chase, *spingere*/to push, *salutare*/to greet, *spaventare*/to scare.

AMB – Ambiguous	
AMB_SG_SG	Il cammello che pettina il cigno
AMB_PL_PL	Le mucche che spingono gli elefanti
SR – Subject relative	
SR_SG_PL	La pecora che colpisce i gatti
SR_PL_SG	Le scimmie che fermano il pinguino
OR – Object relative	
OR_SG_SG	L'elefante che la scimmia insegue
OR_PL_PL	I serpenti che le tigri guardano
OR_SG_PL	Il cavallo che le tigri mordono
OR_PL_SG	Gli orsi che la giraffa pettina
ORp – Object relative with post-verbal embedded subject	
ORp_SG_PL	La tigre che baciano le bambine
ORp_PL_SG	Le pecore che colpisce la gallina

Table 17 - Experimental conditions for relative clauses comprehension

The test has been administered through a Power Point presentation. In each slide with an experimental item, two scenes are represented: in one scene the characters do something, in the other scene the action is the same but thematic roles are reversed. The participant has to point at the correct character in the picture. As for filler sentences, in each slide 4 different scenes are represented.

Some examples of experimental items are shown below: comprehension of a SR (93), comprehension of an OR (94), and comprehension of a filler sentence (95).

93) Ci sono due disegni. Nel primo ci sono due leoni e un elefante e nel secondo ci sono un elefante e due leoni. Indica i leoni che guardano l'elefante.

Target answer: A

'There are two pictures. In the first one there are two lions and one elephant and in the second one there are one elephant and two lions. Point at the lions that look at the elephant'

Target answer: A

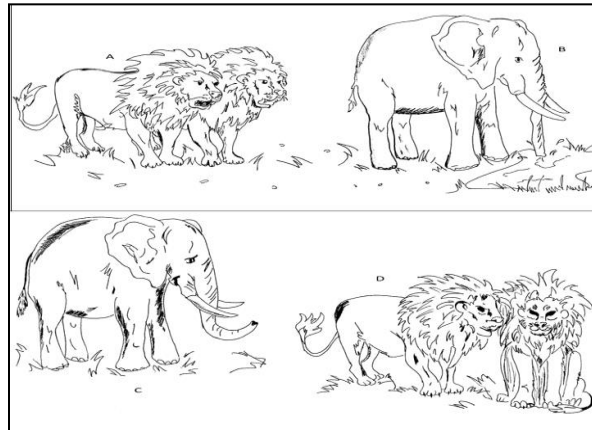


Figure 30 –picture investigating the comprehension of a SR

94) Ci sono due disegni. Nel primo ci sono una pecora e due gatti e nel secondo ci sono due gatti e una pecora. Indica i gatti che la pecora colpisce.

Target answer: A

‘There are two pictures. In the first picture there are one sheep and two cats and in the second one there are two cats and one sheep. Point at the cats that the sheep hits’

Target answer: A



Figure 31 –picture investigating the comprehension of an OR

95) Tocca il cane che ha l'osso in bocca

Target answer: C

‘Point at the dog that holds the bone in the mouth’

Target answer: C

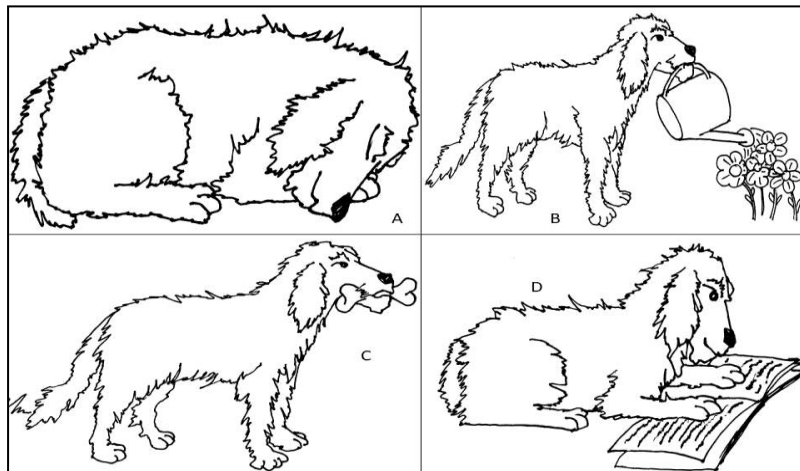


Figure 32 – picture investigating the comprehension of a filler sentence

The possible answers in a SR comprehension task can be: correct answer (A in 93), selection of the reversible referent (D in 93), other errors. The possible answers in a OR comprehension task can be: correct answer (A in 94), selection of the reversible referent (C in 94), agent mistake, the agent is chosen instead of the head of the relative (B in 94), other errors.

On one hand, when a reversible referent is chosen, the participant understands that the relative clause modifies a referent, although he/she is not able to assign the correct thematic role to the head of the relative clause. On the other hand, when an agent mistake is made, the participant assigns thematic roles correctly, but he/she is not able to process the entire sentence correctly and to understand that a relative clause modifies an element in order to add information to the head of the DP.

6.3.6.1 Procedure

The participants of the control group have been tested individually for 30-40 minutes each. As for N., the test was submitted in a different way. Frequent breaks lasting 10 minutes were made in order to allow N. let off steam and to get her maximum attention in the following part of the test. During these intervals some physical activities were proposed. The breaks were essentials in order to help the participant answering the questions in the most reliable way, minimizing the number of wrong answers caused by attention lacks. The test has never been presented for more than

10 minutes and the items were submitted with the support of a Power Point presentation. Before starting the sentence administration, the characters and the verbs of the items are presented, in order to make the subjects familiar with these aspects.

6.3.6.2 Results

In table 18, number and percentages of relative clauses comprehension are shown both for N. and the control group. As it will be seen, filler sentences have been excluded from the calculation, as they have been completely understood by everybody and have not created any kind of difficulty.

Comprehension test of relative clauses				
	S1 N.	%	Control group	%
AMB_SG_S	6/6	100%	24/24	100%
G				
AMB_PL_PL	6/6	100%	24/24	100%
Mean of AMB	12/12	100%	48/48	100%
SR_SG_PL	5/6	83%	24/24	100%
SR_PL_SG	4/6	67%	24/24	100%
Mean of SR	9/12	75%	48/48	100%
OR_SG_SG	0/6	0%	21/24	88%
OR_PL_PL	2/6	33%	22/24	92%
OR_SG_PL	4/6	67%	23/24	96%
OR_PL_SG	2/6	33%	21/24	88%
Mean of OR	8/24	33%	87/96	91%
ORp_SG_PL	1/6	17%	19/24	79%
ORp_PL_SG	1/6	17%	18/24	75%
Mean of ORp	2/12	17%	37/48	77%
Total	31/60	52%	220/240	92%

Table 18 – Numbers and percentages of comprehended of relative clauses

The results show a great difference between the accuracy of the control group's answers (92%) and those of N. (52%). In this test, N. is -4,33 SD below the average of the control group being the normality range +/-1.5 SD. Moreover, the asymmetry between SRs and ORs is confirmed both by the control group's performance (SR: 100%; OR: 91%) and that of N. (SR: 75%; 33%). The ORp has been the most difficult structure to comprehend for both N. (17%) and the control group (77%).

According to these percentages, it can be claimed that the gradient of difficulty that has been detected in previous research (Volpato 2010, D'Ortenzio 2015) among relative clauses is confirmed both for typical and atypical development: SR > OR > ORp. As far as SRs are concerned, they are completely understood by the control group and the number feature of DPs seems not to influence their performance. Conversely, in mismatch conditions, N. comprehends a SR with a singular head (SR_SG_PL: 83%) better than a SR with a plural head (SR_PL_SG: 67%).

With regards to ORs with preverbal embedded subject, N. performs better in the mismatch conditions than in the match ones, especially if the head of the relative clause is singular (OR_SG_PL: 67%). Similarly, the control group does not seem to be very influenced by number features; however, the most comprehended structure presented mismatch with a singular head of the relative clause (OR_SG_PL: 96%). These results confirm data collected in Volpato (2010, 2012).

Finally, ORp are scarcely comprehended by N. (17%) and number features seem not to help her understand better. Also in the control group, this structure is not well comprehended and the accuracy does not change according to the number feature of the head.

Thanks to the binomial distribution statistical analysis, the identification of the types of sentences in which N.'s performance is above the chance level has been possible. In order to perform above chance level, a child should answer correctly at least in 4 out of 6 items in all types of sentences, a part from ambiguous sentences in which 6 out of 6 correct answers should be given. The participant performs above chance level in all ambiguous sentences and SRs. She performs below chance level in all ORs and ORps items, a part from the mismatch condition SG_PL.

Another analysis has been carried out with regards to the error type in N.' performance. In table 19 (p. 116), all mistakes made by N. are shown. N.'s performance in SRs with mismatch conditions shows that, when a target answer is not given, the choice relapses into the reversible referent in the picture. As for ORs with match conditions, the most frequent mistake is the agent mistake, namely the agent is chosen instead of the head of the relative.

S1 comprehension test of relative clauses: mistakes			
	Reversible referent	Agent mistake	Other
AMB_SG_SG	0%	0%	0%
AMB_PL_PL	0%	0%	0%
SR_SG_PL	0%	0%	17%
SR_PL_SG	33%	0%	0%
OR_SG_SG	0%	67%	17%
OR_PL_PL	17%	50%	0%
OR_SG_PL	33%	0%	0%
OR_PL_SG	50%	17%	33%
ORp_SG_PL	50%	0%	0%
ORp_PL_SG	50%	17%	0%

Table 19 – S1’s mistakes in relative clauses comprehension test

The high percentage of occurrence of agent mistake suggests that in match condition, an OR clause is not well processed, very low attention is paid to the object relativization and the agent is chosen instead. In mismatch conditions, the most frequent mistake is the choice of the reversible referent in the picture: this kind of mistake reveals that, even though the number features of the head of the relative and the verb are different, the clause is interpreted as a SR instead of an OR. The same description is valid for her performance in ORp too.

6.3.6.3 Discussion on the relative clauses comprehension test

Generally speaking, the results of this comprehension test confirm the asymmetry between SRs and ORs, already detected in Friedmann and Szterman (2006), Volpato (2010), D’Ortenzio (2015). However, the comparison between N.’s performance and that of the control group shows that N. has better results if the head of the relative clause is a singular one, both in SRs and in ORs, while this feature does not influence the control group’s performance.

The collected data confirm the following hypothesis: all children are influenced by RM when it comes to comprehension of relative clauses. In order to clarify this hypothesis, Volpato (2010, 2012) suggests a revision of the Lexical Restriction based on number features $[\pm p]$: if number features are the same, the embedded DP could be an

intervenient in the co-indexed chain that links the moved DP and its trace; if number features are not the same, there is no element interfering in the co-indexed chain. This can justify N.'s better performance in the mismatch condition; however, N.' comprehends better if the head of the relative clause is singular. Recent studies (Chinellato 2004, Chesi 2006, Volpato 2012) show that number features do not help children in the comprehension of relative clauses: they seem not to be available in language impaired populations. Due to this unavailability, singular forms are preferred over plural ones, as the *-no* plural morpheme is a marked form of the verb and it is not well comprehended.

As far as the asymmetry between OR and ORp is concerned, it has to be explained through agreement relations. ORs are characterized by two agreement relations: AGREE, responsible for number features sharing between subject and verb and SPEC-HEAD that verifies the features in the configuration of subject and verb in the same phrase (IP). These two agreement conditions make the OR a strong structure. On the contrary, in an ORp the only agreement relation is AGREE, therefore it is a weaker structure. It is very demanding for the computational system to understand these structures as the memory has to keep in suspense the plural morphology of the verb until it finds the subject in post-verbal position (Guasti and Rizzi 2002, Franck et al. 2006).

6.3.7 Test of direct object clitics and reflexive clitic pronouns production (Arosio et al. 2014)

This test was created by Arosio et al. (2014) to investigate the use of clitic pronouns in typically developing children and children with SLI. In the test, 18 sentences in the present tense containing clitic pronouns are elicited: 6 sentences elicit a feminine direct object clitic (*la*), 6 sentences elicit a masculine direct object clitic (*lo*), 6 sentences elicit a reflexive clitic pronoun (*si*).

The test has been administered through a Power Point presentation and the images have been described by a registered voice. After the description of the image, a question was asked in order to elicit the production of the clitic pronoun. The answers

have been recorded, transcribed and analysed (see Appendix 3). An example of an item eliciting the production of a direct object clitic pronoun (96) and a reflexive clitic pronoun (97) is shown below:

96) *In questa storia c'è un bambino che vuole mangiare un gelato. Guarda, cosa sta facendo al gelato?*

Target answer: Lo sta mangiando.

'In this story there is a child that wants to eat an ice-cream. Look, what is he doing to the ice-cream?

Target answer: He is eating it'.

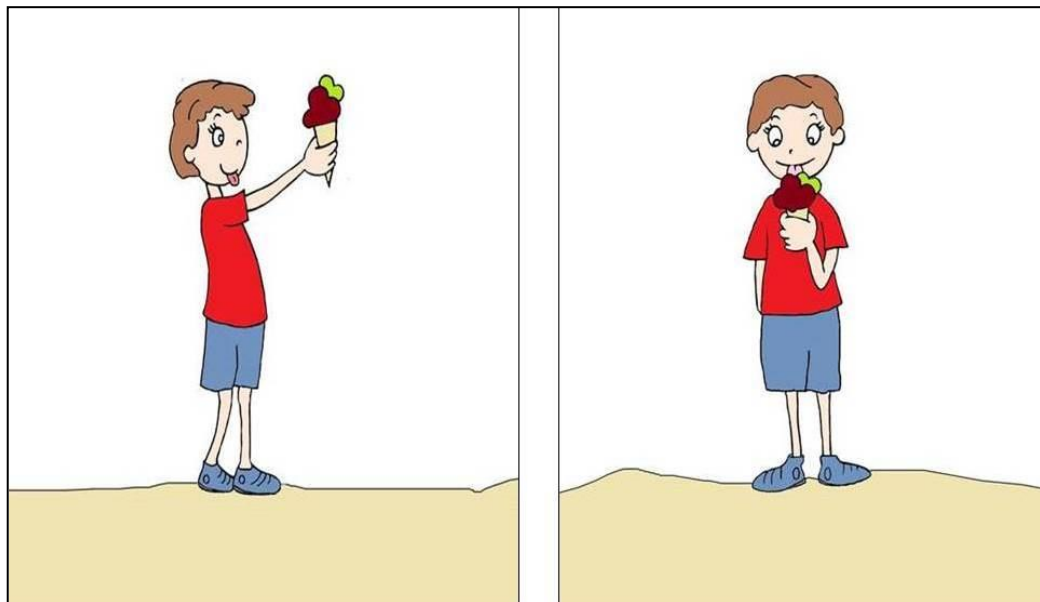


Figure 33 - picture eliciting a direct object clitic

97) *In questa storia c'è un gatto tutto sporco. Guarda, cosa sta facendo?*

Target answer: Si sta lavando.

'In this story there is a dirty cat. Look, what is the cat doing?

Target answer: It is washing itself'



Figure 34 - picture eliciting a reflexive clitic pronoun

6.3.7.1 Procedure

The participants of the control group were tested individually. As for N., the test was submitted in a different way. Frequent breaks lasting 10 minutes were made in order to allow N. let off steam and to get her maximum attention in the following part of the test. During these intervals some physical activities were proposed. The breaks were essentials in order to help the participant answering the questions in the most reliable way, minimizing the number of wrong answers caused by attention lacks. The test has never been presented for more than 10 minutes. Before starting the sentence administration, the characters and the verbs of the items are presented, in order to make the subjects familiar with these aspects.

6.3.7.2 Coding

The target answer does not repeat what has been heard in the question: participants are expected to produce a sentence with a null subject and a clitic pronoun. Participants have provided several answers, which have been classified in three categories:

98) Target

In questa storia c'è una signora che vuole sbucciare una pera. Guarda, cosa sta facendo alla pera?

La sta sbucciando.

'In this story there is a lady that wants to peel a pear. Look, what is the lady doing to the pear?

She is peeling it'

99) Full DP: when a sentence with a determiner and noun is produced instead of a clitic pronoun.

In questa storia c'è un bambino che vuole buttare un libro. Guarda, cosa sta facendo al libro?

Il bambino sta buttando il libro.

'In this story there is a child that wants to throw a book away. Look, what is he doing to the book?

He is throwing it away'

100) Omitted pronoun: the sentence is ungrammatical as the pronoun is missing.

In questa storia c'è una mucca che vuole leccare una rana. Guarda, cosa sta facendo alla rana?

Sta leccando.

'In this story there is a cow that wants to lick a frog. Look, what is it doing to the frog? (It) is licking'.

It is necessary to highlight that, both in Appendix 3 and in the following tables, the 5 familiarisation items have been included in the total: 2 items elicit a feminine direct object clitic (*la*) and 3 items elicit a masculine direct object clitic (*lo*). The choice of including these items in the calculation is due to the fact that in the last items of the section, N. has made mistakes that are considered significant since she has been

repeating them several times during the test. In the following sections, number, percentages of accuracy, and mistakes are presented.

As already mentioned, the target answer includes a null subject, therefore another analysis has been conducted investigating the presence or absence of the subject in the answers, codified as *Non pro* or *Pro*.

6.3.7.3 Results

In the following tables, number and percentages of occurrence of direct object clitics and reflexive clitic pronouns are shown both for N. and the control group.

Direct object clitic						
	Target	%	Full DP	%	Omission	%
S1 N.	12/17	70%	3/17	18%	2/17	12%
S2	17/17	100%	0/17	0%	0/17	0%
S3	15/17	88%	2/17	12%	0/17	0%
S4	17/17	100%	0/17	0%	0/17	0%
S5	16/17	94%	1/17	6%	0/17	0%
S1 N.	12/17	70%	3/17	18%	2/17	12%
Control group	65/68	96%	3/68	4%	0/68	0%

Table 20 - numbers and percentages of occurrence of direct object clitics

Reflexive clitic pronoun						
	Target	%	Full DP	%	Omission	%
S1 N.	4/6	66%	0/6	0%	2/6	34%
S2	6/6	100%	0/6	0%	0/6	0%
S3	6/6	100%	0/6	0%	0/6	0%
S4	6/6	100%	0/6	0%	0/6	0%
S5	6/6	100%	0/6	0%	0/6	0%
S1 N.	4/6	66%	0/6	0%	2/6	34%
Control group	24/24	100%	0/24	0%	0/6	0%

Table 21 – numbers and percentages of occurrence of reflexive clitic pronouns

As it can be seen, the control group has excellent performances in the use of both direct object clitics and reflexive clitic pronouns. There are 3 non-target items only: in these cases, children produce a full DP instead of a direct object clitic.

As for N., her performance is weaker than that of the control group. She produced 70% of target answers, 18% of clitic substitution with a full DP in its post-verbal canonical position, and 12% of clitic omission. With regards to reflexive clitic pronouns, she provides a target answer in 66% of items. When a non-target answer is given, reflexive clitics are never substituted for the *se stesso*/itself DP, and are omitted in 34% of items, creating transitive constructions (101); one of these constructions has been produced without the object (102).

101) *Target answer: Si sta guardando allo specchio*

N.'s answer: Sta guardando lo specchio

'Target answer: He is looking at himself in the mirror

N.'s answer: He is looking the mirror'

102) *Target answer: Si sta pettinando*

N.'s answer: Sta pettinando

'Target answer: She is combing herself

N.'s answer: She is combing'

The omission rate not being present in normally developing children manifests N.'s great difficulties at the syntactic level.

In this test, N. is -4,44 SD below the average of the control group in direct object clitics production, being the normality range +/-1.5 SD.

A second analysis has been conducted in order to evaluate participants' answers even more in depth. In table 22 (p. 123), numbers and percentages of presence (Non-pro) or absence (Pro) of the subject in the answers are shown. This analysis is useful because it evaluates numbers and percentages of null subjects. Since the expected answer is a sentence with a null subject and a clitic pronoun, the analysis shows the accuracy of the produced sentences. Both N. (87%) and the control group (96%) have high

percentages of sentences with a null subject, this means that all participants have good competence of pragmatics.

	Pro	% pro	Non-pro	% Non-pro
S1 N.	20/23	87%	3/23	13%
S2	22/23	96%	1/23	4%
S3	21/23	91%	2/23	9%
S4	22/23	96%	1/23	4%
S5	23/23	100%	0/23	0%
S1 N.	20/23	87%	3/23	13%
Control group	88/92	96%	4/92	4%

Table 22 – presence vs. absence of the subject in the sentence

6.3.7.4 Discussion on the clitics production task

Analysing the collected data, the difference between N. and the control group's performances is evident in every task. N. has lower percentages of accuracy and she makes mistakes that typically developing children do not make.

Firstly, in the direct object clitic elicitation task, N. uses a full DP instead of a clitic pronoun in the 18% of items; this strategy is rarely used by children in the control group (4%). This strategy does not lead to an ungrammatical sentence, it rather creates simpler and more redundant sentences compared with those with a clitic pronoun. The choice of using it may be the result of a compensatory strategy (*Compensatory Strategy*, Guasti et al. 2016): it proves that competence of the argument properties of the verb does exist, but that an incomplete syntactic competence does not allow for the production of complex sentences with a clitic pronoun. In fact, the competence that is necessary to use a full DP in argument position after the verb, is easier than the competence needed to use a clitic pronoun. Furthermore, clitic pronouns occupy a pre-verbal position which creates a non-canonical order of constituents (*La signora la sta sbucciando*/the lady is peeling it: subject, object, verb) and they receive thematic role through a chain which links them to the position in which they are originated (Belletti 1999). This makes the complexity of the operations needed to use a clitic pronoun obvious and these are even more difficult in atypical acquisition.

Secondly, reflexive clitic pronouns are correctly produced by all children of the control group, while N. shows difficulties (target answers: 66%): the full DP *se stesso* is never produced, whereas 2 items show clitic omission. The latter strategy creates transitive sentences, either without (*Sta pettinando/She is combing*) or with an object (*Sta guardando lo specchio/She is looking the mirror*).

According to the literature regarding this topic, the accuracy prediction is better for reflexive clitics rather than for direct object clitics, since, as specified by Pozzan (2006), the former are not positioned in a non-canonical syntactic position derived by syntactic movement. Moreover, at a morphosyntactic level, reflexive pronouns are person marked, while direct object clitics are person, number, and gender marked. On one hand the control group's performance is in line with Pozzan's (2006) predictions. On the other hand, N. shows difficulties in both structures: she has an incomplete competence of complex structures of Italian that requires syntactic movement and non-canonical order of constituents.

Moreover, it is interesting to consider data collected by Arosio et al. (2010), in which the production of clitic pronouns by children with SLI is investigated. In this study, three groups have been tested: SLI children (mean age 6;10), age matched typically developing children (mean age: 6;9), and language matched typically developing children (mean age 5;7). The production of reflexive clitic pronouns has been investigated in order to understand if the difficulty for SLI children lies in prosodic features of clitic pronouns, as they have failed the test of direct object clitic pronouns production. There was no difference among the performance of the three groups, all participants produced a high rate of reflexive pronouns. Therefore, being N. older than the children in Arosio et al. (2010), a better performance was expected.

An interesting characteristic of N.'s productions is the choice of the verbal tense: even though an answer conjugated in the present tense is elicited, in most of her productions she uses the present perfect tense (103, 104, 105, 106). One possible explanation may be the way N. has interpreted the images of the test. In fact, a lot of these images represent concluded actions. As an example, some images are shown below.

103) *In questa storia c'è un signore che vuole pescare un pesce.*

Guarda, cosa sta facendo al pesce?

Target answer: Lo sta pescando

N.'s answer: Lo ha pescato

'In this story there is a man who is catching a fish.

Look, what is he doing to the fish?

Target answer: he is catching it

N.'s answer: he has caught it'

104) *In questa storia c'è una bambina che vuole catturare una dottoressa. Guarda, cosa sta facendo alla dottoressa?*

Target answer: La sta catturando

N.'s answer: L'ha catturata

'In this story there is a girl who wants to capture a doctor. Look, what is she doing to the doctor?

Target answer: she is capturing her

N.'s answer: she has captured her'

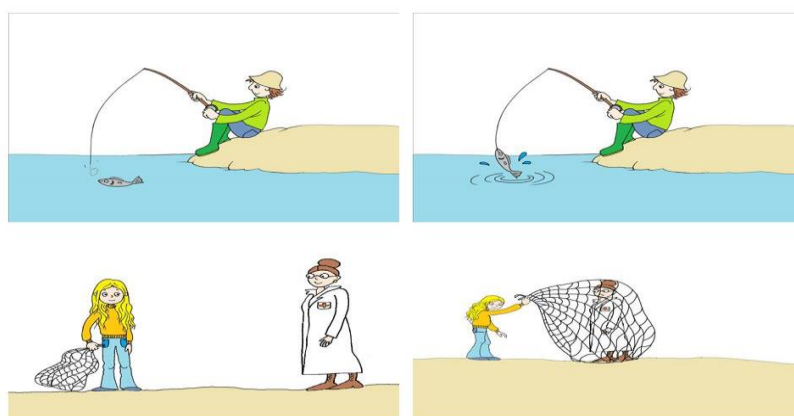


Figure 35 – Pictures eliciting direct object clitic pronouns

105) *In questa storia c'è un bambino che vuole distruggere un castello di sabbia. Guarda, cosa sta facendo al castello?*

Target answer: Lo sta distruggendo

N.'s answer: L'ha distrutto

'In this story there is a child who wants to destroy a castle of sand. Look, what is he doing to the castle of sand?

Target answer: he is destroying it

N.'s answer: he has destroyed it'

106) *In questa storia c'è una bambina che vuole prendere una farfalla col retino. Guarda, cosa sta facendo alla farfalla?*

Target answer: *La sta prendendo*

N.'s answer: *L'ha presa*

'In this story there is a girl who wants to catch a butterfly. Look, what is she doing to the butterfly?

Target answer: she is catching it

N.'s answer: she has caught it'

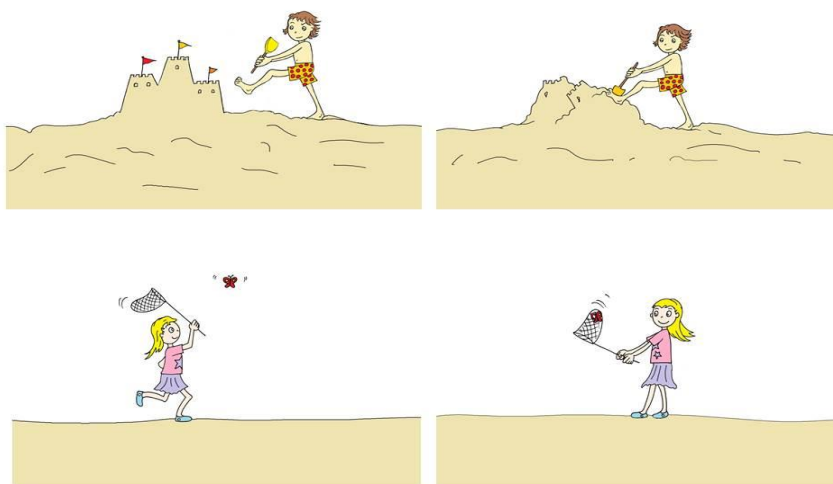


Figure 36 – Pictures eliciting direct object clitic pronouns

Therefore, N. seems to be more influenced by the visual interpretation of images rather than by the questions of the test that are asked in the present tense.

Another possible explanation is based on the characteristics of N.'s native language. In Arabic, there are two main verbal tenses: the past and the non-past. The former indicates a completed action and corresponds to the present perfect and the past

tense of Italian. The latter is used in all situations in which something is going on or has not happened yet. Generally speaking, the non-past can correspond to three verbal tenses: the indicative, the subjunctive and the conditional of Italian. According to the context, the indicative non-past can correspond to the present, the imperfect, and the future of Italian. The temporal continuity or non-continuity of the action described by the verb is recovered in the context, there is no verbal form to express it, differently from what happens in Italian with the present continuous (Tresso 1997). Therefore, in this constructions N. may be influenced by her knowledge of Arabic.

6.4 Concluding remarks

The linguistic tests described in the previous sections aimed at assessing production and comprehension of complex structures of Italian, specifically passive clauses, relative clauses, and clitic pronouns, have been fundamental in order to evaluate N.'s linguistic competence. It has been particularly interesting to investigate her language because, as far as I know, there is no previous research investigating the linguistic competence of a bilingual child with ADHD.

The purpose of this study is to suggest some strategies and tools aiming at helping N. in her difficulties with Italian, improving the quality of her language, and consequently of her integration into society. These objectives have been pursued through explicit syntactic teaching activities, which will be deeply described in Chapter 7. This project has been developed on the basis of the results of the linguistic tests that have been administered to N. The analysis of N.'s productions has been essential in order to understand the nature of her linguistic problems and to adapt the didactic intervention to her needs in the best way.

Previous studies on language impairment in ADHD (Geurts and Embrechts 2008; Green et al. 2014) claim that problems with elements of communication, like syntax and phonology, are serious in the language of children with ADHD. Moreover, poor literacy capacities are linked with attention deficit disorders and hyperactivity (Sciberras et al 2014; Loe and Feldman 2007), and if a child finds it difficult to pay attention, this may

have an impact on language development, which in turn is essential for literacy development (Arnett et al. 2012).

According to Hawkins et al. (2016), a study investigating the links between on one hand, pragmatic and language structure, and on the other hand, behavioural features in cases of ADHD, some problems of behaviour are more associated with pragmatic language difficulties, and less with language structure problems, that may be due to phonological processing problems, and not at all with literacy. The authors concluded their study claiming that different patterns of language deficit should be treated with different intervention strategies. For instance, difficulties with communication and pragmatics should be handled with psychosocial interventions, while difficulties with language structures should be handled with cognitive explicit strategies.

The present research works towards an improvement of the linguistic system of N., therefore most of it focuses on the explicit teaching of complex structures of Italian, even though the modification of the environment in which activities were proposed has helped in educating her also from a pragmatic point of view (see chapter 2).

The results obtained in the linguistic tests show that N. has difficulties in all examined structures compared with her peers, therefore, contrary to what Hawkins et al. (2016) claim, her problems with language structures are serious. Given the huge difficulty in passive clauses production and the slightly better competence in relative clauses and clitic pronouns, it seems risky to attribute the low performances to ADHD only. Indeed, the great input of Arabic to which N. is exposed to every day may have influenced her acquisition of Italian. Interestingly, the gradient of difficulty (namely clitic pronouns, relative clauses and passive clauses, the first structure being more preserved than the other two) that she shows in her performances, is in line with the characteristic of the grammatical structures in Arabic. For instance, as already stated in chapter 3, Arabic tends to avoid passive verb forms and not to favour much use of them (Rosenhouse 1988: 92); furthermore, a relative clause in Arabic needs a resumptive pronoun that refers to the head of the relative and links it with its antecedent (Amer 2003); finally, Arabic personal pronouns can be detached pronouns, namely free morphemes, or attached pronouns, namely bound morphemes (Uroosa

and Izzath 2010). Detached or strong pronouns behave as an independent word while attached or weak pronouns appear within other words as affix or clitics (Movrogiorgos and Marios, 2010).

Chapter 7

Explicit syntactic teaching and post-teaching results

7.1 Introduction

This chapter is devoted to the description of the didactic intervention, namely the explicit syntactic teaching of the syntactic rules that characterize passive clauses, relative clauses, and clitic pronouns in Italian. The teaching activities were created on the basis of the results of the linguistic tests that had been administered to N. In section 7.3, the linguistic theories that have influenced this research will be described, and in section 7.4, some previous studies on explicit syntactic teaching of complex structures of Italian will be mentioned. Later, a description of the teaching sessions will be deeply illustrated. Finally, the results of the teaching period will be presented based on N.'s performance in the second administration of the linguistic tests.

7.2 Purpose of the research and procedure

The purpose of this research is the administration of a didactic intervention based on the explicit syntactic teaching. The syntactic rules that characterize the complex structures of Italian in which N. has shown difficulties, have been taught in the didactic intervention. The sessions were organized in the following order: explicit teaching of the argument structure of the verb, of the thematic theory, and finally of syntactic movement. This study aims at verifying if this teaching method is effective in order to improve N.'s competence of Italian and, particularly, of passive and relative clauses and clitic pronouns. Indeed, as already highlighted in Chapter 6, N. has worse performances than her peers in every test.

The didactic intervention consisted in eleven meetings between N. and I carried out in a quiet room. No time limit was given to the meetings, so that N. could feel completely at ease, without time pressure. Furthermore, thanks to frequent breaks lasting 10 minutes, in which some physical activities were proposed, she could keep as focused as possible during the theoretical explanations.

The contents of the didactic intervention were administered with the support of a Power Point presentation. This helped making the project more stimulating for N. Indeed, the presentation was realized in order to be as clear, engaging, and intuitive as possible. Winsome and colourful pictures, didactic games, and clear explanations of contents helped the participant understand grammatical aspects that were too conceptual for her. Thanks to this playful approach, N. had the possibility to capture the essential concepts that were explained, in the most pleasant way.

After every theoretical explanation, practical and physical activities were introduced in order to assess N.'s comprehension of the topic and to keep her attention level as high as possible.

7.3 Basis for the explicit syntactic teaching: syntactic theories

In the following sections, the syntactic theories that represented the guide for the creation of the explicit syntactic teaching of complex linguistic structures will be presented. The sections will be divided into: argument structure of the verb, thematic theory, and syntactic movement.

7.3.1 Argument structure of verbs (Tesnière 2001)

Tesnière (2001) claims that “the verbal clause is a clause that has as central bond, the verbal bond” (Tesnière 2001: 71). The author attributes to the verb the ability of building the central nucleus of the clause, linking to itself one or more nominal elements called *attanti/actants*, according to its meaning. Therefore, the verb decides the number and the nature of the arguments that it requires, it has an argument structure. The *circostanziali/circumstantial* complements are the constituents that do not make part of the argument structure, these are not directly involved in the meaning of the verb.

Taking the argument structure into consideration, most verbs are monovalent, bivalent or trivalent. An example for each verb is shown below:

- Monovalent: *dormire*/to sleep (somebody that sleeps is needed); only one argument is necessary;
- Bivalent: *baciare*/to kiss (somebody that kisses and somebody that is kissed are needed); two arguments are necessary, one is realized in external position with respect to the verbal phrase (subject) and the other is realised in internal position (object in transitive verbs and prepositional complement in intransitive verbs);
- Trivalent: *mettere*/to put (somebody that puts something in a place is needed); a subject, an object and a third argument, namely an indirect complement, are necessary.

Furthermore, two more types of verbs exist: zerovalent verbs, that are meteorological verbs as *piovvere*/to rain and tetravalent verbs, that need 4 arguments as *tradurre*/to translate (somebody translates something from one language to another).

7.3.2 Thematic theory

The thematic theory is concerned with the semantic relationship between the arguments and the verbs. The way in which every referent takes part in the event represented in the sentence is called thematic role. Thematic roles are assigned by the verb and are classified as follows:

- Agent: somebody that intentionally causes the action expressed by the verb (Maria *lava il pavimento*/Mary cleans the floor);
- Theme: the entity passively involved in the action (*Maria lava* il pavimento/*Mary cleans the floor);*
- Experiencer: the entity that feels a psychological state expressed by the verb (Sara *odia le pesche*/*Sara hates* peaches);
- Beneficiary: the entity that benefits from the action expressed by the verb (*Tommaso regala un libro* al suo amico/*Tommaso gives a book* to his friend);
- Purpose: an action is made towards an entity (*La palla rotola* verso il fiume/*the ball rolls towards the river);*

- Instrument: the object through which the action of the verb is realised (*Selene mangia la minestra con il cucchiaino*/Selene eats the soup with the spoon);
- Locative: the location in which the action takes place (Alex è a Londra/Alex is in London).

Every argument must have an assigned thematic role. This is due to the thematic criterion (Haegeman, 1996: 45) described below:

- To each argument one and only one thematic role can be assigned;
- Each thematic role is assigned to one and only one argument.

If one of these two principles is violated, sentences are ungrammatical. For instance, **Tommaso regala ad un amico*/Tommaso gives to a friend is ungrammatical because it violates the thematic criterion: the verb should assign three thematic roles but only two arguments are present. The thematic criterion concerns the arguments of the verb only, it is not applied to the circumstantial complements that do not receive thematic role.

7.3.3 Syntactic movement

Let's consider the following examples:

106. *Margherita ha mangiato il minestrone*

Margherita has eaten the vegetable soup

Il minestrone è stato mangiato (t) da Margherita



'The vegetable soup has been eaten (t) by Margherita'

107. *Margherita ha mangiato il minestrone*

Margherita has eaten the vegetable soup

Il minestrone che Margherita ha mangiato (t) era buono



'The vegetable soup that Margherita has eaten (t) was tasty'

108. *Margherita ha mangiato il minestrone*

Margherita has eaten the vegetable soup

Margherita lo ha mangiato (t)



'Margherita has eaten it'

Different complex syntactic structures are used to convey the meaning of the active one.

The difference, as represented through the arrow, is due to the movement: indeed, after the movement, the constituent with object function (in these examples: *il minestrone*/the vegetable soup) appears dislocated with respect to the position in which it is interpreted. Therefore, these three structures have a common characteristic: a constituent leaves a trace (t) in its starting position, namely the position in which it is interpreted. The moved constituent together with its trace creates a chain.

Furthermore, the situation of the syntactic tree before movements is called deep structure: in it the base structure of the sentence is shown, and thematic roles are assigned; thematic roles remains the same after the movement. Opposite to the deep structure, there is the surface structure, namely the situation of the syntactic tree after the movements. It represents the way people pronounce phrases and sentences in the most faithful way (Cecchetto 2002: 145).

According to the syntactic structures examined in this research, an analysis of the kind of movement underlying passive clauses, relative clauses, and clitic pronouns will be exposed. The difference among the three structures is the kind of movement because

it varies according to the category to which the moved constituent belongs. The category can be a head or a maximal projection. Therefore, movements can be divided into:

- Head to head movement;
- Maximal projection movement: it can be an A movement or an A' movement.

All movement types will be deeply illustrated below in the following order: A movement (passive clauses), A' movement (relative clauses), head to head movement (clitic pronouns).

- A movement: it is also called argument movement. In this movement a maximal projection moves from a position in which it receives thematic role towards a position in which it receives case. There are four kinds of A movement, the one that regards passive clauses is the movement of the subject NP of a passive verb from the verb position to the position of Spec IP. It implies the movement of the internal argument of the verb (*il minestrone*/the vegetable soup) to the subject position. This movement is based on the grammatical condition of *case filter* according to which every explicit, phonologically realised, NP must be assigned case.

Giving that passive verbs do not assign accusative case, the internal NP cannot stay in the position in which it receives the theme thematic role and it moves into Spec IP position where it is assigned nominative case by the temporalized inflection. Let's consider the following sentence: **il minestrone è stato Margherita mangiato*/*the vegetable soup has been Margherita eaten. The ungrammaticality of the sentence is due to the fact that the internal argument of the verb cannot overcome the external argument: indeed, the main characteristic of the passive verb is that it does not have external argument in canonical position (Donati 2008). A proof of this is that in passive clauses the agent is omitted or realized as a circumstantial complement.

Consider the following image that represents movement in a passive clause:

109. *Il minestrone è stato mangiato da Margherita*

'The vegetable soup has been eaten by Margherita'

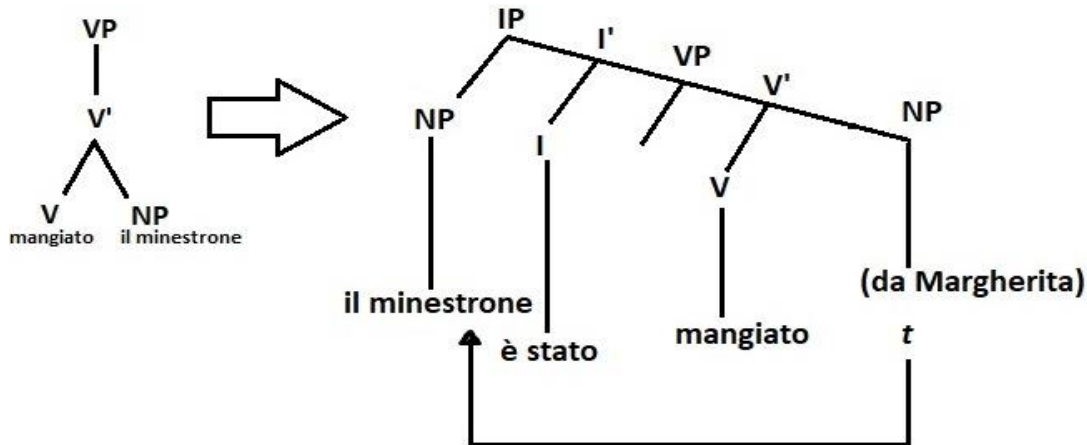


Figure 37 – A movement representation

- A' movement: it is also called non-argument movement. This movement starts in a position in which case has already been assigned. The landing position is the complementizer phrase (CP), the left periphery. Relative clauses, wh- questions and topicalized clauses are characterized by A' movement (Friedmann and Szterman 2006, Friedmann et al. 2010). It highlights the informative modality that the speaker wants to give to the sentence.

As mentioned above, relative clauses are characterized by A' movement. The main characteristics of relative clauses are the manipulation of a NP, the embedded position of a complex DP, and the presence of a complementizer that introduces it (*che*).

The starting position of the relativized constituent is marked by the trace or copy of the moved element. The verb assigns the thematic role to the trace or copy and it is then transferred to the moved element through a co-index chain.

Consider the following images that represent movement in a subject relative clause (Figure 38) and in an object relative clause (Figure 39):

110. *I lupi che (t) inseguono le pecore (SR)*

'The wolves that (t) chase the sheepPL'

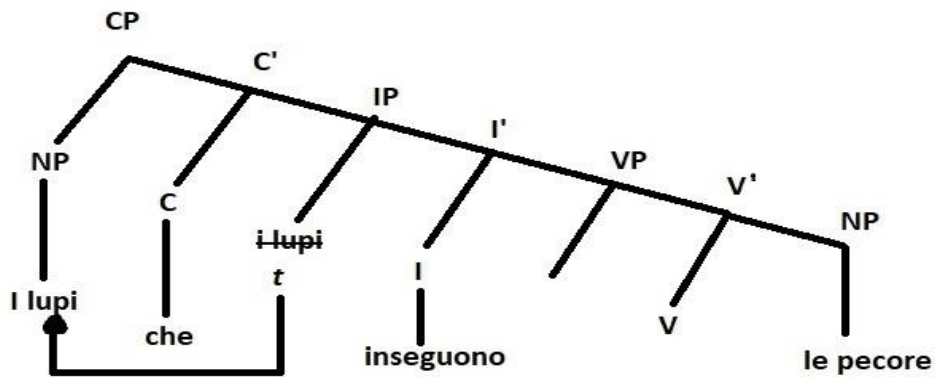


Figure 38 – Subject relative clause movement

111. *I lupi che le pecore inseguono (t) (OR)*

'The wolves that chase the sheepPL (t)'

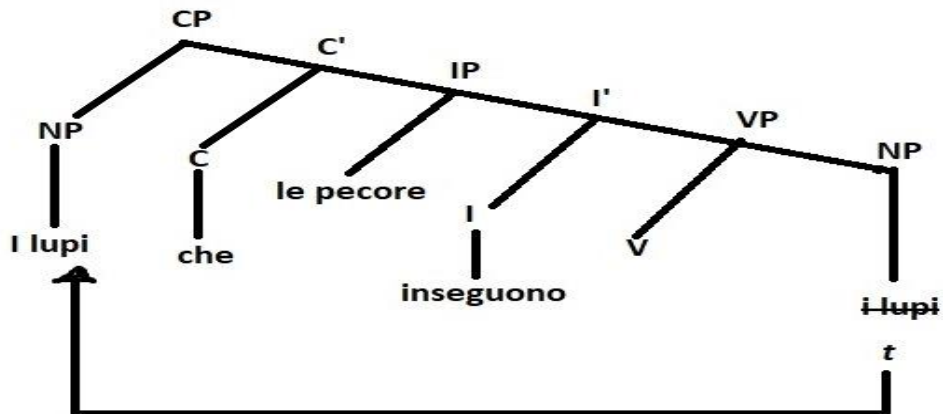


Figure 39 – Object relative clause movement

- Head to head movement: this is the movement that characterises a sentence containing clitic pronouns. A clitic pronoun is a pro-form for the N head, therefore it is a head itself. In the example below (112), the clitic pronoun, that is a pro-form for the NP *il minestrone*/the vegetable soup, moves towards the head that hosts the auxiliary verb. Since every terminal bond can only include one word, the clitic pronoun and the auxiliary verb behave like a single word and this head to head movement is called adjunction.

112. *Margherita lo ha mangiato*

'Margherita has eaten it'

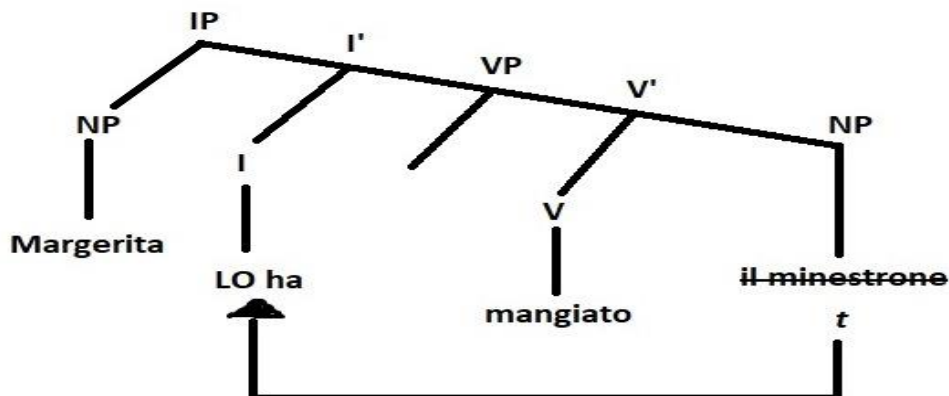


Figure 40 – movement of sentences containing clitic pronouns

7.4 Previous studies on explicit syntactic teaching

This section is devoted to the description of previous studies on explicit syntactic teaching both in typical and atypical acquisition of language. Previous research will be analysed below as these have been the basis for the creation of the present study:

- Roth (1984): this is one of the first studies on syntactic movement teaching that was carried out through implicit and explicit teaching with the purpose of improving relative clauses comprehension in typically developing children aged 42-54 months. The research was developed in two phases: firstly, sentences like *the lion that fell on the squirrel hit the hen* were split into two coordinate sentences; secondly, the sentence was pronounced together with the representation of the event with the support of two puppets. The results showed that the method was effective in order to improve relative clauses comprehension on children;
- Shapiro and Thompson (1995, 2006): in this study, a method based on syntactic movement and thematic theory teaching, both necessary for a good comprehension and production of sentences derived by A' movement, was created. The method included four main steps which are listed below:

- Comprehension and production of the thematic theory;
- NP movement towards a different position with respect to that in which it was generated;
- Production of post-movement sentences;
- Comprehension and production of sentences with non-canonical order of constituents.

The results showed great improvement in comprehension and production of relative clauses. Moreover, the treatment had positive effects also on grammatical structures that were not taught directly but that had a similar structure (Friedmann et al. 2000);

- Ebbels and Van der Lely (2001): the explicit syntactic teaching was proposed to children with receptive and expressive SLI aged 32-156 months. Passive clauses and wh- questions were the objects of the teaching. The method implied the visual codification of thematic roles, of syntactic relations characterised by dependency, of words classes and phonological markers, creating a teaching pattern similar to that of L2 learners. Results showed that considerable improvement had occurred especially on relative clauses comprehension;
- Levy and Friedmann (2009): this explicit teaching method was developed for SLI children too and was based on Shapiro and Thompson (1995), namely on a method that firstly takes the easiest structures into consideration and later increases the difficulty until reaching to the most difficult structures. The process included four sessions, with a written and an oral part: in the first one, the argument structure of the verb, and the thematic theory were taught; in the second one, the syntactic movement was taught with the support of playing cards; in the third one, verb movement was analysed; in the last one, wh- movement was analysed. Considering the fact that the teaching activities did not included interrogative clauses analysis, an improvement was detected in these structures too. Therefore, it can be confirmed that working on some problematic structures can have positive effects on the competence in other structures that were not taught but that were ruled by the same kind of movement (Friedman et al. 2000);

- D’Ortenzio (2015): In this study, the participant was to an Italian-speaking deaf child aged 8;4 with a cochlear implant. The author took inspiration from Levy and Friedmann (2009). Relative clauses comprehension and production was treated through seven sessions divided into four phases: the first phase implied the explicit teaching of the argument structure and the thematic theory, the second one implied the explicit teaching of syntactic movement, in the third one a revision of contents was made and in the fourth one all contents were summarized. Results showed that explicit syntactic teaching is very effective in deaf children too;
- Bozzolan (2016): explicit syntactic teaching activities were addressed to a sequential bilingual child. She was Romanian-Italian speaking. Two complex structures of Italian were treated in this study: passive and relative clauses. Results showed that the method was successful especially for passive clauses; relative clauses also improved but to a lower extent. Therefore, it can be claimed that explicit syntactic teaching is effective with bilinguals too.

7.5 The present research “*Impariamo ad imparare!*” (Let’s learn how to learn!)



Figure 41 – Activity proposed to the participant

The title I gave to the didactic intervention aimed at proposing to N. a great deal of activities in which she could learn how to learn and understand how to stop making

mistakes. Moreover, thanks to this title, N. immediately understood that she was not alone in this activity, that something good for her would have been created together with me. She liked this aspect of the project because she got that it was a team work rather than an individual one. The didactic intervention lasted three months and N.'s age has changed from 9;8 to 9;11 years.

This project and this teaching approach is based on previous studies on the topic: Levy and Friedmann (2009), an explicit syntactic teaching addressed to a syntactic SLI child, D'Ortenzio (2015), an explicit syntactic teaching addressed to a deaf child and Bozzolan (2016), an intervention for a sequential bilingual child. The present work has been created for N., a simultaneous bilingual child aged 9 with ADHD.

N. showed poor performances compared with her typically developing monolingual peers, in every test aimed at assessing her competence of Italian. Analysing her results in the pre-teaching testing, the following gradient of difficulty has been detected: clitic pronouns, relative clauses and passive clauses, the first structure being more preserved than the other two.

The didactic intervention was administered with the support of a Power Point presentation in order to capture N.'s maximum attention, thanks to a winsome and rich teaching program. The project was realized in order to treat the most difficult structure first, the NP movement, then treat the wh- movement, and finally the head to head movement. Considering the attention deficit and hyperactivity disorder that N. has been diagnosed with, the whole teaching material has been created in order to be as challenging, stimulating, colourful, and interactive as possible.

Moreover, to be sure that N. was paying her complete attention on the topic, each didactic unit was brief, namely lasting not more than 10 minutes consecutively, interrupted by intervals. During the breaks, which lasted around 10 minutes, some physical activities were proposed in order to help the participant let off steam and to have her maximum attention in the following 10 minutes. The activities were clearly represented on the slides, organized through a comparison with the story of Santa Claus and the elves. This metaphor was used to provide a concrete reality the participant could resort to if she did not understand anything. The activities were

composed of a theoretical part, in which grammatical rules were explained in an interactive way, asking questions to N., immediately followed by practical or physical exercises assessing comprehension of the contents of the unit. The didactic intervention has been composed of 11 afternoon sessions with no time limit, so that N. could feel completely at ease, without time pressure, and could keep as focused as possible. The meetings have been divided into 4 phases: explicit teaching of the argument structure of the verb, explicit teaching of the thematic theory, explicit teaching of the syntactic movement with emphasis on the three structures that have been investigated, final summary of all contents. The activities were carried out in a quiet room in a speech therapy office where multimedia tools were available, and activities were conducted both in and outdoors, most of the times following N.'s preferences. A copy of the Power Point presentation containing the didactic intervention has been left to the girl as to enable her to watch it and re-study it by herself every time she wants.

7.5.1 First phase – session 1: explicit teaching of the argument structure of the verb (see 7.3.1)

This phase was concluded in one session. Firstly, the story of Santa Claus and the elves was presented to N. as follows: Christmas is coming and Santa Claus cannot do all jobs alone, therefore elves have to help him in order to make all children of the world happy with their presents on Christmas Eve. Every elf has his own role in the elf's factory: one elf reads children's letters, one elf prepares gift boxes, and another elf builds toys. Thanks to the elf's hard work, to each and every role that they had and to Santa Claus' orders, everything was ready for Christmas Eve.

Secondly, N. was shown the following picture and some questions about it were asked to her:



Figure 42 – Picture used in the didactic intervention

The questions were: who is the biggest in this picture? Is Santa Claus bigger than the elves? Who called the elves to work? Who decides how many elves should work? Who decides which elves should work? Depending on the amount of work that he has to do, Santa Claus decides which and how many elves work. Then, who is the boss?

After having reflected with N. upon the topic and having verified that she had completely understood the relationships between participants, the comparison between the story of Santa Claus and the elves, and Italian was presented through the following slide:

Nella lingua italiana c'è un Babbo Natale, un capo, che si chiama VERBO. Con lui collaborano vari folletti, che si chiamano ARGOMENTI. Tutto questo lavoro ha un unico scopo, che in questo caso non è la buona riuscita del Natale, ma la buona riuscita della FRASE!

=
VERBO

=
ARGOMENTO

Figure 43 – metaphor between the story of Santa Claus and the elves

(There is a Santa Claus in Italian, namely a boss: it is the VERB. A lot of elves work with him: they are the ARGUMENTS. All this work has one only purpose, that in this case is not being ready for Christmas Eve, but creating a good sentence)

Later, another piece of the story was added: Santa Claus, according to his needs, can work alone or he can work with one, two, three or four elves. The same happens in Italian: the verb can appear alone (zerovalent), with one argument (monovalent), with two arguments (bivalent), with three arguments (trivalent) or with four arguments (tetravalent). This explanation was carried out with the following slide:





- Verbo zerovalente (0) → Babbo Natale non ha bisogno di nessun folletto
- Verbo monovalente (1) → 
- Verbo bivalente (2) → 
- Verbo trivalente (3) → 
- Verbo tetravalente (4) → 

Figure 44 – Picture used to explain zerovalent, monovalent, bivalent, trivalent, and tetravalent verbs

The image of each elf has been chosen as different as possible from the others in order to highlight the different nature of elves' work and, consequently, of arguments. Later, some examples of every kind of verb mentioned above were given and N. was constantly asked to consider how many elves worked, namely how many arguments were present in a sentence.

After the theoretical phase, an exercise was made: some Santa Claus shaped cards containing written verbs were put into a vase. N. was required to pick a card from the vase and to place the verb under the correct category (zerovalent, etc.). In order to do this, she had to utter a sentence with a specific verb and to identify how many arguments were present. She liked this activity firstly because she resorted to the story of Santa Claus whenever she wanted and it helped her a lot; secondly because after the end of the exercise, she was allowed to do one of her favourite activities, she

coloured the pictures of the elves that I gave her at one condition: she had to produce at least 2 sentences for each verbal condition.

7.5.2 Second phase – sessions 2 and 3: explicit teaching of the thematic theory (see 7.3.2)

The second phase started with a review of the contents taught in the previous session. An exercise of grammaticality judgement was proposed: N. was asked to paste the image of emoticons showing happy or unhappy faces near the sentences that were written in a poster. Moreover, if a sentence was “unhappy”, she was asked to correct it as to make it “happy”.

Later, in order to mark the different nature of arguments in Italian, other questions were asked to N. referring to Figure 42 such as: do you think elves work autonomously or does Santa Claus tell them what they have to do? If all elves do just a single job, do you think presents will be ready for Christmas Eve? Moreover, if an elf is preparing gift boxes, do you think he can simultaneously read children’s letters?

After this reflection, some important rules became clear: as in elves life, in Italian arguments have different roles and as elves cannot do two jobs at the same time, arguments cannot have two thematic roles simultaneously. The thematic Criterion was represented as follows:

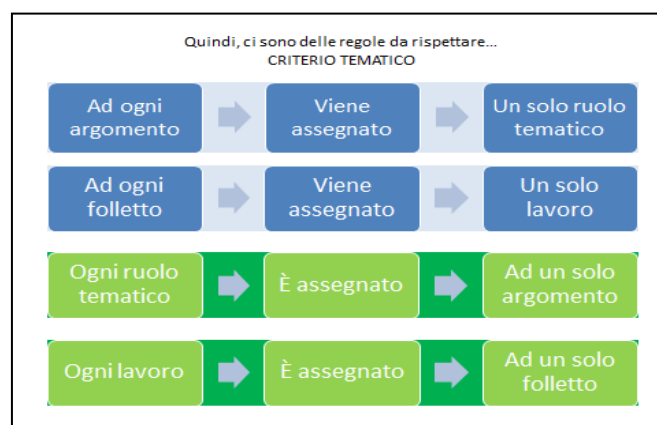


Figure 45 – Thematic Criterion presented in the didactic intervention


(There are rules to observe: thematic criterion. To every argument one and only one thematic role is assigned. To every elf one and only one job is assigned. Every thematic role is assigned to one and only one argument. Every job is assigned to one and only one elf)

A description of thematic roles was introduced theoretically, followed by sentences represented with both words and images, as to make the example as clear and immediate as possible. Each thematic role was linked to a specific image of an elf, as to assure continuity. As an example, the first slide concerning the type of thematic roles is shown below:


E quali sono questi ruoli?


- **Agente:** colui che intenzionalmente dà inizio all'azione espressa dal verbo.
- **Tema (o paziente):** l'entità interessata dall'azione o stato espressi dal verbo.

La mamma mangia la mela.



AGENTE





TEMA

Figure 46 – Slide used to explain the type of thematic roles

(Agent: the element that intentionally starts the action represented by the verb.
 Theme (or patient): the entity passively involved in the action. The mother (agent) eats an apple (theme))

After the theoretical phase, one practical and one physical exercise were proposed: firstly, N. was asked to read sentences that were written in a poster, to paste the image of the correct elf under the correct argument and then to write the name of the argument under the elf image. The exercise was successfully completed, indeed the proposed images totally helped the memorization of purposes and names of thematic roles. Secondly, an outdoor exercise was made: N. was asked to draw some squares on the ground with chalks in order to obtain the configuration to play the Hopscotch game⁷. The game has been adapted to N.'s teaching activities: the squares did not

⁷ Hopscotch is a child game in which children have to draw some squares on the ground until reaching the shape of a bell. Then somebody throws a small stone onto the specific square they want to hop to and they pick the stone up once reached the desired square. Square by square children go through the whole configuration and then they do it again with the opposite leg (<http://ctac.esrc.unimelb.edu.au/biogs/E000129b.htm> - 04/02/18).

contained numbers, but names of thematic roles, and each square was drawn with a different colour as to differentiate thematic roles. Later, N. picked a Santa Claus shaped card containing a verb from a vase and she was asked to produce a sentence with correct thematic roles. If the sentence was ok, music started, and she was allowed to hop on the squares that contained the thematic roles she used in the sentence. N. had fun doing this activity and it was less difficult for her to produce correct sentences and hop on right thematic roles than I expected.

7.5.3 Third phase – sessions 4 - 10: explicit teaching of the syntactic movement with emphasis on the three structures that have been investigated (see 7.3.3)

The third phase was carried out for 7 sessions. The first session of the third phase started with a review of the previous contents. Later, one of the sentences produced by N. was used as an example for structuring other three sentences, with same constituents but different communication purposes. The sentence “*Mia sorella Yustra ha mangiato il minestrone/My sister Yustra has eaten the vegetable soup*” was taken into account and transformed into a passive clause, a relative clause, and a clause with a clitic pronoun. The active sentence together with the three new structures were presented in a slide; after the presentation some questions were asked to N.:

- in these sentences, is the word order the same of the active one or is it different?
- In these sentences, are there new words or missing words?

After a first theoretical analysis, some slides representing the movement that characterises each investigated structure were presented. N. was stimulated by the introductive exclamation “Elves are always moving! They never stop!”. The slides representing all movements are shown below:

I folletti non stanno mai fermi!!!

1. Mia sorella Yustra ha mangiato il minestrone.

Il minestrone è stato mangiato t da mia sorella Yustra.

Figure 47 – slide used to represent movement in a passive clause (Elves are always moving! 1. My sister Yustra has eaten the vegetable soup. The vegetable soup has been eaten by my sister Yustra)

2. Mia sorella Yustra ha mangiato il minestrone.

Il minestrone che mia sorella Yustra ha mangiato t era buono.

Figure 48 - slide used to represent movement in a relative clause (2. My sister Yustra has eaten the vegetable soup. The vegetable soup that my sister Yustra has eaten was tasty.)



Figure 49 - slide used to represent movement in a sentence with a clitic pronoun

(3. My sister Yustra has eaten the vegetable soup. My sister Yustra has eaten it)

During the explanation of syntactic movement, the words “trace”, “chain”, “deep structure” and “surface structures” were used. Later, the three structures with corresponding movements were shown in the same slide and a comparison among them was made through the following questions: Which elf, namely the trace, walked a great distance? Which elf, namely the trace, walked a small distance? N. understood the theoretical part, without too much effort, as she resorted to the images of Santa and the elves to get the point. However, even though she got that elves and arguments move in the sentences, some aspects remained nebulous for her.

Therefore, to emphasise the concept of movement, I resorted to the *filling the gap* method (Miller 2011; 2013): “Processing a filler-gap dependency involves not only the computation of a movement chain but also the activation of the referent of the filler. Furthermore, there is a crucial interaction between the two systems: encountering the trace of a moved wh- expression triggers reactivation of the referent” (Miller 2011: 1). It has been proved that trace reactivation tasks with the support of images of the moved constituents are useful in order to clearly show the structural representation during the elaboration of complex sentences, especially in L2 learners. Therefore, the gap stands for the starting position of the moved constituent which is represented by its image, not by words. In this trail, a vegetable soup was represented while going

from its starting position to its landing position. The materials that were used for the purpose are shown below. N. was asked to read the sentences out loud, pronouncing the word corresponding to the image every time the image was shown, excluding when it appeared between brackets.

1. *Mia sorella Yustra ha mangiato il minestrone*


Mia sorella Yustra ha mangiato il 



 è stato mangiato  da mia sorella Yustra

Il minestrone è stato mangiato  da mia sorella Yustra

Figure 50 - trace reactivation tasks with the support of images for passive clauses (1. My sister Yustra has eaten the vegetable soup. My sister Yustra has eaten [the vegetable soup]. [the vegetable soup] has been eaten [the vegetable soup] by my sister Yustra. The vegetable soup has been eaten [the vegetable soup] by my sister Yustra)

2. *Mia sorella Yustra ha mangiato il minestrone*

Mia sorella Yustra ha mangiato il 

 che mia sorella Yustra ha mangiato  era buono


Il minestrone che mia sorella Yustra ha mangiato  era buono

Figure 51 - trace reactivation tasks with the support of images for relative clauses (1. My sister Yustra has eaten the vegetable soup. My sister Yustra has eaten [the vegetable soup]. [the vegetable soup] that my sister Yustra has eaten [the vegetable soup] was tasty. The vegetable soup that my sister Yustra has eaten [the vegetable soup] was tasty)

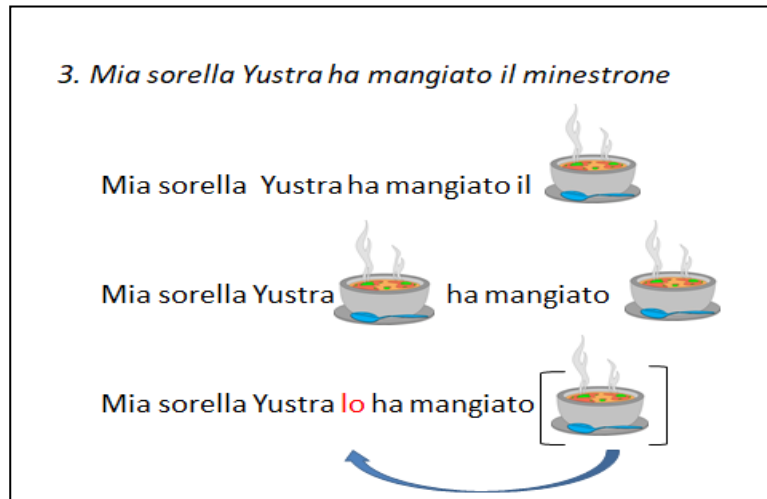


Figure 52 - trace reactivation tasks with the support of images sentences with a clitic pronoun

(3. My sister Yustra has eaten the vegetable soup. My sister Yustra has eaten [the vegetable soup]. My sister Yustra [the vegetable soup] has eaten [the vegetable soup]. My sister Yustra (clitic) has eaten [the vegetable soup])

The filling the gap method was very successful, N. understood the aspects that she was not getting in examples without the image of the soup. She clearly identified the position of the trace and she was able to figure out when the word (image) was not supposed to be pronounced. Moreover, she resorted to the arrow

in the last sentences of every slide, following it with her finger, as to show that she was not pronouncing the equivalent word for the image in brackets because she had already pronounced it in its correct position in the surface structure.

The following sessions were devoted to the specific analysis of the movements of each investigated structure.

The fifth session started with a review of contents through a practical exercise in which N. was asked to analyse a given sentence, to transform it in the three possible structures that were analysed in sessions 4 and to paste the image of the Lion King in the correct position (slides showing the exercises with the vegetable soup were visually available). Finally, she was asked to draw an arrow to represent the chain between the image of the Lion King and the position in which it was pronounced in the surface structure.

Passive clauses were the first in depth analysed structures as N. had shown great difficulties in the administered tests on passive clauses comprehension and production.

The introducing exercise consisted in the presentation of pictures representing actions (Figure 53), that N. was asked to describe with an active sentence and to write it in a poster. After having written the sentences, N. had to paste either the image of the elf representing the *agent* or the *theme* under the correct constituent.

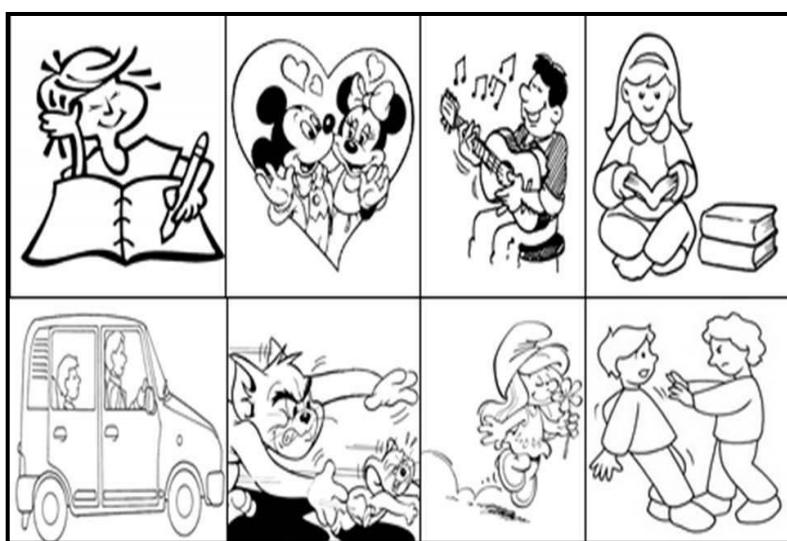


Figure 53 – Picture representing actions that the participant was asked to describe with an active sentence

Later, she was required to transform the sentences she had written into sentences beginning with the constituent corresponding to the thematic role *theme*. In order to do this, an analysis of passive clauses movement was done through the following slides:

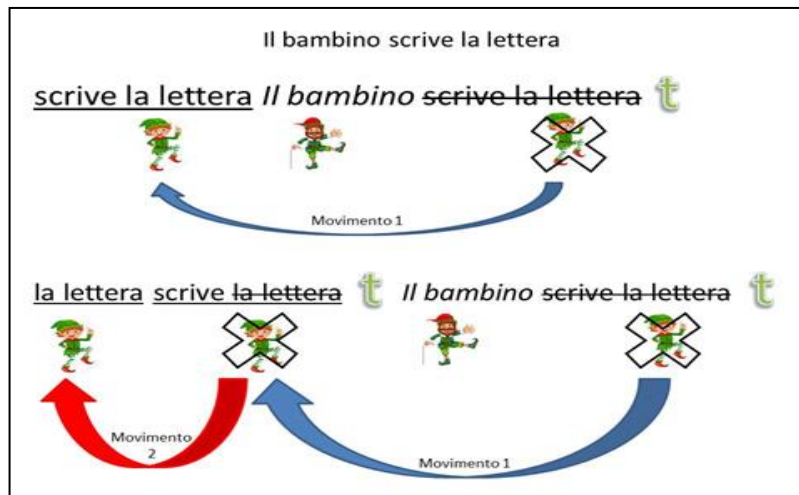


Figure 54 – passive clause movements
(The child writes a letter)

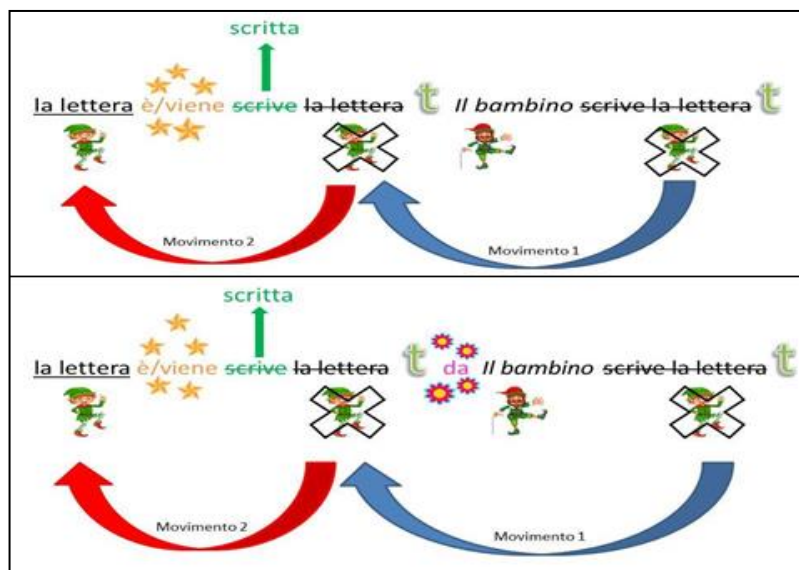


Figure 55 – passive clause movements

This activity has not been easy for N. as strong attention is required in order to understand all processes a sentence pass through to become a passive clause; however, colours, arrows, crosses, and images were definitely useful to keep her motivated and, although she showed difficulties at the beginning, the child completely understood the task and correctly transformed all sentences. All slides were visually available to N. if she needed a reference. After the exercise, a slide with the summary of what had been treated during the session was provided to N.; it is shown below:

Riassumiamo...

Per costruire una frase passiva ci vogliono:

- Movimento 1
- Movimento 2
- Parola magica è/viene
- Parola magica da



Figure 56 – Summary of the contents of the session

(Let's summarise! In order to produce a passive clause some ingredients are necessary: movement 1, movement 2, magic word *is/come*, magic word *by*)

The sixth session started with a review of the previous contents. Later, intransitive verbs and passive clauses were analysed. I asked N. to produce a passive clause with some intransitive verbs that we worked on as *nuotare/to swim* and *dormire/to sleep*; she obviously could not do this and she smartly observed that the verbs she was just using had a constituent for the elf *agent*, but there was not an elf *theme*. Consequently, she understood that passive clauses cannot be created with intransitive verbs. Later, the *freezing* game has been made in order to assess passive clauses production. N. was allowed to dance with music as long as she wanted, but she had to pay attention as the music could stop in every moment and she had to remain immobile; I told her a verb with which she had to produce a passive clause. If she produced a good sentence, then the music started again, and she was allowed to dance, otherwise she had to keep immobile for a minute. In this exercise, the reward strategy was used (see 2.3.1.1). Children with ADHD are more likely to pay attention and to behave conveniently if they know that after or during the activity they will be rewarded.

The seventh session was devoted to the explanation of subject relative clauses.

A completion task was provided: N. listened to a song and she had to fill gaps with the missing word *che*. Later, movement of a SR was presented through the following slide:

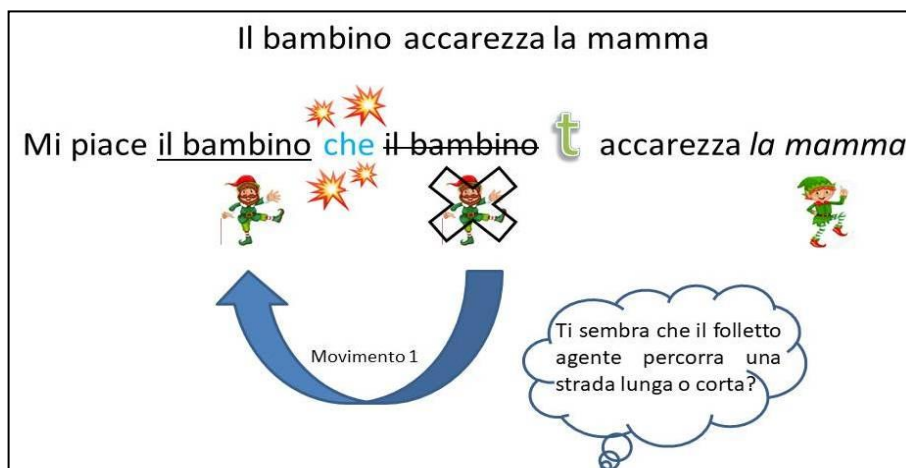


Figure 57 – subject relative clause movement

(The child hugs the mother. Do you think the elf *agent* is going through a short or a long way?)

After the analysis of the movement occurring in subject relative clauses, the freezing game was done in order to assess comprehension.

The eighth session was devoted to object relative clauses movement. It was represented through the following slide:

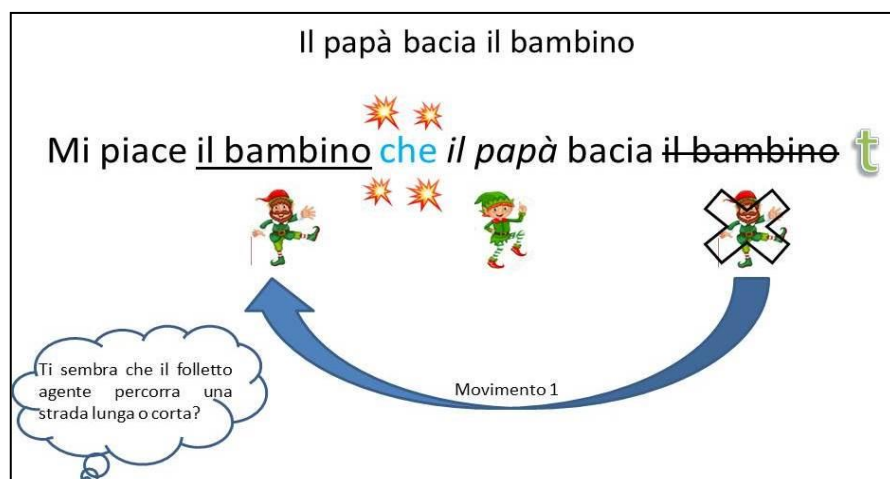


Figure 58 – object relative clause movement

(The father kisses the child. Do you think the elf *agent* is going through a short or a long way?)

After the analysis of object relative clauses movement, the freezing game was done in order to assess comprehension. Finally, a slide with the summary of what was treated during the last two sessions was provided to N.; it is shown below:

Riassumiamo...

Per costruire una frase relativa sul <i>soggetto</i> ci vogliono:	Per costruire una frase relativa sull' <i>oggetto</i> ci vogliono:
<ul style="list-style-type: none">• Movimento corto• Parola magica <i>che</i>	<ul style="list-style-type: none">• Movimento lungo• Parola magica <i>che</i>




Figure 59 – summary of the contents of the session

(Let's summarise! In order to produce a subject relative clause a short movement and the magic word *che*/that are necessary; in order to produce an object relative clause a long movement and the magic word *che*/that are necessary)

The ninth session was devoted to exercises aimed at improving relative clauses comprehension. All exercises included games, challenges and rewards. N. completely understood the contents of the sessions and did not show evident problems in the use of relative clauses during the above-mentioned exercises.

The tenth session was devoted to explaining the movement occurring in sentences containing clitic pronouns. An exercise was proposed, in which N. had to look at some images and to fill the gap with the correct clitic pronoun (*lo, la, li, reflexive si*) in the sentence reported below. Afterwards, movement of a clitic pronoun was presented through the following slide:



Figure 60 – movement of sentences with a clitic pronoun
(The baby girl hugs the dog)

After the analysis of a clitic pronoun movement, the freezing game was done, consisting in the elicitation of sentences with reflexive and direct object clitics. As it can be seen, the freezing game was proposed for all three analysed structures because it was incisive, stimulating, and effective. Moreover, I chose it to give a sort of continuity among the sessions belonging to the third phase, as N. could associate a specific exercise with a specific phase of the teaching process.

Later, a slide with the summary of what was treated during the session was provided to N.; it is shown below:



Figure 61 - summary of the contents of the session
(Let's summarise! In order to produce a sentence with a clitic pronoun one movement and the right word among *lo, la, li, le* are necessary)

To conclude the session, as N. showed good competence of clitic pronouns, a more difficult exercise was proposed to her. Some pictures representing actions carried out by Peppa Pig, one of N.'s favourite cartoon, were given to her; she had to ask a question regarding the represented scene that required an answer containing a clitic pronoun. The exercise was not easy at all: she had to produce a question, which is another complex structure of Italian, as it is characterized by the movement of a wh-element towards the Spec CP position, an A' position and therefore the structure is characterized by A' movement; not only did she had to produce a question but also the question had to elicit an answer with a clitic pronoun. The activity was really appreciated by N., who had fun creating bizarre questions regarding her favourite cartoon characters.

7.5.4 Fourth phase – session 11: final check of the contents

The eleventh session belonged to the last phase and consisted in the preparation of a big game aimed at summarizing all the contents that were treated during the meetings. A treasure hunt was prepared for N. I thought this was the game that mostly embodied all characteristics that a game needs to have to keep N. concentrated: being physically active, requiring high levels of concentration in a limited and short time, providing rewards.

N. was guided through the treasure hunt both in and outdoors, in the same places in which the previous activities took place, as to make the activity as familiar as possible: in every note that she found, clues to find the following note were given, but to proceed with the game she had to answer the question that was written in the note.

Questions regarded all contents of the teaching process and were asked following the same order in which contents were presented in the sessions. Firstly, questions concerning the argument structure of the verb and the thematic theory were asked. Secondly, questions regarding movement of the investigated structures were asked. Finally, through the analysis of some given sentences, N. was asked to talk about all topics treated during the teaching process that could be linked to the given sentence.

This was the most satisfactory activity both for N. and for me. N. had fun and was willing to pay attention to the questions because she wanted to discover the following clue. This activity was totally engaging for her. Moreover, thanks to the comparison with elves, she rarely got a question wrong: as most children with ADHD, she had the tendency of answering quickly and superficially, most of the times without having finished to read the question; however, as soon as she realised that her answer was not satisfactory in order to proceed with the game, she paid more attention and she answered correctly. While trying to answer the questions, N. often resorted to the metaphor of Santa Claus and the elves. It helped her thinking and giving the right answer. Moreover, when questions about the movements of the analysed structures were asked, she marked the shape of an arrow, namely the chain, with her right hand index finger on her left hand. Therefore, the representations of the arrows during the movements explication were effective and she imagined the arrows while deriving complex structures. I was completely satisfied by the results she showed me during the last session.

7.6 Post-teaching tests results

In this section, post teaching results of the tests will be shown. This second administration of the tests were carried out when N. was 9;11. Tests were administered in four sessions: in the first one, the TROG-2 test, in the second one, passive clauses production and comprehension tests, in the third one relative clauses production and comprehension tests, and in the fourth one, clitic pronouns production.

7.6.1 Post-teaching results in the TROG-2

Table 23 (p.160) shows the post-teaching results of TROG-2 in comparison to those of the pre-teaching administration. According to normative data collected by Suraniti et al. (2009), typically developing children with N.'s chronological age pass 14 blocks out of 20. Therefore, in this second administration N. has a performance that is more similar to that of her peers with respect to the first administration.

	Pre-teaching TROG-2 administration		Post-teaching TROG-2 administration	
	Correct answers	58/80	73%	73/80
Wrong answers	22/80	27%	7/80	8,75%
Total blocks passed	8/20	40%	13/20	65%
Standard score	67		92	
Percentile	1		30	
Equivalent linguistic age	5;8		8;5	

Table 23 – pre-teaching results in the TROG-2 compared with post-teaching results

As far as the number of items that N. asked to repeat, 10 sentences (12,5%) were proposed twice: normative data show that 5% of participants have asked for 8 repetitions (soft anomaly), 1% of participant have asked for 12 repetitions (serious anomaly). N. places herself between a soft and a serious anomaly surely linked with her attention deficit disorder. However, in the first administration she asked for 15 repetitions (19%), therefore a slight improvement has been noticed. Actually, the level of her attention had just slightly increased during the 6 months in which the teaching experience has been carried out, thanks to the modification of the setting according to N.'s needs. Therefore, improvement may be attributed to her knowledge of grammatical structures. However, it seems risky to completely affirm this, because improvement may be attributed to developmental phenomena, since from the first and the second administrations of the tests her age has changed from 9;6 to 9;11.

As the authors suggest, if a participant makes mistakes in blocks A, D and F then problems in comprehension are due to non-grammatical features of language. As for N., she passed all these blocks in the second administration too, therefore difficulties with non-grammatical features can be excluded. As a consequence, if other blocks are not passed by N., the problem has to be related to grammatical comprehension.

Considering now the blocks including lexical distractors (A, B, D, E, F, J, K), she passed all blocks apart from block K, differently from the first administration in which she failed in block J and K; according to the authors, a person with hearing impairment or

with attention deficit may choose the picture in which the lexical distractor is represented instead of the target one. Indeed, this is the error pattern that N. makes in block K.

Furthermore, it is interesting to consider the kind and number of mistakes that N. makes. In the second administration, error patterns detected in the first administration disappeared. A sporadic error pattern has characterised her second performance, namely one wrong answer prevented her from passing the block.

Considering the fact that N. passed 13 blocks out of 20, the authors suggest to count the number of errors in the last 5 blocks (P, Q, R, S, T). She made 2 mistakes out of 20 administered items, therefore it can be claimed that her performance is better than a performance based on chance, because she did not answer randomly. Actually, it can be considered a sporadic error pattern, and this suggests that an elaboration problem is present. This data were observed in 98,1% of subjects with N.'s chronological and linguistic age. When facing complex grammatical structures, typically developing children make mistakes that are not due to a lack in grammatical competence but rather to limits in the elaboration of sentences.

In conclusion, even though N.' performance (13/20, 65%) is worse than the one of her peers (14/20, 70%), she shows an error pattern in the last 5 blocks that is in line with that of typically developing children, therefore, her mistakes are probably related to limits in the elaboration of sentences due to the attention deficit disorder. Moreover, her performance has definitely improved with respect to the first administration. As stated above, the level of her attention had just slightly increased during the 6 months in which the teaching experience has been carried out, even though the exercises that were prepared for her, helped her a lot in concentrating more; therefore the improvement may be attributed to her knowledge of grammatical structures.

7.6.2 Post-teaching results in the passive clauses production test

Results of the post-teaching passive clauses production test are shown in Table 24 (see Appendix 4 for a complete list of productions). N. refused answering two items

because she considered them inappropriate for their meaning, therefore they will be excluded by the count. The two excluded items are shown below:

- *Nella prima foto Sara prende a calci Marco. Nella seconda Sara prende a calci la mamma.*

Cosa succede alla mamma?

La mamma è/viene presa a calci (da Sara)

‘In the first picture, Sara kicks Marco. In the second one, Sara kicks the mother. What happens to the mother?’

The mother is kicked by Sara’;

- *Nella prima foto il papà sente Marco. Nella seconda Sara annusa Marco. Cosa succede a Marco nella seconda foto?*

Marco è/viene annusato da Sara

‘In the first picture, the father hears Marco. In the second one, Sara smells Marco.

What happens to Marco in the second picture?’

Marco is smelled by Sara’.

In table 24, pre-teaching results are compared with post-teaching results. As it will be seen, 4 non-target answers have been given; 3 of these were SVO sentences and 1 of these was a totally different sentence with respect to the elicited one (see Table 26).

	Target	Target with verb change into an actional one	Other
S1 pre-teaching	4/22	1/22	0/5
	18%	4,5%	0%
S1 post-teaching	14/22	4/22	4/22
	64%	18%	18%

Table 24 - pre-teaching results are compared with post-teaching results of passive clauses production

As it can be seen in Table 24, there has been a considerable improvement in passive clauses production (pre-teaching test: 23% of accuracy, namely 18% of target productions and 4,5% of target productions with verb change; post-teaching test: 82%

of accuracy, namely 63% of target productions and 18% of target productions with verb change).

Considering the total number of productions, it is worth presenting the analysis regarding the kind of verb that has been used. Consider the following table:

	Actional	Non actional	Target with verb change into an actional one
S1 pre-teaching	4/5	0/5	1/5
	80%	0%	20%
S1 post-teaching	10/12	4/12	4/12
	83%	33%	33%
Control group	50/87	35/87	2/87
	57%	40%	2%

Table 25 – kind of verb used in pre-teaching and post-teaching production of passive clauses

Both actional and especially non-actional verb, that were completely absent in N.'s productions, have been produced more frequently with respect to the first administration; however, a clear preference for actional verbs keeps characterising N.'s performance. She produced 10 actional verbs and only 4 non-actional verbs and in 4 items she changed a non-actional verb in favour of an actional one (in the first administration she only changed 1 non-actional verb into an actional one).

Moreover, an analysis of all variables characterising passive clauses is showed in table 26:

	By-phrase	Actional verb		Non-actional verb		Verb change into actional	
		Essere	Venire	Essere	Venire	Essere	Venire
S1 N. pre-teaching	Present	3/5	1/5	0/5	0/5	0/5	1/5
	Omitted	0/5	0/5	0/5	0/5	0/5	0/5
S1 N. post-teaching	Present	7/22	3/22	3/22	1/11	2/22	2/22
	Omitted	0/22	0/22	0/22	0/22	0/22	0/22
Control group	Present	8/87	40/87	3/87	29/87	0/87	2/87
	Omitted	0/87	2/87	1/87	2/87	0/87	0/87

Table 26 – pre-teaching and post-teaching productions considering all variables that characterise passive clauses

As far as the use of auxiliary verbs is concerned, the slight higher preference for the auxiliary verb *essere*/to be that was detected in the first administration is confirmed in the second one, even more clearly. Moreover, by-phrases are always produced, even when they are not necessary.

Finally, the following table shows the answering strategies.

Answer strategies						
	S1 N. pre-teaching		S1 N. post-teaching		Control group	
Target <i>La mamma è/viene spinta da Marco.</i> The mother is pushed by Marco.	5/22	18%	18/22	82%	87/96	91%
SVO <i>Marco ama Sara</i> Marco loves Sara.	9/22	41%	3/22	14%	5/96	5%
SVO with reversed thematic roles <i>Sara imbocca Marco.</i> Sara feeds Marco.	3/22	14%	0/22	0%	2/96	2%
SVO with a non-target verb <i>Il papà parla ad alta voce con Marco</i> The father speaks out loud with Marco	4/22	18%	0/22	0%	2/96	2%
Other <i>Sara sa di pesce</i> Sara smells of fish	1/22	5%	1/22	4,5%	0/96	0%

Table 27 – pre-teaching and post-teaching answering strategies in passive clauses production

With regards to alternative strategies of answer, N. does not produce SVO sentences with reversed thematic roles anymore. This demonstrates that she has developed good competence concerning the assignment of thematic roles. She produced 3 SVO sentences out of 22 (first administration: 9/22); this error pattern is also committed by typically developing children. As stated in 6.3.3.3, it may be due to the fact that some pictures of the test are not very effective in eliciting a passive clause, creating a high probability of active clauses occurrence.

7.6.3 Post teaching passive clauses comprehension test

Results of post-teaching passive clauses comprehension test will be showed in table 28:

Comprehension of passive clauses						
	S1 N. – pre-teaching	%	S1 N. – post-teaching	%	Controlli totali	%
Actional verb-essere	3/6	50%	5/6	83%	23/24	95%
Actional verb-venire	4/6	67%	6/6	100%	24/24	100%
Actional verb-essere-by phrase	5/6	83%	5/6	83%	24/24	100%
Actional verb-venire-by phrase	3/6	50%	6/6	100%	24/24	100%
Non-actional verb-essere	2/4	50%	3/4	75%	12/16	75%
Non-actional verb-venire	1/4	25%	4/4	100%	13/16	81%
Non actional-essere-by phrase	2/4	50%	3/4	75%	14/16	88%
Non actional-venire-by phrase	1/4	25%	4/4	100%	15/16	93%
Total	21/40	53%	36/40	90%	149/160	93%

Table 28 – numbers and percentages of passive clauses comprehension in pre-teaching and post-teaching administration

The comprehension of passive clauses has improved a lot after the didactic intervention: N. shows a percentage of accuracy of 90% (pre-teaching test: 53%); her result is really similar to that of her peers. Most mistakes have been made when the auxiliary verb *essere*/to be was included in the sentence. Interestingly, in N.'s production of passive clauses, most sentences are created with the auxiliary verb *essere*/to be, and more rarely is the auxiliary verb *venire*/to come used. However, in N.'s comprehension of passive clauses, she showed a preference for sentences including the auxiliary verb *venire*/to come rather than *essere*/to be. The use of auxiliary verb *essere*/to be is contradictory compared with data collected by Volpato et al. (2015) and Manetti (2013): children have better performances if the passive clause contains auxiliary verb *venire*/to come. This suggests that children's passive clauses

would actually be verbal rather than adjectival ones. Furthermore, children generally tend to use a colloquial register as much as possible: the auxiliary verb *venire*/to come is less formal than *essere*/to be in Italian (Volpato et al. 2015). N.'s performance differs from those of her peers.

Thanks to the binomial distribution statistical analysis, the identification of the types of sentences in which N.'s performance is above the chance level has been possible. In order to perform above chance level, a child should answer correctly at least in 5 out of 6 items with actional verbs and 4 out of 4 items with non actional verbs. Unlike the first administration, the participant performs above chance level in all examined structures, a part from sentences with non actional verbs and auxiliary *essere*/to be both with or without by-phrase.

7.6.4 Post teaching results in the relative clauses production test

The results of post-teaching relative clauses production test are shown in table 29 (see Appendix 5 for a complete list of the productions):

Quantitative analysis of relative clauses production								
	SRs – pre-teaching	%	SRs – post-teaching	%	ORs – pre-teaching	%	ORs – post-teaching	%
S1	11/12	92%	12/12	100%	1/12	8%	10/12	83%
N.								
S2	12/12	100%	12/12	100%	4/12	33%	4/12	33%
S3	12/12	100%	12/12	100%	2/12	17%	2/12	17%
S4	12/12	100%	12/12	100%	4/12	33%	4/12	33%
S5	12/12	100%	12/12	100%	2/12	17%	2/12	17%
S1	11/12	92%	12/12	100%	1/12	8%	10/12	83%
N.								
C.g.	48/48	100%	48/48	100%	12/48	25%	12/48	25%

Table 29 - pre-teaching results are compared with post-teaching results of relative clauses production

In the second administration, N. has produced all SRs and 10 ORs out of 12 (first administration: SRs – 11/12; ORs – 1/12). Therefore, a marked improvement is found

in her productions. Her performance in ORs has been better than that of her peers that have not been exposed to the didactic intervention. Moreover, it has been very engaging to see N. marking the shape of an arrow, namely the chain, with her right hand index finger on her left hand, demonstrating that she was thinking about the movement studied in the didactic intervention.

A table showing alternative strategies used by N. and the control group is represented below:

Answering strategies in ORs – post-teaching results										
	S1 N.	S2	S3	S4	S5		S1 N.	%	C.g.	%
Target OR	10/12	4/12	2/12	4/12	2/12		10/12	83%	12/48	25%
ORp	0/12	0/12	0/12	0/12	0/12		0/12	0%	0/48	0%
Passive OR	0/12	1/12	1/12	0/12	0/12		0/12	0%	2/48	4%
Reduced passive OR	0/12	1/12	0/12	0/12	0/12		0/12	0%	1/48	2%
OR with a clitic pronoun	0/12	4/12	6/12	3/12	6/12		0/12	0%	19/48	40%
OR>SR with thematic roles inversion	0/12	0/12	0/12	0/12	1/12		0/12	0%	1/48	2%
Relative without head and with a full DP object	0/12	0/12	0/12	0/12	0/12		0/12	0%	0/48	0%
OR>SR with inversion of the head of the relative	0/12	0/12	0/12	0/12	0/12		0/12	0%	0/48	0%
Object doubling	2/12	2/12	3/12	5/12	3/12		2/12	17%	13/48	27%
Incomplete: the theme is absent	0/12	0/12	0/12	0/12	0/12		0/12	0%	0/48	0%

Table 30 - answering strategies of object relative clauses production in post-teaching administration

The most interesting result has been the change of alternative strategies of answers. In the first administration N. showed a confused and disjointed pattern of strategies (see

6.3.5.3), while in the second administration, she only produced two non-target answers and both of them consisted on object doubling. This strategy confirms that correct movement has taken place in N.'s answer even though a *copy + no deletion* process is found (Belletti 2005), namely the object full DP is pronounced.

7.6.5 Post teaching results in the relative clauses comprehension test

The results of post-teaching relative clauses comprehension test are shown in table 31:

Comprehension test of relative clauses						
	S1 N. – pre- teaching	%	S1 N. – post- teaching	%	Control group	%
AMB_SG_S G	6/6	100%	6/6	100%	24/24	100%
AMB_PL_PL	6/6	100%	6/6	100%	24/24	100%
Mean of AMB	12/12	100%	12/12	100%	48/48	100%
SR_SG_PL	5/6	83%	6/6	100%	24/24	100%
SR_PL_SG	4/6	67%	6/6	100%	24/24	100%
Mean of SR	9/12	75%	12/12	100%	48/48	100%
OR_SG_SG	0/6	0%	5/6	83%	21/24	88%
OR_PL_PL	2/6	33%	5/6	83%	22/24	92%
OR_SG_PL	4/6	67%	6/6	100%	23/24	96%
OR_PL_SG	2/6	33%	5/6	83%	21/24	88%
Mean of OR	8/24	33%	21/24	88%	87/96	91%
ORp_SG_PL	1/6	17%	4/6	67%	19/24	79%
ORp_PL_SG	1/6	17%	3/6	50%	18/24	75%
Mean of ORp	2/12	17%	7/12	58%	37/48	77%
Total	31/60	52%	52/60	87%	220/240	92%

Table 31 - numbers and percentages of relative clauses comprehension in pre-teaching and post-teaching administration

As for the production test, N.'s performance on comprehension has massively improved too. SRs comprehension was good in the first administration and has become excellent in the second administration; N. has places herself at her peers' level. With regards to ORs, percentages of accuracy have varied from 33% to 88%: the second administration shows that N. has reached an accuracy level that is really similar

to that of her peers (91%). Actually, a different pattern of answer was expected. With reference to the production test, in which N. produced more ORs than her peers, I expected that she would comprehend more ORs than her peers, considering that she was exposed to the didactic intervention and her peers have not. I assume that her attention deficit may have influenced her performance, as ORs are demanding for the computational system and require close attention to be analysed correctly. The performance in ORps also has improved, even though N. (58%) still places herself below her peers' level (77%). However, the general improvement is remarkable as the total percentage of accuracy has varied from 52% to 87%.

Thanks to the binomial distribution statistical analysis, the identification of the types of sentences in which N.'s performance is above the chance level has been possible. In order to perform above chance level, a child should answer correctly at least in 4 out of 6 items in all types of sentences, a part from ambiguous sentences in which 6 out of 6 correct answers should be given. Unlike the first administration, the participant performs above chance level in all sentences, a part from ORps with mismatch condition PL_SG.

7.6.6 Post teaching results in clitic pronouns production test

The results of post-teaching clitic pronouns production test are shown in tables 32-33 (see appendix 6 for a detailed presentation of the productions).

Direct object clitic						
	Target	%	Full DP	%	Omission	%
S1 N. pre-teaching	12/17	70%	3/17	18%	2/17	12%
S1 N. post-teaching	15/17	88%	2/17	12%	0/17	0%
Control group	65/68	96%	3/68	4%	0/68	0%

Table 32 - pre-teaching and post-teaching results of direct object clitic pronouns production

Reflexive clitic pronoun						
	Target	%	Full DP	%	Omission	%
S1 N. pre-teaching	4/6	66%	0/6	0%	2/6	34%
S1 N. post-teaching	6/6	100%	0/6	0%	0/6	0%
Control group	24/24	100%	0/24	0%	0/6	0%

Table 33 - pre-teaching results are compared with post-teaching results of reflexive clitic pronouns production

As it can be seen from the results, after the didactic intervention, N's shows better performances on both direct object clitics (pre-teaching: 70%; post-teaching: 88%) and reflexive clitic pronouns (pre-teaching: 66%; post-teaching: 100%). Her results are comparable to those of the control group in the use of reflexive clitic pronouns, while she places below the level of the control group in the use of direct object clitic pronouns. However, comparing N.'s performance between the first and the second administration, it is evident that not only did the production of target sentences increase, but also she changed her alternative strategies of answer; indeed, she did not produce sentences with omission of clitic at all, and in the two non-target answers she produced a full DP that does not lead to an ungrammatical sentence, it rather creates simpler and more redundant sentences compared with those with a clitic pronoun. This strategy proves that competence of the argument properties of the verb does exist, but that an incomplete syntactic competence does not allow for the production of complex sentences with a clitic pronoun. In fact, in order to use a full DP in argument position after the verb, the computational load is less onerous than that needed to use a clitic pronoun. I assume that, having her general competence of pronouns improved a lot, the errors that she made may be due to a lack of attention and concentration: when her level of attention decreased, instead of asking to repeat the question and controlling the impulse of giving hurried and impulsive answers, she tried to answer anyway using the simplest form, thus choosing an active sentence with SVO word order.

7.7 Concluding remarks

In this Chapter an in-depth analysis of the didactic intervention that has been administered to a bilingual Arabic-Italian speaking girl aged 9 with ADHD has been carried out. A summary of all characteristic of the linguistic project is given in table 34.

<i>Impariamo ad imparare! (Let's learn how to learn)</i>	
Participants	1 bilingual Arabic-Italian speaking girl aged 9 with ADHD Control group: 4 typically developing children aged 9
Investigated structures	Passive clauses Relative clauses Clitic pronouns
Tests	<i>TROG-2: Test for reception of grammar – 2nd version (Bishop 2009)</i> Production and comprehension test of passive clauses (Verin, 2010) Production and comprehension test of relative clauses (Volpato 2010) Production test of clitic direct object clitics and reflexive clitic pronouns (Arosio et al., 2014).
Didactic intervention	Phase 1: explicit teaching of the argumental structure of the verb Phase 2: explicit teaching of the thematic theory Phase 3: explicit teaching of the syntactic movement with emphasis on the three structures that have been investigated Phase 4: final check of the contents
Results	Considerable improvement in comprehension and production of every investigated syntactic structure Slight improvement of N.'s level of attention

Table 34 – summary of the characteristics of the didactic intervention

Both for the interference of the Arabic and especially for her attention disorder, production and comprehension of syntactic complex structures of Italian were really difficult for the participant. Indeed, in all administered tests, she showed worse

performance than those of her typically developing monolingual peers. For this reason, a tailor-made didactic intervention has been administered to the participant. The linguistic project has been characterized by didactic games, syntactic rules explanations, winsome materials with vivid colours and engaging pictures, very frequent breaks; moreover, every grammatical aspect was explained with the support of the metaphor with the story of Santa Claus and the elves, that has been a very effective analogy to help N. understanding even the most difficult aspects of syntactic movement. This was the central idea of the whole didactic intervention and the participant very often resorted to this analogy to better comprehend concepts that were too conceptual for her. The use of visual instruments and multimedia has been essential in order to get N.'s complete attention: she learnt and remembered more if exposed to materials which linked text and image. Moreover, the Power Point presentation through which the linguistic project was presented was very motivating thanks to the coexistence of colours, images, and sounds. With regards to practical and physical activities that were carried out during the meetings, a wide room and a garden, and more generally the possibility to play both in and outdoors, was very important to support N.'s need of constant movement. In my opinion, the characteristics of the didactic intervention that helped N. the most have been the following: constant stimuli, clear and well explained tasks, brief but effective theoretical phases, practical and physical activities assessing comprehension, didactic games, permanent gratification and positive reinforcement (the possibility of dancing, a good mark on her notebook that she could show to her parents), no time limits on activities, use of a Power Point presentation, empowering N. to increase self-confidence by letting her decide some activities.

After the linguistic sessions, the tests were administered to the participant again and her results improved a lot. In figure 62, a chart representing the participant's percentages of accuracy in all tests is given. Both pre-teaching and post-teaching results are shown in order to make the comparison easier.

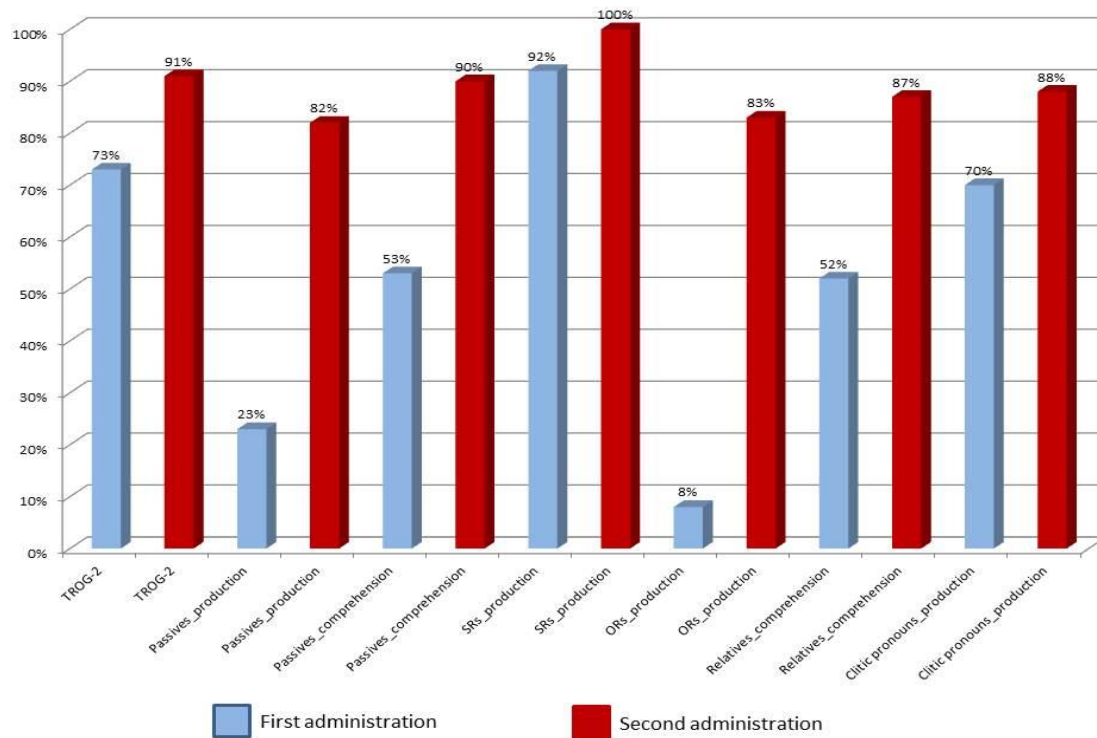


Figure 62 – the participant’s pre-teaching and post-teaching results in all administered tests

The participant definitely improved her competence of all structures, both in comprehension and production. The most remarkable results concern production and comprehension of passive clauses, production of ORs and comprehension of relative clauses. Moreover, she importantly modified her answer strategies showing a more coherent and less disjointed pattern of answers. Therefore, I suppose that the way the setting was transformed for her (see Chapter 2) may have helped N. slightly improving the level of her attention.

As already detected by previous studies, the didactic intervention on syntactic movement has helped N. understanding a complex linguistic system that was too conceptual for her. Previous studies (see 7.4) have applied the explicit teaching of complex structures on a case of Syntactic Linguistic Impairment (SLI), deafness and bilingualism. All researches have obtained great improvement of linguistic competence. The present study confirms that a didactic intervention on syntactic movement is a useful method also in a bilingual child with a neurodevelopmental disorder.

Conclusions

The present research has been carried out with two main purposes. On one hand, the collection of data regarding production and comprehension of complex syntactic structures of Italian, namely passive clauses, relative clauses and clitic pronouns, in a bilingual child (Arabic; Italian) aged 9;6 diagnosed with ADHD. On the other hand, the realization of a tailor-made didactic intervention on the explicit teaching of syntactic movement.

Previous studies have been carried out on the topic which have been an important reference in the development of the didactic teaching activities. The project *"Impariamo ad imparare!"* (Let's learn how to learn) has been realized following the method proposed by Levy and Friedmann (2009), an explicit syntactic teaching addressed to an SLI child, D'Ortenzio (2015), an explicit syntactic teaching addressed to a deaf child, and Bozzolan (2016), an intervention for a sequential bilingual child. Indeed, some testing tools and intervention methods used in the above-mentioned works have been adopted in the present study. Two main aspects differentiate this study from the others. Firstly, the participant to which the whole teaching project was addressed, namely a simultaneous bilingual child (Arabic; Italian) aged 9;6 diagnosed with attention deficit and hyperactivity disorder. Secondly, the kind of teaching activities which were completely adapted to the participant's needs.

The linguistic difficulties that the participant showed are linked to a poor competence of Italian, caused by her attention disorder, which does not help linguistic improvement, and in part probably due to the interference of Arabic. The difficulty with Italian was detected immediately with the TROG-2 test administration. The participant's performance showed a low level of grammatical comprehension, comparable to the performance of a child aged 5;8. The most difficult structures to comprehend were object relatives and those including pronouns. To have a more detailed picture of her difficulties, she was compared to some monolingual peers on complex structures of Italian characterized by syntactic movement. The three investigated structures are characterized by different types of movement. Passive

clauses and relative clauses were tested both in production and comprehension, while clitic pronouns were tested in production only.

The results of the tests administered before interventions showed that N.'s competence was very poor: she had great difficulties in all the examined structures compared with her peers. Comprehension and production of passive clauses were severely compromised, comprehension and production of subject relative clauses were good and quite similar to those of her peers, but comprehension and production of object relative clauses were almost problematic; the test in which she obtained the highest percentages of accuracy was the clitic pronouns production test, even though her performance was worse than those of the controls. Therefore, her problems with language structures were serious.

Particularly, she used to produce SVO sentences instead of passives and relatives, as these are less demanding for the computational system, or sentences with reversed thematic roles, which reveals weak competence of thematic theory. Moreover, most of the times she did not answer at all because she did not pay attention to the questions. At first, I thought she was not understanding them, so I planned to include wh- questions in the didactic intervention. However, the more I have spent time with N., the more I have got that she totally understood the questions, but she was not paying sufficient attention to them as to answer them correctly; therefore, in some cases, before obtaining an answer, it was necessary to ask the question twice.

After the evaluation of mistakes and answering strategies that the participant has used, a tailor-made didactic intervention based on the explanation of explicit syntactic rules was realized in order to verify if this method could be effective in a bilingual child with ADHD.

The entire didactic intervention was adapted to the participant's needs: it was characterized by games, syntactic rules explanations, winsome materials with vivid colours and engaging images, and very frequent breaks lasting 10 minutes, in which some physical activities were proposed in order to help the participant let off steam and to have her maximum attention in the following activity. It was divided into 4 phases:

- explicit teaching of the argument structure of the verb;
- explicit teaching of the thematic theory;
- explicit teaching of the syntactic movement with emphasis on the three structures that have been investigated;
- final summary and check of the understanding of all the contents.

After the didactic intervention, all tests were administered to the participant again. The post-teaching results showed great improvement in all structures both in production and in comprehension; the participant reached percentages of accuracy which were very similar to those of her peers. Moreover, the participant has importantly modified her answering strategies showing a more coherent and less disjointed pattern of answer. Therefore, I suppose that the way the setting was transformed for her helped N. slightly improve her level of attention.

In my opinion, the results obtained in this study have been achieved for several reasons. Firstly, the participant had the possibility of reflecting on language starting from her own mistakes, in order to achieve a level of competence which could enable her to use the Italian language in a proper way. Secondly, all activities and the setting were adapted to the participant as to get her total motivation. Moreover, the use of the Power Point presentation was essential because, besides being a stimulating instrument, the participant was provided with a copy of the teaching materials as to enable her to watch it and re-study it by herself every time she wanted, and she actually did it. She had so much fun while doing it with me during our meetings, that she has started to consider it a game and she “played” with it very often.

It would be interesting to administer the linguistic tests to the participant again in order to evaluate if the competence improvement detected in the post-teaching administration of the tests will be confirmed. Furthermore, the participant actually read the materials several times on her own and, even though in these instances the attention level of the participant during the readings could not be assessed personally, an observation must be made. Indeed, it could be possible that an even greater

improvement of the participant will be detected in a third administration of the tests thanks to the work done independently by the child herself.

In conclusion, the present research has confirmed that the explicit teaching of syntactic movement is a valuable instrument also in a bilingual individual with a neurodevelopmental disorder.

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Appendix 1 – Pre-teaching production of passive clauses – S1 N. (paragraph 6.3.3)

Filler sentences have not been reported as they have been completely understood by everybody and have not created any kind of difficulty; they are marked in blue. The red marked items have not been submitted to N. because she considered them inappropriate due to their meaning.

	Item	Target answer	N.'s answer
1	Nella prima foto Sara spinge Marco. Nella seconda la mamma spinge Marco. Cosa succede a Marco nella prima foto?	Marco è/viene spinto da Sara	Marco sta andando in avanti e Sara spinge Marco
2	Nella prima foto Sara imbecca la mamma. Nella seconda Sara imbecca Marco. Cosa succede a Marco?	Marco è/viene imboccato (da Sara)	Succede che Marco sta mangiando un cucchiaino di marmellata
3			
4	Nella prima foto Sara vede Marco. Nella seconda il papà vede Marco. Cosa succede a Marco nella prima foto?	Marco è/viene visto da Sara	Allora Marco è seduto e Sara vede Marco
5	Nella prima foto Sara prende a calci Marco. Nella seconda Sara prende a calci la mamma. Cosa succede alla mamma?	La mamma è/viene presa a calci (da Sara)	
6			
7	Nella prima foto Marco colpisce Sara. Nella seconda, il papà colpisce Sara. Cosa succede a Sara nella seconda foto?	Sara è/viene colpita dal papà	Sara è stata colpita dal papà
8			
9	Nella prima foto Marco sente il papà. Nella seconda Marco sente Sara.	Sara è/viene sentita (da Marco)	A Sara succede che sta raccontando la barzelletta a Marco

	Cosa succede a Sara?		
10			
11	Nella prima foto Sara bacia Marco. Nella seconda la mamma bacia Marco. Cosa succede a Marco nella prima foto?	Marco è/viene baciato da Sara	Sara sta baciando Marco. A marco prende un bacio dalla ragazza.
12	Nella prima foto Sara ama il papà. Nella seconda Sara ama Marco. Cosa succede al papà?	Il papà è/viene amato (da Sara)	Papà ama tanto la ragazza. Il papà viene abbracciato dalla Sara
13			
14	Nella prima foto Marco spinge Sara. Nella seconda Marco spinge la mamma. Cosa succede alla mamma?	La mamma è/viene spinta (da Marco)	Marco sta spingendo la mamma e quindi la mamma è stata spinta da Marco
15	Nella prima foto Marco insegue Sara. Nella seconda la mamma insegue Sara. Cosa succede a Sara nella seconda foto?	Sara è /vien inseguita (dalla mamma)	Allora Sara sta correndo e la mamma...
16			
17	Nella prima foto Marco ama Sara. Nella seconda il papà ama Sara. Cosa succede a Sara nella prima foto?	Sara è/viene amata da Marco	Marco ama Sara
18	Nella prima foto Marco vede la mamma. Nella seconda Marco vede Sara. Cosa succede a Sara?	Sara è/viene vista (da Marco)	Allora praticamente Sara è seduta per terra però Marco vede Sara che è seduta
19			
20	Nella prima foto Sara colpisce il papà. Nella seconda Sara colpisce Marco. Cosa succede a Marco?	Marco è/viene colpito (da Sara)	Allora Marco è stato colpito da Sara
21	Nella prima foto il papà sente	Marco è/viene sentito	Allora il papà sente

	Marco. Nella seconda Sara sente Marco. Cosa succede a Marco nella prima foto?	dal papà	Marco quindi Marco sente il papà, parla col papà
22	Nella prima foto Marco annusa Sara. Nella seconda Marco sente il papà. Cosa succede al papà?	Il papà è/viene sentito (da Marco)	Allora il papà parla con alta voce Marco
23			
24			
25	Nella prima foto il papà imbocca Sara. Nella seconda, Marco imbocca Sara. Cosa succede a Sara nella seconda foto?	Sara è/viene imboccata da Marco	Sara imbocca Marco
26	Nella prima foto Marco bacia il papà. Nella seconda Marco bacia Sara. Cosa succede a Sara?	Sara è/viene baciata da Marco	Sara è venuta baciata da Marco
27			
28	Nella prima foto Sara vede Marco. Nella seconda il papà vede Marco. Cosa succede a Marco nella seconda foto?	Marco è/viene visto dal papà	Marco praticamente Marco è seduto e dopo il papà vede lui col cannocchiale
29	Nella prima foto Sara ama il papà. Nella seconda, Sara ama Marco. Cosa succede al papà?	Il papà è/viene amato (da Sara)	Papà ama Sara
30			
31	Nella prima foto il papà sente Marco. Nella seconda Sara annusa Marco. Cosa succede a Marco nella seconda foto?	Marco è/viene annusato da Sara	
32	Nella prima foto Marco prende a calci Sara. Nella seconda la mamma prende a calci Sara. Cosa succede a Sara nella seconda foto?	Sara è/viene presa a calci dalla mamma	Sara è seduta e la mamma prende a calci

33	Nella prima foto Marco sente il papà. Nella seconda Marco sente Sara. Cosa succede al papà?	Il papà è/viene sentito da Marco	Allora il papà parla nelle orecchie del bambino
34	Nella prima foto Sara insegue la mamma. Nella seconda Sara insegue Marco. Cosa succede alla mamma?	La mamma è/viene inseguita da Sara	Allora la mamma sta correndo e Sara...
35	Nella prima foto Marco annusa Sara. Nella seconda Marco sente il papà. Cosa succede a Sara?	Sara è/viene annusata da Marco	Sara sa di pesce
36			

Appendix 2 - Pre teaching production of relative clauses – S1 N. (paragraph 6.3.5)

Filler sentences have not been reported as they have been completely understood by everybody and have not created any kind of difficulty; they are marked in blue.

	Item	Target	N.'s answer
1	Ci sono 2 disegni. Nel primo un bambino pettina la mamma e nel secondo un bambino pettina il cane. Quale bambino ti piace di più?	RS	Il bambino <i>quello</i> che sta pettinando la mamma
2	Ci sono 2 disegni. Nel primo i cani baciano i bambini. Nel secondo, i nonni baciano i bambini. Quali bambini ti piacciono di più?	RO	Mi piacciono i bambini che baciano i nonni
3			
4	Ci sono 2 disegni. Nel primo i bambini inseguono le farfalle. Nel secondo, i bambini inseguono le api. Quali bambini ti piacciono di più?	RS	I bambini che seguono le farfalle
5	Ci sono due disegni. Nel primo un bambino rincorre il gatto e nel secondo un bambino rincorre l'orso. Quale bambino ti piace di più?	RS	Mi piace <i>quel</i> bambino che insegue il gatto
6	Ci sono due disegni. Nel primo l'orso morde un bambino. Nel secondo l'orso accarezza un bambino. Quale bambino ti piace di più?	RO	Mi piace il bambino che sta accarezzando l'orso
7			
8	Ci sono 2 disegni. Nel primo, il padre pettina i bambini. Nel secondo, il barbiere pettina i bambini. Quali bambini ti piacciono di più?	RO	Mi piacciono che il barbiere pettina i bambini
9			
10	Ci sono due disegni. Nel primo la mamma abbraccia un bambino. Nel secondo la mamma bacia un bambino. Quale bambino ti piace di più?	RO	Mi piace il bambino che sta baciando la mamma
11	Ci sono due disegni. Nel primo un bambino guarda la tigre e nel secondo un bambino guarda la zebra.	RS	Bambino che guarda la zebra

	Quale bambino ti piace di più?		
12			
13	Ci sono due disegni. Nel primo il dottore visita un bambino. Nel secondo il dottore saluta un bambino. Quale bambino ti piace di più?	RO	Mi piace che il dottore sta visitando il bambino
14	Ci sono 2 disegni. Nel primo i bambini guardano i cavalli. Nel secondo, i bambini guardano le scimmie. Quali bambini ti piacciono di più?	RS	Mi piacciono i bambini che stanno guardando i cavalli
15			
16			
17	Ci sono 2 disegni. Nel primo la maestra sgrida i bambini. Nel secondo, la maestra premia i bambini. Quali bambini ti piacciono di più?	RO	Mi piacciono i bambini che sta sgridando la maestra
18	Ci sono due disegni. Nel primo il leone segue un bambino. Nel secondo il cane segue un bambino. Quale bambino ti piace di più?	RO	Mi piace che il cane sta seguendo il bambino
19	Ci sono due disegni. Nel primo disegno, i bambini salutano il papà. Nel secondo, i bambini salutano l'amico. Quali bambini ti piacciono di più?	RS	Mi piacciono i bambini che salutano il papà
20			
21	Ci sono 2 disegni. Nel primo i bambini tirano le mucche. Nel secondo, i bambini tirano i topi. Quali bambini ti piacciono di più?	RS	Mi piacciono che... i bambini che tirano la mucca
22			
23	Ci sono 2 disegni. Nel primo i vigili fermano i bambini. Nel secondo, i vigili salutano i bambini. Quali bambini ti piacciono di più?	RO	Mi piacciono i vigili che stanno salutando i bambini

24	Ci sono due disegni. Nel primo un bambino bacia il cane e nel secondo un bambino bacia la bambina. Quale bambino ti piace di più?	RS	Mi piace che il bambino sta baciando la ragazza
25			
26	Ci sono 2 disegni. Nel primo i leoni inseguono i bambini. Nel secondo, i leoni tirano i bambini. Quali bambini ti piacciono di più?	RO	Mi piacciono i bambini che stanno tirando i leoni
27			
28	Ci sono due disegni. Nel primo il papà lava un bambino. Nel secondo il papà sporca un bambino. Quale bambino ti piace di più?	RO	Mi piace il bambino che il papà sta lavando il bambino
29	Ci sono due disegni. Nel primo un bambino rincorre l'amico e nel secondo un bambino rincorre il cane. Quale bambino ti piace di più?	RS	Mi piace il bambino che rincorre il cane
30			
31	Ci sono due disegni. Nel primo il papà colpisce un bambino. Nel secondo il papà bacia un bambino. Quale bambino ti piace di più?	RO	Mi piace che il bambino che sta baciando il papà
32	Ci sono 2 disegni. Nel primo i bambini lavano il cane. Nel secondo, i bambini lavano la tigre. Quali bambini ti piacciono di più?	RS	Mi piacciono i bambini che stanno lavando il cane
33	Ci sono 2 disegni. Nel primo un bambino alza l'elefante. Nel secondo un bambino guarda l'elefante. Quale bambino ti piace di più?	RS	Mi piace il bambino che vede l'elefante
34			
35	Ci sono 2 disegni. Nel primo i bambini accarezzano il gatto. Nel secondo, i bambini colpiscono il gatto. Quali bambini ti piacciono di più?	RS	Mi piacciono i bambini che stanno accarezzando il gatto

36	Ci sono 2 disegni. Nel primo un cane morde i bambini. Nel secondo, un cane insegue i bambini. Quali bambini ti piacciono di più?	RO	Mi piacciono che il cane sta inseguendo

Appendix 3 - Pre teaching production of clitic pronouns – S1 N. (paragraph 6.3.7)

Item	Target	Familiarisation	N.'s answer
F1	COD	In questa storia c'è un signore che vuole pescare un pesce. Guarda, cosa sta facendo al pesce?	S1 Lo ha pescato
F2	COD	In questa storia c'è una bambina che vuole catturare una dottoressa. Guarda, cosa sta facendo alla dottoressa?	S1 L'ha catturata
F3	COD	In questa storia c'è un pinguino che vuole sollevare un topolino. Guarda, cosa sta facendo al topolino?	S1 Lo ha sollevato
F4	COD	In questa storia c'è un bambino che vuole picchiare un mago. Guarda, cosa sta facendo al mago?	S1 Lo sta picchiando
F5	COD	In questa storia c'è una signora che vuole pelare una patata. Guarda, cosa sta facendo alla patata?	S1 Sta pelando
Item	Target	Test	N.'s answer
1	COD	In questa storia c'è un bambino che vuole distruggere un castello di sabbia. Guarda, cosa sta facendo al castello?	S1 L'ha distrutto
2	COD	In questa storia c'è una signora che vuole dipingere una maschera. Guarda, cosa sta facendo alla maschera?	S1 Ha dipinta
3	CR	In questa storia c'è un gatto grigio. Guarda cosa sta facendo?	S1 Sta guardando lo specchio
4	COD	In questa storia c'è un bambino che vuole mangiare un gelato. Guarda, cosa sta facendo al gelato?	S1 Lo sta mangiando
5	COD	In questa storia c'è una signora che vuole sbucciare una pera. Guarda, cosa sta facendo alla pera?	S1 La signora la sta sbucciando
6	CR	In questa storia c'è un gatto tutto sporco. Guarda, cosa sta facendo?	S1 Si sta lavando
7	COD	In questa storia c'è un bambino che vuole lavare un cane Guarda, cosa sta facendo al cane?	S1 Sta lavando il cane
8	COD	In questa storia c'è un bambino che vuole buttare un libro. Guarda, cosa sta facendo al libro?	S1 Il bambino l'ha buttato
9	CR	In questa storia c'è una bambina tutta spettinata. Guarda, cosa sta facendo?	S1 Sta pettinando
10	COD	In questa storia c'è una bambina che vuole prendere una farfalla col retino. Guarda, cosa sta facendo alla farfalla?	S1 L'ha presa

11	COD	In questa storia c'è un bambino che vuole bagnare un signore. Guarda, cosa sta facendo al signore?	S1 Lo ha bagnato
12	COD	In questa storia c'è una mucca che vuole leccare una rana. Guarda, cosa sta facendo alla rana?	S1 Ha leccato la rana
13	CR	In questa storia c'è un orsetto che ha fatto il bagno ed è tutto bagnato Guarda, cosa sta facendo?	S1 L'orso si sta asciugando
14	COD	In questa storia c'è un bambino che vuole bucare un palloncino. Guarda, cosa sta facendo al palloncino?	S1 L'ha bucato
15	CR	In questa storia c'è una bella ragazza. Guarda, cosa sta facendo?	S1 Si sta tagliando i capelli
16	COD	In questa storia c'è una signora che vuole tagliare una mela. Guarda, cosa sta facendo alla mela?	S1 Ha tagliato la mela
17	COD	In questa storia c'è una bambina che vuole pettinare la nonna. Guarda, cosa sta facendo alla nonna?	S1 L'ha pettinata
18	CR	In questa storia c'è un orsetto che ha tanto prurito Guarda, cosa sta facendo?	S1 Si sta grattando

Appendix 4 – Post-teaching production of passive clauses – S1 N. (paragraph 7.6.2)

Filler sentences have not been reported as they have been completely understood by everybody and have not created any kind of difficulty; they are marked in blue. The red marked items have not been submitted to N. because she considered them inappropriate due to their meaning.

	Item	Target answer	N.'s answer
1	Nella prima foto Sara spinge Marco. Nella seconda la mamma spinge Marco. Cosa succede a Marco nella prima foto?	Marco è/viene spinto da Sara	Marco è spinto da Sara
2	Nella prima foto Sara imbocca la mamma. Nella seconda Sara imbocca Marco. Cosa succede a Marco?	Marco è/viene imboccato (da Sara)	Marco è imboccato da Sara
3			
4	Nella prima foto Sara vede Marco. Nella seconda il papà vede Marco. Cosa succede a Marco nella prima foto?	Marco è/viene visto da Sara	Marco viene visto da Sara
5	Nella prima foto Sara prende a calci Marco. Nella seconda Sara prende a calci la mamma. Cosa succede alla mamma?	La mamma è/viene presa a calci (da Sara)	
6			
7	Nella prima foto Marco colpisce Sara. Nella seconda, il papà colpisce Sara. Cosa succede a Sara nella seconda foto?	Sara è/viene colpita dal papà	Sara è stata colpita dal papà
8			
9	Nella prima foto Marco sente il papà. Nella seconda Marco sente Sara.	Sara è/viene sentita (da Marco)	Sara è ascoltata da Marco

	Cosa succede a Sara?		
10			
11	Nella prima foto Sara bacia Marco. Nella seconda la mamma bacia Marco. Cosa succede a Marco nella prima foto?	Marco è/viene baciato da Sara	Marco è baciato da Sara
12	Nella prima foto Sara ama il papà. Nella seconda Sara ama Marco. Cosa succede al papà?	Il papà è/viene amato (da Sara)	Il papà è abbracciato da Sara
13			
14	Nella prima foto Marco spinge Sara. Nella seconda Marco spinge la mamma. Cosa succede alla mamma?	La mamma è/viene spinta (da Marco)	La mamma è stata spinta da Marco
15	Nella prima foto Marco insegue Sara. Nella seconda la mamma insegue Sara. Cosa succede a Sara nella seconda foto?	Sara è /vien inseguita (dalla mamma)	Sara è inseguita dalla mamma
16			
17	Nella prima foto Marco ama Sara. Nella seconda il papà ama Sara. Cosa succede a Sara nella prima foto?	Sara è/viene amata da Marco	Sara viene abbracciata da Marco
18	Nella prima foto Marco vede la mamma. Nella seconda Marco vede Sara. Cosa succede a Sara?	Sara è/viene vista (da Marco)	Sara è stata vista da Marco
19			
20	Nella prima foto Sara colpisce il papà. Nella seconda Sara colpisce Marco. Cosa succede a Marco?	Marco è/viene colpito (da Sara)	Marco è stato colpito da Sara
21	Nella prima foto il papà sente Marco. Nella seconda Sara sente Marco.	Marco è/viene sentito dal papà	Marco è stato sentito da papà

	Cosa succede a Marco nella prima foto?		
22	Nella prima foto Marco annusa Sara. Nella seconda Marco sente il papà. Cosa succede al papà?	Il papà è/viene sentito (da Marco)	Il papà è stato sentito da Marco
23			
24			
25	Nella prima foto il papà imbecca Sara. Nella seconda, Marco imbecca Sara. Cosa succede a Sara nella seconda foto?	Sara è/viene imboccata da Marco	Sara imbecca Marco
26	Nella prima foto Marco bacia il papà. Nella seconda Marco bacia Sara. Cosa succede a Sara?	Sara è/viene baciata da Marco	Sara viene baciata da Marco
27			
28	Nella prima foto Sara vede Marco. Nella seconda il papà vede Marco. Cosa succede a Marco nella seconda foto?	Marco è/viene visto dal papà	Mmmmm succede che il papà vede Marco
29	Nella prima foto Sara ama il papà. Nella seconda, Sara ama Marco. Cosa succede al papà?	Il papà è/viene amato (da Sara)	Il papà viene abbracciato da Sara
30			
31	Nella prima foto il papà sente Marco. Nella seconda Sara annusa Marco. Cosa succede a Marco nella seconda foto?	Marco è/viene annusato da Sara	
32	Nella prima foto Marco prende a calci Sara. Nella seconda la mamma prende a calci Sara. Cosa succede a Sara nella seconda foto?	Sara è/viene presa a calci dalla mamma	Sara viene presa a calci da sua mamma
33	Nella prima foto Marco sente il papà.	Il papà è/viene sentito da Marco	Marco sente il papà

	Nella seconda Marco sente Sara. Cosa succede al papà?		
34	Nella prima foto Sara insegue la mamma. Nella seconda Sara insegue Marco. Cosa succede alla mamma?	La mamma è/viene inseguita da Sara	La mamma viene inseguita dalla Sara
35	Nella prima foto Marco annusa Sara. Nella seconda Marco sente il papà. Cosa succede a Sara?	Sara è/viene annusata da Marco	Sara puzza di pesce
36			

Appendix 5 – Post-teaching production of relative clauses – S1 N. (paragraph 7.6.4)

Filler sentences have not been reported as they have been completely understood by everybody and have not created any kind of difficulty; they are marked in blue.

	Item	Target	N.'s answer
1	Ci sono 2 disegni. Nel primo un bambino pettina la mamma e nel secondo un bambino pettina il cane. Quale bambino ti piace di più?	SR	Mi piace il bambino che sta pettinando la mamma
2	Ci sono 2 disegni. Nel primo i cani baciano i bambini. Nel secondo, i nonni baciano i bambini. Quali bambini ti piacciono di più?	OR	Mi piacciono i bambini che i nonni baciano
3			
4	Ci sono 2 disegni. Nel primo i bambini inseguono le farfalle. Nel secondo, i bambini inseguono le api. Quali bambini ti piacciono di più?	SR	I bambini che seguono le farfalle
5	Ci sono due disegni. Nel primo un bambino rincorre il gatto e nel secondo un bambino rincorre l'orso. Quale bambino ti piace di più?	SR	Mi piace il bambino che insegue il gatto
6	Ci sono due disegni. Nel primo l'orso morde un bambino. Nel secondo l'orso accarezza un bambino. Quale bambino ti piace di più?	OR	Mi piace il bambino che l'orso accarezza
7			
8	Ci sono 2 disegni. Nel primo, il padre pettina i bambini. Nel secondo, il barbiere pettina i bambini. Quali bambini ti piacciono di più?	OR	Mi piacciono i bambini che il padre pettina
9			
10	Ci sono due disegni. Nel primo la mamma abbraccia un bambino. Nel secondo la mamma bacia un bambino. Quale bambino ti piace di più?	OR	Mi piace il bambino che la mamma bacia il bambino
11	Ci sono due disegni. Nel primo un bambino guarda la tigre e nel secondo un bambino guarda la zebra. Quale bambino ti piace di più?	SR	Il bambino che guarda la zebra

12			
13	Ci sono due disegni. Nel primo il dottore visita un bambino. Nel secondo il dottore saluta un bambino. Quale bambino ti piace di più?	OR	Mi piace il bambino che il dottore saluta
14	Ci sono 2 disegni. Nel primo i bambini guardano i cavalli. Nel secondo, i bambini guardano le scimmie. Quali bambini ti piacciono di più?	SR	Mi piacciono i bambini che guardano i cavalli
15			
16			
17	Ci sono 2 disegni. Nel primo la maestra sgrida i bambini. Nel secondo, la maestra premia i bambini. Quali bambini ti piacciono di più?	OR	Mi piacciono i bambini che la maestra premia
18	Ci sono due disegni. Nel primo il leone segue un bambino. Nel secondo il cane segue un bambino. Quale bambino ti piace di più?	OR	Mi piace il bambino che il cane insegue il bambino
19	Ci sono due disegni. Nel primo disegno, i bambini salutano il papà. Nel secondo, i bambini salutano l'amico. Quali bambini ti piacciono di più?	SR	Mi piacciono i bambini che salutano il papà
20			
21	Ci sono 2 disegni. Nel primo i bambini tirano le mucche. Nel secondo, i bambini tirano i topi. Quali bambini ti piacciono di più?	SR	Mi piacciono i bambini che tirano le mucche
22			
23	Ci sono 2 disegni. Nel primo i vigili fermano i bambini. Nel secondo, i vigili salutano i bambini. Quali bambini ti piacciono di più?	OR	Mi piacciono i bambini che i vigili salutano
24	Ci sono due disegni. Nel primo un bambino bacia il cane e nel secondo un bambino bacia la bambina. Quale bambino ti piace di più?	SR	Mi piace il bambino che bacia la bambina

25			
26	Ci sono 2 disegni. Nel primo i leoni inseguono i bambini. Nel secondo, i leoni tirano i bambini. Quali bambini ti piacciono di più?	OR	Mi piacciono i bambini che i leoni tirano
27			
28	Ci sono due disegni. Nel primo il papà lava un bambino. Nel secondo il papà sporca un bambino. Quale bambino ti piace di più?	OR	Mi piace il bambino che il papà sporca
29	Ci sono due disegni. Nel primo un bambino rincorre l'amico e nel secondo un bambino rincorre il cane. Quale bambino ti piace di più?	SR	Mi piace il bambino che rincorre l'amico
30			
31	Ci sono due disegni. Nel primo il papà colpisce un bambino. Nel secondo il papà bacia un bambino. Quale bambino ti piace di più?	OR	Mi piace il bambino che il papà bacia
32	Ci sono 2 disegni. Nel primo i bambini lavano il cane. Nel secondo, i bambini lavano la tigre. Quali bambini ti piacciono di più?	SR	Mi piacciono i bambini che lavano il cane
33	Ci sono 2 disegni. Nel primo un bambino alza l'elefante. Nel secondo un bambino guarda l'elefante. Quale bambino ti piace di più?	SR	Mi piace il bambino che guarda l'elefante
34			
35	Ci sono 2 disegni. Nel primo i bambini accarezzano il gatto. Nel secondo, i bambini colpiscono il gatto. Quali bambini ti piacciono di più?	SR	Mi piacciono i bambini che accarezzano il gatto
36	Ci sono 2 disegni. Nel primo un cane morde i bambini. Nel secondo, un cane insegue i bambini. Quali bambini ti piacciono di più?	OR	Mi piacciono i bambini che il cane segue

Appendix 6 – Post-teaching production of clitic pronouns – S1 N. (paragraph 7.6.6)

Item	Target	Familiarisation	N.'s answer
F1	COD	In questa storia c'è un signore che vuole pescare un pesce. Guarda, cosa sta facendo al pesce?	S1 Lo pesca
F2	COD	In questa storia c'è una bambina che vuole catturare una dottoressa. Guarda, cosa sta facendo alla dottoressa?	S1 La ha catturata
F3	COD	In questa storia c'è un pinguino che vuole sollevare un topolino. Guarda, cosa sta facendo al topolino?	S1 Lo ha sollevato
F4	COD	In questa storia c'è un bambino che vuole picchiare un mago. Guarda, cosa sta facendo al mago?	S1 Lo sta picchiando
F5	COD	In questa storia c'è una signora che vuole pelare una patata. Guarda, cosa sta facendo alla patata?	S1 La sta pelando
Item	Target	Test	N.'s answer
1	COD	In questa storia c'è un bambino che vuole distruggere un castello di sabbia. Guarda, cosa sta facendo al castello?	S1 L'ha distrutto
2	COD	In questa storia c'è una signora che vuole dipingere una maschera. Guarda, cosa sta facendo alla maschera?	S1 L'ha dipinta
3	CR	In questa storia c'è un gatto grigio. Guarda cosa sta facendo?	S1 Si sta guardando allo specchio
4	COD	In questa storia c'è un bambino che vuole mangiare un gelato. Guarda, cosa sta facendo al gelato?	S1 Lo sta mangiando
5	COD	In questa storia c'è una signora che vuole sbucciare una pera. Guarda, cosa sta facendo alla pera?	S1 Mmmmm la sta sbucciando
6	CR	In questa storia c'è un gatto tutto sporco. Guarda, cosa sta facendo?	S1 Il gatto si sta lavando
7	COD	In questa storia c'è un bambino che vuole lavare un cane . Guarda, cosa sta facendo al cane?	S1 Il bambino lo sta lavando
8	COD	In questa storia c'è un bambino che vuole buttare un libro. Guarda, cosa sta facendo al libro?	S1 Il bambino ha buttato il libro
9	CR	In questa storia c'è una bambina tutta spettinata. Guarda, cosa sta facendo?	S1 Si sta pettinando
10	COD	In questa storia c'è una bambina che vuole prendere una farfalla col retino. Guarda, cosa sta facendo alla farfalla?	S1 La ha presa

11	COD	In questa storia c'è un bambino che vuole bagnare un signore. Guarda, cosa sta facendo al signore?	S1 Lo sta bagnando
12	COD	In questa storia c'è una mucca che vuole leccare una rana. Guarda, cosa sta facendo alla rana?	S1 La mucca la ha leccata
13	CR	In questa storia c'è un orsetto che ha fatto il bagno ed è tutto bagnato Guarda, cosa sta facendo?	S1 Si sta asciugando
14	COD	In questa storia c'è un bambino che vuole bucare un palloncino. Guarda, cosa sta facendo al palloncino?	S1 Sta bucando il palloncino
15	CR	In questa storia c'è una bella ragazza. Guarda, cosa sta facendo?	S1 Si sta tagliando i capelli
16	COD	In questa storia c'è una signora che vuole tagliare una mela. Guarda, cosa sta facendo alla mela?	S1 L'ha tagliata
17	COD	In questa storia c'è una bambina che vuole pettinare la nonna. Guarda, cosa sta facendo alla nonna?	S1 L'ha pettinata
18	CR	In questa storia c'è un orsetto che ha tanto prurito Guarda, cosa sta facendo?	S1 Si sta grattando