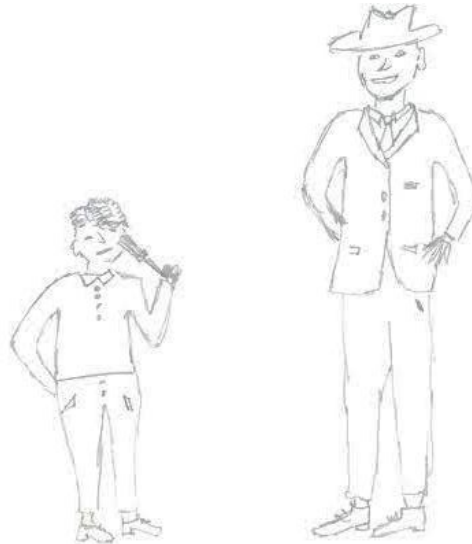


“De jongen heeft hem gevefd”

“Wie gevefd?”



Cross-linguistic influence and the pronoun interpretation problem in French-Dutch bilingual children

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Table of content

Acknowledgments	4
Introduction	5
Chapter 1 Background	7
1.1 Theories about binding and coreference	8
1.1.1 Binding Theory	8
1.1.2 Problems with binding theory	
1.1.3 Subsequent additions to binding theory	9
1.1.4 Summary	11
1.2 Pronouns and clitics in Dutch and French	12
1.2.1 Dutch pronouns	12
1.2.2 French pronouns and clitics	12
1.3 Differences between French and Dutch in monolingual children	15
1.4 Problems with binding and coreference in child language	16
1.5 Previous explanations for the PIP	18
1.6 Cross-linguistic influence in bilingual first language acquisition	21
1.6.1 Acquisition of Dutch pronouns in bilingual first language acquisition	21
1.6.2 Acquisition of French pronouns in 2L1 acquisition	22
1.6.3 CLI	22
1.6.4 Some approaches on cross-linguistic influence	24
1.6.5 Cross-linguistic influence in the acquisition of object pronouns and PIP in 2L1 children	28
Chapter 2 Research questions, hypotheses and predictions	30
2.1 Research questions	30
2.2 Hypotheses	30
2.3 Predictions	30
Chapter 3 Research methodology	32
3.1 Participants	32
3.2 Tasks	32
3.2.1 Truth Value Judgment Task	33
3.2.2 Questionnaire	33
3.3 Possible confounds	34
3.3.1 Socio-economic status	34
3.3.2 2L1 or Child L2	34
3.3.3 Memorizing	35
3.3.4 Amount of exposure	35
Chapter 4 Results	36
4.1 Participants summary	36
4.2 Results questionnaire	36

4.3	Results TVJT	37
4.3.1	Simple Case sentences	38
4.3.2	ECM sentences	45
Chapter 5 Discussion		52
5.1	Dutch SC test conditions	53
5.1.1	Dutch SC test condition and the non-occurrence of CLI	53
5.1.2	Dutch SC test condition and the non-influence of language dominance	53
5.2	French SC test conditions	53
5.2.1	French SC test condition and the (non-)occurrence of CLI	53
5.2.2	French SC test condition and the (non-)influence of language dominance	55
5.3	Dutch ECM test conditions	56
5.3.1	Dutch ECM test condition and the non-occurrence of CLI	56
5.3.2	Dutch ECM test condition and the non-influence of language dominance	58
5.4	French ECM test conditions	58
5.4.1	French ECM test condition and the non-occurrence of CLI	59
5.4.2	French ECM test condition and the non-influence of language dominance	59
5.5	Answers to the research questions	59
5.5.1	Does cross-linguistic influence occur in an experiment on PIP with French-Dutch bilingual children?	60
5.5.2	Does amount of input (used as a proxy for language dominance) play a role in this case?	61
5.5.3	Is the acquisition of the PIP less problematic when French and Dutch are acquired simultaneously?	62
5.6	Recommendations for future research	62
5.6.1	Methodological recommendations and suggestions	62
5.6.2	Recommended further research based on the direct results of the present research	64
Chapter 6 Conclusion		66
Samenvatting		68
References		70
Appendix A		

Acknowledgments

It might not be the standard in the academic world, but I decided to write my acknowledgements in Dutch. Although I think I might consider myself as a Dutch-English bilingual, English is my second language, while Dutch is my mother tongue and the language of my heart. Acknowledgements are used to thank and show gratitude to people, that means it has something to do with emotions and therefore it felt more natural for me to write these in the language of my heart, which is, as said before, Dutch. So I will switch my language from here.

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Introduction

A considerable amount of literature has been published on the acquisition of pronouns¹ in sentences like *Mary washed her* and *The girl sees her dance* (e.g. McKee 1992, Hamann, Kowalski and Philips 1997, Baauw 2000). These (sometimes cross-linguistic) studies showed a difference across languages in the correct interpretation of pronouns and/or clitics in those sentences. Roughly said there are languages, like French, where children interpret those sentences correct from early on and there are languages, like Dutch, where children make mistakes with the interpretation until they are around 8 years old. This is called the Delay of Principle B Effect (DPBE) or, more recently, Pronoun Interpretation Problem (PIP)². Several explanations have been given for DPBE/PIP, some of which will be discussed in this thesis.

Given this differences in the acquisition of the interpretive properties of pronouns and anaphors across languages, the question raises of whether these differences would persist in the case of simultaneous acquisition of two languages. In other words, would a French/Dutch bilingual child show interference between these two languages with regard to Principle B? And would she be facilitated in the acquisition of the interpretive properties of pronouns in Dutch (a language showing DPBE) by his knowledge of French (a non-DPBE language)?

This phenomenon, called cross-linguistic influence (CLI), has been object of research in the past decades. Although researchers agreed long ago that simultaneously growing up children do separate their languages from early on, CLI still occurs. There is not much consensus yet on the precise conditions predicting CLI. However, Hulk and Müller (2000 and 2001) hypothesized that structural ambiguity may be such a predicting factor.

Not much studies have investigated the acquisition of Principle B in a bilingual context in which one language shows a PIP, whereas the other does not. Therefore, this study is set up to test simultaneous bilingual children on the comprehension of simple case sentences and exceptional case marking sentences with Principle B in it.

The central question in this thesis is: is the PIP less problematic when French and Dutch are acquired simultaneously? And, if CLI does occur, does language dominance play a role in this case? To be able to answer these questions an experiment was set up. Data were collected in two groups of Dutch-French speaking bilingual children, one group living in France, and one living in the Netherlands. They were presented a Truth Value Judgment Task in French and one in Dutch, while their parents were asked to fill in a questionnaire in order to determine the amount of input in both languages the child was exposed to.

This study aims to contribute to the research field of bilingualism, to the benefits of growing up bilingual and to a positive view on growing up bilingual.

This thesis is composed of six chapters. Chapter 1 begins by laying out the theoretical framework of the research. In this chapter, Binding Theory, and especially Principle B will be discussed.

Furthermore (the acquisition of) Dutch pronouns and French clitics, the Pronoun Interpretation Problem (PIP) and its possible explanations will be examined in detail, trying to understand how this may work in a context of simultaneous acquisition of two typologically different languages like Dutch

¹ Throughout this paper, the term *pronouns* is used to refer to pronouns in sentences like *Mary washed her*. When I refer to pronouns in sentences like *He washed John* I would explicitly mention that.

² In this thesis, I will use DPBE where an author of the article has used DPBE and PIP where an author has used PIP, so that means that it is used interchangeable. I myself would prefer to use the term PIP, in chapter 1 it is explained why the term PIP is preferred.

and French. In chapter 2 the research questions, hypotheses and predictions will be formulated. The third chapter is concerned with the methodology used for the experiment. The fourth chapter presents the findings of the research, focusing on how both groups of participants scored compared to each other, and on the outcomes of the questionnaires. Chapter 5 includes a discussion of the results, linked to the research questions and the theory, as well as some critical notes on the research itself. In the last chapter, as a conclusion, a summary of the thesis will be given, including some implications of the findings to future research.

Chapter 1 Background

Over the past two to three decades, a considerable amount of literature has been published on the acquisition of Principle B. These studies (McKee 1992, Avrutin and Wexler 1992, Sigurjónsdóttir 1992 (in Baauw 2000), Philip and Coopmans 1996a and Baauw 2000 among others) have reported that children in Dutch, English, Russian and Icelandic do not reach adult-like level in sentences where Principle B is involved before the age of six (Guasti 2002), or even eight as Philip and Coopmans (1995) have shown in their study for Dutch children. The problem is that these children allow the reference in (1), whereby pronoun *him* erroneously co-refer with sentence subject *the boy*. which is called Delay of Principle B Effect (DPBE) or Pronoun Interpretation Problem (PIP).

(1) *The boy_i touches him_i

However, children who are acquiring a Romance language, like Spanish, Italian or French act adult-like from three or four years old (Chien and Wexler 1990, McKee 1992, Hamann, Kowalski and Philip 1997, Baauw 2000 and Guasti 2002).

For French, this difference between languages only counts for sentences like (1), so called simple case sentences (SC), since French children do show signs of a PIP in Exceptional Case Marking (ECM) sentences like (2).

(2) The girl_i sees her_i dance.

So, in (2), Dutch children, as well as French children, erroneously co-refer *her* with *the girl*. The focus of this research is to examine what happens when a language of the first type (Dutch) is simultaneously acquired with a language of the second type (French). The first question is if cross-linguistic influence (CLI) does occur and if so, if there is any positive effect with respect to the PIP. The second question is if the positive effect comes from a re-analysis of the structural level or if it is just the effect of language dominance. So, to be able to do this research on CLI and language dominance in bilingual children, it is necessary to know exactly what the PIP is. Therefore it is needed to analyze binding, so this chapter will start with an introduction on Binding Theory (BT) as originally defined, and subsequent additions to it. Since there is a difference between Dutch (PIP) and French (no PIP), it is important to understand how the acquisition of pronouns and Principle B in Dutch and in French first language acquisition works, so the second and third part of this chapter will discuss these issues. The fourth part will mainly concern the problems children seem to have with coreference in some languages, in other words, in this part the PIP will be explained in more detail. This fourth part will also discuss Exceptional Case Marking-constructions and comment on some explanations for the Pronoun Interpretation Problem (PIP). The ECM-constructions are part of this research, because with these sentences, all children of this research should score somewhat the same. The fifth part will describe some differences between Dutch and French pronouns and clitics in monolingual children and why these differences make this research interesting. The last paragraph of this chapter will discuss cross-linguistic influence in the acquisition process of bilingual children and the importance of the amount of input. The PIP-construction causes problems in some languages, but not in others. In this research I will find out what happens when two languages, each from one of the categories, are acquired simultaneously. Therefore, it is important not only to look at the PIP and the syntactic part of it, but also at phenomena which take place at typical bilingual environments.

1.1 Theories about binding and coreference

As mentioned before, binding and coreference have been object of research for decades, since it is highly interesting that there seems to be a difference between languages in acquiring sentences like *The boy touches him*, while, according to UG-theory, sentences like this should be acquired somewhat simultaneous in all different languages. It is necessary to discuss Binding Theory, problems with it and some subsequent additions to it, because it is essential theory for understanding this research. Therefore, this will be discussed in this paragraph.

1.1.1 Binding Theory

Binding Theory (BT) was proposed by Chomsky (1981, p. 188), fitting in the Principles and Parameters Theory. BT consists of three principles:

- (A) An anaphor is bound in its governing category
- (B) A pronominal is free in its governing category
- (C) An R-expression is free

In (3), *zichzelf* is an anaphor and it should be bound in its governing category, which means in this case that it should be bound by *Marie*. An interpretation where Marie is painting someone else is thus impossible, because then Principle A is violated. Besides, there is of course an intuitive feeling that *zichzelf* should co-refer with *Marie*, simply because of the meaning of *zichzelf*.

In (4), Principle B would be violated if *haar* referred to *Marie* instead of to someone outside this sentence. Being a pronoun, *haar* should be free in its governing category, which implies that in this sentence *haar* is not allowed to bound with *Marie*.

(5) illustrates Principle C. *Marie* is an R-expression, so it should be free. Therefore it cannot be bound by *Marie* or *Zij* at the beginning of the sentence, and thus can only refer to someone outside of the sentence.

- (3) Marie_i verft zichzelf_{i/*j}
Marie paints herself
- (4) Marie_i verft haar_{*i/j}
Marie paints her
- (5) Marie_i/Zij_i verft Marie_{*i/j}
Marie/She paints Marie

1.1.2 Problems with binding theory

Subsequent studies have shown that the BT in its original definition cannot deal with a number of problematic cases. Researchers as Evans (1980), Higginbotham (1983) and Reinhart (1983) demonstrated these problems with sentences like (6) and (7), where binding the pronoun by the NP should be forbidden based on Principle B, but where coreference is not blocked.

- (6) Als iedereen Oscar_i haat, dan haat Oscar_i hem_i ook.
If everyone Oscar hates, than hates Oscar him too.

- (7) Ik weet wat Bill_i en Marie gemeen hebben. Marie adoreert Bill_i en Bill_i adoreert hem_i ook.
I know what Bill and Mary have in common. Mary adores Bill and Bill adores him too.

These and other studies (see also e.g. Baauw 2000, Guasti 2002 and Hamann 2011) outline that binding and coreference needs to be seen as two aspects of one grammatical 'rule'. In other words, there is a syntactic principle, Principle B, which is responsible for binding, and there is a pragmatic rule that is responsible for coreference. BT only concerns binding, not coreference, so researchers came up with additional theories that could account for the coreference data. In the following sub paragraph, the additions Principle P, Rule I and the A-chain condition will be shortly reviewed. In paragraph 1.5 they will be discussed in more detail and in combination with the Pronoun Interpretation Problem.

1.1.3 Subsequent additions to binding theory

Principle P, Rule I and the A-chain condition will be reviewed in this paragraph.

1.1.3.1 Principle P

Chien and Wexler (1990) (henceforth C&W) proposed a pragmatic rule, Principle P, that should account for the coreferential aspect. Principle P states that:

coreference of two non-co-indexed elements is prohibited, except in some specific contexts where coreference is explicitly forced.

C&W explain Principle P as follows. In (8a), when *him* has the same index as (i.e. is co-indexed with) the local c-commanding *John*, as in (8b), the sentence would be ungrammatical based on Principle B, since Principle B states that binding *him* by *John* is prohibited. However, coreference is still possible.

- (8) a. John likes him
b. *John_i likes him_i
c. John_i likes him_j

Now suppose that *him* has a different index than *John*, as in (8c). In that case there is non-co-indexing and following Principle P, coreference is prohibited. Based on C&W, in sentences like *John likes him*, it should be like this; binding is prohibited by Principle B and coreference is prohibited by Principle P.

However, consider the following sentences:

- (9) a. That must be John. At least he looks like him
b. That_i must be John_j. *At least he_i looks like him_i
c. That_i must be John_j. At least he_i looks like him_j

It is clear that (9a) cannot be interpreted as (9b), since Principle B rules out this interpretation: *him* cannot be bound locally, and thus it cannot be co-indexed with *he*. So, the indexing should be as in (9c), which shows that the non-co-indexed reading and the co-referential reading can exist in one sentence. Here *he* and *him* are non-co-indexed, and yet they are co-referential. C&W argue that the data in (9) can only be accounted for by a pragmatic principle that rules out (9b), but allows (9c).

Principle P should thus be the answer to the question why in (9b) *him* can co-refer with *John*, although *him* is not co-indexed with *John*: It is the context which explicitly forces coreference. Similarly Principle P can answer the question why in (8) *him* cannot corefer to *John*: Both elements are not co-indexed and there is no context which forces coreference.

1.1.3.2 Rule I

Some years later Grodzinsky and Reinhart (1993) (henceforth G&R) introduced also a pragmatic rule which should account for the coreferential aspect, Rule I:

A pronoun A cannot co-refer with an NP B, if replacing A with a reflexive (which is bound by B) yields an indistinguishable interpretation.

Consider now (5) and (3), here repeated as (10) and (11). (10) shows that *hem* can co-refer with *Oscar*, since if we replace *hem* with the anaphor *zichzelf*, the sentence gets a different interpretation, one about Oscar hating himself.³ So although Principle B rules out co-indexation, coreference is possible here, following Rule I.

(10) Als iedereen Oscar_i haat, dan haat Oscar_i hem_i ook.
If everybody Oscar hates, than hates Oscar him too.

(11) Marie_i verft haar_{?i/j}
Marie paints her

Following Rule I, (11) cannot be interpreted as *Marie_i verft haar_i*, because replacing *haar* (which has a coreferential reading) with the bound reflexive *zichzelf*, would provide a similar reading. Therefore, without an appropriate context, coreferential interpretations like *Marie_i verft haar_i* are ruled out by Rule I.

1.1.3.3 A-chain condition

Another addition to BT is the A-chain condition, which is part of Reinhart and Reuland's (1993) (henceforth R&R) Reflexivity Framework. This A-chain condition is a syntax-pragmatic condition:

A maximal A-chain ($\alpha_1 \dots \alpha_n$) contains exactly one link – α_1 – that is both +R and case-marked. R&R argue that an A-chain is a set of co-indexing (i.e. local bound) elements. They also argue that pronouns and R-expressions are +R (+referential), while reflexives are –R (–referential). So in sentences (8) *John likes him*, *John* is +R and case-marked. *Him* is a pronoun and thus also +R. Following the A-chain condition, *John* and *him* are not allowed to form an A-chain together, i.e. are not allowed to bind. This means that the A-chain condition explains the ungrammaticality of *John_i likes him_i*. Both *John* and *him* are +R, while the tail of all grammatical A-chains must consist of NPs who are –R, like sentences as *Jan haat zichzelf* or *Jan wast zich*.

³ The first part of the sentence is about hating Oscar, so if you replace *him* with *himself*, the meaning of the sentence will be about self-hating instead of hating Oscar. That is why replacing *hem* with *zichzelf* would in this sentence not yield an indistinguishable interpretation. you have to say 'Oscar hates him too'.

1.1.4 Summary

Summarizing we can say that the theories presented thus far provide that two things happens with pronouns in sentences like *Jan tekent hem*: on one side, there is the syntactic aspect, that regulates when binding is required and when it is prohibited, and this syntactic aspect is caught in BT by Principle B. On the other side, there is the pragmatic aspect, that regulates when coreference is required and when it is prohibited, and this pragmatic aspect is caught in subsequent additions like Principle P, Rule I and the A-chain condition. Of course Chien and Wexler (1990), Grodzinsky and Reinhart (1993) and Reinhart and Reuland (1993) are not the only scholars who worked on this topic, but due to space and time limits, I just discussed what, in my view, are the most significant contributions to understand the problematic cases presented in this study.

This distinction between the syntactic and the pragmatic aspect is an important one for this research, since, as I will show in paragraph 1.4, it is the pragmatic aspect that causes problems in children's comprehension of sentences like *De jongen tekent hem*.

1.2 Pronouns and clitics in Dutch and French

Before examining binding and coreference in relation to language acquisition, a brief overview on (the acquisition of) pronouns, binding and coreference in Dutch and in French is given. Dutch and French differ from each other in sentences where Principle B is involved, because while Dutch sentences like (12) use pronouns, similar French sentences use clitics, as one can see in (13).

(12) *De jongen tekent hem*

(13) *Le garçon le dessine*

Besides this pronouns-clitics distinction, there is also a syntactic difference. While the syntactic structure of (12) is in the C-domain, the syntactic structure of (13) is in the I-domain. These differences are important, since they affect the predictions of the hypotheses concerning cross-linguistic influence. Therefore, pronouns and clitics and the acquisition of it in Dutch and French will be discussed in this paragraph. Cross-linguistic influence and the consequences for the predictions will discussed in paragraph 1.6.

1.2.1 Dutch pronouns

Dutch has strong and weak pronouns (Kerstens & Sturms (2002) and Wijnen & Verrips (1998)). See table 2 for details.

		Strong pronouns		Weak pronouns	
		Subject	Direct object	Subject	Direct object
Singular	1 pers	ik	mij	'k ,	me
	2 pers	jij, u	jou, u	Je	je
	3 pers	hij (m) zij (f) het (n)	hem (m) haar (f) het (n)	ie, die (m) ze (f) 't (n)	'm (m) 'r, d'r, ze (f) 't (n)
Plural	1 pers	wij	ons	we	-
	2 pers	jullie	jullie	je	je
	3 pers	zij	hen, hun	ze	ze

Table 2. Dutch pronouns (Kerstens & Sturms (2002) and Wijnen & Verrips (1998))

1.2.1.1 Pronouns in Dutch L1 acquisition

Dutch children start using subject pronouns around their second birthday (Bol and Kuiken 1986, in Gillis and Schaerlaekens 2000), starting with first person singular, then second and third. Plural forms come somewhat later. Object pronouns and reflexives occur from around three years old, starting with first person singular reflexives. Gillis and Schaerlaekens 2000 state that Dutch speaking children make almost no binding mistakes in spontaneous speech.

A remarkable observation is that *hij/hem* is used more frequent than *zij/haar*, being the masculine form overgeneralized at the expense of the feminine form (Schaerlaekens and Gillis 1987 in Gillis and Schaerlaekens 2000).

1.2.1.2 Syntactic approaches to Dutch pronouns

(14) shows how a Dutch sentence structure is built syntactically (Wijnen & Verrips, 1998 en Bennis, 2000):

(14)_{[CP De jongen_i [_C verft_j [_{IP} hem_k [_I [_{VP} t_i [_{V'} t_k [_V t_j]]]]]]]]}

It is important to notice that *De jongen verft hem* is a CP-structure. In paragraph 1.4.3 it will be showed that this Dutch syntactic structure differs from the syntactic structure of similar French sentences.

In Dutch sentences like *De jongen pakt hem*, *hem* is often pronounced as 'm or something in between both pronouns like əm, so as a weak pronoun. However, in *Het meisje pakt haar* it is much less common to pronounce *haar* as 'r or ər. Baauw (2000) ran an experiment on Dutch weak pronouns and concluded that children do not analyze them as syntactic clitics and that one cannot see them in the same way as Romance clitics. This is of importance for the present research, since now it can be assumed that a different pronunciation would not lead to a different structural analysis of a sentence.

1.2.2 French pronouns and clitics

French has two types of pronouns, clitics and strong pronouns (Prévost 2009). See table 1 for an overview.

		Clitics			Strong pronouns
		Subject	Direct object	Indirect object	
Singular	1 pers	je	me	me	moi
	2 pers	tu	te	te	toi
	3 pers	il (m) elle (f) on (n)	le (m) la (f) se (refl)	lui se (refl)	lui (m) elle (f)
Plural	1 pers	nous	nous	nous	nous
	2 pers	vous	vous	vous	vous
	3 pers	ils (m) elles (f)	les	leur	eux (m) elles (f)

Table 2. Clitics and strong pronouns in French (Prévost 2009, p. 116)

There are some differences between the distribution of clitics and strong pronouns. In this paragraph, only the distribution of clitics will be reviewed, since only direct object clitics are of importance for this research.

Clitics have a different distribution than strong pronouns. Clitics need to be adjoined to a finite verb (see 15 -17) and the morphological unit thus formed cannot be broken by any element other than another clitic (see 18 and 19). Furthermore, clitics cannot be conjoined (see 20 and 21), and they cannot appear after a preposition (see 22 and 23). They also cannot appear alone (see 24) and they cannot receive contrastive stress (see 25 and 26) (Prévost 2009).

(15) Il dessine Marie
He draws Marie

(16) Il la dessine
He CL draws

(17) *Il dessine la
**He draws CL*

(18) Il la verra
He CL sees

(19) *Il la, bientôt, verra
**He CL, almost, sees*

(20) *Marie et il va manger
**Marie and he go eat*

(21) Marie et lui va manger
Marie and him go eat

(22) *Jean a nagé avec la
**Jean has swum with CL*

(23) Jean a nagé avec Marie
Jean has swum with Marie

- (24) Qui a nagé avec Marie ? *le/Jean/lui
*Who has swum with Marie ? *CL/Jean/hem*
- (25) *Marie IL dessine
Marie HE draws
- (26) MON PÈRE/LUI dessine Marie
MY FATHER/HIM draws Marie

Clitics have other distributional peculiarities: they may appear to the left of a non-finite verb, but then a strong pronoun 'subject' is required (see 27 and 28), and they can refer to [+animate] and to [-animate] (see 29 and 30). Finally, clitics ending in a vowel appear as reduced forms in certain contexts, typically in front of a form phonetically starting with a vowel or a silent h (see 31 and 32). (Prévost 2009)

- (27) Eux la dessine? Mais non!
They CL draw ? But no !
- (28) *Ils la dessine
**They CL draw*
- (29) Cette femme_i, je la_i connais depuis des années
This woman, I CL know since the ages
- (30) Ce voyage_i, je le_i ferai l'année prochaine
This trip, I CL will make the year next
- (31) Je l'aime
I CL love
- (32) Je l'honore
I CL honor

1.2.2.2 Syntactic approaches to French clitics

There is no real consensus about the exact nature of clitics, although there is agreement on this point: One of their properties is that they are nominal arguments and that they therefore occur in the head VP. There is no consensus about where exactly clitics occur in the syntactic structure. Two analyses are suggested: 1) Clitics are like affixes, generated directly on the verb, see (33), although not much is said about object clitics in this approach, and 2) Clitics are base-generated in the VP and then undergo movement, to cliticize onto the verb, see (34) (Prévost 2009).

- (33) [_{IP} Marie_i [_I la + dessine_j] [_{VP} t_i [_V t_j]]]
- (34) [_{IP} Marie [_I la_i + dessine_j] [_{AGR_{OP}} [_{AGR_O} t_j] [_{VP} t_j pro_i]]]

Baauw (2000) proposed a theory which combines both approaches. Accordingly, the base-generated approach is supported by languages like Spanish, where clitic-doubling does exist. However, the movement approach is supported by French and Italian, because they have participle agreement. The proposed theory is defined as follows (Baauw 2000, p.119):

Clitic movement
 Clitic movement is NP Movement (Sportiche 1992)

NP movement is empty variable movement, which is interpreted in terms of λ -abstraction (Neeleman & Weerman 1999)

This research investigates (Dutch and) French, therefore, the movement approach could be chosen. However, it is better to choose an approach that can account for all clitic languages, therefore I assume to adopt Baauw's theory and thus the following syntactic structure:

(35)_{[IP Marie [_{CLP} t_i [_{CL} la] [_{VP} dessine [_V t_i]]]]}

1.2.2.3 Clitics in French L1 acquisition

Schmitz and Müller (2008) and Prévost (2009), among others, state that most studies on French pronoun acquisition report an asymmetry in that acquisition. Namely that subject clitics are developed earlier than object clitics and that subject clitics are used more frequently than object clitics. This frequency difference seems to last until the age of 5 or 6 (Van der Velde 2003). Another found asymmetry is that reflexive clitics are acquired more early than object clitics, and *se* is the first to occur. For reflexives it seems also to be the case that they are not often used by children in spontaneous speech (Schmitz and Müller 2008 and Prévost 2009). According to Van der Velde (2003), French children perform better in comprehension than in production with object clitics. With subject and reflexive clitics, children score (almost) adult-like from around three years old in both comprehension and production.

1.3 Differences between French and Dutch in monolingual children

As showed in the antecedent paragraph, there are some syntactic and morpho-syntactic differences between French and Dutch which are of importance when researching binding and coreference. It is necessary here to clarify these differences, since, combined with the theory about cross-linguistic influence, they play an important role in making predictions about the possible occurrence of cross-linguistic influence. Therefore, the difference will be highlighted in this paragraph.

First of all, there is a difference in syntactic structures (Wijnen & Verrips 1998, Bennis 2000 and Baauw 2000):

Dutch: [_{CP} De jongen_i [_C verft_j [_{IP} hem_k [_I [_{VP} t_i [_{V'} t_k [_V t_j]]]]]]]]]

French: [_{IP} Marie [_{CLP} t_i [_{CL} la] [_{VP} dessine [_V t_i]]]]

Another difference between both languages is the use of pronouns versus the use of clitics. Dutch uses full pronouns in sentences like *Jan tekent hem*, and these pronouns can be strong or weak; it does not matter for the interpretation of the sentence how one pronounce *hem* (Baauw2000). However, French uses clitics in sentences like *Jean le dessine*, which behave different and have to follow different rules than full pronouns (Hamann, Kowalski and Philip 1997, Prévost 2009). There is also a difference in the position of pronouns and clitics in sentences. The strong pronouns that are used in Dutch sentences are always positioned at the end of the sentence, except in sentences in the present perfect:

- (36) Jan kijkt naar hem
John looks at him
- (37) Elk meisje tekent haar
Every girl draws her
- (38) De jongen heeft hem geslagen
The boy has him hit
- (39) De jongen heeft zichzelf geslagen
The boy has himself hit

However, the clitics that are used in French, are not situated at the end of the sentence, but right before the verb:

- (40) Jean le dessine
John CL draws
- (41) Marie la caresse
Mary CL strokes
- (42) Guillaume l'a tapé
William CL has hit
- (43) Guillaume s'est tapé
William CL is hit

The last difference mentioned here is a difference in the use of the auxiliary verb. As one might have noticed in (42) and (43), there is also a difference to be found in sentences in the present perfect, namely in the use of auxiliary verbs in French. When someone is referring to him- or herself, the auxiliary verb used in the sentence is *être*, while when someone is referring to another person, the auxiliary verb used in the sentence is *avoir*.

These syntactic differences between French (and other Romance languages) and Dutch (and other languages like English, Icelandic and Russian), might also be possibly (partly) responsible for the (absence of a) PIP. This will be discussed in more detail in paragraph 1.5.

1.4 Problems with binding and coreference in child language

In previous paragraphs 'basic' theory has been discussed in order to understand the theoretical background of this research. Now it is time to analyze in depth what exactly the pronoun interpretation problem is. That is why this paragraph is dedicated to the problems with binding and coreference in child language.

A considerable amount of literature has been published on the acquisition of Principle B. These studies have reported that English speaking children with age 3 already have acquired principle A and later studies showed evidence that principle C is also acquired at a very young age (McKee 1992 and Hamann 2011 among others). That means that English children interpret sentences like *John washes himself* and *She washes Mary* in the right way. The same evidence has been shown in several other studies for languages as Dutch, Italian, French and Spanish (e.g. Chien and Wexler 1990, McKee 1992, Hamann, Kowalski and Philip 1997 and Baauw 2000). However, some of these and other studies

(McKee 1992, Avrutin and Wexler 1992, Sigurjónsdóttir 1992 (in Baauw 2000), Philip and Coopmans 1996a and Baauw 2000) also show that children in Dutch, English, Russian and Icelandic seem to have problems with principle B, since even 5 or 6 years old children allow the reference in (40):

(44)*The boy_i touches him_i

In this sentence, the children incorrectly co-refer pronoun *him* with sentence subject *the boy*. These studies all conclude that sentences with non-reflexive pronouns are not adult-like in child language; children do not reach adult-like level before the age of six (Guasti 2002), or even eight as Philip and Coopmans (1996a) have shown in their study for Dutch children. However, this delay is not found in studies with children who are acquiring a Romance language, like Spanish, Italian or French (see Chien and Wexler 1990, McKee 1992, Hamann, Kowalski and Philip 1997 and Baauw 2000). These children act adult-like from 3 or 4 years old (Guasti 2002).

McKee (1992) states that this is out of line with what we would expect if UG theory was adopted, since, according to UG, constraints are innate. Principles A, B and C all involve the C-command and the locality-constraint, that is why one would expect that all three would act the same (Guasti 2002). In other words, if a child has acquired Principle B, it should be expected that he produces and interprets sentences with Principle B in the right way, because he did acquire the syntactic rule. However, as said before, Chien and Wexler (1990) among others, found that children do master Principle B, but that there is a distinction between binding and coreference. A number of studies have also reported that problems were only caused in comprehension, not in production (see Hamann 2011 for an overview). Furthermore, this comprehension problem is only shown in simple case NP-sentences, like (45) and not in QP-sentences (46) or Wh-operators (47) (Chien and Wexler 1990 and Crain and Thornton 1998 among others).

(45)John painted him

(46)Every boy painted him

(47)I know who painted him

However, this comprehension problem is also found in Exceptional Case Marking (ECM) constructions⁴, like (48) and (49), not only for Dutch, but also for French (Philip and Coopmans 1996b and Hamann, Kowalski and Philip 1997).

(48)Het meisje ziet haar dansen

The girl sees her dance

⁴ ECM-constructions are constructions where verbs like *believe* and *see* are allowed to take complements in the IP. Because of that, those verbs are called exceptional verbs. Those exceptional verbs can govern the subject in the embedded sentence and thus case mark it. It is said that ECM constructions do not exist in French (Kayne 1981 and Chomsky 1986, but those researchers are talking about constructions like *I believe Marie to be the champion*. Sentences like those do indeed not exist in French, nor in Dutch, since in both French and Dutch the word *que/dat (that)* needs to be added to make the sentence grammatical. But, for sentences with the verb *see (voir/zien)*, this does not count, as can be seen in (48) and (49), so ECM-constructions do exist in Dutch and in French, but those languages have less exceptional verbs than English has. (see also Hamann 2002)

(49) *La fille la voit chanter*
The girl her sees sing

This was not expected, since in French, children do not show a comprehension problem with simple case sentences.

The evidence presented in this section suggest that children in fact do master Principle B (Grodzinsky & Reinhart 1993), since it is impossible to use Principle B the right way in sentences you produce while not mastering the principle. Also, it would be impossible for children to produce and comprehend sentences like (46) and (47) in the right way if they did not master Principle B. This comprehension problem is better known as the Delay of Principle B Effect (DPBE) or Pronoun Interpretation Problem (PIP). Hamann (2011) argues that DPBE is not the right name for the phenomenon, since children do master Principle B, so the ‘problem’ should be an interpretative aspect, not a syntactic aspect. Therefore, she proposes to use the term PIP, Pronoun Interpretation Problem. In this research, the term PIP will be used, which is indeed believed to be a better name.

Summarizing, children with a Romance as well as children with a Germanic language do not have problems with mastering (i.e. acquiring) Principle B. However, while children with a Romance language act adult-like from the age of 3 or 4 in simple NP sentences, in some languages, like Dutch and English, children keep having problems with the comprehension of sentences where Principle B is involved until they are at least 6 years old. Besides, both French and Dutch children show a PIP in ECM-sentences. In other words, they have problems with the interpretative aspect of Principle B. Since Principle B is assumed to be a universal principle, hence part of UG, this delay must be explained.

1.5 Previous explanations for the PIP

In the previous paragraph we saw that Dutch children do have problems with simple case sentences like *De jongen tekent hem*, while French children do not have these problems. We also saw that both Dutch and French children have problems with ECM-sentences like *De jongen zag hem dansen / Le garçon le voit danser*. This problem, characterized as an interpretation problem, is considered problematic in the light of UG-theory as we saw above, and therefore needs an explanation. In this paragraph some explanations are presented, provided with my comments.

Chien and Wexler (1990), proposed to add the pragmatic Principle P to the traditional Binding Theory, which prohibits coreference between two non-co-indexed elements, with the exception of Evans-style elements⁵, as already explained in 1.1.3. Chien and Wexler (1990) state that NPs can freely refer, except when co-indexing is involved. Principle B specifies which syntactic relations are allowed when (non-)co-indexing is involved. From an interpretive point of view, two co-indexed NPs *must* co-refer, whereas two non-co-indexed NPs *may* or *may not* co-refer. When dealing with coreference, Chien and Wexler (1990) state that two routes are possible, one through co-indexed NPs and one through non-co-indexed NPs. Principle P sometimes rules out co-indexation. However, children do not know Principle P, because Principle P is not innate, but should be learned. That is the

⁵ An Evans-style element is a sentence like this: When Aladdin looks in the mirror, he doesn't see Jasmine. Aladdin_i sees HIM_i. (Guasti 2002, p.281)

reason why children sometimes take the non-co-indexed route to coreference, while adults know that that is not a possible route in that case. They state that children over-accept a coreferential reading, because they do not know it when an NP is allowed to be coreferential, since Principle P is pragmatic and must be acquired through experience. However, for the Dutch children, if coreference need to be forced by the context of a sentence, one would think that non-coreference should be the default at first, since Dutch children would hear the non-coreference option much more often than the coreferential Evans-style option. French clitics cannot receive contrastive stress (Prévoist 2009), so in Evans-style elements in French, clitics are not involved, but 'replaced' by strong pronouns. Also, Chien & Wexler (1990) and Avrutin and Wexler (1992) argue that children who acquire a Romance language do not over-accept coreferential readings, since clitics cannot be associated with a pointing gesture, because with a pointing gesture the pronoun/clitic should be stressed, which is, as said before, prohibited for clitics, and thus French children cannot make mistakes with it. Thus, following C&W, French children do not have to learn Principle P, since coreference cannot be forced, in other words, a clitic NP can never be coreferential.

Besides this, Dutch children do not make mistakes in the production of sentences like *Het meisje tekent haar*, and French children do not make mistakes in French equivalent sentences, what means that both Dutch and French children do know the rules about binding and about coreference. So, the major drawback of Principle P is that C&W state that the PIP is caused by an incomplete acquisition, while the aforementioned showed that this is not the case. That means that the explanation of the PIP needs to be found in something else.

Grodzinsky and Reinhart (1993) therefore proposed to add Rule I and seek with that rule a solution in the direction of processing capacity instead of incomplete acquisition. They assume Rule I to check constructions at Logical Form (LF) instead of at Surface Structure (SS). So, if there are two options for a sentence: a referential reading with a pronoun or a non-referential reading with a pronoun, the 'processor' has to check at LF if the coreferential reading is allowed. If with the coreferential reading the pronoun can be replaced by a reflexive, the coreferential reading is not allowed. G&R assume that children know Principle B and Coreference Rule I, but that they are not able to compare both interpretations, because their processing capacity does not suffice. This account is more attractive than C&W's account, because G&R's account has nothing to do with incomplete acquisition. Besides, Hamann (2011) argues that this is an attractive account, because this is also observed in language impairment and loss. However, Verbuk and Roeper (2010) criticized G&R's explanation. They refer to an experiment by Papafragou (2002) which shows that at the age at which they still show PIP, children are able to compare two interpretations. That would mean that the PIP cannot be a processing capacity problem.

Thornton and Wexler (1999) argue that children overextend guise creation, in other words, that they overstrain the creation of possible descriptions. Adults do this in sentences like *'Dat moet Karin zijn. Ze lijkt in elk geval wel op haar'*. T&W argue that adults analyze such sentences as follow: there are two 'people' who refer to *Karin*, *'Ze'*, the woman we are looking at, and *'haar'*, the woman we know as Karin. This is called guise creation. So different guises make coreference readings possible and that explains the PIP. In their opinion children do not know in which context guise creation is restricted. Although it might be possible that Dutch children do overextend guise creation, since in Dutch a coreferential reading of sentences like *Het meisje tekent haar* is possible, this overextension does not explain the PIP. T&W do not explain how children need to learn when guise creation is restricted and thus it seems that the overextension is again due to incomplete acquisition, while research already showed that that is not the case.

Verbuk and Roeper (2010) conclude about the overextension of guise creation that children can do very well, but that they need enough context. Besides, they argue that children seem to have problems with creating the extensive guises which are needed in these contexts. Verbuk and Roeper (2010) assumed that it is lexical ambiguity that causes the overuse of coreference in children acquiring Dutch. V&R argue that they cannot identify the contexts where strong pronouns are excluded. However, in clitic languages like French, only strong pronouns can be used in sentences like (50) and (51).

(50) Jean a mis le mouchoir derrière lui (*le)

(51) J'ai mis le mouchoir derrière moi (*me)

Therefore no lexical ambiguity is possible to interfere, so children acquiring French, or another Romance language, will define the referential properties of pronominals much faster than children from a Germanic language.

Besides explanations based on incomplete acquisition and processing capacity, there are also recent studies who call into question the experiments done on this topic. Elbourne (2005) states that there is no evidence for the acquisition of Principle B, since he claims with his analysis that the asymmetry for QPs and NPs in English is due to an artifact of the experimental method, namely that in used pictures the participants of the story were not easily recognized by the children. Elbourne states that if a child does not recognize a female character as a female, it is easy for the child to say *No*. Of course this might be a possibility, but when an experiment is held in two languages, so with the same pictures but with children from two different languages, and the children from one language do show a PIP, while the other group does not, then the question arises why children from the PIP-language are worse in recognizing the gender of a character in the experiment. It seems illogical to me that children are better or worse in recognizing genders depending on which languages they speak, but, due to time limitations, I have not been able to search if researches about this topic do exist, for example in sociolinguistics.

However, unlike Elbourne's analysis, Conroy et al. (2009) conclude exactly the opposite, namely that children do show knowledge of Principle B in simple sentences, but only if the problematic factors are controlled. For example, we have to be sure that there is enough context for the children. I think that Conroy et al. are right that more context can be helpful for children, but, since French children do not show signs of a PIP in simple case sentences, this could not explain the PIP, because then the question arises why Dutch children do need more context than French children. And again, it seems illogical to me that children do need more context depending on which languages they speak. A more extensive examination of the relevant literature is required here, but this goes far beyond the goal of this thesis.

The conclusion of this brief review is that there is no consensus about an explanation of the PIP. Possible alternative explanations like incomplete acquisition or an experimental artifact can be possible, but they are not very satisfying either, as they raise new questions. This means that the explanation in terms of processing capacity is the most satisfying solution for the PIP, although this explanation is also criticized.

As already mentioned in the introduction, the research question is if the PIP is less problematic if French and Dutch are acquired simultaneously. If processing capacity is the problem with the PIP, one might think, following Kupisch (2007, see 1.6), that French might help Dutch, since in French only one option is possible, and in that case it is obvious that when speaking Dutch, children choose for

the option which is possible in French too. However, before we can say something about that based on theory instead of based on speculation/intuition, it is necessary to take a closer look at bilingualism and cross-linguistic influence.

1.6 Cross-linguistic influence in bilingual first language acquisition

In the early years of research on bilingual first language acquisition, the focus was on the research question whether a bilingual child has one or two language systems from early on. Currently it is assumed that children who acquire two languages from birth or soon thereafter separate their languages from early on.⁶ Although there have been some studies which conclude that interdependence in bilingual first language acquisition should be rejected and that autonomous development should be approached (e.g. Paradis and Genesee (1996)), the majority of recent studies do agree that some form of cross-linguistic influence (CLI) can take place in bilingual first language acquisition.

But before taking a closer look at CLI, I will discuss the acquisition of pronouns and clitics in 2L1A in more detail, even though not much research has been done on this topic as will be showed in 1.6.1 and 1.6.2. It is necessary to discuss this, in order to find out what is already known about the behaviour of pronouns and clitics in 2L1A, because that might shed some light on the research question of this research.

1.6.1 Acquisition of Dutch pronouns in bilingual first language acquisition

Although research has been carried out on the acquisition of pronouns in Dutch language acquisition (see paragraph 1.2), by my best knowledge, no single study seems to exist on the acquisition of Dutch pronouns in bilingual first language acquisition. The available research on Dutch – *another language* bilingual language acquisition, for example De Houwer's case study of Dutch-English Kate (1990), Hulk's study (1997) on Dutch-French Anouk and Hulk and Van der Linden (1996) about the language mixing of Anouk, among others, but none of them did look specifically at Dutch pronouns. De Houwer (1990) only speaks of pronouns in the paragraphs regarding the acquisition of gender. There she states that Kate is using *hij* and *zij* at first at age 2;7, *Hem* and *haar* follow some months later (at age 2;10, respectively 3;0), which means that at least in the case of Kate there is no difference with her monolingual peers. In paragraph 1.2 I already mentioned Bol and Kuiken (1986, in Gillis and Schaerlaekens 2000) who said that Dutch children start using subject singular pronouns around their second birthday and (singular) object pronouns and reflexives occur from around three years old, third person singular is the latest one in both subject and object pronouns. Hulk and Müller (2000) and Müller and Hulk (2001) examined the acquisition of pronouns and clitics in Dutch-French bilingual first language acquisition, but they focused on object drop and they did not make a comparison between monolingual and bilingual language acquisition of objects/clitics. To conclude, some studies did research on bilingual first language acquisition where Dutch was one of the involved languages, however, they did not describe the acquisition of pronouns in detail.

⁶ See Ronjat (1913) for the very first study on bilingual children, see Volterra and Taeschner (1979) for their research and their proposal of a Three Stage Hypothesis and see for example Meisel (2001) and Unsworth (2013) for an overview of the research on bilingual first language acquisition.

1.6.2 Acquisition of French pronouns in 2L1 acquisition

Prévost (2009) states that the acquisition of French pronouns in bilingual children with French as one of the two languages develops almost in the same way as in French monolingual children, with the difference that emergence of clitics may be delayed in bilingual children. Schmitz and Müller (2008) also did not find a difference in the acquisition of French pronouns between monolingual and bilingual (French-German) children. However, Hulk (1997), found in her case study on Anouk, a Dutch-French bilingual child, no delay in the acquisition of object clitics. Anouk produced her first object clitic at age 2.04 and her first subject clitic at age 2.06.

A relatively high emergence of null objects is also found until around the age of three. This is even higher when the other language is a topic-drop language, like Dutch, but this tendency gradually decreases after the age of three. (Müller, Hulk and Jakubowicz 1999).

Hulk (1997) did find mistakes in Anouk's production of object clitics, which she explains as misanalysing of French object clitics as Dutch object pronouns.

Since the present study is on children from 4 years onward and it is about comprehension (the interpretative aspect) instead of production, one may expect that the aforementioned topics would not influence this research.

So in sum, although not much is known about the simultaneous bilingual acquisition of Dutch and French pronouns and clitics, as far as the studies discussed show, there seem to be no differences in the acquisition of Dutch and French pronouns between monolingual and bilingual children. It is important to realize this, because with this information one can somewhat exclude the possibility that eventually found differences in this research are due to a different acquisition of pronouns and clitics by bilingual children in comparison to monolingual children.

It is important to realize this, since when the acquisition process of pronouns and clitics is the same for bilingual children as for monolingual children, it could not be the reason for an eventually found difference in the present research.

1.6.3 CLI

In this sub paragraph, at first a definition of CLI will be given. After that, I will discuss some facts about CLI, namely at which linguistic levels it has been reported, delay and acceleration in CLI and the directionality of CLI. Then I will review some approaches on conditions that predict CLI, such as dominance, amount of input, processing capacity, structural ambiguity and bilingual bootstrapping. At last I will discuss the two studies which already exist on the topic of CLI in the acquisition of pronouns and PIP in 2L1 children, Varlokosta and Dullaart (2001) and Sanoudaki (2003).

1.6.3.1. Definition of cross-linguistic influence

It is important and necessary to clarify here exactly what is meant by cross-linguistic influence (CLI). CLI seems to be somewhat broader than transfer. According to a definition provided by Muysken (2004), transfer is a phenomenon where the morpho-syntactic structure from two languages is involved, but only the lexical material of one of the languages. Paradis and Genesee (1996) added to this definition that the clearest cases of transfer involve morpho-syntactic properties that are not already in the recipient language, so that these properties can be attributed to the source language. However, for CLI, a broader definition seems to be better. Hulk and Muller (2000, p. 227) decided to adopt the following definition: 'the possible influence of one language on the other'. Although this is a nice broad definition, it might be somewhat too broad for this research, since in this research I will

be looking for (the absence of) interference at the grammatical level. Therefore, I will use the following definition:

CLI is the possible influence of grammatical rules of one language on the other.

Please note that this definition only tells us about what CLI exactly is (for this research), it does not say anything about what causes CLI.

1.6.3.2 Some facts about CLI

CLI has been reported at different linguistic levels as syntax, morphology (Nicoladis 2002), lexical- semantics interface (Licerias, Fernández Fuertes and Alba de la Fuente 2011), narrow syntax (Argyri and Sorace 2007).⁷

Many children are not balanced bilinguals, but are dominant in one of their languages (Unsworth, to appear). Several studies has shown that CLI can take place in both directions (bidirectional), so from their dominant language to their 'weaker' language and vice versa, even in the same constructions. This is for example the case in the study of Nicoladis (2012) on the production of possessive constructions in bilingual French-English children, where there is overlap in word order, since in English both *the mother's nose* and *the nose of the dog* are possible, although the latter is more acceptable for non-human possessors, but in French only *le nez de maman* is possible. The bilingual children in this study used *the nose of the mother* more than monolinguals did and they also used sentences like **maman nez* in French.

Bidirectional CLI was also shown in the study of CLI in compound nouns in bilingual Persian-English children by Foroodi-Nejad and Paradis (2009).

Other studies, like Hulk and Müller (2000) and Müller and Hulk (2001) (see 1.6.4 for a review of these studies) predict only interference from one language into the other (unidirectional CLI). In 1.6.4 I will discuss in more detail why dominance and directionality of CLI is important for the present research. The directionality of interference can be determined through different things. One option is the amount of input, in that case there can only be interference from the dominant language to the minority language. The other way around is not possible, since it is the amount of input that causes interference, so the more input, the more likely interference is.

Another option is that the directionality of interference is determined by the way children analyze mental structures of sentences. If this is the case, language dominance does not play any role, because CLI occurs on a more abstract level, since an economy principle determines which language causes interference in the other. (M. Pinto, personal communication, February 2015)

It is important to take this into account with the present research, since if interference is found, it should be detected as caused by language dominance or by how children analyze mental structures. Therefore the participants of this research are divided into two groups, both with another dominant language, to be able to check if language dominance plays any role if interference will occur.

Another important fact of CLI is, that it can be manifested as a delay or as an acceleration, when compared to monolinguals, although most studies find CLI manifested as a delay in the acquisition of bilinguals (Unsworth 2013). However, it is important to note that this does not mean a general delay,

⁷ For a more complete overview of studies on these different levels see for example Foroodi-Nejad and Paradis 2009 and Unsworth 2013. It is beyond the scope of this research to examine this topic in more detail here.

but only counts for some properties of the language. In some countries, including The Netherlands, a lot of people are against multilingualism and raising children bilingual, especially when one of the languages is not a prestige language (Nortier, 2012). These people often use 'language delay' as an argument against raising children bilingually. Because of this social issue and the ongoing debate about multilingualism, it is important to state that if a delay is found in a study, it is only a delay on a specific property of the language and that it is almost always temporarily.

Despite the studies which find a delay, there are a handful of studies that did find acceleration. For example Kupisch (2007), in a study on the acquisition of German determiners in German-Italian bilingual children, found that the German-Italian children in her study acquired German determiners faster than their monolingual peers. The explanation Kupisch gave is that the German determiner system is more complex than the Italian one, therefore the simple Italian system facilitates the German system, which leads to acceleration. Although the present research is on a different linguistic level, one can state that the same could be observed in the present study as in Kupisch's study. After all, the comprehension of the grammatical feature is easily acquired for French, while it is more difficult for Dutch. So intuitively one might think that facilitation from the simple system to the more complex system is also possible for this research.

It is important to note here that all conditions on CLI seem to be sufficient but not necessary. In other words, not all children do show signs of CLI, even if the relevant conditions are met. It is difficult to find how to predict which individual children will show signs of CLI and which will not (Unsworth, to appear). It is beyond the scope of this research to find an answer to that question, but it is important to take notice of this question, because the bigger the group of participants, the smaller the differences and thus the clearer the outcome of the research.

1.6.4 Some approaches on cross-linguistic influence

Various possible explanations and approaches are suggested on CLI in bilingual children. There is no consensus on the nature of the factors that are involved in CLI. Therefore in this paragraph, some of the approaches will be discussed in more detail. The approaches will be divided into language internal factors and language external factors. Language external factors are factors outside the language itself, like language dominance and amount of exposure. Language internal factors, are factors within the language itself, like syntactic properties.

1.6.4.1 Language dominance

The dominant language of someone is the language in which he or she has a greater proficiency or the language which he or she simply uses more. Most children who grow up bilingual are not balanced bilinguals, but are dominant in one language. Their dominance can change (more than once) over time (see e.g. Nicoladis & Genesee 1997, Yip and Matthews 2007 and Unsworth 2013), but how dominance can influence acquisition and language outcome is not clear yet.

Some studies have argued that CLI from the dominant language into the weaker language is more likely to occur (e.g. Döpke 1998 and Yip & Matthews 2000). Kupisch (2007) states, as said before, that CLI is possible from a less complex grammatical situation to a more complex grammatical situation, which is a language internal factor. She added to that, that CLI is only possible in children with a clear

dominant language. In that case CLI is possible if the dominant language is also the less complex language. It will occur then unidirectional.

However, other studies did not find this pattern. For example Müller and Hulk (2001) exclude language dominance as an explanation for the observed influence/non-influence. In their research on object omission, the Germanic language influenced the Romance language, so one would expect Germanic to be dominant, but that is not supported by the data. Further, one would only expect cross-linguistic influence from the dominant language to the non-dominant language, but it occurs also in the reverse direction, which Müller and Hulk (2001) use as another argument that language dominance cannot be an explanation for the occurrence or non-occurrence of cross-linguistic influence.

Since there is no consensus about if and how dominance influences language acquisition, it is of great importance to take this into account in this research in order to avoid it as a possible confound.

Therefore it is important to divide the participants of the experiment into two groups, based on their dominant language. If CLI occurs in the present research and if language dominance plays a role in it, then there should be a significant difference in the results of the two groups.

How to measure dominance is still subject of discussion in bilingual first language acquisition research. Argyri and Sorace (2007) state that several studies have marked amount of input as a causal factor for language dominance. Therefore they state that this can be used as an indicator of language dominance. Unsworth (to appear) also examined whether the amount of exposure can be used as a proxy for language dominance in 2L1A. This topic will be discussed in the next subparagraph.

1.6.4.2 Amount of Exposure⁸

If we take into account that bilingual children are awake the same amount of hours as monolinguals and that the variety of how much their caregivers talk to them is as large as for monolinguals, it is clear that bilingual children will be exposed to less language input for each language than monolingual children (Unsworth, 2013). Besides that, Unsworth states that heterogeneity about the amount of input will exist within every group of bilingual children too, which can cause variation in rate of acquisition between bilinguals and monolinguals, but within bilinguals as well. Unsworth (2013) states that faster rates of development in bilingual children and the amount of input often are correlated with each other. On one hand, this does not say anything particular about CLI. It only says that with a higher amount of input, that particular language will develop faster and that there will be less differences between the dominant language of bilingual children and monolingual children with that language. However, on the other hand, if amount of input can be used as a proxy for language dominance and language dominance is a predictor of CLI, then amount of input will predict directionality of CLI, and thus the dominant language might support the weaker language to develop faster.

As mentioned before, Unsworth (to appear) argues that the amount of exposure can be used as a proxy for language dominance. In this study 18 Dutch-English bilingual children were studied to test this hypothesis. Unsworth tested the mean length of utterances (MLU) of the children in both languages based on spontaneous speech production. Besides that, the children had to make a standardized vocabulary test and a parental questionnaire was used to gather information about the amount of exposure. With information about both the MLU and the amount of exposure, Unsworth

⁸ For this study I will use Amount of Exposure and Amount of Input interchangeable.

was able to document the relationship between language dominance and the amount of exposure. The results of her research showed that with 65% or more of exposure a child may be considered dominant in that language.

For the present research, Unsworth's definition of when a child may be considered dominant will be used. This means that when the outcome of a questionnaire used for the present research is that a child gets 65% or more input from French, it will be considered dominant in French and thus, it will be in the French dominant group. If the outcome is that a child gets 65% or more input from Dutch, it will be in the Dutch dominant group and if a child gets 35%-65% input from each language, it will be considered as a balanced bilingual.

1.6.4.4 Structural ambiguity

An important theory about CLI is the theory of Hulk and Müller (2000) (henceforth H&M) and Müller and Hulk (2001) (henceforth M&H). They argue that structural ambiguity leads to cross-linguistic influence. They hypothesize that syntactic cross-linguistic influence do occur in 2L1 children, but that it is only possible to occur if the following conditions are both met:

- 1) CLI occurs at the syntax-pragmatics interface, which is the C-domain.
- 2) CLI is possible if there is an overlap at surface level. In other words, it is likely that language A is influenced by language B, when one specific syntactic construction in language A allows more than one grammatical analysis from the perspective of the child's grammar, while in language B only one of these structural analyses is supported.

Unsworth (2003) tested this hypothesis and did not find CLI in her case study on Root Infinitives (RI's) on a German-English bilingual child, although it was expected based on H&M. She proposed some renewals to H&M's hypothesis. For the second condition, she proposed that the notion of overlap should be tightened. H&M and M&H are not very clear what they exactly mean by overlap. By overlap, states Unsworth, partial overlap is meant, since complete overlap would not cause ambiguity. She also states that overlap means 'overlap between forms in the input of the two languages' (p.155) Crucial to this idea is that the child can consider these overlapping items as equal. Nicoladis (2012) also tried to explain overlap more clearly. She proposed overlap as 'the existence of the same underlying structure in both of a bilingual's languages' (p.321). She explains ambiguity as 'the existence of more than one linguistic structure with roughly the same meaning' (p.321) (within one language).

For the first condition, Unsworth stated in 2013 that further research has showed that it was too strict, since CLI has been observed in other areas too (see also Nicoladis 2006 for an overview). What stays, is that the first condition means that 'the phenomenon in question is realized similarly in the two different languages'. In other words: in the same domain. Although only the 'C-domain' was too strict, it still holds that the phenomenon has to be realized in the same domain.

For the present research, this latter condition is not met, because the phenomenon in this research is not realized in the same domain, since in Dutch it is realized in the C-domain and in French in the I-domain, as can be seen in (14) and (35), here repeated as (52) and (53):

(52)_{[CP De jongen_i [_C verft_j [_{IP} hem_k [_i [_{VP} t_i [_{V'} t_k [_V t_j]]]]]]]]}

(53)_{[IP Marie [_{CLP} t_i [_{CL} la] [_{VP} dessine [_V t_i]]]]}

The second condition is also not met. Although there seem to be ambiguity in the comprehension of Dutch direct object pronouns (the so called PIP), following Liceras (2011), Nicoladis (2012) and Unsworth (2003) the second condition is not met: French and Dutch do not have (partial) overlap when it is about the structure of (co-)referential sentences, since French uses clitics, while Dutch uses direct object pronouns. That means that there is no overlap between forms in the input, as Unsworth (2003) explains partial overlap, nor is there the same underlying structure as Nicoladis (2012) explains overlap.

Since both conditions are not met, CLI is not expected. This does by no means mean that we cannot use the hypothesis of H&M for the present research, since it is interesting to check if CLI indeed would not occur in this research. As said before, H&M state that CLI is predicted when there is structural ambiguity. However, there are studies who show evidence of CLI while there is no structural ambiguity. For example Nicoladis (2002) who showed that CLI occurred in the production (although not in the comprehension) of compound nouns by bilingual French-English children. On the other hand there are also studies who show that there was no CLI, although it was predicted, because of structural ambiguity. For example Zwanziger et al. (2005), who did a study on subject omission in Inuktitut-English bilingual children.

Besides these examples on the occurrence or absence of CLI, Unsworth (2003) states that H&M implicitly say that condition 1 supposes that the phenomenon under research 'will be realized similarly in the two different languages' (p.155), which means that condition 1 'can only apply to something which is realized within the same domain in the two languages in question'. Unsworth (2003) supposes the possibility of the existence of phenomena and language combinations where condition 1 is met, but CLI occurs anyway. In 2013 she stated that further research has shown that condition 1 was too strict, although she did not clearly stated that CLI was found in phenomena which are in different domains in two languages, only that CLI was observed in other areas. Therefore it is interesting to test H&M's hypothesis anyway.

1.6.4.5 Bilingual Bootstrapping

Gawlitzeck-Maiwald and Tracy (1996) proposed a different approach, the Bilingual Bootstrapping Hypothesis. It says that (syntactic) properties that has been acquired in one language, can boost the development of the other language. In other words, the more developed language will boost the acquisition of the less developed language. Gawlitzeck-Maiwald and Tracy see this as a plausible account of cross-linguistic influence. However, there is some criticism, for example by Meisel (2001) who states that this approach needs more research to gather stronger evidence, because it is based on only one case study. Hulk and Müller (2000) argued also against this hypothesis, but their study was with more or less balanced bilinguals (Kupisch 2007).

Kupisch' study (2007) is already mentioned in 1.6.3.2, but repeated here in short. Kupisch did a study on the acquisition of German determiners in German-Italian bilingual children to test if language dominance and CLI are related. What she found was, that the German-Italian children in her study did acquire German determiners faster than their monolingual peers. The explanation Kupisch gave is that the German determiner system is more complex than the Italian one, therefore the simple Italian system facilitates the German system, which leads to acceleration. This can be seen as evidence for the Bilingual Bootstrapping Hypothesis.

Although it is not the case with the PIP that a certain property is not yet acquired, there are definitely difficulties with that certain property (namely the erroneously coreference of object pronouns) in

Dutch. Therefore one might think that the Bilingual Bootstrapping Hypothesis might work too for the PIP in bilingual French-Dutch children, especially when one take into account the research of Kupisch (2007) where the simple system facilitates the more complex system.

While Müller and Hulk (2001) state that dominance is not a responsible factor for CLI and it is exclusively due to language internal factors like structural overlap, Unsworth (2013) states that dominance and the relative amount of exposure, which are language external factors, are the most common predictors of CLI. Paradis and Navarro (2003) studied subject realization in bilingual Spanish-English children to see if CLI was due to language internal (syntax/pragmatics interface) or language external (input) factors. Their conclusion was that in their study CLI occurred the way it was predicted by Müller and Hulk (2001), but Paradis and Navarro also concluded that the evidence is not convincing, so it is still unclear if CLI is caused by an internal or an external factor. In 2009, Foroodi-Nejad and Paradis did a similar study, but with the acquisition of compound words in Persian-English bilingual children as topic. They concluded that their data showed evidence for the language internal factor of structural overlap, but also for the language external factor of dominance.

So in sum, there is no consensus on the nature of the factors that are involved in CLI. However, as discussed above, these approaches are very useful, because they make clear that for the present research there should be two groups, one dominant in French, the other dominant in Dutch, in order to determine what factor is responsible for CLI. Also, following Hulk and Müller (2000) and Müller and Hulk (2001), the occurrence of CLI is not predicted for the data in the present research, but if CLI occurs anyway, this research might contribute to understand about what causes CLI and/or when it is predicted.

1.6.5 Cross-linguistic influence in the acquisition of object pronouns and PIP in 2L1 children

So far, very little studies have been found which investigated CLI in simultaneous bilingual children with the interpretation of (co-)referential object pronouns or clitics as topic of research. In this paragraph, the two studies found will be discussed.

Varlokosta and Dullaart (2001) did a study on Greek-Dutch bilingual children to provide evidence for the hypothesis that in 2L1A both languages develop with separated grammatical systems from the beginning and that these systems do not interfere with each other during the acquisition. The participants were 10 bilingual Greek-Dutch children between 3;3 and 7;6. They were presented an acting out story as a Truth Value Judgment Task (TVJT). The researchers used a blindfolded puppet who had to guess what happened. The children were asked to judge the answers of the puppet. The order of items and languages were mixed for every child. Results showed that no interdependence was found. The only interesting aspect found was a lower percentage of correct answers in the Dutch control sentences. Varlokosta and Dullaart say that this might possibly be due to the fact that Greek was the dominant language of the children.

Sanoudaki (2003) did a study on bilingual English-Greek children to find out if CLI would occur in the acquisition of pronouns, since in English, a PIP exist, while in Greek it does not.

Greek has two types of pronouns, clitics and strong pronouns, the latter respecting the criteria for demonstratives, which explains the absence of a PIP in Greek.

Ten Greek-English children were tested, age 4;1 to 6;7, they were presented an acting out story as a Truth Value Judgment Task in the same way Varlokosta and Dullaart presented their task to the children. Half of the children got the English task first, half the Greek task first. The results showed

that no CLI was found, in other words, the bilingual children acted like monolinguals in both languages.

Although the hypothesis of Hulk and Müller (2000) is not actually tested by Varlokosta and Dullaart (2001) and Sanoudaki (2003), one could say that based on their studies Hulk and Müller's hypothesis seems to be borne out for this grammatical phenomenon, at least for Greek-Dutch and English-Greek bilingual children. Since English-Greek and Greek-Dutch do not satisfy the conditions of Hulk and Müller's hypothesis, CLI would not have been predicted for these language pairs. Both studies show no signs of interference between the language pairs, so that means that Hulk and Müller's hypothesis seems to be right.

But, although English pronouns seem to 'work' more or less the same as Dutch pronouns, that does not apply for Greek and French, since Greek strong pronouns act like demonstratives, while French strong pronouns do not. Therefore it is still interesting to study Dutch-French bilinguals to see if CLI will occur there or not.

Chapter 2 Research questions, hypotheses and predictions

2.1 Research questions

Following from the theory above, this study aims to address the following research questions:

- 1) Is the acquisition of the PIP less problematic when French and Dutch are acquired simultaneously?
 - a. Does cross-linguistic influence occur in an experiment on PIP with French-Dutch bilingual children?
 - b. Does amount of input (used as a proxy for language dominance) play a role in this case?

2.2 Hypotheses

The hypotheses that will be tested for each respective research question are:

For research question 1a:

- There is no cross-linguistic influence at all, not from French to Dutch, nor from Dutch to French, so bilingual Dutch-French children would act the same as their respective monolinguals.
- There is bidirectional cross-linguistic influence, so from French to Dutch and from Dutch to French, which would lead to an acceleration in Dutch, but a delay in French.
- There is unidirectional influence from French to Dutch, which would lead to an acceleration in Dutch.
- There is unidirectional influence from Dutch to French, which would lead to a delay in French.

For research question 1b:

- Amount of input does play a role in this research study.
- Amount of input does not play a role in this research study.

For research question 1:

- The acquisition is indeed less problematic
- The acquisition is not less problematic

2.3 Predictions

For research question 1a no CLI is predicted, based on Müller and Hulk (2000) and Hulk and Müller (2001), since neither one of their conditions for the occurrence for CLI is met. This prediction is strengthened by the outcome of the studies of Varlokosta and Dullaart (2001) and Sanoudaki (2003),

since both studies have the same topic as the present research, although with different language pairs, and neither one of them did found CLI.

Although there is no consensus if language dominance or the amount of input can be an explaining factor for cross-linguistic influence, we can make predictions about research question 1b based on discussed researches from Chapter 1: While Müller and Hulk (2000) and Hulk an Müller (2001) had a mostly balanced bilingual as a participant for their research, Varlakosta and Dullaart (2001) and Sanoudaki (2003) had unbalanced bilinguals as participants and did not noticed any signs of CLI either. Therefore, for research question 1b it is predicted that language dominance would not play a role.

According to the predictions for 1a and 1b, no advantage of being French-Dutch bilingual is predicted for research question 1.

Chapter 3 Research methodology

To be able to answer the research question if amount of exposure plays a role, it was important that the French-Dutch bilingual participants had different dominant languages. Therefore they were searched in France and in the Netherlands, since in that case it would be very likely that there would be a clear difference between French dominant and Dutch dominant bilinguals. A questionnaire to calculate the amount of exposure was needed to be able to see what the dominant language of a participant was or if the participant was a balanced bilingual. To be able to answer the research question if CLI does occur, a Truth Value Judgment Task (TVJT) was set up for both languages. In this chapter, more detailed information about the participants, the questionnaire and the TVJT can be found. Furthermore, possible confounds and how to avoid them are discussed in the last paragraph of this chapter.

3.1 Participants

The initial group of participants consisted of 33 bilingual Dutch-French children. 18 of them lived in France, 15 in the Netherlands. All participants were aged between 4 and 8 and were recruited in and around Paris, France and in Amsterdam, the Netherlands.

Two of the children living in France were excluded, due to a yes-bias⁹. One of the children living in France refused to make the Dutch part of the test, but he is included for the French part. Two siblings living in France (one of them excluded) had two Dutch parents, all the other participants had one Dutch parent and one French parent.

The participants were divided into two groups:

1. French-Dutch bilingual children living in France
2. French-Dutch bilingual children living in the Netherlands

This division is made in order to control the variable amount of input and to test research question 1b.

Participants were also divided into five age groups (4, 5, 6, 7 and 8 years old) in order to determine possible age effects on the interpretation of pronouns.

Most participants were attending language classes in their minority language. The children living in France were attending Dutch language lessons at the Institut Neerlandais in Paris. The participants living in the Netherlands were attending French language lessons at the Association en Famille in Amsterdam. It can thus be assumed that all children have some proficiency in both languages.

3.2 Tasks

For the present research, a Truth Value Judgment Task and a Questionnaire were run. Both will be presented in this paragraph.

⁹ A yes-bias does occur a lot with very young children. If a yes-bias occur, the children do always answer yes on yes-no questions in a research.

3.2.1 Truth Value Judgment Task

The participants were presented with two Truth Value Judgment Tasks (TVJT) (based on Crain & Thornton 1998), one in Dutch and one in French. They were told short stories, while in the meantime pictures on a computer screen were shown to them. A puppet was also listening to the story, but he was not allowed to watch the pictures. For every story there were several pictures, and for each picture the puppet was asked if he could guess what had happened. The puppet was used during these tasks to avoid that children had to judge sentences directly, causing doubt or even fear to answer. Using a puppet could relieve the children from this pressure. To make them feel comfortable with judging the puppet's answers, the child had to reward the puppet with a candy when he answered right and with an uncooked piece of pasta when the answer was wrong.

In the TVJTs, Simple Case (SC) constructions and Exceptional Case Marking (ECM) constructions are tested. The whole picture books and stories can be found in Appendix A, but in figure 1 an example of it can be seen:



Onderzoeker: *Vanmiddag gaat Jeroen met zijn vader naar een feestje. De afspraak is dat iedereen geverfd komt, dus Jeroen en zijn vader pakken de verfspullen en gaan verven. Jeroen weet nog niet wat hij wil, maar zijn vader weet het al wel. Thomas, kun jij raden wat er gebeurd is?*

Thomas de Clown: *Hmm...een jongen en een vader... ik weet het! De vader heeft hem geverfd!*

Kind: ...

Figure 1. An example of a part of a story in the experiment.

The French task and the Dutch task were not presented on the same day, but with at least one week in between, so every session was not too long for the participants and memory could not be a possible confound. The Dutch task was always the first one, the French one always the second. The ratio male/female sentences was roughly half-and-half, to avoid possible confounds based on gender.

All French sentences in the task were previously checked by a French near-native speaker.

Unfortunately it was not possible to let the puppet be played by a research assistant. In most cases the mother or the father of the participant was asked to play the role of the puppet, of course with very stringent instructions and some practice before the actual test started. In other cases the researcher performed both the story telling and the puppet role, but used a somewhat different voice for the puppet.

3.2.2 Questionnaire

In order to calculate the amount of input, the UBILEC (Utrecht Bilingual Language Exposure Calculator), Unsworth (2011) was used. This is a language background questionnaire for the parents, which can be taken as an interview. This questionnaire calculates the average percentage of language exposure on the basis of several quantitative and qualitative factors like age of first

exposure and a fine-grained system of who speaks which language and how much, and the amount of contact between the child and this person.

This questionnaire was taken in order to measure the amount of input in the two languages to which both groups of children were exposed.

Most of the time the questionnaire was taken as an interview. Sometimes the parents did not have time to do the interview right after their child participated in the research. In that case they filled it in later and sent it to the researcher. For this reason the questionnaire was provided both as a Word-file and in the original Excel-file. Next to the fill-in fields additional questions were provided in order to help parents through the questionnaire.

At the end, 27 questionnaires were filled in, 13 from parents living in France, 14 from parents living in the Netherlands.

3.3 Possible confounds

When doing a research with bilingualism as a topic, there are a lot of factors one has to take into account, much more than when one would do a research on L1 acquisition. If you do not take into account these factors, possible confounds could arise. To avoid these, the following measures have been taken into account:

3.3.1 Socio-economic status

Stahl (1999) found in his research that children who belong to a family in the lower socio-economic class hear approximately 615 words per hour, children from middle class families hear about 1251 words per hour, while children from the highest socio-economic class hear 2153 words per hour. Of course these numbers are relative, but still, there is an enormous difference between socio-economic statuses (SES). This difference of amount of input can lead to a difference in language proficiency and therefore it is important to control this variable. Based on the UBILEC, all children in this research are from high(er) SES families, but what we see is that even in high SES families the percentage of the amount of input of the minority language can vary.

3.3.2 2L1 or Child L2

There is an important difference between 2L1 acquisition and Child L2 acquisition, therefore it is important to be sure that age of exposure is as much the same as possible. For this research it is necessary that the participants are simultaneous bilingual children who had been exposed to both languages from birth or early after it. The youngest children in this research are 4 years old and if they started late with acquiring the other language, there is a possibility that the participants did not know the minority language well enough to understand the stories in the experiment. Besides this, Unsworth (2005) states that there is no consensus about the cut-off point for making a difference between 2L1 acquisition and child L2 acquisition, but she chooses for 4 years, because at that time children have acquired most of the important grammatical features in their L1.

So, taking both arguments into account, only simultaneous bilingual children who had been exposed to both languages from birth or early after it, were included into the test group.

3.3.3 Memorizing

To avoid the possible confound of memorizing, the French task and the Dutch task were not presented at the same day, but with at least one week between both tasks. Memorizing could lead to wrong answers, since they seem to know how it works, or because their mind was still too much involved with the other language.

3.3.4 Amount of exposure

The amount of exposure itself can be a possible confound too. Since this topic is part of the research questions, it is taken care of as being a possible confound. Half of the participants is living in France, the other half in The Netherlands. Every participant was tested on amount of exposure and thus on language dominance, since this might be used as a proxy for amount of exposure. Both groups were compared with each other to see if the outcomes are different. It can be seen in Chapter 4 that differences were found between both groups.

Chapter 4 Results

In this chapter the results of the experiment will be described. In the first paragraph, a summary of the participants will be given. In the second paragraph, the results of the questionnaire will be given to show how (un)balanced the participants were in their languages. In the third paragraph, the results of the Truth Value Judgment Task will be given, sorted per control condition and per test condition. The statistical analyses will also be given in this paragraph, as well as some discussion about the results. A more extensive discussion can be found in Chapter 5.

4.1 Participants summary

To recall 3.1 here, we give a summary of the participants. At the start, 33 bilingual Dutch-French children took part in this research, 18 of them were living in France, 15 in the Netherlands. Two of the French children were completely excluded from the test, due to a yes-bias. One of the French children refused to make the Dutch part of the test, but he is still in it for the French part. Two siblings from French (one excluded) had two Dutch parents, all the other children had one Dutch parent and one French parent.

Table 4.1 presents the division of the participants in age groups. Unfortunately it was impossible to make all groups homogeneous during this study.

	Total participants per age group	Participants living in France	Participants living in the Netherlands
4 year olds	9	3	6
5 year olds	6	3	3
6 year olds	6	4	2
7 year olds	6	2	4
8 year olds	4	4	0
Total	31	16	15

Table 4.1 Distribution of participants in the age groups.

4.2 Results questionnaire

The questionnaire was important in order to be able to classify the participants into different groups, namely dominant in French, dominant in Dutch or balanced bilingual. The UBILEC (Unsworth 2011) was used to measure the amount of exposure of the minority language¹⁰. By the end of the survey period, data had been collected from 27 parents, 14 of whom were living in the Netherlands and 13 in France. The results of the questionnaire are summarized in table 4.2.

¹⁰ In the present study the following definition of *minority language* is used: The language that is not spoken in the country the participants live in. So for the children in France their minority language is Dutch, for the children living in the Netherlands, their minority language is French.

	Weekly basis	Holidays included
Amount of input of Dutch in France	11-39%	19-50%
Amount of input of French in the Netherlands	9-31%	17-56%

Table 4.2 Amount of input of the minority language

From this table, it can be seen that the amount of input of the minority language is roughly the same for participants in both countries. Two exceptions were found in the data. The first was two siblings living in France got 56% Dutch input on a weekly basis, and with holidays included 48%. This was probably due to the fact that both parents were Dutch. The second was two siblings in the Netherlands who got 61% on a weekly basis and with holidays included even 73% French input. This was due to the fact that they lived with their French mother most of the time, so this household was completely French (including French radio and French television).

Table 4.3 shows a distinction between balanced and unbalanced participants in both countries. This distinction is based on Unsworth (to appear) who states that a child is dominant in a language when the amount of exposure to that language is 65% or higher.

	Dominant in French	Dominant in Dutch	Balanced
Participants living in France	12	0	4
Participants living in the Netherlands	0	13	2

Table 4.3 French dominant, Dutch dominant and balanced participants in both countries.

These results confirm the intuitions about the amount of minority language a child is exposed to on a weekly basis, namely that the exposure is not 50/50 and thus that this data can be used to find an answer on the research question if amount of exposure does play a role in this research. The balanced bilinguals were of course held apart while doing statistical analysis.

4.3 Results TVJT

In this paragraph, the results of the TVJT will be presented. At first, the results of the Simple Case sentences will be presented, then the results of the ECM sentences. For every part of the task, an example from the test (picture + story) will be shown. The full TVJT can be found in Appendix A, as said above. All results are compared to monolingual results from comparable researches, in order to see if cross-linguistic influence occurred. Both bilingual groups are compared with each other, in order to see if language dominance played a role. Tables and graphics are used to show the results in an orderly way. Statistical analysis is done with the test sentences to check if any of the found differences was a significant difference. Given the small sample of this research, we opted for treating the data as non-parametric and therefore, for this analysis is chosen for the non-parametric Mann-Whitney U test. The results of the balanced participants are shown in the tables and graphs, but not in the statistical analysis due to practical constraints. In almost all results from the test sentences the results of the balanced bilinguals lie between results of other groups. Since all other groups were compared with each other, it was not necessary to compare them also with this group.

Besides, the focus of this study is CLI and language dominance, therefore the most important separation that has to be made was to separate the balanced bilinguals from the bilinguals with a dominant language in order to be able to study if language dominance would play a role. At the end of this paragraph, an overview of the results will be given as a summary.

4.3.1 Simple Case sentences

In this paragraph the results of the Simple Case sentences, so sentences like *De jongen heeft hem aangeraakt*, from the Truth Value Judgment Task will be shown. The control and test sentences in both languages will be discussed.

4.3.1.1 Dutch control sentences

The Dutch SC control sentences were sentences like *De moeder heeft zichzelf vastgepakt*.¹¹ An example of a story with a picture can be seen in figure 2.



Verteller: Nu is Sarah aan de beurt. Ze denkt even na en roept dan 'been'! Nu moet haar moeder haar eigen been vastpakken of het been van Sarah. Wat zou ze gaan doen? Thomas, kun jij raden wat er gebeurd is?

Thomas: Een meisje en een moeder...Ik weet het! De moeder heeft zichzelf vastgepakt.

Figure 2. An example of a Dutch SC control sentence in a story.

In this sub-paragraph the results of these control sentences are discussed.

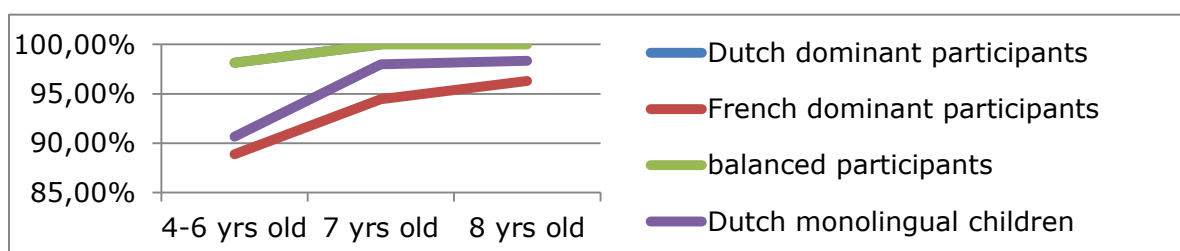
As shown in table 4.4, the Dutch dominant and the balanced participants scored between 94-100%, the French dominant participant somewhat lower, but all ages around or above 89%. When compared to the control conditions from the Philip and Coopmans's experiment (1996a) in the last column, we see that the Dutch dominant and the balanced participants scored somewhat higher, whereas the French dominant participants scored somewhat lower.

¹¹ See Appendix A for the text and picture books with all the test and control sentences

	Dutch dominant participants	French dominant participants	Balanced participants	Monolingual Dutch children ¹²
4 yrs old	100,00%	88,89%	100,00%	90,66%
5 yrs old	94,44%	88,89%	94,44%	
6 yrs old	100,00%	88,89%	100,00%	
7 yrs old	100,00%	94,44%	100,00%	98%
8 yrs old	-	96,30%	100,00%	98,33%

Table 4.4 Percentage good answers per age group of Dutch SC control sentences

In graph 4.1, the 4-6 year olds from the present research were combined to make a better comparison with Philip and Coopmans's (1996a) results. What we see from this graph, is that the Dutch dominants and the balanced bilinguals obtained the highest scores, the French dominants the lowest and the Dutch monolinguals scored between these other groups. However, all groups did score between 89% and 100%, where 100% is adult-like. That means that all groups did score (highly) adult-like.



Graph 4.1 Percentages of good answers of Dutch SC control sentences.

The Dutch dominant participants got the same scores as the balanced participants and are therefore invisible in the graph.

Because these sentences are control sentences, it was expected that all participants scored somewhat the same. However, they did not, since the Dutch dominants and the balanced scored higher than the monolingual Dutch children. Especially for the 4-6 years old children, there is a (non-significant) difference of about 7%. Also, the French dominant children scored lower than the Dutch dominant children, which might be due to a bit lower language proficiency of Dutch for the French dominant bilinguals when compared to the language proficiency of the Dutch dominant children. Since no significant differences are found between Dutch dominant and French dominant participants¹³, all results are within the range of how much the percentage of correct given answers are allowed to be this far apart from each other. In other words, all groups scored (highly) adult-like.

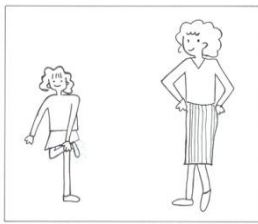
¹² The monolingual data for the Dutch SC control and test conditions come from Philip and Coopmans's research (1996a), Experiment 1. For those means of good answers, only the control conditions who were also used in the current research are used. Philip and Coopmans put the 4-6 years old children in one group, that is why there is only one mean rate of good answers instead of one for each age. In their research, there were 37 4-6-year old children, 20 7-year olds and 11 8-year olds.

Experiment 2 of Philip and Coopmans's research is not used for the present research, because it was less the same as the experiment from this research than Experiment 1 is.

¹³ Mann Whitney U test: 4 yrs: $p = .286$, 5 yrs: $p = .667$, 6 yrs: $p = .400$, 7 yrs: $p = .400$

4.3.1.2 Dutch SC test sentences

In this sub-paragraph the results of the Dutch SC test sentences, like *Het meisje heeft haar vastgepakt*, are discussed. An example of a story with a picture can be seen in figure 3.

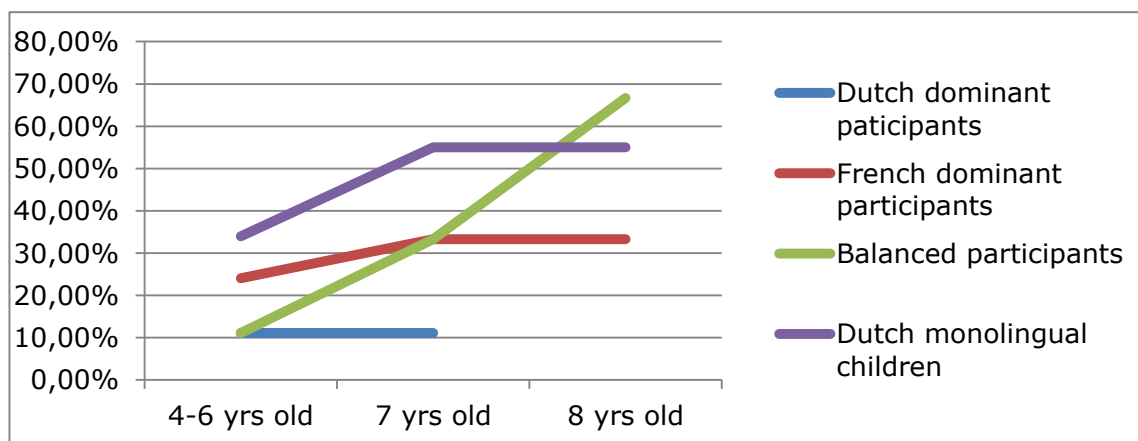


Verteller: *Als laatste zijn Lisa en haar moeder aan de beurt. De moeder van Lisa mag bedenken wat Lisa moet vastpakken. Ze zegt 'been'. Thomas, kun jij raden wat er gebeurd is?*

Thomas: *Hmm... een meisje en een moeder... Ik weet het! Het meisje heeft haar vastgepakt.*

Figure 3. An example of a Dutch SC test sentence in a story.

Graph 4.2 shows that none of the groups did show adult-like or highly adult-like, which should be 94% based on the adult control group Philip and Coopmans (1996a) used for their study.



Graph 4.2 Percentage good answers per age group for Dutch SC test sentences

The monolingual children scored the highest, except for the 8 years old balanced bilinguals, but what is interesting here, is that the French dominant children scored higher than the Dutch dominant children. This is surprising, because, based on what was seen with the control sentences and given the prediction that CLI would not occur, Dutch dominant children were expected to score the same as French dominant participants. Or, if there was any difference, this should have been like in the control sentences, namely that the Dutch dominant children did score better than the French dominant participants, probably based on their language proficiency. However, the opposite is the case. The French dominant participants scored better with the Dutch SC sentences than the Dutch dominant children.

Before taking a closer look at these results, it is important to keep in mind that the mean age of the monolinguals is 5,11, while the mean age of the French dominants is 5,1 and the mean age of the Dutch dominants is 4,6. In other words, there is a big difference between the mean age of each group of participants. That means that the comparison of graph 4.2 is not really a fair comparison. Therefore, it is important to look also at table 4.5, where the age group 4-6 is separated. It can be seen from the percentages in table 4.5 that while the Dutch dominant and the balanced participants start giving correct answers from at least 6 years of age, the French dominants start giving correct answers already at age 5. Unfortunately we do not have the results of the monolingual research split by age, so it is impossible to compare every age group one on one.

	Dutch dominant participants	French dominant participants	Balanced participants	Monolingual Dutch children ¹⁴
4 yrs old	0,00%	0,00%	0,00%	34%
5 yrs old	0,00%	50,00%	0,00%	
6 yrs old	33,33%	22,22%	33,33%	
7 yrs old	11,11%	33,33%	33,33%	55%
8 yrs old		33,33%	66,67%	55%

Table 4.5 Percentages of good answers per age group on Dutch SC Test sentences

Since the French dominants scored better than the Dutch dominants, we may think that the French dominants show CLI from French to Dutch. This is not predicted by our hypothesis. To test if CLI indeed occurred, the results of the monolinguals were compared with the Dutch dominant participants and with the French dominant participants. However, results from the Mann Whitney U-test did not show any significant difference at all, as is shown in table 4.6.

	NLmono x NLdom	NLmono x FRdom	FRdom x NLdom
4 years old ¹⁵	-	-	-
5 years old			.333
6 years old			.800
4-6 years old	.175	.745	.093
7 years old	.309	.866	.400
8 years old ¹⁶	-	-	-

Table 4.6 p values of Mann Whitney U-test

The results of the French dominants and of the Dutch dominants were compared also, to check if language dominance plays a role in the differences between these two groups. The results were compared with a Mann Whitney U-test. Results did not show any significant differences, as can be seen in the last column of table 4.6.

In summary, for the Dutch SC test sentences, although French dominant participants start earlier than Dutch dominants with giving correct answers, no significant differences were found between all groups.

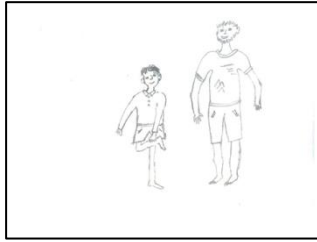
¹⁴ Again these monolingual data come from the research by Philip and Coopmans (1996a), Experiment 1.

¹⁵ All 4 year old children did score 0%, so no Mann-Whitney U test could be done on the 4 year olds.

¹⁶ There were no 8 year old Dutch dominant participants, so no Mann Whitney U test could be done.

4.3.1.3 French Control sentences

The French control sentences were sentences like *Le garçon s'est gratté*. In this sub-paragraph the results of those sentences were presented.



Verteller: Maintenant c'est le garçon qui a beaucoup de démangeaisons. Daan, tu peux deviner ce qui s'est passé ?

Daan : Hmm...une père et un garçon...je sais. Le garçon s'est gratté.

Figure 4. An example of a French SC control sentence in a story.

Table 4.7 shows the French dominant scored between 94-100%, the balanced participants and the monolinguals scored between 89% and 100% and the Dutch dominant children scored a bit lower, namely between 78% and 89%.

	Dutch dominant participants	French dominant participants	Balanced participants	Monolingual French children ¹⁷
4 yrs old	85,19%	94,44%	88,89%	89%
5 yrs old	77,78%	94,44%	100,00%	100%
6 yrs old	88,89%	100,00%	88,89%	98%
7 yrs old	88,89%	100,00%	100,00%	
8 yrs old		100,00%	100,00%	-

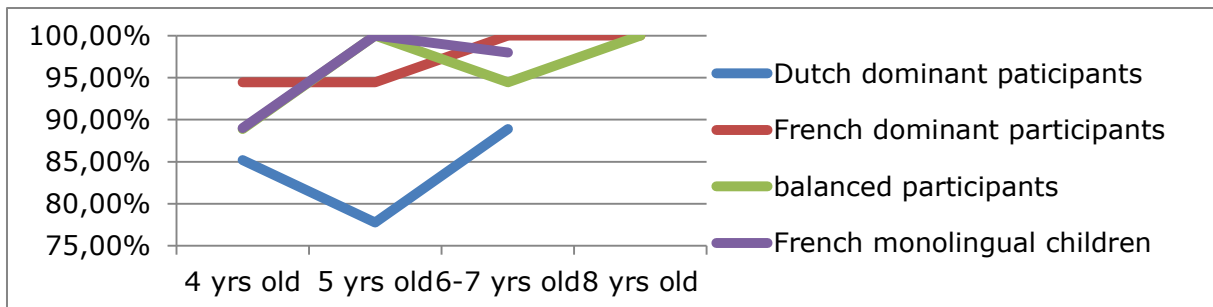
Table 4.7 Percentages of correct answers per age group of French SC control sentences

In Graph 4.3, the 6 and 7 year olds from the current research were combined to make a better comparison with the research results of Hamann, Kowalski and Philip (1997). As with the Dutch control sentences, it was expected that all participants scored somewhat the same. But, what we see from this graph, is that the Dutch dominants scored much lower than the other three groups, who obtained a more or less similar score, namely highly adult-like. The lower score of the Dutch dominant children might be explained by their lower proficiency in French. Because a proficiency test was not included in the present research, it is unclear if this is indeed the reason for the lower score. However, a statistical analysis to compare the Dutch dominant participants with the French dominant participants shows that this difference was not significant¹⁸.

In other words, although the Dutch dominant participants scored lower than the other groups, all groups scored (highly) adult-like.

¹⁷ The monolingual data for the French SC control and test conditions come from the research by Hamann, Kowalski and Philip (1997). For those means of good answers, only the control conditions who were also used in the current research are used. Hamann, Kowalski and Philip put the 6-7 years old children in one group, that is why there is only one mean rate of good answers instead of one for each age. They did not tested 8 years old. In their research, there were 9 4-years old children, 8 5-year olds and 16 6-7-year olds.

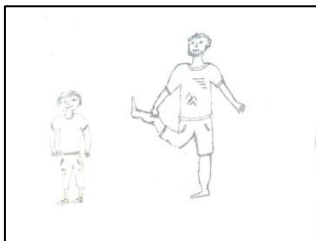
¹⁸ Mann Whitney U test: 4 yrs: $p = .286$, 5 yrs: $p = .667$, 6 yrs: $p = .200$, 7 yrs: $p = .400$



Graph 4.3 Percentages of correct answers per age group of French SC control sentences

4.3.1.4 French test sentences

The French SC test sentences were sentences like *Le père l'a gratté*. Those test sentences will be discussed in this sub-paragraph.

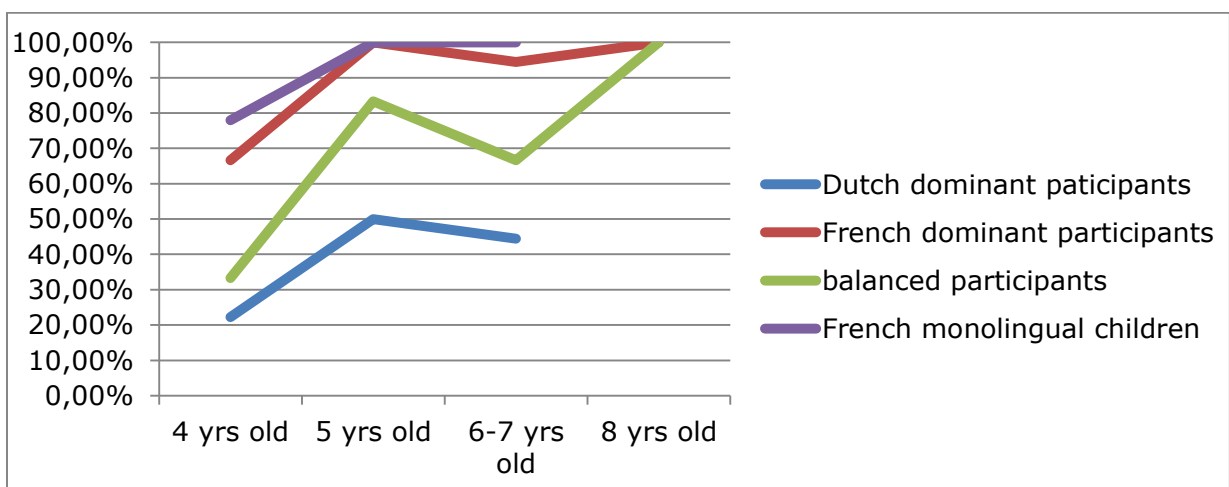


Verteller: Le garçon et son père continue. Peut-être tous les moustiques sont là parce que il y a une étang. Donc ils se promènent dans l'autre sens. Le père a beaucoup de démangeaisons. Daan, tu peux deviner ce qui s'est passé ?

Daan: Un garçon et un père...je sais. Le père l'a gratté.

Figure 5. An example of a French SC test sentence in a story.

In Hamann, Kowalski and Philip's (1997) study, which is used as a baseline for the French monolingual data, an adult control group participated. They gave the expected answers 100% of the time. From graph 4.4 and in table 4.8 we can see that no 4 year old acted adult-like, but the French monolinguals and the French dominant participants did show (highly) adult-like from 5 years on. The occurrence of CLI was not predicted, so it was expected that all participants scored more or less the same. However, graph 4.4 shows clearly that the French monolingual children and the French dominant participants achieved the highest scores, the Dutch dominant participants the lowest, while the balanced bilinguals scored somewhere in between.



Graph 4.4 Percentages of correct answers per age group of French SC test sentences

However, when taking a closer look at table 4.8, it can be seen that the graph is a bit misleading, since 6-7 years old is one group there. The separated percentages in table 4.8 give a somewhat

different view, since we can see there that all 6 years old scored lower than the 5 years old children. But still, the big difference remains between French monolinguals and French dominants at one side and Dutch monolinguals at the other site.

	Dutch dominant participants	French dominant participants	balanced participants	Monolingual French children ¹⁹
4 yrs old	22,22%	66,67%	33,33%	78%
5 yrs old	50,00%	100,00%	83,33%	100%
6 yrs old	33,33%	88,89%	33,33%	100%
7 yrs old	55,56%	100,00%	100,00%	
8 yrs old		100,00%	100,00%	-

Table 4.8 Percentages of correct answers per age group of French SC test sentences

The big differences between the results might be due to a lower proficiency of French for the Dutch dominant children, but it might also be the case that a high percentage of Dutch input causes the lower percentage of correct answers from the Dutch dominant children. In other words, it might be possible that language dominance is the reason for the different scores.

But before speculating about the reason for the lower score of the Dutch dominant children, it is important to check if there is a significant difference between the several scores. The results of the Mann Whitney U test, which was done to check this, are presented in table 4.9. It can be seen from this data that significant differences were found between the results of the French monolinguals and the Dutch dominant bilinguals in all age groups. In other words, the comparison of the results of the present study with Hamann, Kowalski & Philip's (1997) show that Dutch dominant children make significantly more mistakes in the French SC test sentences than French monolinguals. A significant difference was also found between the results of the French dominant and the Dutch dominant bilinguals, but only for the age group 4-6 years old children. In other words, the French dominant children scored significantly higher than the Dutch dominant children for the French SC test sentences.

¹⁹ Again these monolingual data come from the research by Hamann, Kowalski and Philip (1997).

	FRmono x FRdom	FRmono x NLdom	FRdom x NLdom
4 years old	.727	.050	.286
5 years old	1.000	.044	.333
6 years old			.200
4-6 years old			.002
7 years old			.400
6-7 years old	.548	.006	
8 years old	-	-	-

Table 4.9 p-value of Mann Whitney U test on French SC test sentences

Those results look like a delay of French, but only for the Dutch dominant children, that means, for the children who get less than 35% input of French. The question is, is this delay due to CLI (caused by language dominance) or is this just due to a low proficiency of French? This will be further discussed in Chapter 5.

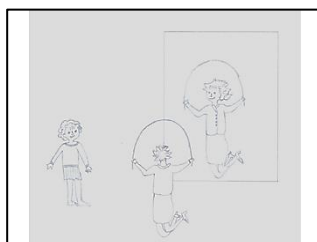
In summary, for the French SC test sentences, French monolinguals scored significant higher than Dutch dominant children in all age groups and French dominant children scored significant higher than Dutch children, but only in age group 4-6 years old.

4.3.2 ECM sentences

In the previous paragraph, the results of the Simple Case sentences from the Truth Value Judgment task were presented. In this paragraph the results of the Exceptional Case Marking (ECM)-sentences will be shown. As in the previous paragraph, the control and test sentences in both languages will be discussed.

4.3.2.1 Dutch control sentences

The Dutch ECM control sentences were sentences like *De moeder zag zichzelf touwtje springen!* An example of a story with a picture can be seen in figure 5. In this sub-paragraph the results of those sentences were presented.



Verteller: Moeder vraagt of ze het ook eens mag proberen. Dat mag, Marie geeft het springtouw aan haar moeder en moeder gaat touwtje springen. Thomas, kun jij raden wat er gebeurde?

Thomas: Eh...een meisje en een moeder. Hmm...ik weet het! De moeder zag zichzelf touwtje springen!

Figure 5. An example of a Dutch ECM control sentence in a story

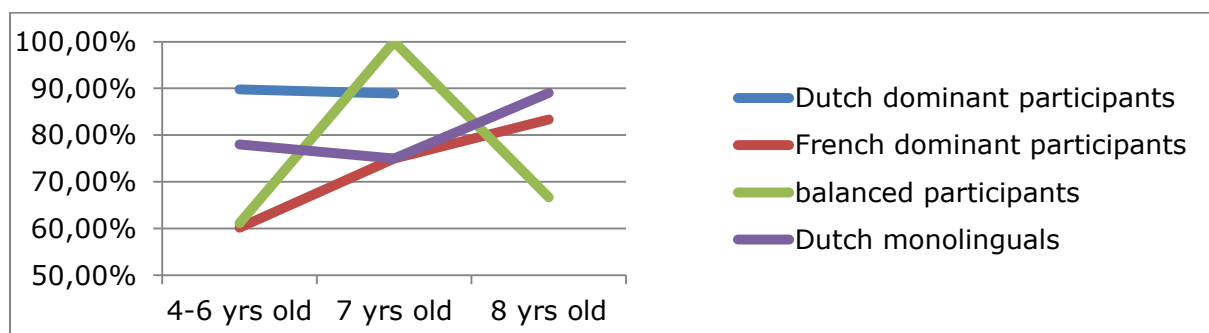
Table 4.10 shows the percentages of correct answers per age group of Dutch ECM control sentences. Philip and Coopmans (1996b) studied Dutch ECM sentences and used an adult control group. This group performed 100% on the control conditions.

When we look at table 4.10 we see that almost all age categories in all groups of participants show non adult-like scores, but also that the Dutch dominants scored much higher than the French dominants.

	Dutch dominant participants	French dominant participants	balanced participants	Dutch monolingual children ²⁰
4 yrs old	77,78%	25,00%	33,33%	78%
5 yrs old	100,00%	83,33%	83,33%	
6 yrs old	91,67%	72,22%	66,67%	
7 yrs old	88,89%	75,00%	100,00%	75%
8 yrs old		83,33%	66,67%	89%

Table 4.10 Percentages of correct answers per age group of Dutch ECM control sentences

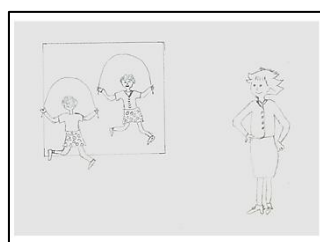
Graph 4.5 shows this in a more orderly way. However, statistical analysis did not show any significant difference between Dutch and French dominants²¹. Philip and Coopmans (1996b) reject any nonlinguistic confounding effect, but do not give an explanation for the target-deviant score of the monolingual children. Unfortunately, it is beyond the scope of the current research to examine this interesting difference.



Graph 4.5 Percentages of correct answers per age group of Dutch ECM control sentences

4.3.2.2 Dutch ECM Test sentences

In this sub-paragraph the results of the Dutch ECM test sentences, like *Het meisje zag haar touwtje springen*, are discussed. An example of a story with a picture can be seen in figure 6.



Verteller: Moeder wordt er een beetje moe van en stopt er mee. Ze zegt tegen Marie dat ze het heel knap vindt dat Marie het al zo goed kan en vraagt of zij weer wil. Dat wil Marie wel, maar ze vindt het wel leuk als haar moeder blijft kijken. Thomas, kun jij raden wat er gebeurd is?

Thomas: Hmm...een moeder en een meisje... Ja, ik weet het! Het meisje zag haar touwtje springen!

Figure 6. An example of a Dutch ECM test sentence in a story

²⁰ The monolingual data for the ECM control and ECM test conditions come from the research by Philip and Coopmans (1996b). For those means of good answers, only the control conditions who were also used in the current research are used. Philip and Coopmans put the 4-6 years old children in one group, that is why there is only one mean rate of good answers instead of one for each age. In their research, there were 10 4-years old children, 23 5-year olds and 23 6-year olds, 22 7-year olds and 13 8-year olds.

²¹ Mann Whitney U test: 4 yrs: $p = .286$, 5 yrs: $p = .333$, 6 yrs: $p = .400$, 7 yrs: $p = .400$.

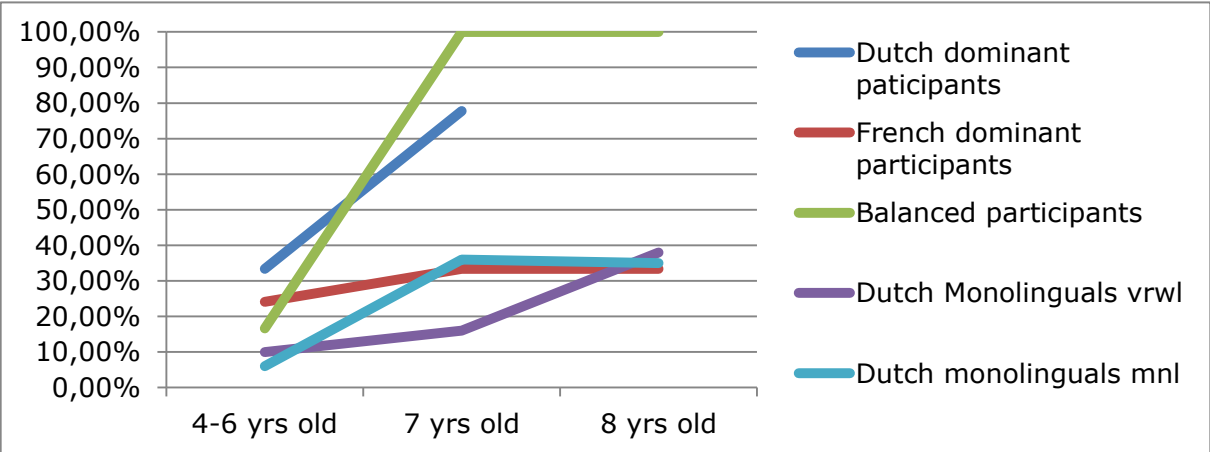
Table 4.11 presents the percentages of correct answers for Dutch ECM test sentences. The monolingual data for these sentences were from the aforementioned study by Philip and Coopmans (1996b). In their study, Philip and Coopmans make a distinction between test sentences with female subjects and test sentences with male subjects. They compared the two pronouns with each other and only at age 7 a significant difference was found. Since I did not have had access to the original data and results of this research, I choose to keep them apart from each other and compare both of them with the data from the current research . Philip and Coopmans had also an adult control group, they scored 97% correct given answers on the test condition.

In table 4.11 it can be seen that only the 7 and 8 years old balanced children from the current research acted adult-like.

	Dutch dominant participants	French dominant participants	Balanced participants	Dutch Monolinguals female sentences	Dutch monolinguals male sentences
4 yrs old	16,67%	0,00%	0,00%	10%	6%
5 yrs old	33,33%	50,00%	50,00%		
6 yrs old	50,00%	22,22%	0,00%		
7 yrs old	77,78%	33,33%	100,00%	16%	36%
8 yrs old		33,33%	100,00%	38%	35%

Table 4.11 Percentages of correct answers per age group of Dutch ECM test sentences

When looking at graph 4.6, it can be seen that the results of the Dutch monolinguals and the French dominant bilinguals lie close to each other.



Graph 4.6 Percentages of correct answers per age group of Dutch ECM test sentences

Table 4.12 shows the statistical analysis of the Dutch ECM test sentences. Significant differences were found between both monolingual conditions and Dutch dominant participants for all age groups except for 7 year olds monolingual male sentences. In other words, Dutch dominant participants scored significantly better than the Dutch monolingual children from Philip and Coopmans’s (1996b) study. This could mean that CLI occurs here from French to Dutch, but this would be strange, since French shows also signs of a PIP in this kind of sentences. In other words, French children have also problems with the correct interpretation of ECM-sentences, which makes

the occurrence of CLI less probable. Besides, the occurrence of CLI was not predicted for ECM sentences. Another option is that these data are just an experimental artefact, but if that is the case, the French dominant participants would be expected to score much higher too, since they made the same test and no difference between these groups was predicted. This issue will be further discussed in Chapter 5.

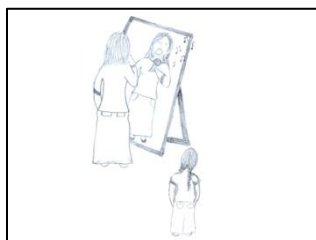
	NLmono x NLdom F	NLmono x NLdom M	NLmono x FRdom F	NLmono x FRdom M	NLdom x FRdom
4 yrs old					.857
5 yrs old					.667
6 yrs old					.400
4-6 yrs old	.001	.000	.168	.101	1.000
7 yrs old	.020	.177	.145	.587	.400
8 yrs old			1.000	.900	

Table 4.12 p-value of Mann Whitney U test on Dutch ECM test sentences.

4.3.2.3 French ECM Control sentences

The French ECM control sentences were sentences like *La fille la voyait chanter*

An example of a story with a picture can be seen in figure 7. In this sub-paragraph the results of those sentences were presented.



Verteller: La mère est dans une autre chambre, mais elle entend Marie qui chante. Elle revient dans la chambre avec le miroir et elle dit à Marie qu'elle chante très bien. Marie demande sa mère si elle veut chanter encore une fois. Elle veut bien. Daan, tu peux deviner ce qui s'est passé?

Daan: Hmm...une mère et une fille...oui, je sais. La fille la voyait chanter.

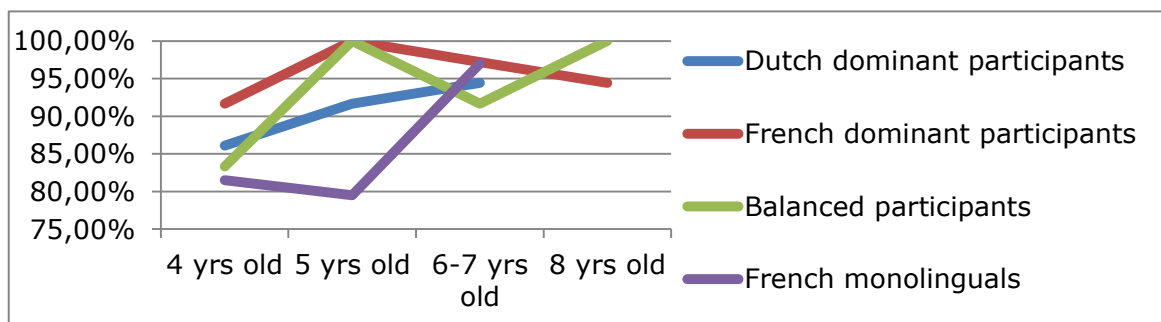
Figure 7. An example of an ECM-control sentence in a story

The results obtained for the French control sentences examined in the present study are summarized in table 4.13 and graph 4.7. The results of the adult control group in Hamann, Kowalski and Philip (1997) were at ceiling. Table 4.13 shows that from 5 years on all bilingual participants show (highly) adult-like responses, but the monolingual children perform only highly adult-like from 6-7 years on.

	Dutch dominant participants	French dominant participants	Balanced participants	French monolinguals ²²
4 yrs old	86,11%	91,67%	83,33%	81,5%
5 yrs old	91,67%	100,00%	100,00%	79,5%
6 yrs old	100,00%	94,44%	83,33%	97%
7 yrs old	88,89%	100,00%	100,00%	
8 yrs old	-	94,44%	100,00%	-

Table 4.13 Percentages of correct answers per age group of French ECM control sentences

The same can be seen from graph 4.7, but in a more orderly way.

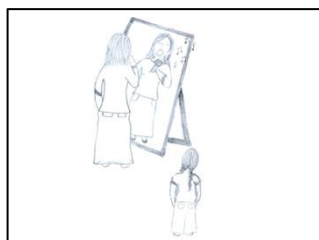


Graph 4.7 Percentages of correct answers per age group of French ECM control sentences

Table 4.13 shows that with regard to the 5 year olds, there is a difference of 10-20% between the monolingual children on the one hand, and the bilingual groups on the other. Since I did not have had access to the experimental data of Philip and Coopmans's (1996b) study, it cannot be explained well why these 5 year old monolinguals scored lower than all bilinguals. If we agree, as said in 4.3.2.1, with Philip and Coopmans (1996b) that a nonlinguistic confounding effect should be rejected, it is very interesting to see that this also seems to happen in French. Unfortunately it is beyond the scope of the current research to examine these differences.

4.3.2.4 French ECM test sentences

In this sub-paragraph the results of the French ECM test sentences, like *La mère la voyait chanter* are discussed. An example of a story with a picture can be seen in figure 6.



Verteller: La mère de Marie est chanteuse. Maintenant elle s'entraîne devant le miroir. Marie est aussie dans la chambre. Daan, tu peux deviner ce qui s'est passé ?

Daan: Je vais essayer. Une mère et une fille...je sais. La mère la voyait chanter.

Figure 8. An example of a French ECM test sentence in a story.

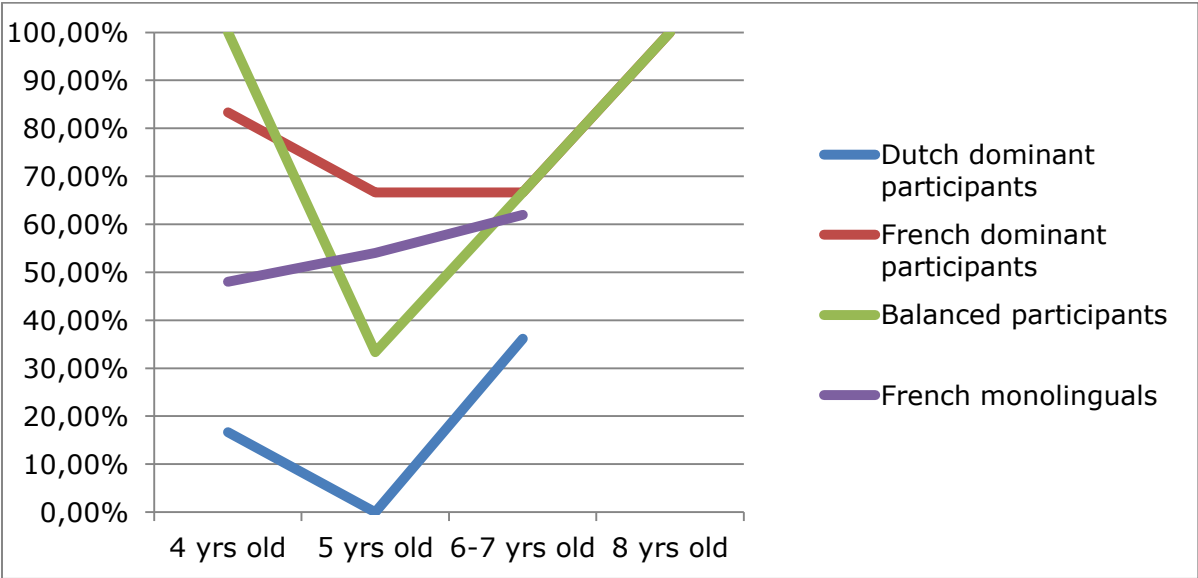
²² Again these monolingual data come from Hamann, Kowalski and Philip's (1997) research.

Table 4.14 and graph 4.8 show the results of the French ECM test sentences of the current research and, for the monolingual results, of the research of Hamann, Kowalski and Philip (1997). It can be seen from table 4.14 that the French dominant and the balanced 4 years old children show adult-like, but then both groups act non- adult-like at age 5 and 6, French dominants even at age 7.

	Dutch dominant participants	French dominant participants	balanced participants	French monolinguals
4 yrs old	16,67%	83,33%	100,00%	48%
5 yrs old	0,00%	66,67%	33,33%	54%
6 yrs old	16,67%	66,67%	33,33%	62%
7 yrs old	55,56%	66,67%	100,00%	
8 yrs old		100,00%	100,00%	-

Table 4.14 Percentages of correct answers per age group of French ECM test sentences

In graph 4.8 this can be seen in a more orderly way. It looks like the 8 year old French dominant participants disappeared, but, as can be seen in table 4.14, they achieved the same score as the balanced participants (100%) and are therefore invisible in the graph. Interesting to see in graph 4.8 is that the Dutch dominant children scored worse than the other three groups. As said before, this might be due to a lower proficiency of their French. Another interesting thing is that while the French monolinguals gradually improve their results, all bilinguals' results are in the form of a U-curve, as said above. This might of course be due to an experimental artifact, but what is even more surprising, is that the French dominant participants scored better than the French monolinguals.



Graph 4.8 Percentages of correct answers per age group of French ECM test sentences

The question arises if bilinguals are less affected by the PIP? In other words, do French dominant bilingual children score better at French ECM sentences than French monolinguals because of their bilingualism? The results in table 4.15 show the outcomes of the Mann Whitney U-test where the different groups were compared with each other. It can be seen that there are no significant

differences in the number of correct answers between French monolinguals and French dominants. This means that although the French dominant participants scored better than the French monolinguals, there is no reason to assume that French dominant children are less affected by the PIP than monolingual French children.

It can also be seen from table 4.15 that there is no significant difference in number of correct answers between French monolingual children and Dutch dominant children. This means that although Dutch dominant children score dramatically lower than French monolinguals, there is no sign of an 'extra delay' for Dutch dominant children in the comprehension of French ECM sentences. However, a significant difference is found between the 4-6 years old French dominant and Dutch dominant children. In other words, when grouped together, the French dominants gave significant more correct answers on the test sentences than the Dutch dominant participants. This will be further discussed in Chapter 5.

	FRmono x FRdom	FRmono x NLdom	FRdom x NLdom
4 years old	.582	.388	.071
5 years old	.711	.267	.333
6 years old			.200
4-6 years old			.000
7 years old			.800
6-7 years old	.719	.548	
8 years old			-

Table 4.15 p-values from Mann Whitney U test on French ECM test sentences.

A summary of the results is provided in the next chapter.

Chapter 5 Discussion

The present study was designed to determine if the acquisition of the Pronoun Interpretation Problem is less problematic when French and Dutch are acquired simultaneously. To be able to answer that question, the following sub questions needed to be answered: a) Does cross-linguistic influence occur in an experiment on PIP with French-Dutch bilingual children? and b) Does amount of exposure (used as a proxy for language dominance) play a role in this case?

In order to answer question a) we run an experiment with a Truth Value Judgment Task with 33 Dutch-French bilingual children, partial dominant in French, partial dominant in Dutch. The scores of the children were analyzed with a Mann Whitney U-test to check if significant differences could be found. The results of both dominant bilingual groups were compared with data from earlier research with monolingual children by Philip and Coopmans (1996a and 1996b) and by Hamann, Kowalski and Philip (1997). If significant differences would be found, that could be a sign that CLI occurred.

In order to answer question b) we asked all parents to fill in a questionnaire about the amount of exposure to their child(ren) of both languages. Since amount of exposure is used as a proxy for language dominance in the present study, all participants could be identified by the outcome of the questionnaire as dominant in French, dominant in Dutch or as balanced bilingual. By dividing the participants in these three groups both dominant bilingual groups could be compared with each other. Here, also a Mann Whitney U-test was used to check if significant differences could be found. If that was the case, it could be a sign that amount of exposure plays a role in the Pronoun Interpretation Problem.

To summarize the results from Chapter 4:

- No significant differences were found for all control sentences
- For Dutch SC test sentences (e.g. *De jongen heeft hem geveerd*), no significant differences were found.
- For French SC test sentences (e.g. *La fille l'a attachée*), the following significant differences were found:
 - French monolinguals scored significantly higher than Dutch dominants in all age groups
 - French dominants scored significantly higher than Dutch dominants in age group 4-6.
- For Dutch ECM test sentences (e.g. *Het meisje zag haar zingen*), the following significant differences were found:
 - Dutch dominants scored significantly higher than Dutch monolinguals, except for the 7 years old children in male sentences.
- For French ECM test sentences (e.g. *Le garçon le voyait jouer au foot*), the following significant differences were found :
 - French dominants scored significantly higher than Dutch dominants in age group 4-6.

In this chapter the results of all test conditions will be discussed one by one and linked with their respective predictions to see if they were right or if they should be adjusted.

5.1 Dutch SC test conditions

In this paragraph the Dutch SC test sentences, so sentences like *Het meisje heeft haar aangeraakt* will be discussed and linked with their respective predictions.

5.1.1 Dutch SC test condition and the non-occurrence of CLI

The results showed no significant differences between the monolingual and the bilingual results for the Dutch SC test sentences. This implicates that the prediction that CLI will not occur is borne out for Dutch SC test sentences.

5.1.2 Dutch SC test condition and the non-influence of language dominance

The results showed no significant differences between the results of the Dutch dominant bilingual participants and the French dominant bilingual participants for the Dutch SC test sentences. This suggests that the prediction that language dominance would not play a role is borne out.

5.2 French SC test conditions

In this paragraph the French SC test sentences, so sentences like *Le garçon l'a gratté*, will be discussed and linked with their respective predictions.

5.2.1 French SC test condition and the (non-)occurrence of CLI

For this test condition, the same scores were expected for monolinguals and bilinguals, since in French, SC sentences are not affected by a PIP and, given Müller and Hulk (2000), Hulk and Müller (2001), Varlokosta and Dullaart (2001) and Sanoudaki (2003) no CLI is predicted.

French monolinguals and French dominant bilingual participants scored, as expected, more or less the same, namely (highly) adult-like. However, contrary to the expectations, the results showed a significant lower score for the Dutch dominant bilingual participants than for the French monolinguals. The balanced bilingual participants scored somewhere between the French monolinguals and the Dutch dominant bilinguals. This significant difference between Dutch dominant bilinguals and French monolinguals do not support the results of previous research, since Varlokosta and Dullaart's (2001) research and Sanoudaki's (2003) research showed no signs of CLI for Greek-Dutch and English-Greek bilingual children. Also, no significant difference was expected based on Müller and Hulk's (2000) and Hulk and Müller's (2001) researches, since the conditions needed for the occurrence of CLI were not met for the data of the present research. We review some possible explanations for these data.

This unexpected outcome may be a result of CLI. If that is indeed the case, Müller and Hulk's (2000) and Hulk and Müller's (2001) theory may not be correct, since the outcome of the present research predicts CLI to occur also in the case of lack of structural ambiguity. A possible option could then be to widen the notion of ambiguity, so to include the Evans-style style sentences²³, arguing that in Dutch several readings of the test sentences are possible. These constructions require a specific interpretation that might be seen as some sort of ambiguity. For example in (54), where *HEM* co-

²³ Where *hem/her* refers to the subject of the sentence. See 1.1.3 and 1.5 for more about Evans-style elements.

refers with *Jan*, which is grammatically correct, based on the stress given on *HEM*. Sentences like this may cause ambiguity in Dutch children for sentences like *Het meisje heeft haar aangeraakt*, where coreference is not allowed.

(54) Als Jan in de spiegel kijkt, ziet hij Marie niet, Jan_i ziet HEM_i.

If Jan looks in the mirror, he doesn't see Marie, Jan sees HIM.

However, these constructions are very uncommon in Dutch natural speech production, therefore, such an explanation may not be convincing.

It is also possible to reject the structural ambiguity hypothesis and look for explanation for these results in language external factors.

One of these possible explanations of a language external factor could simply be the fact that Dutch dominant bilinguals in this study had a lower proficiency of French. The question is if this is a realistic option. All participants in this study were following lessons or were engaged in activities involving their minority language, what warranted a certain level of proficiency in the minority language.

However, language proficiency is not measured in this study, so it cannot be ruled out nor confirmed completely as a possible explanation, but the probability of this option will be discussed below. To do this in a proper way, not only the Dutch SC test sentences will be discussed, but also other sentences from the present study are involved in the next section.

When considering the results of the French control conditions, we see that in the French SC control condition the Dutch dominant bilingual participants scored (non-significantly) lower than the French dominant bilinguals and the French monolinguals. So, this is somewhat the same as can be seen in the French SC test sentences, although in the test sentences a significant difference is found.

Conversely, in the French ECM control condition the French monolinguals scored lower than all bilingual groups. In other words, with the French ECM control conditions, the Dutch dominant children gave (non-significantly) more correct answers than the French monolingual children.

In the control sentences, the same clitics were used as in the test sentences, among others. If the Dutch dominant participants had not understood the test sentences, they should have scored very low on the control sentences too. However, this was not the case, as showed above. This implies that the Dutch dominant bilinguals should understand the sentences, otherwise it is strange that they scored higher than the French monolinguals on the French ECM control conditions. This difference between the monolingual and the bilingual results could of course be explained by the fact that the monolingual data comes from another research and is thus maybe not completely comparable with the bilingual data from the current research. But, the experiments from both studies have the same format and should thus be comparable. However, as will be said in the recommendations for further research (5.6), it is recommended to repeat the present study with added monolingual participants. Another argument against language proficiency as an explaining factor for the significantly lower score of the Dutch dominant children in SC test sentences when compared to their French monolingual peers is the fact that the participants did not mention during the tasks that they didn't understand the stories or the puppets, whereas they did ask me the meaning of unknown words, like for instance the word *étang* (the French word for *pond*). This shows that the children were not afraid to ask questions about the story and things in it they did not understand. Besides, some children did ask questions like 'but who does he mean?' when they doubted whether the puppet referred, for example, to the father or to the son. This was only the case in age ranges where adult-like answers were not expected and therefore part of the confusion of identifying the referent of pronouns and

clitics in both languages. That means that it is unlikely that those questions were due to a too low language proficiency. Also, when it was the case that children did not understand the sentences due to a low language proficiency, a score below or around chance was expected, also for the control sentences. This is not the case, since the lowest scores at the French control sentences is 78%, which is quite far above chance level.

Taken together, these arguments make language proficiency as an explaining factor for the significant differences between the French monolinguals and the Dutch dominant bilinguals unlikely. However, although unlikely, it cannot be excluded completely, since the language proficiency of the bilingual participants in the present study was not measured.

There is another language external factor that could possibly be an explanation for this result, namely language dominance or the amount of exposure. In the next subparagraph evidence will be shown for this possible explanation.

5.2.2 French SC test condition and the (non-)influence of language dominance

In the previous subparagraph some explanations for the found significant differences between the results of French monolinguals and Dutch dominant bilinguals in the French SC test sentences were addressed. However, the results did also show a significant difference between the French dominants and the Dutch dominants aged 4-6 years. A significant difference between the results of both dominant groups might imply influence of language dominance. No significant differences were found between French dominants and French monolinguals. This all shows that the influence depends on how much input a child gets from the minority language. Being bilingual, but dominant in French, does not cause a (temporary) delay in French, but being bilingual and dominant in Dutch does cause a (temporary) delay in French.

This result differs from the prediction made in Chapter 2, which was merely based on the research of Varlokosta and Dullaart (2001) and Sanoudaki (2003) who did not find any signs of CLI in their unbalanced participants. However, the result is consistent with other previous studies, for example Döpke (1998) and Yip and Matthews (2000), who said that CLI from the dominant language into the weaker language is more likely to occur and Unsworth (2013) who stated that dominance and the relative amount of exposure are the most common predictors of CLI.

However, caution must be applied with the interpretation of the statistical analysis, since a significant difference is found only when grouping ages 4, 5 and 6 together. When looking at the statistical analyses by age instead of by age group, no significant differences were found. This difference between grouped ages and non-grouped ages might be based on the small number of participants. A reproduction of this study with more participants could exclude or verify this possible explanation.

Elaborating on the previous subparagraph and given the arguments against the low proficiency-explanation in it, it might be possible that the significant differences in the results are indeed evidence for the occurrence of CLI and that this CLI is caused by the language-external factor of language dominance. In other words, it might be possible that being bilingual might cause a delay (and thus a Pronoun Interpretation Problem) in French for this specific grammatical feature under research in the present study.

However, caution must be applied to this interpretation, since a language proficiency test was not part of the present research and the low proficiency-explanation cannot be ruled out completely by

arguments only. Therefore it is important that, if this study is repeated, language proficiency, or at least level of knowledge of personal pronouns and clitics, is tested. More detailed recommendations about adding a language proficiency test when reproducing the present study can be found in paragraph 5.6.

The occurrence of CLI in the French SC test sentences is against the prediction based on Müller and Hulk (2000) and Hulk and Müller (2001) that CLI would not occur in the sentences under research in the present study. Even if the CLI in this study is caused by language dominance, it means that the hypothesis of Müller and Hulk (2000) and Hulk and Müller (2001) might not be correct. Since widening the notion of ambiguity is not convincing, further research is needed in order to find out if Müller and Hulk's and Hulk and Müller's hypothesis is indeed not correct and if so, how it should be revised.

5.3 Dutch ECM test conditions

In this paragraph the Dutch ECM test conditions, so sentences like *Het meisje zag haar zingen*, will be discussed and linked with their respective predictions.

5.3.1 Dutch ECM test condition and the non-occurrence of CLI

Both French and Dutch know a Pronoun Interpretation Problem for ECM sentences, so for this test condition a somewhat the same, non-adult-like score was predicted for all groups. Surprisingly, this was not the case, since significant differences were found between the monolingual and the bilingual results for the Dutch ECM test sentences. Even more surprising was the fact that, in contrast with previous findings, the Dutch dominant bilingual participants did score significantly higher than the Dutch monolingual children. This would imply that the Dutch of the Dutch dominants accelerates under influence of the French language. But how is that possible if there is also a PIP in French? When taking a closer look to the scores of both monolingual groups, it can be seen that the French monolinguals do score a bit higher than the Dutch monolinguals. To recall the monolingual results here, the French monolingual children scored between 48% (age 4) and 62% (age 7), while the Dutch monolingual children scored between 6% (age 4) and 38% (age 8). Although caution is advised when comparing these monolingual groups, since the results are from different previous researches, namely Philip and Coopmans (1996b) and Hamann, Kowalski and Philip (1997), and thus the difference in scores might be due to a small difference in study design, the differences in the present research might be explained from previous research. Therefore it is important to take a closer look on the monolingual data first.

Philip and Coopmans (1996b) stated in their research on Dutch and English children that Dutch children have double difficulties compared to English children. Since the present research is about Dutch and French we will discuss in detail only their explanation for the Dutch results from their study. In Chapter 1 of the present research it has already been shown that Dutch children have problems with Rule I, since they violate that Rule when accepting *hem* and *haar* erroneously as co-referential, for example in sentences like *Het meisje_i tekent haar_i*. That is the first difficulty for the Dutch children. Philip and Coopmans (1996b) explained the second difficulty as follows. They argue that 'structural and non-structural Case in the pronominal system are overtly indistinguishable' (Philip and Coopmans 1996b, p. 101). In Dutch, nominative is the default (so the pronominal *ik*, *hij*, *zij*, etc.), in contrast to English, where accusative is the default, this means that Dutch children have

to learn that *hem* and *haar* are structural forms and thus [+R]. In other words, Dutch children do not have evidence available that accusative sentences are structural case sentences and therefore they have no reasons to suppose it cannot be [-R]. Philip and Coopmans (1996b) conclude that this double difficulty, the problems with Rule I and the underspecification of pronouns, must be the reason why Dutch monolingual children score this low at ECM sentences.

When now taking a look at the French ECM PIP, Hamann (2002) stated that the underspecification of pronouns cannot be an explanation for the French PIP in ECM sentences, since it does not occur in simple sentences. She proposed the following pragmatic account. In French ECM sentences the clitic is the object of the matrix verb, but the subject of the verb in the embedded clause (Hamann 2002, p.143). In our experiment, before the puppet said the test condition (for example: *La fille la voit chanter*), he was saying “*Hmm, une fille et sa mère.*” With this sentence, the puppet created two possible antecedents for the pronoun *la*, namely the girl and the mother. Simple case sentences showed that French children do not have problems with these so called guises, since they act adult-like in the simple test condition of the present study. However, Hamann (2002) showed that with the ECM test condition another guise was available; in the sentence *La fille la voit chanter*, the third guise is ‘the one which is singing / the singer’. Hamann calls this the ‘Lower Subject Guise’. Children then allow the pronoun to be interpreted as co-referring with *la fille*, who is also *the one which is singing / the singer* and that causes the PIP in French ECM sentences.

Combining those explanations for the PIP in Dutch and in French ECM sentences, we might indeed state that the French ECM PIP is less severe than the Dutch ECM PIP, since the Dutch monolinguals have double difficulties with ECM sentences, while the French monolinguals only have a pragmatic problem with those sentences. This could explain the difference between the monolingual results for the Dutch ECM test sentences and the French ECM test sentences.

In this respect, going back to the present study and the significant higher score of the Dutch dominants with respect to the Dutch monolinguals, it could indeed be the case that CLI occurs and that the Dutch of the Dutch dominants is boosted by the French language, despite the prediction in Chapter 2 that CLI would not occur, based on Müller and Hulk (2000) and Hulk and Müller (2001). If it is indeed the case that CLI occurs, than it might also be the case that Müller and Hulk and Hulk and Müller’s theory about structural ambiguity is not correct. In 5.2, where the results of the French SC sentences were discussed, it was concluded that further research is needed to investigate the correctness of the structural ambiguity hypothesis. The same applies for this hypothesis in combination with the results from the Dutch ECM sentences. Several possible explanations can be given for the acceleration of Dutch in these sentences.

A possible explanation might be Gawlitzek-Mailwald and Tracy’s (1996) Bilingual Bootstrapping Hypothesis. To recall from chapter 1, Gawlitzek-Mailwald and Tracy state that (syntactic) properties acquired in one language can boost the development of the less developed language. When looking at the difficulties with Dutch, which are 1) the erroneous acceptance of object pronouns as co-referential with the subject of the sentence and 2) the underspecification of object pronouns, this seems an attractive account, since the French language is not affected by those two difficulties. In other words, in French those two properties are already acquired and thus French can boost the development of Dutch for this specific grammatical construction.

Another possible explanation can be found in Kupisch’s (2007) study, who stated that acceleration is possible when the simple system facilitates the more complex system. Since French is the more simple system, for it has only one difficulty instead of two, this seems to be an attractive account too.

However, when taking a closer look to those explanations, both are not very satisfactory, for two reasons. First, if it would indeed be the case that French facilitates Dutch, it is expected to happen in the Dutch SC sentences too, since French SC sentences are also not affected by the two difficulties as described above, while Dutch SC sentences are. However, as could be seen in paragraph 5.1, the results of the Dutch SC sentences show that the Dutch language of the bilingual Dutch-French children is not facilitated by their French language, regardless of their language dominance. Second, the difficulties of the right interpretation of the pronouns/clitics are on different levels. In other words, the difficulties for the Dutch language are, as said above, 1) the erroneous acceptance of object pronouns as co-referential with the subject of the sentence and 2) the underspecification of object pronouns, while for the French language the difficulty lies in the creation of an extra guise. With that difference taken into account, the question arises if as French affects Dutch, shouldn't it be expected that the extra guise-option from French causes an extra difficulty in Dutch? In other words, if CLI occurs from French to Dutch, would it be expected to cause a delay instead of acceleration? Since with influence from French to Dutch, Dutch children would not only have the two difficulties described above, but also the French difficulty, which should make it three times difficult to make the right interpretation. However, Hamann's (2002) approach for French about an extra guise looks similar to Thornton and Wexler's (1999) theory about overextended guise creation (see chapter 1). If we assume that Hamann's/Thornton and Wexler's approach also applies for Dutch, then the Dutch language will have three difficulties instead of two. In that case the French and the Dutch (same) difficulty neutralize each other, which makes the second argument above invalid. However, the first argument given above against the Bilingual Bootstrapping Hypothesis and Kupisch's (2007) approach still remains, therefore these approaches are still not a convincing explanation for the results. Further research should be done to find a better explanation.

Based on the scores for the Dutch control sentences, it is not likely that low proficiency of the Dutch language for the French dominant bilinguals plays a role in their scores for this test condition, since from 4 years on, the French dominant participants scored somewhat the same as the Dutch monolinguals at the Dutch ECM control sentences. Moreover, anticipating on the next subparagraph, which concludes that language dominance does not play a role in Dutch ECM test sentences, it could also not be the case that the French dominants scored worse than the Dutch dominants because of their lower percentage of Dutch input.

In summary, if both language proficiency and language dominance are not explaining factors for the results of Dutch ECM test sentences and nor the Bilingual Bootstrapping Hypothesis from Gawlitzek-Maiwald and Tracy (1996) nor Kupisch's (2007) approach are convincing explanations, further research should be done in order to explain this result in a better way.

5.3.2 Dutch ECM test condition and the non-influence of language dominance

The results of the Dutch ECM test sentences did not show any significant differences between Dutch dominant bilingual participants and French dominant bilingual participants. As said above, this suggests that the prediction that language dominance would not play a role is indeed borne out.

5.4 French ECM test conditions

In this paragraph the French ECM test sentences, so sentences like *La fille la voyait chanter*, will be discussed and linked with their respective predictions.

5.4.1 French ECM test condition and the non-occurrence of CLI

The results of the French ECM test sentences did not show any significant differences between French monolingual and French or Dutch dominant bilingual participants. This implicates that the prediction for French ECM test conditions that CLI will not occur is borne out.

5.4.2 French ECM test condition and the non-influence of language dominance

For the French ECM test sentences, the French dominant participants scored significantly higher than the Dutch dominant participants, but only for the grouped 4-6 years old. The French monolinguals scored between both dominant groups, but closer to the French dominants. But, as summarized in 5.4.1, no significant difference between the bilinguals and the monolinguals was found and thus no CLI occurred. But then something unexpected happened. Although there were no signs of influence from one language to another, yet the results did show a significant difference between the results of both dominant groups. How could this happen? There are several possible explanations for this result. The first one is the, in subparagraph 5.2.1 already mentioned, low proficiency explanation. However, the thereby described counter-arguments also apply to this test condition. Low proficiency as an explanation for this result cannot be completely excluded by these arguments, but at least it does make it somewhat unlikely.

Another possibility is that this difference can be explained by the aforementioned difference between the 'smaller' PIP in French ECM sentences compared to the 'bigger' PIP in Dutch ECM sentences. The Dutch dominants then have more problems with the ECM sentences than the French dominants because of the 'bigger' PIP. This difference is then solely due to the many input from Dutch, which causes the significantly worse score. With enough input from French there is no significant difference between mono- and bilinguals. However, this would predict the occurrence of CLI and that is not consistent with the results in 5.4.1. Therefore, this is not a satisfactory explanation.

Something to take into account is, as is said above in 5.2.2, that this significant difference must be interpreted with caution, since for these test sentences too, a significant difference is found only when grouping ages 4, 5 and 6 together.

More research is needed to be able to explain this result in a proper way. In paragraph 5.6 some options for further research will be given.

5.5 Answers to the research questions

In this paragraph the answers to the research questions will be given, based on the results from chapter 4 and the discussion above. The research questions can be found in chapter 2, but are repeated here:

- 1) Is the acquisition of the PIP less problematic when French and Dutch are acquired simultaneously?
 - a. Does cross-linguistic influence occur in an experiment on PIP with French-Dutch bilingual children?
 - b. Does amount of input (used as a proxy for language dominance) play a role in this case?

Every sub paragraph will discuss a (sub-)research question, starting with a summary of the results and the discussion.

5.5.1 Does cross-linguistic influence occur in an experiment on PIP with French-Dutch bilingual children?

In order to answer this question the scores on the four test conditions were statistically analyzed. Below the four conditions and the results from the statistical analysis, where the monolingual data from earlier research with monolingual children by Philip and Coopmans (1996a and 1996b) and by Hamann, Kowalski and Philip (1997) was compared with the bilingual data from the present research, are summarized:

- Dutch simple case sentences
 - No significant differences were found for CLI
- French simple case sentences
 - French monolinguals scored significantly higher than Dutch dominants in all age groups
- Dutch Exceptional Case Marking sentences
 - Dutch dominants scored significantly higher than Dutch monolinguals, except for the 7 years old children in male sentences.
- French Exceptional Case Marking sentences
 - No significant differences were found for CLI

Both results where significant differences were found for CLI, are not in line with previous findings by Varlokosta and Dullaart (2001) and Sanoudaki (2003) and are also in contrast with the Structural Ambiguity Hypothesis by Müller and Hulk (2000) and Hulk and Müller (2001).

For the French SC sentences CLI from Dutch to French was found, which causes a delay in French for the Dutch dominant bilinguals. A given possible explanation for this result is the lower language proficiency of French of the Dutch dominants, in which case the results cannot be attributed to the occurrence of CLI. However, as explained above in 5.2.1, given that the Dutch dominant children scored high on the French control sentences, gave (non-significantly) more correct answers than the French monolinguals on the French ECM sentences, asked questions about words they did not know and expressed their confusion about the interpretation of the object pronouns, this is an unlikely explanation. Taken together these arguments against the language proficiency-explanation and the fact that for those test sentences was found that language dominance played a role in the result of this test condition, the results suggest that CLI does indeed occur in the French SC test sentences. For the Dutch ECM sentences CLI from French to Dutch was found, in the form of an acceleration in Dutch. A possible explanation can be found in the Bilingual Bootstrapping Hypothesis by Gawlitzek-Maiwald and Tracy (1996), which state that (syntactic) properties acquired in one language can boost

the development of the less developed language. However, this is not a very satisfactory explanation, because then it is expected to happen in the Dutch SC sentences too, which is not the case. Further research should be done in order to explain this outcome in a better way.

From the above data there seems to be enough evidence suggesting that the theory of Müller and Hulk (2000) and Hulk and Müller (2001) should be possibly reviewed. Although other researches already showed that Condition 1 (CLI occurs at the syntax-pragmatics interface, which is the C-domain) does not hold (See 1.6.4.4), the current research suggest that it might be possible that Condition 2 (CLI is possible if there is an overlap at surface level. In other words, it is likely that language A is influenced by language B, when one specific syntactic construction in language A allows more than one grammatical analysis from the perspective of the child's grammar, while in language B only one of these structural analyses is supported) should be revised too, perhaps by 'widening' the notion of *ambiguity* as is suggested in 5.2.1, although this is not a very satisfactory solution, either. In summary, contrary to the predictions, cross-linguistic influence seem to occur in French SC sentences like *Le garçon l'a gratté* and in Dutch ECM sentences like *Het meisje zag haar dansen*. A convincing explanation could not be found, future studies on the current topic are therefore recommended.

5.5.2 Does amount of input (used as a proxy for language dominance) play a role in this case?

In order to find an answer on this research question, the parental questionnaire on amount of exposure was used to divide all participants into three groups: Dutch dominant bilinguals, French dominant bilinguals and balanced bilinguals. The results of both dominant groups were compared with each other using statistical analysis. If any significant difference was found, that could be a sign that amount of exposure plays a role in the Pronoun Interpretation Problem.

Below the four test conditions and the results of the statistical analysis are summarized:

- Dutch simple case sentences
 - No significant differences were found for influence caused by amount of input
- French simple case sentences
 - French dominants scored significantly higher than Dutch dominants in age group 4-6.
- Dutch Exceptional Case Marking sentences
 - No significant differences were found for influence caused by amount of input
- French Exceptional Case Marking sentences
 - French dominants scored significantly higher than Dutch dominants in age group 4-6

As stated in the previous paragraph, it might indeed be possible that the CLI that was found in the French SC test condition is caused by the language external factor of language dominance, since the French dominant children scored significantly higher than the Dutch dominant children in age group 4-6. However, caution must be applied with this interpretation, since a language proficiency test was not part of the present research and the low proficiency-explanation cannot be ruled out completely by arguments only. Besides, the statistical analysis must be interpreted with caution, since the significant difference is found only when grouping ages 4, 5 and 6 together.

With the French ECM sentences, the French dominant children scored significantly higher than Dutch dominant children in age group 4-6. As possible explanations low language proficiency and the

difference between less/more severe PIP in French/Dutch were mentioned, but neither one of them was satisfactory. It is important to take into account, as for the French SC sentences, that the statistical analysis must be interpreted with caution, since here also, the significant difference is found only in the grouped age-group 4-6.

Since the first two possible explanations are not convincing and for the third a reproduction of the present research is needed with more participants to be able to exclude or confirm it as an explanation, further research is required in order to explain this difference better.

In summary it can be said that the results of the present research do not give clear evidence for the influence of language dominance in the French test conditions. Although it is possible that language dominance played a role in the significant differences between the bilingual groups for the French SC and ECM test sentences, other possible explanations as language proficiency cannot be excluded. It should also be taken into account that the statistical analysis must be interpreted with caution, because of the small sample size. Therefore further research is needed in order to establish which explanation seems to be the right one.

5.5.3 Is the acquisition of the PIP less problematic when French and Dutch are acquired simultaneously?

The predicted answer to the research question was that there is no advantage of being French-Dutch bilingual. Based on the results and the answers on the sub research questions, the following summary can be made:

- Dutch SC sentences
 - No advantage
- French SC sentences
 - No advantage, but a delay for Dutch dominant bilinguals
- Dutch ECM sentences
 - Advantage, acceleration for Dutch dominant bilinguals
- French ECM sentences
 - No advantage

As can be seen from this summary, there seems to be an advantage only for Dutch dominant bilinguals in the case of Dutch ECM sentences, for French SC sentences even a delay is found for the same group of participants. However, clear explanations cannot be given for those results as can be seen in the previous paragraphs, therefore more research is needed on this topic.

5.6 Recommendations for future research

This research has triggered some new questions in need of further investigation. Also, there are some issues that should be taken into account in future research. Both will be discussed in this paragraph. The recommendations will be grouped together by type.

5.6.1 Methodological recommendations and suggestions

5.6.1.1 Participants

In the present research, only bilingual participants were tested. Their results are compared with the results of monolingual participants from other, comparable, researches. Although these researches seem to be comparable, there is always the option that there are small differences in study design. Therefore, in a next research, monolinguals should be included too to make sure exactly the same is tested on them, and different study design can be excluded as a possible confound.

Statistical analysis is applied on the present research, but the population of this research was small. If this research is replicated or a follow up study is done, it is recommended to do so with a larger group of participants. In that case statistical analysis is more reliable and outliers draw less heavily on the results.

5.6.1.2 Language proficiency task

To be able to exclude low language proficiency as a possible confound, it is important, as said in the previous paragraphs, to add a proficiency test. If the children are tested at a school, it might be possible to ask the teacher if he or she has access to the results of the proficiency tests from school and is allowed to share the results with the researcher. Otherwise, an official language proficiency test might be found at schools or speech therapists. If working with a language where official proficiency tests do not yet exist, a possible way to test the language proficiency is with a speech production test, as in a frog story. For example, the researcher gives the participants a book with pictures and the participants have to tell the story. With putting the right pictures in the book, the researcher let the children produce sentences with personal pronouns and clitics in it. If they produce sentences with those specific words and use them in a correct way, it is safely assumed that they know those words and know what they mean. If then, those children still give the same results as the participants in the present study do, it can be evidence for occurrence of CLI. It has to be taken into account when testing language proficiency with a speech production test, that the results might be misleading, since children can be passive bilinguals. In other words, they can perfectly understand a language, but are not able or do not want to speak the language themselves. In that case, a task where children hear a word and have to find the right picture with it, might be an additional task, but it might be difficult to design such a task where the knowledge of pronouns can be tested.²⁴

A language proficiency test can best not be done at the same time the official test is being taken, to avoid concentration problems due to a test that takes too long. With this test, it is important that specifically the meaning of the sentences that matter for this test are being tested.

5.6.1.3. Other methodological suggestions

In the present research, with the simple case sentences the present perfect was used, while with the ECM sentences the present simple was used. This was a deliberately choice, but since the French children had the auxiliary verb as an additional tool in the present perfect sentences²⁵, it might be

²⁴ Another option to check that the children are familiar with the pronominal forms used in the experiment might be to train them for the next research in pronouns and clitics before doing the actual test. If one would do so, it is important that you train only the meaning of the pronouns and clitics, without training them in the referential rules of them. That might be difficult and can influence the research if the training is not done properly, therefore a proficiency test is preferred.

²⁵ With coreferential sentences *être* is used: *Le garçon s'est gratté*, while with referential sentences *avoir* is used: *Le garçon l'a gratté*.

interesting if this research was replicated while using only present simple sentences to see if that causes any different outcomes.

Maybe it is possible to combine a study on the topic of the present research with a study on another topic, so the children get more variety in their tasks, which is better for their concentration curve and could keep them active a bit longer.

In the present study, the French task and the Dutch task were not presented at the same day, but with at least one week between both tasks, in order to avoid memory to be a possible confound. It might be interesting to look what happens if you do not take that much time between both tasks or even mix both languages in one task, which could be easily done if you use puppets.²⁶ This could be interesting, because both languages of a bilingual are more or less activated at all times (Grosjean 2001), which means that it is impossible to bring them in a completely monolingual mindset. Besides, most bilingual children are used to switch between their languages, in other words, it's their natural habitat. This means that the results might not differ from results where memory is taken into account as a possible confound.

Since the current research has different outcomes than the researches of Varlokosta and Dullaart (2001) and Sanoudaki (2003), it could be interesting to replicate this research also with different language pairs. Comparing the outcomes of studies with different language pairs might be helpful to find explanations for unclear results. Examples of interesting languages are languages who are not (close) related to Romance or Germanic languages. They could be matched with an opposite language, depending if the language is affected with a PIP or not. Of course the feasibility of such language pairs are depended from the availability of a (small) community of such a somewhat exotic language pair.

5.6.2 Recommended further research based on the direct results of the present research

The analysis of the results of the present study shows a clear picture of the many complex factors involved by the interpretation of the sentences under research here. Several significant differences were found, some of them confirming our hypothesis, others raising new questions. As written above, it might be the case that language dominance plays a role, but it is also possible that a low level of language proficiency might have influenced the correct interpretation of sentences like *La fille l'a attachée* by bilingual Dutch-French children. Besides, the statistical analysis must be interpreted with caution, because of the small sample size. More research is also needed to exclude or confirm other internal and external factors that may be involved in the (in)correct interpretation of those sentences.

In this paragraph, we will therefore take a closer look at CLI and language dominance separately. However, an extensive discussion for further research on those topics is beyond the scope of this study.

5.6.2.1 CLI

What could be seen from the results in the present research is that it is possible that Müller and Hulk's (2000) and Hulk and Müller's (2001) Structural ambiguity hypothesis might not be correct. One of the given options was to widen the notion of ambiguity. Although not a satisfying explanation, it

²⁶ In this case, one can let the puppets, who both speak only one language very well, argue that now the other one wants to play the game or let one of the puppets say that he is tired and wants the other puppet to continue.

could be useful to test this with one language where Evans-style sentences are grammatical and one language where they are not.

Gawlitzeck-Maiwald and Tracy's (1996) Bilingual Bootstrapping Hypothesis (BBH) was also not satisfying as an explanation, since in French, a PIP is found for ECM sentences, but not for SC sentences, so the BBH would only be attractive if acceleration was also found in the Dutch SC sentences, since based on the BBH, French should boost Dutch too for those sentences. It would be interesting if evidence could be found for the BBH in a language pair where one language is affected by a PIP, while the other is not, for example in Italian-Dutch bilingual children. At the same time, it is possible that no evidence was found, since for Dutch-Greek and Greek-English children (Varlokosta and Dullaart 2001 and Sanoudaki 2003) no advantage was found either.

Since both theories did not give convincing explanations for the results of the present research, it might be possible that an explanation could be found in a more structural analysis. It was beyond the scope of this research to search for such an explanation or to come up with a study design for a research like that.

5.6.2.2 Language dominance

As said in Chapter 1, some studies have argued that CLI from the dominant language into the weaker language is more likely to occur (e.g. Döpke 1998 and Yip & Matthews 2000). This is what happened with the French SC test sentences, there was influence from Dutch to French, but only if Dutch was the dominant language. In this case, the dominant language was also the difficult language and thus causes a delay in French.

Kupisch (2007) states, that CLI is possible from a less complex grammatical situation to a more complex grammatical situation. That is exactly what happened with the Dutch ECM sentences, where influence from less complex French caused acceleration in more complex Dutch. However, since for the French SC test sentences the opposite was the case, no clear explanation can be given on the results of this research and that further research on language dominance as an influencer or predictor of CLI is needed. Kupisch added to her statement that CLI is only possible in children with a clear dominant language. In that case CLI is possible if the dominant language is also the less complex language. The current research did show that CLI seems also to be possible when the dominant language is the more complex language. It is interesting to find out if it is predictable when dominance/amount of exposure does cause CLI and when it does not. Again, it is beyond the scope of this research to come up with a study design for such research.

Chapter 6 Conclusion

The main goal of the current study was to determine if the acquisition of the PIP is less problematic when French and Dutch are acquired simultaneously. Sub questions to this research questions were:

a) Does cross-linguistic influence occur in an experiment on PIP with French-Dutch bilingual children? and b) Does amount of exposure (used as a proxy for language dominance) play a role in this case?

For research question a) no CLI was predicted, based on Müller and Hulk (2000) and Hulk and Müller (2001), since neither one of their conditions for the occurrence for CLI is met.

For research question b) based on discussed researches from Chapter 1 it was predicted that language dominance would not play a role.

According to the predictions for 1a and 1b, no advantage of being French-Dutch bilingual was predicted for research question 1.

An experimental study with a Truth Value Judgment Task for French-Dutch bilingual children and a questionnaire for their parents were run to search for answers to these questions. For this study 16 bilingual participants were found in France and 15 in the Netherlands.

For Dutch SC sentences the predictions were borne out, no significant differences who could indicate CLI or the influence of dominance were found.

The (statistical) analysis of the results of the TVJT and the questionnaire indicated a possible occurrence of CLI from Dutch to French for French SC test sentences, which lead to a delay in French for this specific grammatical feature, but only when the input of Dutch was at least 65%. In other words, this delay was only seen in the Dutch dominant participants. This indicates that language dominance does play a role in this case. However, low language proficiency of French for the Dutch dominants cannot be completely excluded as an explanation for the differences in scores between both bilingual groups. It is also important to bear in mind that the statistical analysis must be interpreted with caution, because of the small sample size.

For the Dutch ECM sentences CLI from French to Dutch was found, what causes an acceleration in Dutch. Language dominance was not a responsible factor for this result, because no significant differences were found between both bilingual dominant groups. The occurrence of CLI could be explained by Gawlitzek-Maiwald and Tracy's (1996) Bilingual Bootstrapping Hypothesis, although this is not a very satisfactory explanation. It could also be an option to widen the notion of ambiguity in the structural ambiguity hypothesis of Müller and Hulk (2000) and Hulk and Müller (2001), but this is also not a satisfactory option. Further research should therefore be done to find a more convincing explanation.

For the French ECM test sentences an unpredicted result of a significant difference between both bilingual groups was found. This means that no signs of CLI were found, but that language dominance plays a role for these sentences. Low language proficiency of the Dutch dominant bilingual children and the difference between the PIP and its possible explanations in French and Dutch were mentioned as possible explanations, as was mentioned to bear in mind that the statistical analysis must be interpreted with caution, because of the small sample size, but neither one of them was satisfactory. Therefore more research was proposed in order to explain this results better.

Returning to the research question with the knowledge of the answers from the sub questions, it was possible to conclude that the question *is there an advantage of being French-Dutch bilingual in case of this particular grammatical feature*, can be answered positively only for Dutch dominant bilinguals in the case of Dutch ECM sentences, where CLI from French to Dutch caused an acceleration in Dutch

for those Dutch dominant bilinguals, while for French SC sentences a delay is found for the same group, and thus being French-Dutch bilingual is a disadvantage there. Language dominance should not play a role in the Dutch ECM sentences, but other clear explanations cannot be given for those results as can be seen in the previous paragraphs, therefore more research is needed on this topic. The findings of the current study possibly suggests that the theory of Müller and Hulk (2000) and Hulk and Müller (2001) might be revised. However, it is difficult to draw firm conclusions based on the results, because they are so diverse. Therefore, further research is needed.

When replicating this research, the following thoughts should be taken into account, among others: There should be a monolingual control group for both languages performing the same experimental tasks as the bilinguals, a proficiency task needs to be done to completely exclude low language proficiency as a possible confound and a bigger population of participants is eligible, to make sure that statistical analysis will be more reliable. Further research is also suggested with different language pairs, since this might be helpful to find explanations for unclarified results and with different verb tenses to test if that causes different results.

Samenvatting

De afgelopen decennia is er veel literatuur gepubliceerd over de verwerving van voornaamwoorden in zinnen als *Jan tekende hem* (o.a. McKee 1992, Hamann, Kowalski and Philips 1997, Baauw 2000). Deze studies hebben een verschil tussen talen laten zien als het gaat om de correcte interpretatie van voornaamwoorden of clitics in deze zinnen. Er zijn talen, zoals het Frans, waar kinderen deze zinnen correct interpreteren vanaf dat ze ongeveer vier jaar oud zijn, en er zijn talen, zoals het Nederlands, waar kinderen fouten maken bij de interpretatie van deze zinnen totdat ze ongeveer acht jaar oud zijn. Dit wordt het Delay of Principle B Effect (DPBE) of Pronoun Interpretation Problem (PIP) genoemd. In deze thesis zullen verschillende eerder gegeven verklaringen voor het DPBE / de PIP genoemd worden.

Gezien het hierboven genoemde verschil, rijst de vraag of dit verschil blijft bestaan bij kinderen die simultaan tweetalig opgroeien waarbij de ene taal wel een PIP heeft en de andere taal niet. Met andere woorden, zou bij een tweetalig Nederlands-Frans kind interferentie optreden tussen de talen? En zou het Frans (waar geen PIP is voor gewone zinnen) het Nederlands (wat wel een PIP kent) faciliteren bij het verwerven van de interpretatieve eigenschappen van voornaamwoorden? Dit fenomeen, *cross-linguistic influence* (CLI) of interferentie, genoemd, is de afgelopen jaren onderwerp van diverse studies geweest. Hoewel er consensus is over het feit dat simultaan tweetalig opgroeiende kinderen hun talen al vroeg scheiden, komt CLI toch voor. Over het waarom en wanneer van het verschijnen van CLI is geen consensus, hoewel Müller en Hulk (2000) en Hulk en Müller (2001) een hypothese hebben ontwikkeld die CLI zou kunnen voorspellen, waarbij *structural ambiguity* de voorspellende factor is.

Weinig studies hebben onderzoek gedaan naar de PIP in een tweetalige context waarbij de ene taal een PIP kent en de andere taal niet. Deze studie is opgezet om simultaan tweetalig opgroeiende kinderen te testen op hun begrip van zinnen als *De jongen tekent hem*, wat *simple case* (SC)-zinnen zijn) en *Het meisje ziet haar dansen*, waarbij de laatste soort zinnen, zogeheten *exceptional case marking* (ECM)-zinnen wel tekenen van een PIP laten zien in het Frans, net als in het Nederlands. De centrale vraag in dit onderzoek is of de PIP minder problematisch is als Frans en Nederlands tegelijk verworven worden. Andere vragen zijn a) of er sprake is van interferentie tussen beide talen en b) of taaldominantie een rol speelt of niet. Voor a) was voorspeld dat er geen interferentie zou optreden, gebaseerd op Müller and Hulk (2000) en Hulk and Müller (2001). Voor b) was voorspeld dat taaldominantie geen rol zou spelen.

Om deze vragen te kunnen beantwoorden is een Truth Value Judgment Task ontworpen en uitgevoerd bij tweetalig Nederlands-Franse kinderen en is door ouders een uitgebreide vragenlijst ingevuld over de hoeveelheid input die hun kind in beide talen krijgt. Data is verzameld bij 16 tweetalige Frans-Nederlandse kinderen tussen de vier en de acht jaar in Frankrijk en 15 in Nederland. Voor wat betreft de Nederlandse SC zinnen bleken de voorspellingen te kloppen, er zijn geen significante verschillen gevonden die interferentie of invloed door taaldominantie doen vermoeden. De statistische analyse van de resultaten van de TVJT en de vragenlijst laten zien dat er mogelijk interferentie optreedt van Nederlands naar Frans in de Franse SC zinnen, wat leidt tot een vertraging in de verwerving van het Frans voor dit specifieke grammaticakenmerk, maar alleen als de input van het Nederlands minstens 65% is. Met andere woorden, de vertraging vindt alleen plaats bij Nederlands-dominante kinderen. Dit laat zien dat taaldominantie een rol speelt. Een lage taalvaardigheid van het Frans en een lagere betrouwbaarheid van de statistische analyse vanwege de kleine groep proefpersonen kunnen echter niet uitgesloten worden als verantwoordelijke factoren voor de verschillen in scores tussen beide tweetalige groepen.

Voor wat betreft de Nederlandse ECM zinnen is interferentie van het Frans naar het Nederlands gevonden, wat een versnelling in de verwerving van het Nederlands opleverde. Taaldominantie was echter niet verantwoordelijk voor dit verschil, omdat er geen significante verschillen gevonden zijn tussen beide tweetalige groepen. De interferentie kan verklaard worden door Gawlitzek-Maiwald en Tracy's (1996) Bilingual Bootstrapping Hypothesis, maar dit is geen bevredigende verklaring. Het kan ook een optie zijn om de betekenis van ambiguïteit in de hypothese van Müller en Hulk (2000) en

Hulk en Müller (2001) breder te zien, maar ook dit levert geen bevredigende verklaring op. Meer onderzoek is dan ook nodig om een betere verklaring te kunnen vinden.

Voor wat betreft de Franse ECM zinnen is er een niet –voorspeld significant verschil gevonden tussen beide tweetalige groepen. Dit betekent dat er geen tekenen van interferentie gevonden zijn, maar dat taaldominantie wel een rol speelt in dit verschil. Ook voor dit verschil kunnen, net als bij het verschil bij de Franse SC zinnen, een lage taalvaardigheid van het Frans en een lagere betrouwbaarheid van de statistische analyse (vanwege de kleine groep proefpersonen) niet uitgesloten worden als verantwoordelijke factoren voor de verschillen in scores tussen beide tweetalige groepen. Meer onderzoek is ook hier nodig om deze resultaten beter te kunnen verklaren.

Terugkomend op de onderzoeksvraag of het voordeel heeft voor een kind om Frans-Nederlands tweetalig te zijn voor wat betreft de interpretatie van de zinnen uit dit onderzoek, kan gezegd worden dat dit alleen positief is voor Nederlands dominante tweetaligen voor wat betreft Nederlandse ECM zinnen, waar interferentie vanuit het Frans naar het Nederlands zorgt voor een versnelde verwerving van het Nederlands. Voor wat betreft de Franse SC zinnen is er echter een vertraging in de verwerving van het Frans gevonden voor diezelfde groep tweetaligen, waardoor het daar juist een nadeel lijkt te zijn om Frans-Nederlands op te groeien. Taaldominantie lijkt bij deze gevonden verschillen geen rol te spelen, maar meer onderzoek is nodig om tot een duidelijke verklaring van deze resultaten te komen.

De bevindingen van deze studie laten zien dat de theorie van Müller and Hulk (2000) en Hulk and Müller (2001) mogelijk herzien moet worden. Echter, het is moeilijk om harde conclusies te trekken uit dit onderzoek, omdat de resultaten zo divers zijn. Meer onderzoek is daarom gewenst.

Als dit onderzoek herhaald zou worden, is het belangrijk om eentalige controlegroepen toe te voegen aan het onderzoek, een test toe te voegen om de taalvaardigheid van de tweetaligen te testen en zo mogelijk de groep participanten te vergroten, om zo een betere statistische analyse te kunnen toepassen. Verder onderzoek wordt ook voorgesteld met andere talenpalen, omdat dat behulpzaam kan zijn bij het vinden van verklaringen voor de resultaten uit dit onderzoek, evenals gebruikmaken van verschillende werkwoordstijden om te testen of dit voor andere resultaten zorgt.

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Appendix A

In this appendix the complete TVJT can be found. Please note that when running the test, the pictures were presented to the child in a powerpoint-presentation and that the puppets were not allowed to watch the presentation.

The 'verteller' was the researcher, 'Daan' and 'Thomas' are the puppets. The answers of Thomas and Daan are filled in here, but were of course depended on the answers the child gave.

TVJT Nederlands

Inleiding

Verteller: Hoi, ik ben Kirsten en dat is ... Wie ben jij?

Kind: ...

Verteller: ..., (compliment). ..., weet je, wij zijn niet alleen gekomen, we hebben twee clowns meegenomen, kijk maar. Dit is Daan en dit is Thomas. Daan, wil jij iets over jezelf vertellen?

Daan: Ja hoor. Ik ben dus Daan, ik woon in Nederland en dit is mijn neef Thomas. Hij woont hier in Frankrijk, net als jij. Ik vind Thomas heel aardig, maar hij spreekt niet zo goed Nederlands. Dat is hij nu aan het leren. Als we elkaar beter begrijpen, kunnen we veel meer samen doen. Dat vind ik leuk. Hij blijft straks hier en doet dan mee als jij iets leuks met Kirsten en ... gaat doen. Wil jij Thomas helpen?

Kind: ...

Daan: Fijn! Ik ga nu weer, want voor mij is het spelletje veel te makkelijk! Tot een volgende keer!

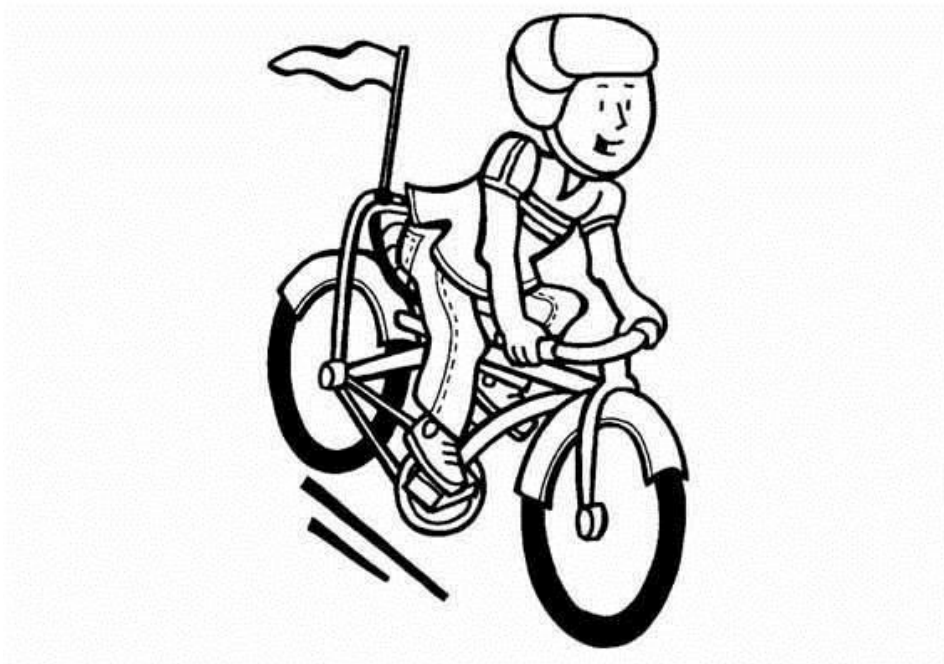
Verteller: Ja, dit is dus Thomas. Hij kan eigenlijk al best goed Nederlands hoor, maar sommige dingen vindt hij wel lastig, dus daar oefenen we dan mee. Zo meteen ga ik jou verhaaltjes vertellen. Thomas luistert goed mee. Maar...jij mag ook de plaatjes van het verhaal zien en Thomas niet! Thomas gaat raden wat er op de plaatjes staat. Jij mag Thomas vertellen of hij het goed gedaan heeft of niet. Oké?

Kind: ...

Verteller: Nou, laten we maar beginnen. We zullen er eerst een paar oefenen. Het gaat eigenlijk steeds hetzelfde. Ik laat een plaatje zien en vertel er iets bij. Daarna vraag ik steeds aan Thomas of hij wil raden wat er op het plaatje gebeurt. Als hij het erg moeilijk vindt, kan ik hem een beetje helpen. Maar we mogen niet het antwoord voorzegggen.

Als Thomas heeft geraden, mag jij zeggen of hij het goed heeft of niet. Als hij het goed heeft, mag je hem een snoepje geven, want daar houdt hij erg van. Als hij het niet goed heeft, mag je hem macaroni geven. Maar Thomas is niet zielig als hij een foutje maakt hoor. Dat is helemaal niet erg, daar leert hij juist van!

Pretest



Fietsen

Verteller: Dit is een verhaal over een jongetje. Het jongetje wil graag gaan fietsen. Dat mag wel van zijn moeder, maar hij moet wel voorzichtig doen. Thomas, kun jij raden wat hij op zijn hoofd heeft?

Thomas: Dat is een veel te moeilijke vraag! Mag ik alsjeblieft de plaatjes zien?

Verteller: Nee Thomas, dat kan niet hè, dat wist je ook wel, dat hadden we afgesproken van tevoren. Als jij ook de plaatjes kan zien, dan leer je er niets van.

Thomas: Hmm...dat is waar. Mag ik dan een hint? De vraag is echt te moeilijk hoor!

Verteller: Ja, een hint kan ik je wel geven. Het gaat over fietsen en het is veilig als je dit op je hoofd doet.

Thomas: Even denken hoor...een jongen en een fiets...Ik weet het! De jongen heeft een helm op!

Verteller: Klopt dat, ...?

Kind: ...

Verteller: Nou, geef Thomas maar een ... dan.

Thomas: Jeej, ik heb het goed!



Bloemen plukken

Verteller: Nou, nu Thomas het goed heeft, gaan we naar het volgende plaatje. Goed luisteren Thomas. Op dit plaatje staat een meisje. Ze is iets aan een het plukken. Kun jij raden wat ze aan het plukken is?

Thomas: Dat is makkelijk. Een meisje en plukken. Ik weet het hoor! Het meisje plukt bloemen!

Kind: ...

Thomas: Wow, ik heb het alweer goed!

Verteller: En Thomas, kun je ook raden wat voor kleren het meisje aan heeft?

Thomas: Ehm...Het is een meisje en ze is buiten...Ik weet het! Het meisje heeft een broek aan!

Kind: ...

Thomas: Nouhou...het is ook niet eerlijk, ik kon het plaatje toch niet zien?!

Verteller: Daar heb je gelijk in Thomas. Het is ook niet erg hoor. ..., kun je ook aan Thomas uitleggen waarom het niet klopt?

Kind: ...

Verteller: Ja, precies. Maar ja, dat kon Thomas niet weten, want hij had het plaatje niet gezien. Goed dat je het verteld hebt aan Thomas!

Verteller: Laten we naar het volgende plaatje gaan.



In de zandbak spelen

Verteller: Zo, dat ziet er gezellig uit zeg. Ik zie kinderen spelen en ze bouwen allerlei dingen. Thomas, kun jij raden waar ze mee aan het spelen zijn?

Thomas: Nou, de kinderen kunnen wel met heel veel aan het spelen zijn. Kun je me een hint geven?

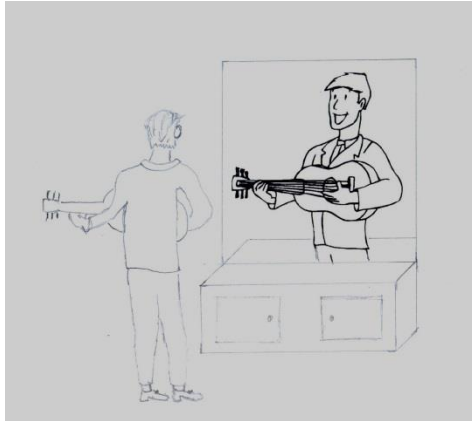
Verteller: Ja hoor, even denken...Het is buiten en je kunt er taartjes mee bakken.

Thomas: Even denken hoor...buiten en taartjes. Ik weet het! De kinderen spelen met zand!

Kind: ...

Thomas: Jaaa! Deze had ik weer goed!

Verteller: Ja, heel goed van je hoor, Thomas! Laten we naar het volgende verhaaltje gaan.



Gitaar spelen

Verteller: Een meneer wilde graag muziek maken. Hij wist nog niet welk muziekinstrument hij wilde gebruiken. Thomas, kun jij raden met welk muziekinstrument de meneer muziek ging maken?

Thomas: Nee, die vraag is te moeilijk! Kun je het makkelijker maken?

Verteller: Jahoor, dat kan ik wel. Je kunt kiezen tussen een gitaar en een piano. Lukt het nu wel om te raden?

Thomas: Ja, dat lukt nu wel. Even denken hoor. Een meneer en muziek maken... Ik weet het! De meneer speelt piano!

Kind: ...

Thomas: Nouhou! Ik had zo gehoopt dat ik het goed geraden had!

Verteller: Jammer hè, Thomas, maar het is niet erg hoor. Ik denk dat ... wel aan je wil uitleggen waarom het niet klopt?

Kind: ...

Verteller: Precies. De meneer kan het nog niet zo goed, daarom staat hij ergens voor, zodat hij beter kan zien wat hij doet. Thomas, kun jij raden waar de meneer voor staat?

Thomas: Hmm...een meneer en hij kan het nog niet zo goed... Ik weet het! De meneer staat voor een spiegel!

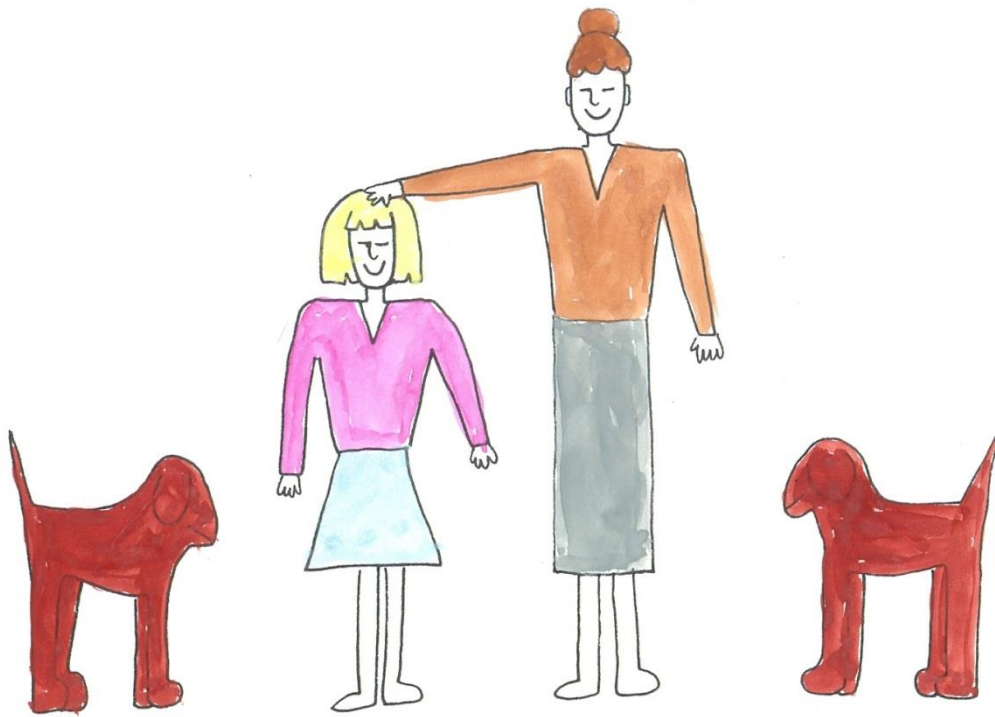
Kind: ...

Verteller: Heel goed! En ..., weet jij wat een spiegel doet?

Kind: ...

Verteller: Precies, heel goed. Knap van jou dat je dat al weet zeg!

Aanraken



Control condition – De moeder heeft haar aangerakt

Verteller: In het park spelen een paar meisjes spelletjes met hun moeders. Ze spelen een spelletje waarbij ze steeds iets bij een ander moeten doen. De moeder van Janneke begint. Thomas, kun je raden wat er gebeurd is?

Thomas: Het is moeilijk!

Verteller: Ik geef je een hint, het gaat over aanraken.

Thomas: Hmm... Een moeder en een meisje... ik weet het! De moeder heeft haar aangerakt!

Kind: ...

Thomas: Jeej, ik heb al veel ... gekregen zeg!

Verteller: Ja hè, nou, laten we maar verder gaan met het verhaal.



Control condition – het meisje heeft zichzelf aangeraakt

Verteller: Eén van de andere meisjes denkt nu dat ze snapt hoe het spelletje werkt. Thomas, kun jij al raden wat er gebeurd is?

Thomas: Ehm...gaat het weer over aanraken?

Verteller: Ja, het gaat weer over aanraken.

Thomas: hmm...een meisje en een moeder...ik weet het! Het meisje heeft zichzelf aangeraakt.

Kind: ...

Thomas: Nou...ik wil ook gewoon de plaatjes kunnen zien, het is zo moeilijk!

Verteller: Ik snap dat je het moeilijk vindt Thomas, maar ja, we hadden afgesproken dat jij de plaatjes niet kon zien. Misschien wil ... aan je uitleggen waarom het niet klopte?

Kind: ...

Verteller: Juist. Fijn dat je Thomas iets geleerd hebt!



Control condition – de moeder heeft zichzelf aangeraakt

Verteller: Hmm, denkt één van de andere moeders, nu ben ik aan de beurt. Wat zal ik doen?
Thomas, kun jij raden wat er gebeurd is?

Thomas: Ehm...nog steeds een moeder en een meisje...ik weet het! De moeder heeft zichzelf aangeraakt!

Kind: ...

Thomas: Gelukkig, die heb ik weer goed!



Test condition - het meisje heeft haar aangeraakt

Verteller: Moeder zegt dat één van de meisjes nu weer aan de beurt is. Een meisje denkt even na en dan weet ze het. Ze kiest iets wat ze nog niet heeft gedaan. Thomas, kun jij raden wat er gebeurd is?

Thomas: Eh...moeilijk zeg, het gaat over aanraken... een meisje en een moeder... ik weet het! Het meisje heeft haar aangeraakt.

Kind: ...

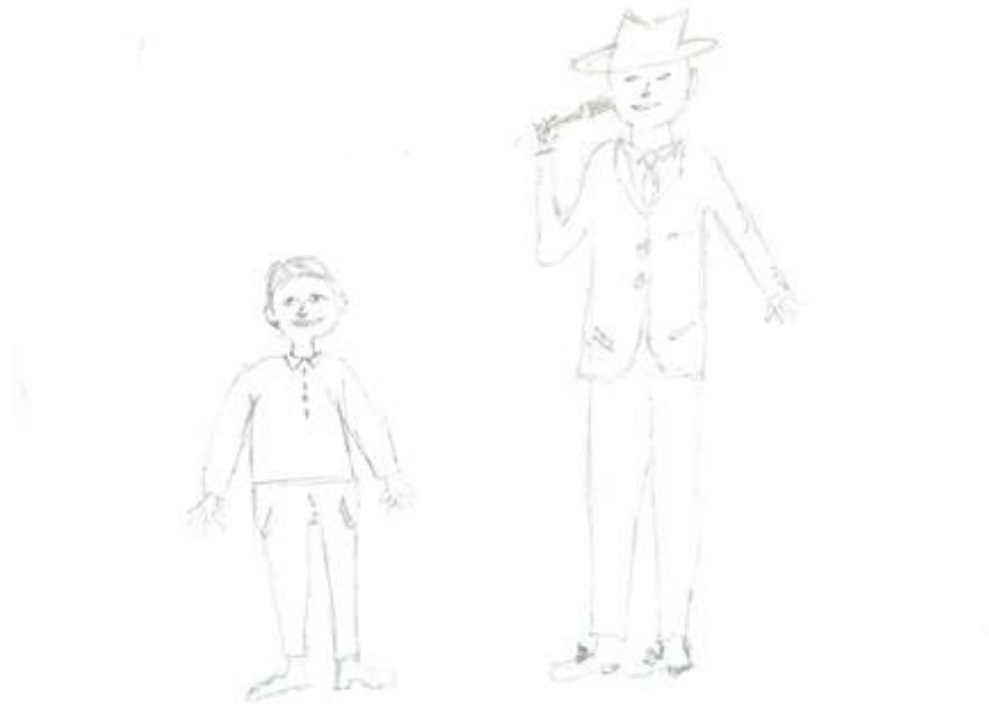
Thomas: ☹️

Bij nee: **Verteller:** Kun je aan Thomas uitleggen waarom hij het niet goed heeft?

Kind: ...

Verteller: Ja, fijn dat je Thomas weer zo goed geholpen hebt!

Verven



Test condition – de vader heeft hem geverfd

Verteller: Vanmiddag gaat Jeroen met zijn vader naar een feestje. De afspraak is dat iedereen geverfd komt, dus Jeroen en zijn vader pakken de verfspullen en gaan verven. Jeroen weet nog niet wat hij wil, maar zijn vader weet het al wel. Thomas, kun jij raden wat er gebeurd is?

Thomas: Ehm...gaat het over verven?

Verteller: Ja, het gaat over verven.

Thomas: Hmm...een jongen en een vader... ik weet het! De vader heeft hem geverfd!

Kind: ...

Thomas: Jeej, ik heb het goed! / Oh nee, het klopte toch niet.

Bij nee: **Verteller:** Kun je uitleggen waarom Thomas het verkeerd heeft?

Kind: Ja, ...

Verteller: Goed zo, je helpt Thomas heel goed!



Control condition – Jeroen heeft hem geverfd

Verteller: Jeroen is nog niet tevreden over hoe zijn vader eruit ziet. Hij kijkt eens goed om te bedenken of hij er iets aan kan doen. Thomas, kun jij raden wat er gebeurd is?

Thomas: Hmm...een jongen en een vader...Oh, ik weet het hoor, Jeroen heeft hem geverfd!

Kind: ...

Thomas: Ja, het klopte!

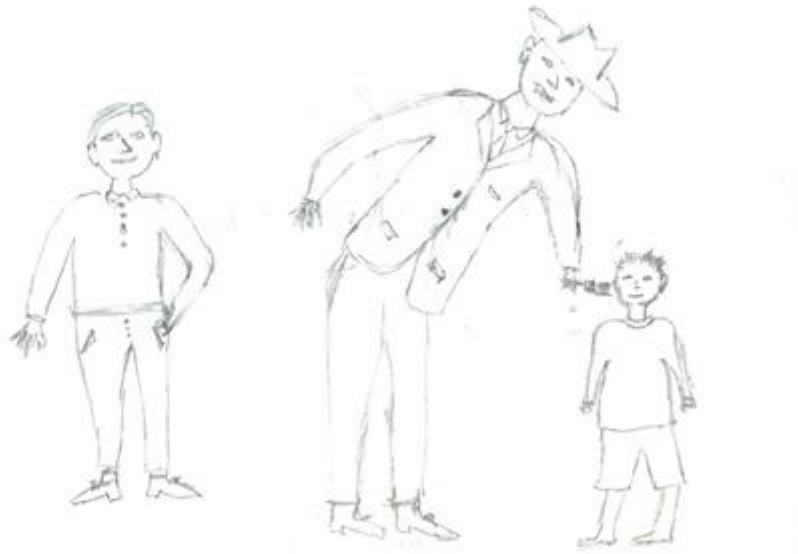


Control condition – de jongen heeft zichzelf geverfd

Verteller: Nu is vader helemaal mooi geverfd. Maar Jeroen heeft nog helemaal geen verf op zijn gezicht. Intussen heeft hij al wel bedacht wat hij wil. Thomas, kun jij raden wat er gebeurd is?

Thomas: Hmm...een vader en een jongen...Ik weet het! Jeroen heeft zichzelf geverfd!

Kind: ...



Control condition – de vader heeft zichzelf geverfd

Verteller: Hé, daar komt het broertje van Jeroen de kamer binnengelopen. Jeroen en zijn vader kijken nog eens goed naar elkaar om te zien of het echt goed is. Thomas, kun jij raden wat er gebeurd is?

Thomas: Gaat het over de vader en de jongen?

Verteller: Ja, het gaat over een vader en een jongen.

Thomas: Hmm, een vader en een jongen. Ik weet het! De vader heeft zichzelf geverfd!

Kind: ...

Thomas: Klopt het niet? Oh, wat jammer!

Verteller: Kun je ook aan Thomas uitleggen waarom het niet klopt?

Kind: ...

Vastpakken



Control condition – De moeder heeft haar vastgepakt

Verteller: Alle kinderen op school mochten vandaag hun moeder meenemen. Marie, Sara, Naomi en Lisa doen een spelletje. Om de beurt zeggen ze een lichaamsdeel, bijvoorbeeld arm, been, hoofd of buik en dan moet je jezelf of je moeder vastpakken. Of de moeder moet haarzelf of haar kindje vastpakken. Marie mag als eerste iets zeggen. Ze roept 'arm'! Thomas, kun jij raden wat er gebeurd is?

Thomas: Sorry, ik lette even niet op, wat zei je?

Verteller: Het gaat over vastpakken. Kun jij raden wat er gebeurd is?

Thomas: Hmm...even denken hoor... een moeder en een meisje...Ik weet het! De moeder heeft haar vastgepakt.

Kind: ...

Thomas: 😊



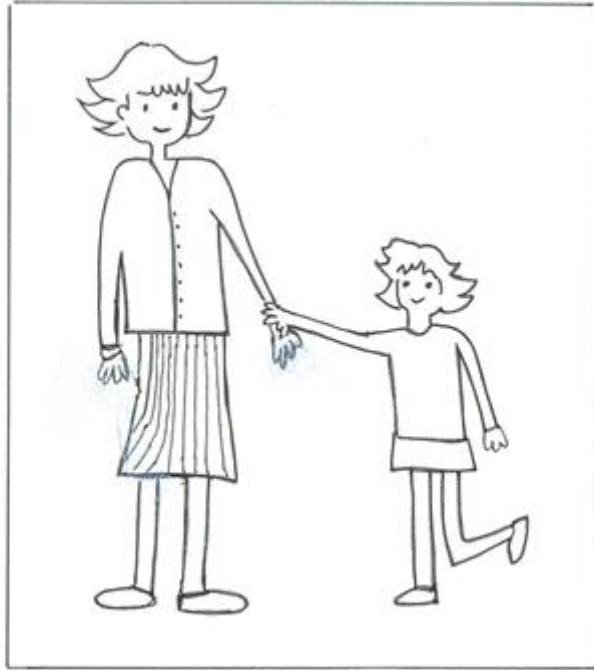
Control condition – De moeder heeft zichzelf vastgepakt

Verteller: Nu is Sara aan de beurt. Ze denkt even na en roept dan ‘been’! Nu moet haar moeder haar eigen been vastpakken of het been van Sarah. Wat zou ze gaan doen? Thomas, kun jij raden wat er gebeurd is?

Thomas: Een meisje en een moeder...Ik weet het! De moeder heeft zichzelf vastgepakt.

Kind: ...

Thomas: 😊



Control condition - Het meisje heeft zichzelf vastgepakt

Verteller: Nu mogen Naomi en haar moeder. Naomi's moeder mag iets bedenken. Ze denkt even na en zegt dan 'arm'. Thomas, kun jij raden wat er gebeurd is?

Thomas: Ehm...lastig zeg, want ik kan het plaatje niet zien, mag ik alsjeblieft het plaatje zien?

Verteller: Ja, Thomas, ik weet dat je dat heel graag wil, maar alleen ... mag het plaatje zien. Jammer hè? Kun je toch raden wat er gebeurd is?

Thomas: Oké... een moeder en een meisje... Ik weet het! Het meisje heeft zichzelf vastgepakt.

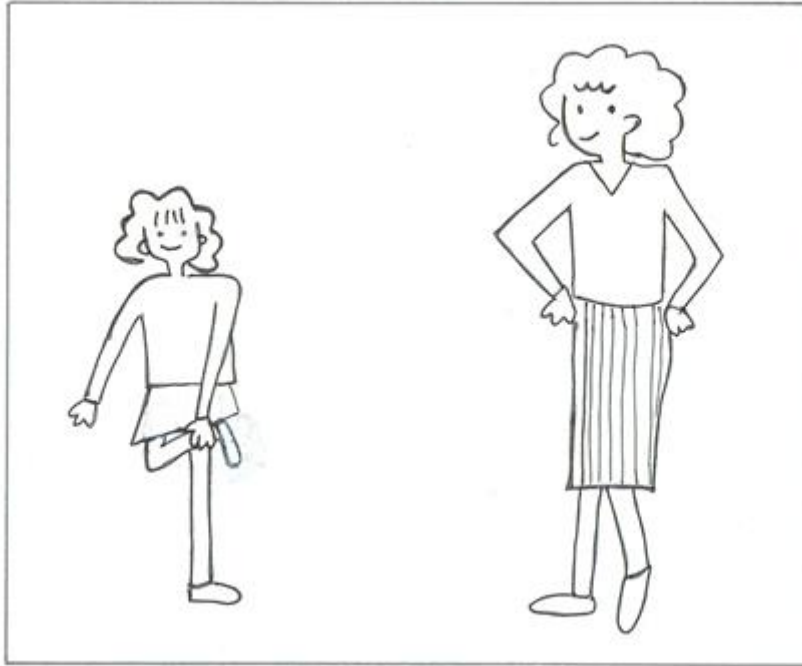
Kind: ...

Thomas: ☹️

Verteller: ..., kun jij aan Thomas uitleggen waarom zijn antwoord niet klopte?

Kind: ...

Thomas: Ah, nu snap ik het, dankjewel!



Test condition – Het meisje heeft haar vastgepakt

Verteller: Als laatste zijn Lisa en haar moeder aan de beurt. De moeder van Lisa mag bedenken wat Lisa moet vastpakken. Ze zegt 'been'. Thomas, kun jij raden wat er gebeurd is?

Thomas: Hmm... een meisje en een moeder... Ik weet het! Het meisje heeft haar vastgepakt.

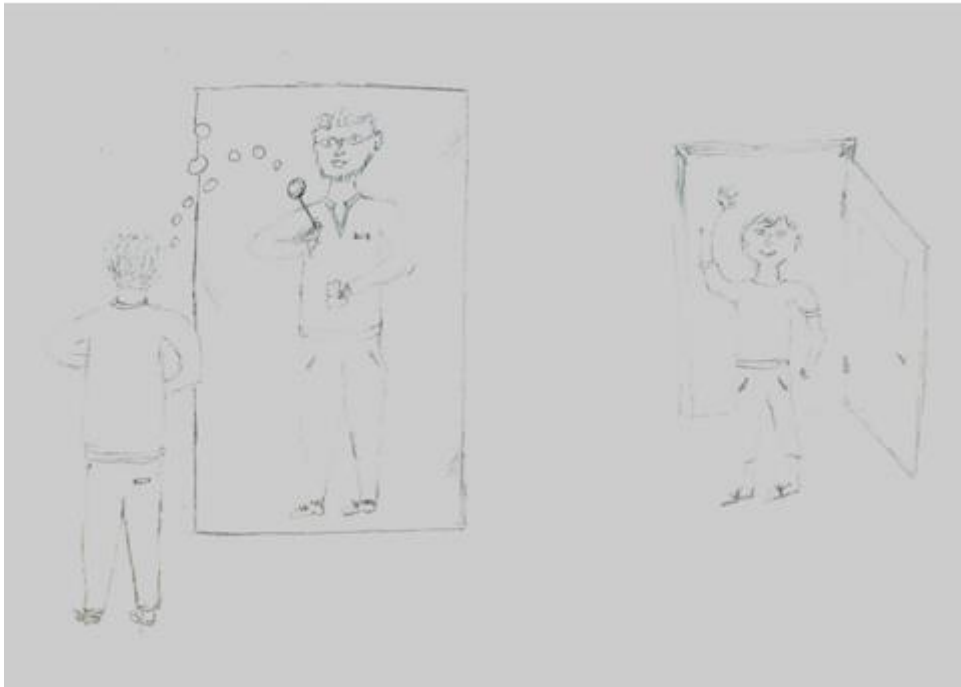
Kind: ...

Thomas: 😊 / ☹️

Bij nee: **Verteller:** ..., kun jij aan Thomas uitleggen waarom zijn antwoord niet klopte?

Kind: ...

Bellen blazen



Test condition – de vader zag hem bellen blazen

Verteller: Vader is bellen aan het blazen, terwijl Jan net de kamer in loopt. Zo, dacht Jan, dat is moeilijk zeg! Thomas, kun jij raden wat er gebeurd is?

Thomas: Het is moeilijk!

Verteller: Ik geef je een hint. Er is een spiegel.

Thomas: Oké, even nadenken... een jongen en een vader...Ah, ik weet het! De vader zag hem bellen blazen!

Kind: ...

Thomas: 😞 / 😊

Bij 'nee': **Verteller:** Kun jij aan Thomas uitleggen waarom het niet klopt?



Control condition - De jongen zag zichzelf bellen blazen

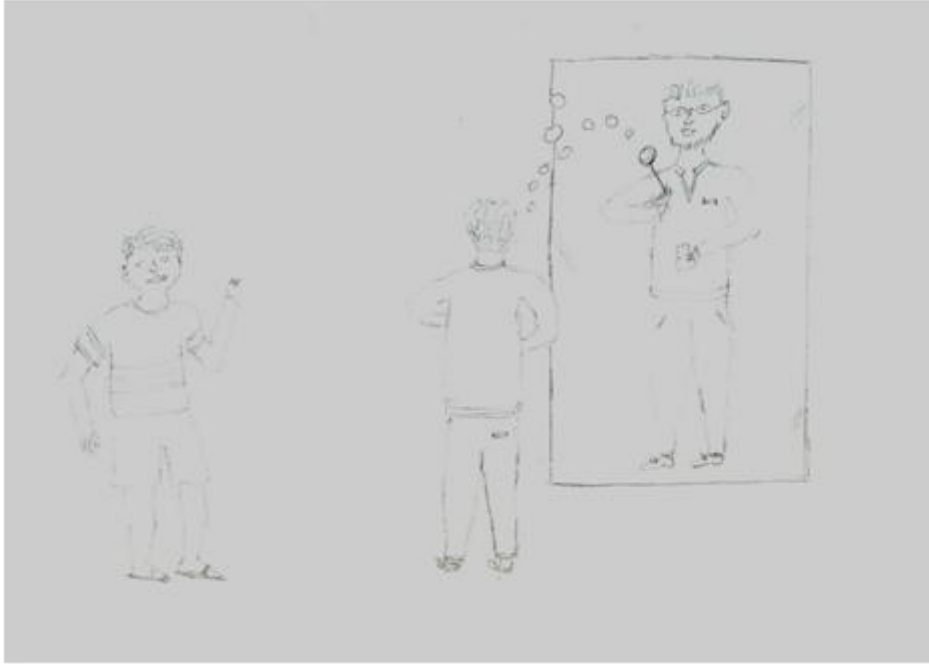
Verteller: Vader vraagt aan zijn zoon of hij het ook eens wil proberen. Jan vindt het erg moeilijk, maar hij wil het toch proberen. Vader geeft de bellenblaas aan Jan en hij gaat ook bellen blazen. Ook al is het de eerste keer, het lukt al best goed. Thomas, kun jij raden wat er gebeurd is?

Thomas: Ehm, is er nog steeds een spiegel?

Verteller: Ja, er is nog steeds een spiegel.

Thomas: Ehhh...een jongen en een vader...ik weet het! De jongen zag zichzelf bellen blazen!

Kind: ...



Control condition – de jongen zag hem bellen blazen

Verteller: Jan is klaar met bellen blazen. Hij geeft de bellenblaas weer aan zijn vader. Zijn vader wil nog wel even bellen blazen. Thomas, kun jij raden wat er gebeurde?

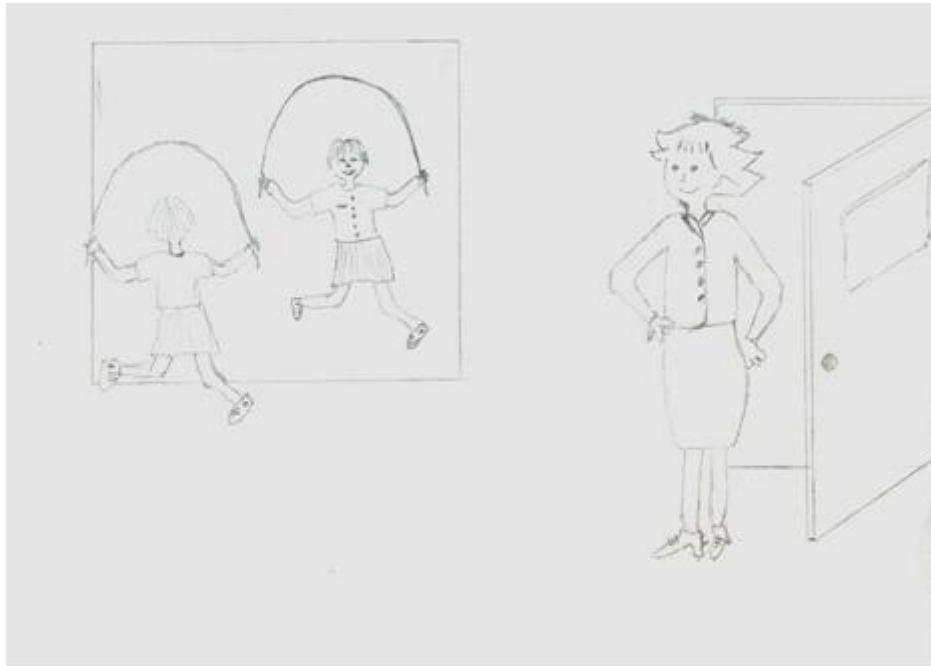
Thomas: Een jongen en een vader...Ja, ik weet het! Jan zag hem bellen blazen!

Kind: ...

Bij nee: **Thomas:** ☹

Verteller: Kun jij uitleggen aan Thomas waarom het niet klopt?

Touwtje springen



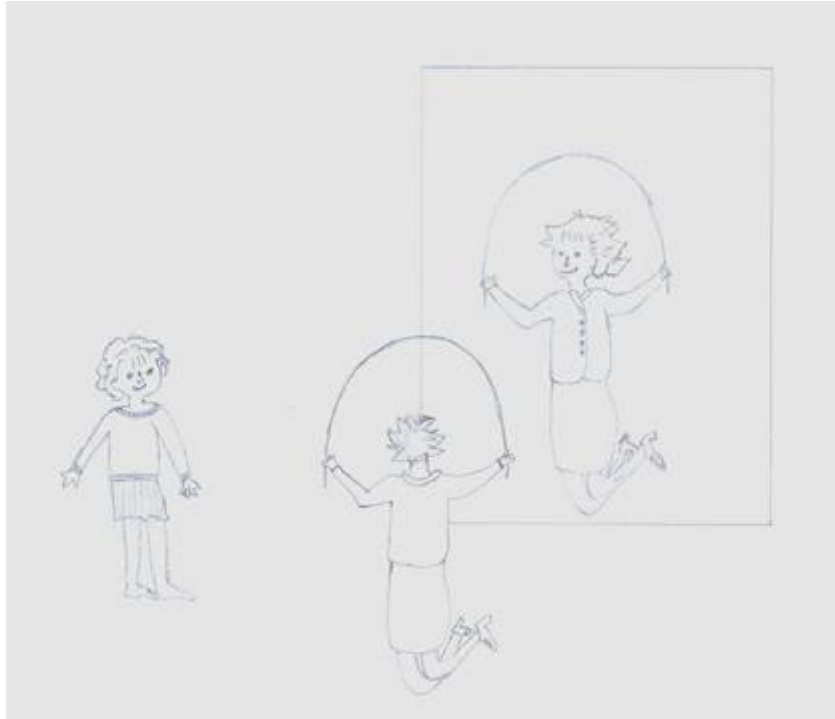
Control condition - Moeder zag haar touwtje springen

Verteller: Marie is voor de spiegel touwtje aan het springen, zo kan ze goed zien hoe goed ze dat al kan. Haar moeder komt ook eens kijken hoe goed Marie dat al kan. Thomas, kun jij raden wat er gebeurd is?

Thomas: Ik ga het proberen. Een moeder en een meisje...Ik weet het! De moeder zag haar touwtje springen!

Kind: ...

Thomas: 😊



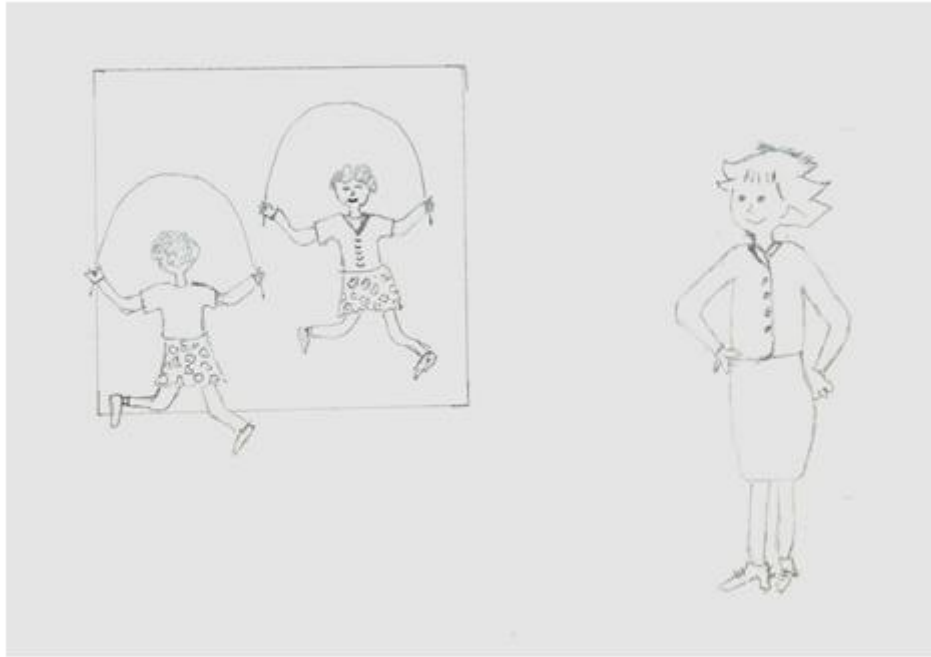
Control condition - Moeder zag zichzelf touwtje springen

Verteller: Moeder vraagt of ze het ook eens mag proberen. Dat mag, Marie geeft het springtouw aan haar moeder en moeder gaat touwtje springen. Thomas, kun jij raden wat er gebeurde?

Thomas: Eh...een meisje en een moeder. Hmm...ik weet het! De moeder zag zichzelf touwtje springen!

Kind: ...

Thomas: 😊



Test condition – Het meisje zag haar touwtje springen

Verteller: Moeder wordt er een beetje moe van en stopt er mee. Ze zegt tegen Marie dat ze het heel knap vindt dat Marie het al zo goed kan en vraagt of zij weer wil. Dat wil Marie wel, maar ze vindt het wel leuk als haar moeder blijft kijken. Thomas, kun jij raden wat er gebeurd is?

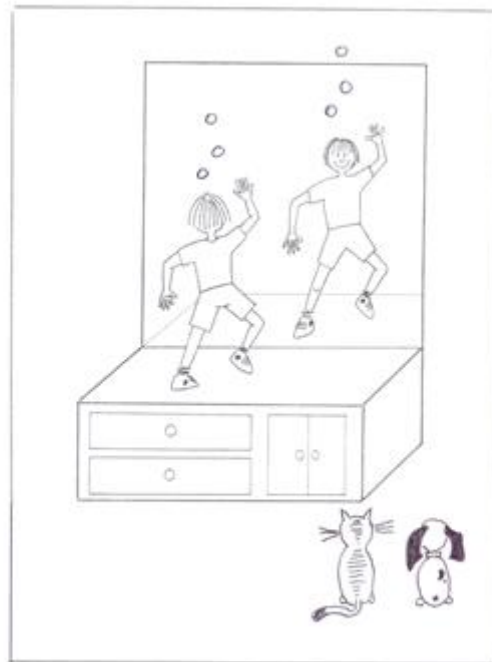
Thomas: Hmm...een moeder en een meisje... Ja, ik weet het! Het meisje zag haar touwtje springen!

Kind: ...

Thomas: 😊 / ☹️

Bij nee: **Verteller:** Kun jij aan Thomas uitleggen wat er niet klopte?

Jongleren



Control condition - De hond zag hem jongleren

Verteller: Een jongen is alleen thuis. Hij is aan het leren te jongleren. Dat gaat makkelijker als je voor de spiegel staat. De jongen komt binnenlopen en denkt 'wow, mijn kat kan gewoon jongleren! Nou, als hij het kan, moet ik het ook kunnen. En hij springt op tafel, vraagt de jongleerballen aan de kat en begint te jongleren. Thomas, kun jij raden wat er gebeurd is?

Thomas: Een jongen, een kat en een hond... Ik weet het! De kat zag hem jongleren!

Kind: ...

Thomas: 😊



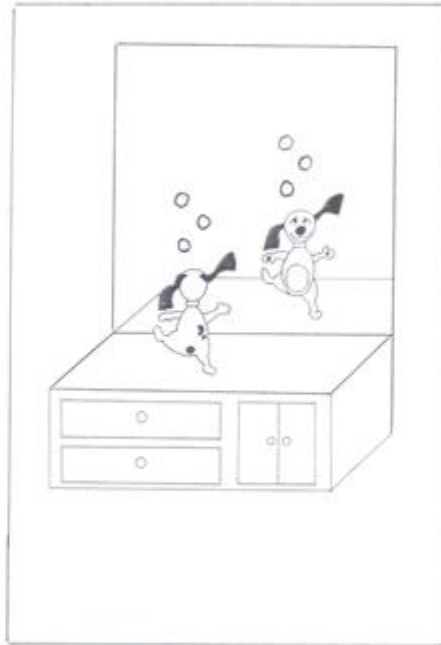
Test condition - De kat zag hem jongleren

Verteller: Even later gaat de jongen weg. Hij laat de ballen liggen. De kat wil het ook wel eens proberen. Hij springt op de kast, zodat hij ook voor de spiegel kan staan. De kat pakt de ballen en gaat jongleren. De hond zit te kijken. Thomas, kun jij raden wat er gebeurd is?

Thomas: Even denken hoor...een kat en een hond... Ik weet het! De kat zag hem jongleren!

Kind: ...

Thomas: 😞 / 😊



Control condition - De hond zag zichzelf jongleren

Verteller: Als de kat de ballen laat vallen, rent de hond erop af. Hij pakt ze alle drie tegelijk in zijn bek en springt op de tafel. Thomas, kun jij raden wat er gebeurd is?

Thomas: Is de kat al weg?

Verteller: Ja, de kat is weg.

Thomas: Even denken hoor, een hond en ballen... Ik weet het! De hond zag zichzelf jongleren!

Kind: ...

Thomas; 😊

TVJT Français

Introduction

Verteller: Tu te rappelles que j'ai amené Daan et Thomas l'autre jour?

Kind: ...

Verteller: Bon, je les ai amenés aujourd'hui aussi. Thomas, tu veux dire quelque chose ?

Thomas: Oui, je veux bien! La dernière fois tu m'as très bien aidé. Daan et moi, nous pouvons jouer ensemble avec grand plaisir! Et maintenant, Daan est en train d'apprendre le français. Je l'ai entendu dire que toi, tu parles bien français, donc je voulais te demander si tu pouvais aider Daan comme tu m'as aidé la dernière fois. Tu veux faire ça ?

Kind: ...

Thomas: C'est super! Merci beaucoup! J'espère que je peux jouer avec Daan en français sous peu . Ça va être marrant ! Bon, je pense que moi je vais jouer tout seul, parce que je connais déjà le jeu. Amusez-vous bien !

Verteller: En fait, nous faisons la même chose comme la dernière fois, mais maintenant en français, parce qu'il faut que Daan s'entraîne . Il parle déjà bien français, mais il y a quelques trucs qu'il trouve difficiles, donc nous nous entraînons avec ça. Tout à l'heure je vais raconter des histoires et Daan va bien m'écouter. Comme la dernière fois c'est toi qui as le droit de voir les images, mais Daan ne n'a pas le droit. Daan va deviner ce qui se passe sur les images. Et c'est toi qui peux dire à Daan si sa réponse était la bonne. Si sa réponse est juste, tu peux lui donner une menthe, quand c'est pas juste, tu peux lui donner une lentille.
T'as compris ?

Kind: ...

Verteller: Bon, on va commencer. Nous commençons avec une excercise pour nous entrainer. Peut-être tu te le rappelles encore bien, mais pour Daan tout est nouveau.

Pretest



Verteller: Pierre est allé au jardin d'enfants. Daan, tu peux deviner ce que le garçon a fait ?

Daan: Ouf...c'est trop difficile ! Il y a beaucoup de possibilités dans un jardin d'enfants. Tu peux faire une indice ?

Verteller: Oui, je peux faire ça. Un moment, eh...on monte sur ça et après on descend soi-même.

Daan: Hmm...monter et descendre... je sais. Le garçon est allé sur le toboggan.

Kind :



Verteller : Très bien, nous allons à l'histoire suivante. Il y a un garçon et une fille, c'est un jour très chaud et ils mangent quelque chose de délicieux. Daan, tu peux deviner ce que les enfants mangent ?

Daan: Hmm...un jour bien chaud et manger...je sais. Ils mangent une glace.

Kind:



Verteller: Il y a un garçon et il joue un instrument de musique. Daan, tu peux deviner lequel instrument de musique le garçon ?

Daan : Hmm, c'est difficile ! Tu peux me donner une indice ?

Verteller : Bien sur. Tu peux choisir entre une flute et une guitare.

Daan : Hmm...une flute et une guitare...je sais. Il joue de la flute.

Kind :

Verteller : Tu peux expliquer pourquoi c'est pas juste ?

Kind :

Pointer



Control condition – Het meisje heeft naar haar gewezen

Verteller : Dans le jardin il y a quelques filles qui jouent avec leurs mères. Elles jouent un jeu dans lequel elles doivent soit s'indiquer elles-mêmes, soit indiquer quelqu'un d'autre. La mère de Marie va commencer. Daan, tu peux deviner ce qui s'est passé ?

Daan: C'est difficile!

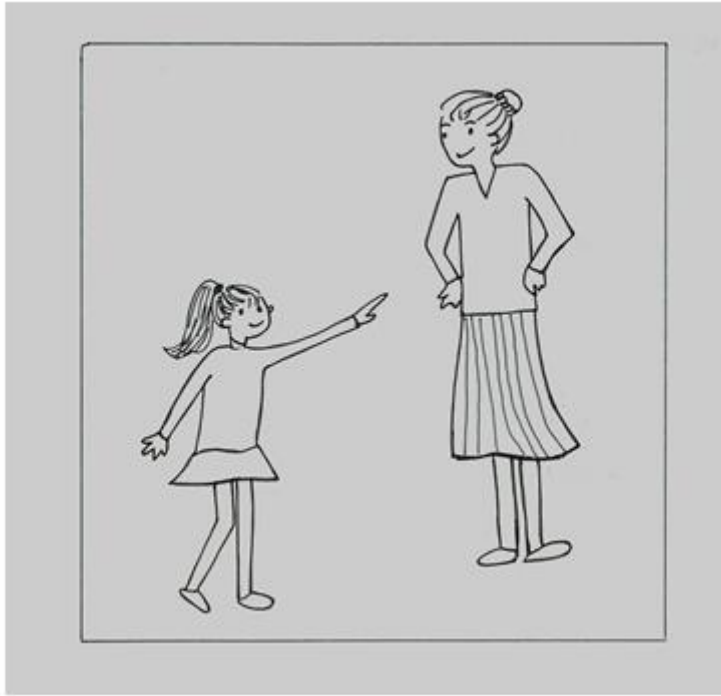
Verteller: Je vais te donner une indice, il s'agit d'indiquer quelqu'un

Daan: Hmm...une mère et une fille...je sais. La mère l'a indiquée.

Kind: ...

Daan: Cool, j'ai déjà beaucoup de bonbons !

Verteller: Mais oui! Bon, nous continuons l'histoire.



Control condition – De moeder heeft naar zichzelf gewezen

Verteller: Une autre fille pense qu'elle comprend. Daan, tu peux deviner ce qui s'est passé ?

Daan: Ehm...c'est encore avec indiquer ?

Verteller: Oui, c'est encore avec indiquer.

Daan: Hmm...une fille et une mère...je sais. La fille s'est indiquée.

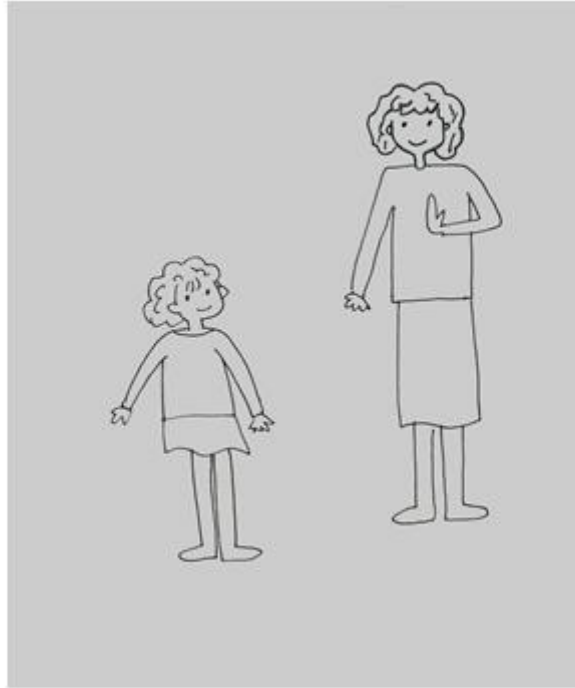
Kind:

Daan: Mais ce n'est pas juste, moi je veux voir les images aussi, c'est trop difficile !

Verteller: Je comprends que tu penses que c'est difficile Daan, mais tu sais c'était l'accord que tu n'as pas le droit de voir les images. Peut-être ... veux-tu lui expliquer pourquoi ce n'était pas juste ?

Kind: ...

Verteller: Oui, merci de lui avoir appris quelque chose !



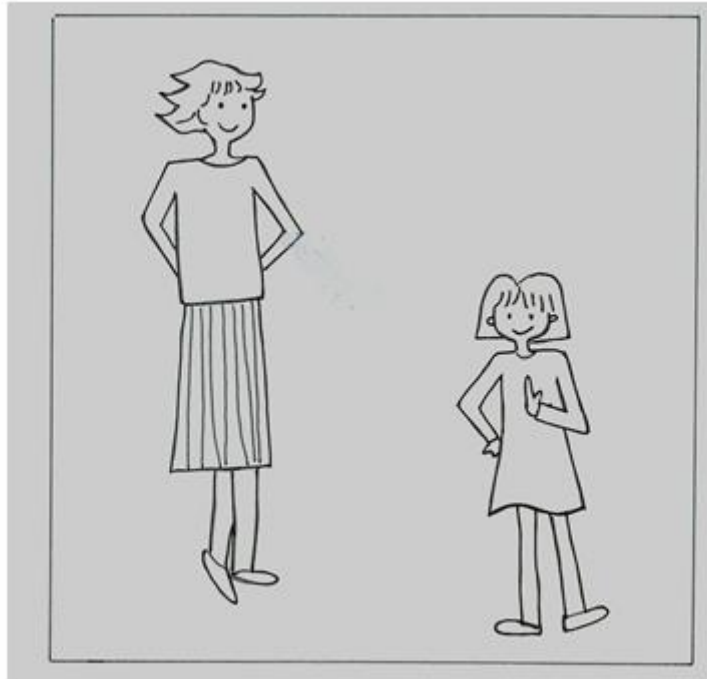
Control condition – De moeder heeft naar zichzelf gewezen

Verteller: Hmm...pense l'une des autres mères, maintenant c'est à moi. Qu'est-ce que je vais faire...
Daan, tu peux deviner ce qui s'est passé ?

Daan: Ehm...encore une mère et une fille...je sais. La mère s'est indiquée.

Kind:

Daan: Heureusement, c'était bien!



Test condition - **Het meisje heeft naar haar gewezen**

Verteller: Une mère dit que c'est le tour de l'une des filles. Elle réfléchit un peu et après elle sait. Elle choisit quelque chose qui n'était pas encore fait. Daan, tu peux deviner ce qui s'est passé ?

Daan: Eh, c'est difficile, il s'agit de indiquer...une fille et une mère...je sais. La fille l'a indiquée.

Kind:

Daan: ☹️

Quand c'est non: **Verteller:** Tu peux expliquer a Daan pourquoi c'était pas juste ?

Kind: ...

Verteller: Oui, merci d'aider Daan!

Attacher

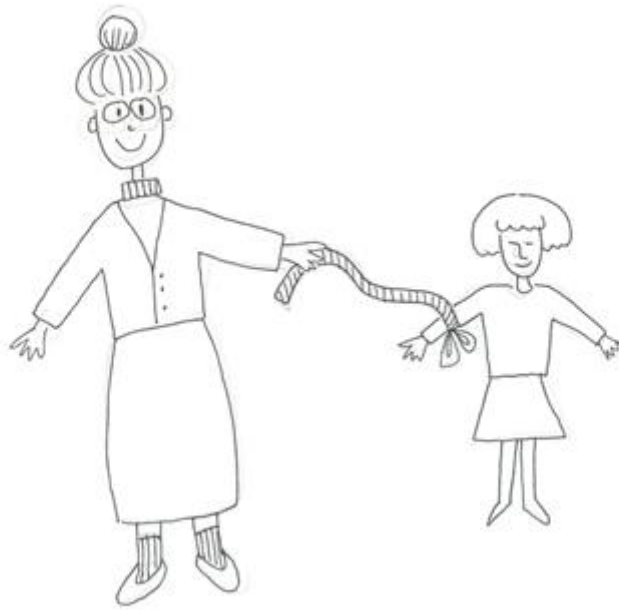


Control condition –La mère l’a attaché

Verteller: Marie, sa mère et sa grand-mère pratiquent des nœuds. Elles font ça en s’attachant soi-même ou en s’attachant l’un l’autre. Marie et sa mère commencent. Daan, tu peux deviner ce qui s’est passé ?

Daan: Une mère et une fille...je sais. La mère l’a attaché.

Kind: ...



Test Condition –La grandmère s’est attaché

Verteller : Après c’est la grand-mère qui va pratiquer. Daan, tu peux deviner ce qui s’est passé ?

Daan : Hmm...il y a une fille aussi ?

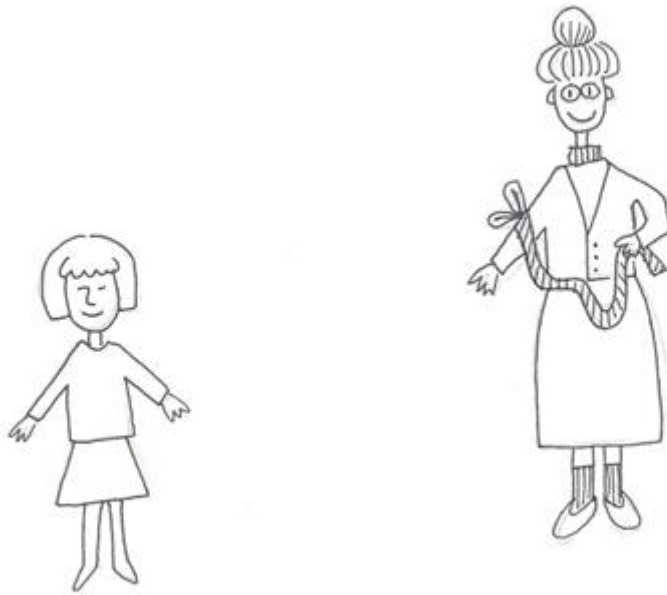
Verteller : Oui, il y a aussi une fille.

Daan : Hmm, une fille et une grand-mère...je sais. La grand-mère s’est attachée.

Kind :

Verteller : ..., tu peux expliquer a Daan pourquoi c’était pas juste ?

Kind : ...



Test condition –La grandmère l’a attaché

Verteller : La grand-mère veut pratiquer encore un peu. Daan, tu peux devenir ce qui s’est passé ?

Daan : Pff, c’est difficile !! Je veux bien voir l’image, c’est possible ? S’il te plait... ??

Verteller : Ah, Daan, je sais que tu veux voir les images, mais ça c’est pas l’accord, nous devons tenir parole tu sais. Donc, tu peux s’il te plait deviner ce qui s’est passé ?

Daan : Hmm, d’accord. Une grand-mère et une fille...je sais. La grand-mère l’a attaché.

Kind :

Verteller : Tu peux expliquer a Daan pourquoi c’était pas juste ?

Kind : ...



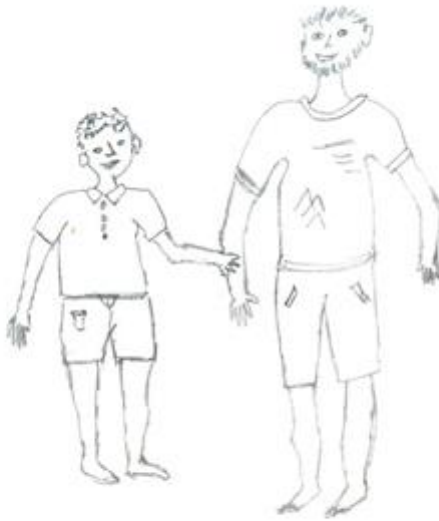
Control condition –La mère s’est attaché

Verteller : Maintenant c’est la mère qui va pratiquer encore une fois. D’abord, elle pense bien à ce qu’elle veut faire. Daan, tu peux devenir ce qui s’est passé ?

Daan : Eh... une fille et une mère...je sais. La mère s’est attaché.

Kind :

Gratter



Control condition - De jongen heeft hem gekrabd

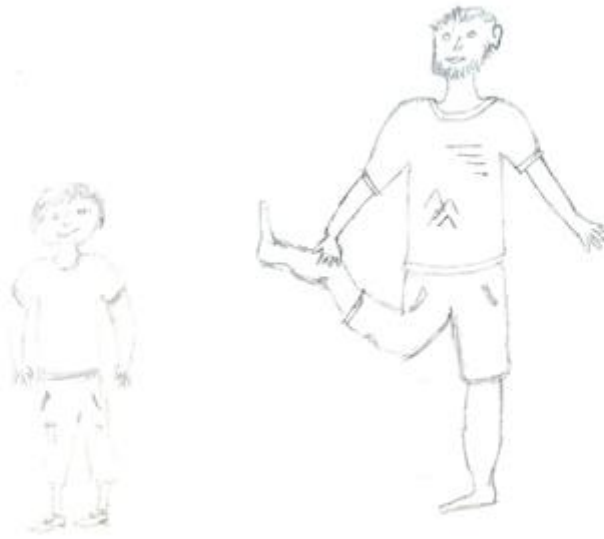
Verteller: Matthieu et son père font une promenade. Malheureusement il y a beaucoup de moustique et ça ne dure pas longtemps avant que Matthieu et son père se font piquer. Ça démange beaucoup. Daan, tu peux deviner ce qui s'est passé ?

Daan: Mais non, je peux pas, c'est trop difficile ! Je peux regarder les images ?

Verteller : Mais non, tu peux pas et tu le sais. Mais je peux te donner une indice. Laisse-moi penser... Il s'agit de gratter.

Daan : Hmm...je vais essayer...un père et un garçon...je sais. Le garçon l'a gratté.

Kind:



Test condition - De vader heeft hem gekrabd

Verteller: Le garçon et son père continue. Peut-être tous les moustiques sont là parce que il y a une étang. Donc ils se promènent dans l'autre sens. Le père a beaucoup de démangeaisons. Daan, tu peux deviner ce qui s'est passé ?

Daan: Un garçon et un père...je sais. Le père l'a gratté.

Kind:

Verteller : Tu peux expliquer a Daan pourquoi c'est pas juste ?



Control condition – De jongen heeft zichzelf gekrabbd

Verteller: Maintenant c'est le garçon qui a beaucoup de démangeaisons. Daan, tu peux deviner ce qui s'est passé ?

Daan : Hmm...une père et un garçon...je sais. Le garçon s'est gratté.

Kind :



Control condition – De vader heeft zichzelf gekrabd

Verteller: Regarde, voilà Pierre et son père. Bonjour Pierre il y a beaucoup de moustiques hein ? Tu as aussi des piqûres de moustiques ? Oui, Pierre a aussi des piqûres et son père aussi. Son père dit que ça démange beaucoup. Daan, tu peux deviner ce qui s'est passé ?

Daan : Eh, un garçon et un père...je sais. Le père s'est gratté.

Kind : ...

Verteller : Tu peux expliquer à Daan pourquoi c'est pas juste ?

Voetballen



Control condition – de jongen zag hem voetballen

Verteller: Le père joue au foot. Le garçon regarde son père. Oehla, c'est difficile, il pense. Daan, tu peux deviner ce qui s'est passé?

Daan: C'est difficile!

Verteller: Je te donne un indice. Il y a une miroir.

Daan: Bon, je réfléchis...un garçon et un père. Ah, je sais. Le garçon le voyais jouer au foot.

Kind: ...

Daan: 😊

Verteller: Tu peux expliquer a Daan pourquoi c'est pas juste.



Control condition - De jongen zag zichzelf voetballen

Verteller: Le père demande au garçon s' il veut essayer de jouer au foot. Le garçon pense que c'est difficile, mais il veut bien essayer. Le père donne le ballon au garçon et il va jouer au foot. Daan, tu peux deviner ce qui s'est passé ?

Daan: Eh, il y a encore un miroir ?

Verteller: Oui, il y a encore un miroir.

Daan: Eh, un garçon et un père. Je sais. Le garçon se voyait jouer au foot.

Kind: ...



Test condition – de jongen zag hem voetballen

Verteller: Le père est revenu dans la chambre. Le garçon joue encore au foot. Daan, tu peux deviner ce qui s'est passé ?

Daan: un garçon et un père. Oui, je sais. Le garçon le voyait jouer au foot.

Kind:

Daan: ☹

Verteller: Tu peux expliquer a Daan pourquoi c'est pas juste ?

Dansen



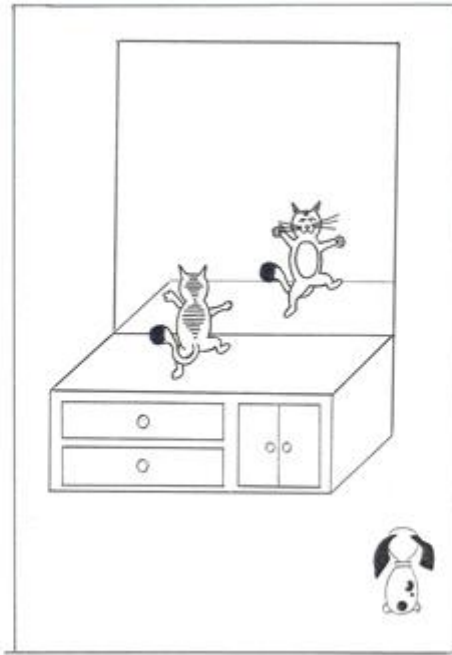
Control condition - De hond zag hem dansen

Verteller: Un garçon est chez soi tout seul, hm, en fait avec son chat et son chien. Il veut danser, donc il saute sur l'armoire et va danser devant le miroir. Daan, tu peux deviner ce qui s'est passé?

Daan: Un garçon, un chat et un chien...je sais. Le chien le voyait danser.

Kind: ...

Daan: 😊



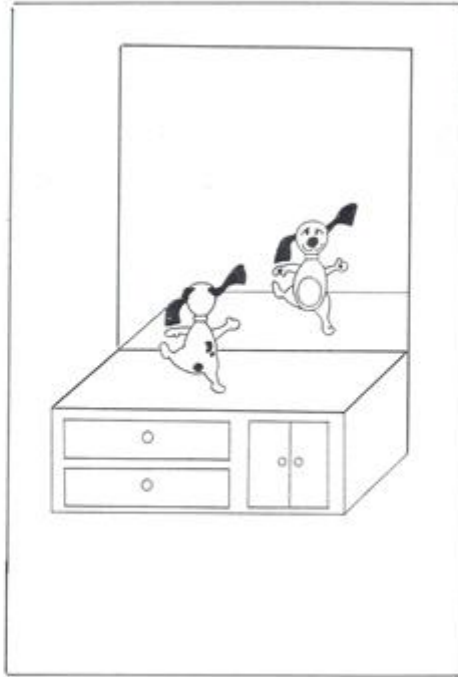
Test condition - De kat zag hem dansé

Verteller: Le garçon part. Le chat veut danser aussi. Il saute sur l'armoire et va danser. Le chien regard le chat. Daan, tu peux deviner ce qui s'est passé?

Daan: Ehm...laisse-moi réfléchir...un chat et un chien... je sais. Le chat le voyait danser.

Kind: ...

Daan: ☹



Control condition - De hond zag zichzelf dansen

Verteller: Maintenant le chat a fini de danser. Il part. C'est le chien qui va danser sur l'armoire. Daan, tu peux deviner ce qui s'est passé ?

Daan: Donc, le chat est déjà parti?

Verteller: Oui, le chat est parti.

Daan: Un chien et une armoire... je sais. Le chien se voyait danser.

Kind: ...

Thomas; 😊

Zingen



Test condition – De moeder zag haar zingen

Verteller: La mère de Marie est chanteuse. Maintenant elle s'entraîne devant le miroir. Marie est aussi dans la chambre. Daan, tu peux deviner ce qui s'est passé ?

Daan: Je vais essayer. Une mère et une fille...je sais. La mère la voyait chanter.

Kind:

Daan: 😞

Verteller: Tu peux expliquer a Daan pourquoi c'était pas juste ?



Control condition – Het meisje zag zichzelf zingen

Verteller: La mère part. Marie a vu le microphone. Elle veut essayer si elle peut chanter aussi. Elle prend le microphone et elle va essayer. Daan, tu peux deviner ce qui s'est passé?

Daan: Eh, une fille et une mère. Hmm...je sais. La mère se voyait chanter.

Kind: ...

Daan: 😊



Control condition – Het meisje zag haar zingen

Verteller: La mère est dans une autre chambre, mais elle entend Marie qui chante. Elle revient dans la chambre avec le miroir et elle dit à Marie qu'elle chante très bien. Marie demande sa mère si elle veut chanter encore une fois. Elle veut bien. Daan, tu peux deviner ce qui s'est passé?

Daan: Hmm...une mère et une fille...oui, je sais. La fille la voyait chanter.

Kind: ...

Daan: 😊