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# LingUU

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## About

**LingUU** is the official, peer reviewed, student journal of Linguistics at Utrecht University (UU). In this journal students, both undergraduate and graduate, as well as PhD-students, can publish their papers. Students sometimes come up with ideas that are worth sharing, and develop creative theories that more people should read, other than just the teacher. **LingUU** provides a way to make this happen, while giving students the opportunity to get to know the world of academic publishing small-scale. Apart from the author-side of publishing, the journal offers students the possibility of developing the skill of peer reviewing in a real setting. The journal aims to feature articles from the different sub disciplines of Linguistics and publishes in both Dutch and English. Apart from research articles, **LingUU** features articles on internships and studying abroad, and book notices or reviews.

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## The Daily Linguist

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# Italian children must not be born in the USA

## A research proposal challenging Unique Scope Assignment

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### KEYWORDS

Language Acquisition  
Unique Scope Assignment  
Question Answer Requirement  
Truth Value Judgment Task

### ABSTRACT

When acquiring language, sentences with two logical operators (such as negation, quantifiers and modal verbs) have been shown to be interpreted differently by children and adults. Gualmini et al. (2008) have pointed out that the Question Answer Requirement plays an important role in children's ability to access the adult-like interpretation of sentences containing a negation and a quantifier. Moscati et al. (2016) argue that this requirement does not play a role in the acquisition of modals. They suggest that there is a Unique Scope Assignment (USA) stage in which children are only able to access the strong reading: the interpretation yielding the smallest set of possible situations. A combination of a critical review of their study and the discussion of findings in a unpublished study lead to the hypothesis of the current paper that a USA stage might not be necessary to explain the results of Moscati et al. (2016) if children's limited processing capacities are taken into account. A variation of Moscati et al.'s experiment is proposed to test this hypothesis.

## 1. Introduction

An important challenge in the interpretation and acquisition of language is that utterances can be ambiguous. The example in (1) below can be interpreted as both (1a) and (1b).

- (1) Every horse didn't jump over the fence. (Musolino, Crain, & Thornton, 2000, p. 11)
- a. For each of the horses, it is the case that they did not jump over the fence.  $(\forall > \neg)$ <sup>1</sup>
- b. Some, but not every horse jumped over the fence.  $(\neg > \forall)$

When hearing such a sentence, the hearer must distinguish which of the two interpretations applies in the situation the speaker refers to. This is especially difficult for children, who are still in the process of discovering what certain linguistic structures can and cannot mean. The current study investigates the ambiguity of Italian sentences containing negation (as in the example above) and a modal verb (such as *can*). Although previous research (Moscati et al., 2016) suggests that children are unable to access both interpretations, the present research argues that they can and proposes an experiment to test this hypothesis.

<sup>1</sup> This notation exemplifies which operator takes scope over (>) which in the paraphrased interpretation, using the following symbols to refer to the operators:  $\forall$ : universal quantifier,  $\neg$ : negation,  $\diamond$ : modal *can*,  $\bigcirc$ : modal *must*

## 2. The acquisition of scope ambiguity

The ambiguity of the sentence in (1) arises from the presence of two logical operators, which can take scope over each other. For the interpretation in (1a), the universal quantifier is interpreted to take wide scope over the negation. For (1b), the negation takes scope over the quantifier, resulting in the narrow scope reading of the universal quantifier. Various studies (e.g. Lidz & Musolino, 2002; see also Musolino et al., 2000) have shown that children have trouble accessing both interpretations of sentences containing two logical operators, sometimes even having a preference for a reading that is ungrammatical for adults (cf. Musolino et al., 2000; Moscati et al., 2016). This has led several researchers (Lidz & Musolino, 2002; Musolino et al., 2000) to conclude that children access the isomorphic interpretation, in which the surface structure overlaps with the logical interpretation. For example, they argue that children interpret the sentence in (1) as (1a) because the order of the operators is the same as in the overt order of the sentence, with the quantifier preceding, and thus isomorphically taking scope, over the negation.

Although the isomorphic interpretation was first considered the only interpretation children are able to access, Musolino and Lidz (2003; 2006) demonstrated that adults and five-year-old children both have strong preferences for one of the two readings of sentences with both a quantifier and negation. Importantly, they show that this preference can be overridden by contextual factors. This suggests that the difference between adults and children is not merely due to their syntactic knowledge, but also their processing and pragmatic abilities. Gualmini (2004) argues that children were unable to access the non-isomorphic interpretation in previous experiments because this interpretation was not appropriate (i.e. felicitous) in the context of the experiment. Children are more sensitive to these felicity conditions than adults, resulting in an asymmetry in their interpretations. Using a Truth Value Judgment Task (TVJT) similar to previous studies, the authors show that four- and five-year-olds can access the non-isomorphic interpretation of sentences with a negation and *some* if it is felicitous in the context. Gualmini et al. (2008) suggest that the crucial factor in these experimental designs is the Question-Answer Requirement (QAR). The QAR assumes that both children and adults interpret all statements as answers to a question that is made salient in the discourse (p. 213). The latter is referred to as the Question Under Discussion (QUD). An interpretation is a good answer to the QUD if and only if it entails a member of the set of positive and negative answers to the QUD. Gualmini et al. (2008) show that if the non-isomorphic interpretation satisfies the QAR, three- to five-year-old children perform similar to adults on a TVJT testing their ability to access this interpretation of negated sentences with respective *two* and *every*.

To explain the differences between children and adults, Gualmini et al. (2008) stress the importance of the Principle of Charity. According to this principle, hearers will select the interpretation that makes a sentence, ambiguous or not, true (p. 208). This is why adult English speakers will judge the sentence in (1) above

to be true in different situations: even though there exists an interpretation in which the sentence does not correctly describe the situation, it is interpreted in the way that makes the sentence true. In the case of a sentence with two logical operators, if the interpretation that is a good answer to the QUD yields a false description of the situation, adults can establish a new QUD and assign a different scope. Children, on the other hand, have not developed the ability to discard the current QUD and accommodate a different one, although it is unclear what causes this deficit. Gualmini et al. (2008, p. 30) propose that it might be due to children's "egocentrism", which makes it difficult for them to realize that the speaker's QUD is different from the one they assumed. However, findings from a study by Viau et al. (2010) suggest that the inability to establish a new QUD is caused by children's limited processing capacities. Children who were primed to access the non-isomorphic interpretation were also able to assign inverse scope in sentences in which the pragmatic conditions did not require this interpretation. Thus, it is possible that children's limited cognitive capacities cannot manage the processing load of establishing a new QUD and accessing inverse scope. However, priming the inverse scope interpretation facilitates the processing of scope inversion and enables children to access the interpretation that yields the sentence true. Since adults' cognitive abilities are more developed, scope inversion is less difficult for them, allowing them to access both interpretations in order to adhere to the Principle of Charity.

### 3. The acquisition of ambiguity with modals

The effect of scope ambiguity on sentences containing modals has also drawn much attention in language acquisition research. Since a modal verb, like a quantifier, is a logical operator, sentences containing a modal verb and negation can give rise to ambiguity. Moscati and Gualmini (2008) show that Italian-acquiring children strongly favour one scope assignment, in this case the inverse scope reading in which the negation takes wide scope over the modal<sup>2</sup>. Given Gualmini et al.'s (2008) theory on the QAR, Moscati and colleagues set out to investigate whether this requirement also improves children's performance on sentences containing modals. In a first study, Moscati (2011) did not find any effect of a manipulation of the QUD on children's interpretation of the sentence. However, due to some flaws in that research, Moscati and colleagues (2016) set up an improved study to assess children's knowledge of the narrow scope reading. After a story describing a situation in which Fred can choose to drive the bike or the car, children were asked to assess the sentence in (3) as an answer to the explicit QUD in (2).

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<sup>2</sup> This is opposite from what the observation of isomorphism suggests, but is argued to be due to the fact that this is the strongest reading, rendering the smallest set of possible circumstances true (see e.g. Koring et al., 2018). This would also explain how children can learn from positive evidence only. Since the distinction between isomorphism and strong vs. weak readings is not the topic of the present study, it will not be elaborated here.

- (2) Fred deve guidare la moto?  
'Must Fred drive the bike?'
- (3) Fred può non guidare la mot  
Fred can.MOD NEG drive the bike.
- (4) a. Fred is allowed not to drive the bike. ( $\diamond > \neg$ )  
b. \*Fred is not allowed to drive the bike. ( $\neg > \diamond$ )

Only the narrow scope reading in (4a) is grammatical for adults, but children prefer the wide scope reading in (4b). Although children performed similar to adults on sentences with quantifiers, they rejected the sentence in (3) as an answer to (2) much more often than adults, revealing that the QAR does not explain children's behaviour in these sentences. Moscati et al. therefore propose a Unique Scope Assignment (USA) stage for modals during which children are only able to access the scope yielding the strongest interpretation.

There are a few problems with the Moscati et al. (2016) study. First of all, they explain the performance differences between children and adults by proposing a two-stage model of children's acquisition of scope assignment, analogous to the framework of Optimality Theory (cf. Hendriks & Spenader, 2006). Moscati et al. suggest that for adults the Principle of Charity is more important than the QAR, while the opposite is true for children. However, this leads to some questionable predictions. Firstly, it suggests that adults will accept the interpretation that makes the sentence true, regardless of whether they answer the QUD. Despite the QUD being implicit in Gualmini et al.'s study (2008), some adults only accessed the (ungrammatical) interpretation that answered the QUD, as they rejected a particular sentence. Thus, they ignored the Principle of Charity, which could have been adhered to if a new QUD had been established. A processing account children and adults' preference for an isomorphic interpretation predicts this pattern. According to the Principle of Least Effort (Zipf, 1949), processing costs will be minimized in producing and interpreting a sentence. Depending on how much effort hearers are willing to spend, they will either establish a new QUD and access inverse scope, or disregard the Principle of Charity (and the ungrammaticality) and reject the sentence. Secondly, the relative importance of the Principle of Charity and the QAR predicts that children will accept the surface scope interpretation, even if their preferred inverse scope interpretation is true, but not an answer to the QUD. However, this also does not hold. Viau et al. (2010) show that children are able adhere to the Principle of Charity, regardless of whether that interpretation answers the implicit QUD. Thus, the Optimality Theoretic approach to explaining the differences between children and adults should be rejected. Children's inability to access inverse scope in situations where that interpretation adheres to the Principle of Charity, but requires a different QUD, is more likely to be due to their limited processing capacities.

Moscato et al. (2016) admit that children's inability to accommodate a new QUD could also be ascribed to processing capacities, but they do not discuss how this might have affected the findings of their research. However, this is precisely what may have confounded their results. Both in their study, as well as in Moscato (2011), the target sentences contained the Italian modal *potere*. However, this verb can signify both POSSIBILITY and ALLOWANCE, yielding four possible interpretations as shown in (5) and (6).

- |     |  |         |
|-----|--|---------|
| (5) | a. It is possible for Fred not to drive the bike.  | (♦ > ¬) |
|     | b. *It is not possible for Fred to drive the bike. | (¬ > ♦) |
| (6) | a. Fred is allowed not to drive the bike.          | (♦ > ¬) |
|     | b. *Fred is not allowed to drive the bike.         | (¬ > ♦) |

Moscato et al. state that they use the English translation that, according to them, is most appropriate for the context. Thus, in the experimental materials they gloss *potere* for the POSSIBILITY meaning like in (5). However, a closer inspection of the stories suggest that both POSSIBILITY and ALLOWANCE are relevant to the situation. For example, in the first story, Fred can choose to go by bike or by car. However, Smurfette thinks the bike is dangerous.<sup>3</sup> This does not only challenge the true availability of this option, but also raises the question whether Fred is allowed to go by bike. The ambiguity of *potere* will increase the processing load of interpreting the sentence in (3). When children notice that the wide scope POSSIBILITY reading in (5b) is not true in the context, the Principle of Charity will prompt them to look for another interpretation. Assuming that children also follow the Principle of Least Effort, they will first consider the ALLOWANCE meaning of *potere* in before they try to inverse scope, which is cognitively more demanding. Although the truth value of (6b) is disputable, children's limited processing capacities makes them unable to check the narrow scope reading of the negation and are therefore unable to access an interpretation that yields (3) true.

Because the native Italian authors felt that an answer that contains the same modal verb as in the question is easier to process (Moscato et al. (2016)), they performed a second experiment in which they only changed the QUD to (7) below.

- (7) Fred può non guidare la moto?  
'Can Fred not drive the bike?'

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<sup>3</sup> In two of the three stories, the only available option (e.g. the bike) at the beginning of the story is discredited in some way. It is unclear why the authors included this, but they might have done so to make the other option more salient or validate its presence. However, in the third story, both options are equally plausible. This story also yielded the highest number of correct responses on average in the two experiments, possibly because the ALLOWANCE meaning of *potere* was less salient in this story. However, the by-item variation was quite high, so it is difficult to draw firm conclusions.

However, regardless of the ambiguity of *potere*, there is a different problem with this design, namely the ambiguity of the QUD to Italian-acquiring children. The possible interpretations of the QUD, as well as the sets indicating the respective positive and negative answers for each interpretation, is given in (8). The English translation that the authors give, (8a), is the only interpretation that is possible for adult speakers of Italian.<sup>4</sup> However, as children have difficulties with accessing the scope rendering the adult interpretation, it is very likely that they will interpret the sentence as in (8b), with the negation taking scope over the modal.

- (8) Fred può non guidare la moto?  
 a. Is it the case that it is possible for Fred not to drive the bike? ( $\diamond > \neg$ )  
 $\{\diamond \neg, \neg \diamond \neg (= \circ)\}$   
 b. \*Is it the case that it is not possible for Fred to drive the bike? ( $\neg > \diamond$ )  
 $\{\neg \diamond, \neg \neg \diamond (= \diamond)\}$

Since children interpret the puppet's answer in (9) as (9b) and the story suggests that it is possible for Fred to drive the bike, children will conclude that the sentence in (9) is not true.

- (9) Fred può non guidare la moto.  
 a. It is possible for Fred not to drive the bike. ( $\diamond > \neg$ )  
 b. \*It is not possible for Fred to drive the bike. ( $\neg > \diamond$ )

As this violates the Principle of Charity, children might now try to switch scope to the weak reading, accessing the narrow scope reading in (9a). However, this interpretation is not a good answer to the child's interpretation of the question as shown in (8b), since it does not entail either member of the set of answers given in (8). Their processing capacity is not developed enough to then also inverse the scope of the negation in the question. Children will therefore consider (9b) to be the correct interpretation of an answer to (8b) and judge the puppet's answer to be false. To conclude, children's inability to access the narrow scope reading in either of Moscati et al.'s (2016) experiments is not only caused by the ambiguity of the puppet's answer, but also by the ambiguity of the QUD for children. This suggests that a stage of Unique Scope Assignment might not be necessary to explain the results of their study on the acquisition of modals by Italian-acquiring children.

An unpublished study by Otten (2018) shows that children acquiring Dutch are able to access the narrow scope reading of the negation in a sentence containing the modal, even though they, nor adult speakers of Dutch, prefer this interpretation. This indicates that the Unique Scope Assignment does not exist for Dutch children. Otten suggests that her findings are different from Moscati et al.'s (2016), because of linguistic differences between Italian and Dutch. Both the nar-

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4 For simplicity's sake we will assume here that the POSSIBILITY meaning of *potere* is the only interpretation.

row and wide scope reading of the negation are grammatical in Dutch, but not in Italian. Still, this suggests that it should be easier for Italian-acquiring children to learn that the interpretation they prefer is ungrammatical, since Dutch-acquiring children receive no evidence that the strong reading is wrong. As discussed above, the ambiguity of *potere* could have confounded the results from Moscati et al. (2016), so a USA stage might not be necessary for Italian either. Since Dutch *moeten* does not have two meanings, it facilitates the processing of scope inversion. This is why Dutch-acquiring, but not Italian-acquiring children, seem to be able to access both interpretations.

#### 4. The current study

Sentences containing two logical operators have been shown to be notoriously difficult for children. Studies investigating children's ability to assign scope should take into account that the target interpretation should be a good answer to the Question under Discussion (Gualmini et al., 2008). Moscati et al. (2016) argue that this requirement does not play a role in the acquisition of modals, but that there is a Unique Scope Assignment stage in which children are only able to access the strong reading. However, a critical review of their study and Otten's findings (2018) suggest that such a stage might not be necessary to explain their results. If the difference between children and adults' interpretation of sentences with two logical operators is due to children's limited processing capacities, then Moscati et al. (2016)'s findings might have been confounded by the high processing load of the ambiguous modal *potere*. The following research question will therefore be investigated in the current study:

Are Italian-acquiring children able to access the narrow scope reading of sentences containing a modal and negation?

It is hypothesized that Italian-acquiring children have access to the both the wide and the narrow scope interpretation of the negation in sentences with a modal. If the pragmatic conditions are satisfied and the modal is not ambiguous, they are expected to be able to confirm the narrow scope reading of the negation in a sentence that also contains a modal.

#### 5. Method

##### 5.1 Participants

Similarly to Moscati et al. (2016), thirty monolingual normally developing Italian-acquiring children will participate in the study. They will be between 4;6 and 6;0 years old. Ten adult native speakers of Italian will serve as controls.

##### 5.2 Materials and procedure

Instead of *potere* (Moscati et al., 2016), the present study will investigate the modal *dovere*. It indicates OBLIGATION, as can be seen in (10) below. This sentence is not ambiguous for Italian-speaking adults, as they only have the interpretation in (10a). Children, on the other hand, prefer the negation to take wide scope over the modal as in (10b).

- (10) Cip e Ciop devono non mangiare una mela  
 Chip and Dale must.MOD NEG eat an apple.  
 a. It is obligatory for Chip and Dale to not eat an apple. ( $\bigcirc > \neg$ )  
 b. \*It is not obligatory for Chip and Dale to eat an apple. ( $\neg > \bigcirc$ )

A QUD that examines ALLOWANCE can only be answered by the narrow scope reading of OBLIGATION, whereas the wide scope interpretation does not entail a positive or negative answer to such a QUD.

- (11) Are Chip and Dale allowed to eat an apple? { $\blacklozenge$ ,  $\neg$   $\blacklozenge$ }

Only the interpretation in (10a) is a good answer to the QUD in (11), as it entails the negative member of the set of answers. The reading in (10b) implicates a positive answer to the question, but since children's pragmatic abilities have not fully developed, they might not be aware of this. They will therefore think that (10b) does not satisfy the QAR. Recall that the Italian verb signaling ALLOWANCE, *potere*, is ambiguous, because it also indicates POSSIBILITY. Unlike in Moscati et al. (2016), the QUD will not be explicit in this study, as this ambiguity might confuse children. An implicit QUD has been shown to affect children's interpretation of sentences containing two logical operators before (e.g. Gualmini et al., 2008), so it was deemed sufficient for the purposes of this study.

The procedure will be as follows. The experimenter will tell the child that she is going to tell some stories and that the child and the hand puppet, who is handled by a different experimenter, have to pay attention, because she will ask some questions about the story at the end. However, the hand puppet is very sleepy, so the child has to help him by judging whether his answer is correct. If so, the child can give a candy to the puppet. However, if the puppet has given a wrong answer, the child can give him a cup of coffee to help him stay awake and pay attention next time.

The following story will then be acted out, which was created to establish the implicit QUD in (11) and contain the target sentence in (10):

*Chip tells Dale that he threw a beech nut on Mickey Mouse yesterday. "Oh", says Dale, "I'm much naughtier than you! I made Minnie trip yesterday!" They then decide to have a competition who of them is the naughtiest. The first of them who does something naughty will win. Then Donald Duck comes in. He places a bowl of apples on the table and says:*

Cip e Ciop devono non mangiare una mela.  
 'Chip and Dale must not eat an apple.'

*Donald Duck leaves the house. Chip hops to the bowl of apples, grabs one and eats it.*

The experimenter will then ask the hand puppet whether he has fallen asleep and tell what happened. The setup with the sleepy puppet prevents the final question from being infelicitous. If the child thinks that there is no resolution to the story yet

(e.g. think that neither Chip nor Dale has won yet), it would be infelicitous to end the story and ask the puppet what happened. However, because the experimenter thinks the puppet has fallen asleep, he can ask the question to find out whether the puppet has indeed not fallen asleep.

The puppet's answer to the final question about the example story above, will be along the following lines:

(12) I know what happened: Chip has won the competition.

If the child thinks the puppet's answer is correct and gives the puppet a candy, then he or she must have interpreted the target sentence as the narrow scope reading in which Chip was obligated to not eat the apples. If the negation was assigned wide scope and the target sentence was interpreted as in (10b), neither Chip nor Dale has won the competition yet, because there was no restriction on eating the apples or not. The child will deem the puppet's answer incorrect and give the puppet a cup of coffee to help him pay attention next time. Afterwards, the child will be asked why the puppet's answer was correct or incorrect, to examine whether used the target sentence to judge the puppet's answer.

The experiment will contain eight trials in total. In two trials, the target sentence contains a modal and negation and the puppet answers correctly according to the adult interpretation. These are the experimental trials in which the child is hypothesized to access the narrow scope interpretation, unlike the predictions of USA. To control for a yes-bias, there will also be two trials with the same target sentence, but an incorrect answer from the puppet. Finally, there will be a control condition in which the target sentence does not contain negation. In two of the four trials in this condition, the puppet's answer will be correct and in the other two it will be incorrect. The procedure will be similar for adults, except that they only have to say whether the puppet's answer is true or false, without giving him coffee or candy.

## 6. Discussion and Conclusion

The experiment described above was proposed in order to investigate whether Italian-acquiring children can access the inverse scope reading of negation in sentences containing modals. Previous studies investigating children's acquisition of these sentences found no evidence for children's ability to do so (Moscati, 2011; Moscati et al., 2016). However, a critical review of this latter study showed that other factors might have confounded their results. In addition, an unpublished research (Otten, 2018) suggests that Dutch-acquiring children do not go through a USA stage as Moscati et al. (2016) suggest for children acquiring Italian. Therefore, the hypothesis of this study was that children can access both readings if the confounding factors of previous studies are eliminated. More specifically, it is expected that children will confirm the puppet's answer in the experimental conditions, showing that they must have interpreted the target sentence with the modal taking scope over the negation.

The present research assumes that children's inability to establish a new QUD is due to their limited processing capacity. However, this hypothesis needs to be investigated further to see how children learn to handle this problem when they grow up. Does their language competence become more adult-like because their capacity increases or because the accommodation of a different QUD requires less processing costs? In addition, it would be interesting to see if a priming experiment as in Viau et al. (2010) could enable Italian-acquiring children to access the narrow scope reading of the negation in a sentence containing *potere*. However, this can only be done if the hypothesis of the current study is confirmed.

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# The cultural approach to language evolution

## A comprehensive and critical evaluation of viewing language as a cultural product

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*Manuscript written during his BA Linguistics, Utrecht University, Utrecht.*

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### KEYWORDS

Cultural evolution  
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transmission  
biological evolution of language

### ABSTRACT

This paper contains a critical evaluation of the cultural approach to language evolution, which regards language as a cultural product and posits that language has evolved and has its current shape due to cultural evolution. Firstly, a general introduction to the approach is given and several reasons are presented for why language evolution theories within the cultural approach do not normally acknowledge the existence of language-specific innate knowledge. Next, research on the cultural approach will be under discussion and it will be shown that several aspects of the cultural approach can be endorsed using different sorts of experimental and theoretical methodologies. Finally, on the basis of a key paper on the approach opposing the cultural approach, which will be called the biological approach, several key criticisms to the cultural approach will be given. It will be shown how these counterarguments have been rebutted and how arguments in favor of the biological approach are rejected by proponents of the cultural approach. The paper will be closed by concluding that accounts within the cultural approach can present neat explanations for several aspects of the emergence and subsequent evolution of language, among which are the emergence of compositionality in language and the conventionalization of linguistic elements.

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## 1. Introduction

Two of the most fundamental questions in the study of natural languages are 1) what (evolutionary) processes have taken place allowing humans to have and use human language and 2) how human languages came to have the complexity they are known for. Two approaches can be distinguished with respect to the way these questions are sought to be answered: the biological approach, according to which language developed due to genetic changes, and the cultural approach, stating that language is a cultural product that has developed the way it has due to cultural transmission (Steels, 2011).<sup>1</sup> In the present paper, a comprehensive and critical evaluation of the cultural approach will be provided. Before turning to

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<sup>1</sup> It should be noted that this distinction is more gradual than it is categorical (Steels, 2011) – any theory about the evolution of language can take a position with characteristics of both the cultural and the biological approach. For example, there can exist considerable diversity concerning the take on aspects such as innateness, acquisition and rate of evolution. This paper describes the cornerstones associated with the two endpoints of this continuum.

the discussion at hand, I will start by shortly introducing the cultural approach, as this is the main focus of the paper, as well as the biological approach, because it will be made reference to passingly throughout the paper and will be crucial in the discussion of the way the two approaches relate to one another.

The cornerstones of the biological approach can be ranged within biolinguistics, a linguistic subfield of which Lenneberg (1967) was one of the first advocates and which is concerned with discovering and researching the biological fundamentals of human language (Boeckx, 2013). According to this approach, language has biological roots and was allowed to develop due to a genetic altering enabling our brains to store, process and produce language. As of yet it is unclear what this genetic altering held exactly, but there is agreement on the thesis that language is unique to humans and what makes language unique is encoded in our genotype. As will be discussed, a common standpoint within this view is that there is innate knowledge specific to the mental faculty of language which constrains the shape of human languages and is employed by the language-acquiring child.

The present paper, however, will not focus on the biological approach as much but rather on the view opposing it, which regards language as a result of constant cultural transmission and will therefore be termed the *cultural approach*. According to this view, language is a communication system that got more and more accustomed to the human brain. Language acquisition is viewed as an instance of cultural transmission: children imitate the communication system they hear around them and if necessary, alter the language according to what is easiest for them to learn and remember. For reasons that will be discussed later, this way of defining and identifying language does not allow for our genetic system to adapt to it; most scholars arguing in favor of this view therefore deny the existence of language-specific innate knowledge.

This paper is structured as follows. In section 2, an objective overview of the cultural approach to language evolution will be given. Section 3 discusses research on the cultural approach generally, to get an idea of the ways language is altered by means of transmission and the methodologies most commonly employed in cultural evolution research. Section 4 provides a critical discussion of the cultural approach, in which the biological approach plays a major role. Section 5 closes the paper with some concluding remarks.

## 2 Language as a cultural product

### 2.1 Cultural evolution and the cultural approach to the evolution of language

A general and conventional way of describing the term *culture* is by defining it as the information that people acquire via “social transmission mechanisms such as imitation, teaching, or language” (Mesoudi, 2011, p. 2-3). Cultural knowledge is not encoded in genes or DNA but is represented by neural structures (Danchin, Giraldeau, Valone, & Wagner, 2004; Mesoudi, 2011). Importantly, culture is defined not in terms of behaviors but in terms of the knowledge underlying and bring-

ing about those behaviors (Mesoudi, 2011). The term *cultural evolution* implies that cultural knowledge can, in fact, evolve in a way which is similar to genetic, Darwinian evolution, which is characterized by “selection for desirable characteristics” (King & Jukes, 1969, p. 788), and it has in fact been attested that the two share a lot of fundamental properties; for example, they can both be triggered by selectional pressure (Danchin et al., 2004; Mesoudi, Whiten, & Laland, 2006). Combining the terms *culture* and *evolution* therefore results in a term referring to the process of change of socially transmitted knowledge resulting in a more advantageous position for the species to which the change occurred. The cultural approach to language thus states that language is a product which is transmitted socially and knowledge of which is essentially neurological in nature rather than genetic.<sup>2</sup>

Importantly, the cultural approach views language acquisition as an instance of cultural transmission: language, being a cultural product, is transmitted from adult users to the child. For instance, Chater and Christiansen (2010) posit that language is an example of so-called *C-induction*, an aspect of human development triggered by the need to coordinate with other members of the society: “[in C-induction,] the aim is to do as the others do” (Chater & Christiansen, 2010, p. 1138). According to these authors, it is not important which rules are used within a community, as long as the rules children acquire are the same as those adhered to by the other members of it.

Cultural evolution occurs for several reasons. One important reason for cultural change to happen is for reasons of integration – that is, if a certain cultural trait A can be better integrated into the already existing set of traits than a trait B contained in this set, trait A is likely to come to replace trait B over evolutionary time (Bruner, 1956). This means that a trait is likely to develop if it follows more logically from knowledge already acquired, that is, if it is easier to learn. Since I have posited culture to involve neural structures representing cultural knowledge, it can be concluded that a reason for cultural change to happen is in the case there is an alternative at hand which is easier for neural structures to adapt to. If language is viewed as a product of cultural change, one is thus driven to assume that language has adapted to the brain and not the other way around (as is assumed by adherents of the biological approach). This position is, indeed, explicitly taken by, for example, Chater and Christiansen (2010).

## 2.2 The cultural approach and domain-specificity

As indicated by the literature discussed below, most scholars adhering to the cultural approach do not deem the existence of language-specific learning mechanisms or language-specific innate knowledge plausible. I will now continue to

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<sup>2</sup> It should be noted that cultural approach is not a commonly used term but a term that I chose to use to refer to approaches to language evolution sharing part of their core ideology. This core ideology to theories within the cultural approach consists in their assumption that language has its current shape due to cultural evolution.

present some of the arguments that have been raised within the paradigm of the cultural approach supporting this assumption.

Firstly, it has been argued (Chater & Christiansen, 2010; Christiansen & Chater, 2008) that the cultural evolution of language happens too fast for genetic, biological systems to adapt to: linguistic structure and learnability can be highly improved within ten generations (Kirby, Cornish, & Smith, 2008; Verhoef, 2012), while the substitution of one gene takes around 150 years (Ohta, 1972) and the evolution of a trait often involves the substitution of multiple genes. Language constitutes, therefore, a “moving target” (Chater & Christiansen, 2010, p. 1134) for our genetic system: by the time our genetic system has adapted to language, the language has already changed such that this genetic adaptation will not be of any use or might even be a burden in language acquisition.

Secondly, Christiansen and Chater (2008) argue that it is unlikely that the same linguistic characteristics have arisen in communities which do not experience top-down pressure to converge on the shape of their languages: how could linguistic universals arise when linguistic communities are in no contact with other communities? And if linguistic universals could not have arisen, how could language-specific innate knowledge have?

Thirdly, it has been posited that biological adaptation “is driven by the constraints of the immediate environment” (Christiansen & Chater, 2008, p. 495). Therefore, biological adaptation to language would be unlikely with respect to linguistic aspects that are not superficially visible. Since languages are highly diverse at the surface level, linguistic constraints cannot be operative at this level but need to apply to the underlying levels comprising aspects such as syntactic hierarchy. However, biological adaptation does not normally happen to such abstract properties.

Finally, as noted by Smith and Kirby (2008), cultural evolution is a more powerful mechanism than commonly assumed and cultural change is able to account for the complexity of human languages to such a degree that there is not much left for genetics to explain. This will be further elaborated on in section 3.<sup>3</sup>

### **3 Agent-based and more recent methodologies within cultural evolution research**

After having discussed the cultural approach in a general fashion, in this section, I will look into the research that has been conducted concerning the external va-

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<sup>3</sup> It should be noted that the cultural approach does not exclude the possibility of the existence of innate mechanisms that are employed in, for example, the use and/or acquisition of language; it merely excludes the possibility of these mechanisms to have developed specifically for language. Innate knowledge is, according to the cultural approach, domain-general and for that reason innate knowledge has to take the shape of abstract principles that remain constant independently of cultural change and moreover are relevant for more cognitive functions than only language.

lidity of the cultural approach. The purpose of this discussion is twofold: 1) to get an idea of the way cultural transmission is implemented in practice and 2) to get an idea of the methodologies that can be employed when conducting research on cultural evolution and transmission. To this end, I will discuss research endorsing the cultural approach in general.

An experiment by Kirby et al. (2008), which involved a so-called *diffusion chain*, was one of the first to investigate cultural evolution with human participants. Previous experiments concerning the cultural evolution of language made use of “computational simulations and robotic experiments” (Steels, 2011, p. 339) – such a design is called an agent-based design. In this section, agent-based methodologies will mainly be discussed, as will be demands on cultural evolution theories.

Agent-based experiments involve entities that use (a sort of) language. This language is passed on through several generations so that the gradual change of the language can be precisely followed. The agents can be virtual computational models or they can be physical robots and are predisposed with the capacities necessary to recognize the communicative success of a certain linguistic convention, which can be a word, construction, intonation pattern, etcetera. Measuring the ‘success rate’ of such a convention is presumed to be a key ability in the development of language toward a shape which guarantees the most effective and adequate communication. Importantly, the agents are not employed with any bias towards making specific choices or having specific intentions concerning the ultimate shape of the language (Steels, 2011).

Steels (2011) argues that there are three key questions that any account for the development and emergence of language should be able to answer: how do members of a linguistic community come to share the same conventions, how do they come to share the same conceptualizations underlying these conventions and how do hierarchical structures emerge in language?

The answer to the first question, how conventions become shared, is mainly through *alignment*: the selection of a certain linguistic element that is expected to provide the highest chance of communicative success based on previous experience. Every linguistic element therefore has a certain ‘success rate’ associated with it that gets upgraded when using that element results in a communicatively successful situation. It has been shown experimentally that through alignment, which is an aspect of cultural evolution, conventions with a higher communicative success rate came to be used more often, giving rise to the current frequency distribution of those conventions in comparison with competing conventions.

As to the second question, it has been argued that *structural coupling* is a plausible way of accounting for how conceptualizations become shared. Structural coupling involves the shaping and adaptation of conceptualizations underlying conventions based on the outcome (success or failure) of communicative inter-

actions in which the elements that stand for them are used. It has also been attested in empirical research that agents do, in fact, shape and adjust the conceptualizations underlying linguistic conventions based on structural coupling.<sup>4</sup> Cultural evolution therefore can account for linguistic characteristics for which genetics is unable to encode (although Steels (2011) does not specifically explain where and why genetic encoding would fall short).

The third question that Steels (2011) demands cultural evolution theories to answer is how hierarchical structure could emerge within language. He proposes that the first step in this process is the emergence of compositionality: the mapping of an element to a specific meaning in such a way that this element can be used in other contexts while preserving this specific meaning. There are two theories regarding the next step in the process. The syntax-directed account posits that collocating elements are firstly stored as holistic units and get further decomposed and analyzed later on, revealing the underlying structure which can in turn be used in other contexts. The semantics-directed account assumes that hierarchical structure emerges because the different parts of an utterance modify the meaning of an utterance in a hierarchical manner: adjectives modify nouns, adverbs modify verbs, etcetera. Interestingly, the hypothesis that the emergence of compositionality is the first step in the process towards hierarchically structured language is borne out by the results of the study conducted by Kirby et al. (2008), which found that the artificial language evolved in such a way that compositionality was introduced into the language first.

Empirical studies using an agent-based design have thus not only confirmed the role of alignment and structural coupling in the development of language but have also shown that hierarchical structure can arise in the two possible ways discussed. Steels (2011) posits that cultural evolution can thus be said to be a highly powerful mechanism which can, for the most part, account for the current shape of language. There is, therefore, not much left for genetics to explain, which seemingly justifies downplaying the role of biological evolution.<sup>5</sup>

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4 The introduction by a speaker of a new linguistic element – a new convention with a new conceptualization – thus requires both alignment and structural coupling and poses a problem for the listener: after all, the speaker uses this new element because of lacunae in the already existing set of linguistic conventions which means that the listener himself, who is presumably a member of the same linguistic community, does not have knowledge of this convention and conceptualization himself. This problem can be solved if the speaker uses the new element in analogy to another element that is, in fact, known by the listener, for example, and if the listener takes into account the shared context, the common ground and communicative purposes.

5 There is some criticism to be raised as to experiments making use of robots in this respect. Robotic experiments might indicate that cultural evolution can account for the development of aspects of natural languages, but as long as one does not have a clear picture of the human brain – which will remain to be a long way to go for a long period of time – one cannot know for sure whether what happens in robots is equivalent to what can happen in humans. Robotic experiments therefore have only limited power and validity and

<sup>6</sup>It has been shown that there is a great body of research that has investigated (and endorsed) the external validity of several aspects of the cultural approach. In the next section, some problematic points for the cultural approach will be under discussion.

#### 4 Criticisms and alternatives to the cultural approach

As mentioned in section 1, there is a vivid ongoing debate concerning the processes that have yielded the emergence of language: whether they are essentially cultural or biological in nature or both, whether language development was gradual or saltational, whether language shaped the brain or the other way around, etcetera. Within this debate, criticism has been raised regarding several issues suggested within the cultural approach on language evolution and alternative theories and hypotheses to such problematic aspects have been brought forward. Such alternatives can often be ranged within a framework which takes views that are contrastive with those assumed within the cultural approach, in that it argues that language has evolved as a product of biological rather than of cultural evolution. This opposing framework will be called the *biological approach*. In this section, the main cornerstones of the biological approach will be outlined and more general points of critique on the cultural approach will be provided.

##### 4.1 Language as a biological product

A key paper advocating the biological approach is the one by Pinker and Bloom (1990). The main view of the biological approach is that language emerged as an adaptation, i.e. to fulfill some function that would provide the species it would apply to with an evolutionary and reproductive advantage. The ability to use language therefore became encoded in our genes, resulting in language-specific innate knowledge. Pinker and Bloom (1990) mainly argue in favor of the plausibility of the existence of a language-specific biological endowment based on the thesis that language lives up to two demands on Darwinian evolution: the function to evolve should be complex and there should be no alternative explanation besides genetic evolution that can explain this complexity.

##### 4.2 Arguments against the cultural approach and in favor of the biological approach

The paper by Pinker and Bloom (1990) is mainly directed toward defending the view that language emerged as a result of biological evolution in respect of adherents of a more cultural approach. They do this in two ways: they both reject

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the development of a methodology to investigate cultural evolution using human participants, as in Kirby, Cornish, and Smith (2008), is an invaluable development in the field.

<sup>6</sup> It seems here as if it is assumed that it should firstly be established that cultural evolution is unable to account for the emergence of a particular trait before considering biological evolution as a plausible alternative – biological evolution seems to be nothing more than a makeshift. It could be interesting to consider possible explanations for this reasoning.

arguments in favor of the cultural approach and they recover arguments that have been raised by scholars working within the biological paradigm but that have been rejected within the cultural approach. Both of these aspects will now be discussed, beginning with the latter.

Firstly, Pinker and Bloom (1990) recognize that, as was mentioned in section 3.2, the argument has been raised by adherents of the cultural approach that there are no linguistic universals to be found across languages, rendering it unlikely that a genetically coded language-specific trait has developed in humans. However, the authors state that there are, in fact, linguistic universals, but that these are not superficially visible and should tap onto highly abstract linguistic levels. Research disproving the existence of language universals is thus said to not have dug deep enough. There are, however, two reasons why this rebuttal can be considered to be relatively weak. First of all, Pinker and Bloom (1990) make some suggestions for what form language universals might take, but all the examples they give take the form of negations such as 'no language has characteristic X' which might be said to render these statements weaker than affirmative statements would be: after all, prohibiting one form is less directive than prescribing one form, since the former allows all but one possible form and the latter only allows one. The second reason is that, as was mentioned in section 2.2, biological evolution does not normally occur to abstract properties such as the ones the authors propose.

Secondly, it has been argued that language cannot be an adaptation because it could have been different (it is not completely predictable, therefore it lacks design) and it could have been better (it is not an optimal solution to any problem) and is therefore unlikely to be an adaptation. Addressing the 'it could have been better' argument, Pinker and Bloom (1990) argue that there is always a conflict of interest between language users fulfilling different roles in communication and that there will therefore always be compromises that are seemingly arbitrary from any point of view – language could have been better for one party, but that would have made it worse for another. As to the 'it could have been different' argument, the authors postulate that there is indeed no reason language has the shape that it has but that it does not matter what shapes it takes specifically; what matters is that language users acquire the same shape. It is therefore also irrelevant what shape has been chosen among the different possibilities.

Finally, nonadaptationists have posited that not every aspect of language can be said to have adapted to some function and that adaptation can therefore not account for its development. However, Pinker and Bloom (1990) argue that the fact that for some aspects of language no direct function can be pointed out does not necessarily rule out the possibility of that aspect having developed as an adaptation: "no adaptive organ can be adaptive in every aspect, because there are as many aspects of an organ as there are ways of describing it" (Pinker & Bloom, 1990, p. 19).

Pinker and Bloom (1990) then discuss some arguments against the view that language is a 'spandrel', a function that has developed as some coincidental and necessary by-product of the emergence of another function. Although adherents of the cultural approach do not necessarily view language as a spandrel, there is an important argument in favor of language having developed as a spandrel that is shared by many within the cultural approach, namely that "the mind is a multipurpose learning device" (Pinker & Bloom, 1990, p. 25) and that the brain did not adapt specifically for language but for being able to use more sophisticated cognitive functions in general. In this regard, it has been argued that "once you build a complex machine, it can perform so many unanticipated tasks" (Gould, 1979, p. 386). The human ability to use language was therefore more or less accidental. However, the authors note that usage of a machine for a function it was not initially intended for, reprogramming is necessary – it is impossible that language suddenly emerged although it was uncalled for. The authors posit that this reprogramming happened because of natural selection: there was some function language needed to be adapted to fulfill.

One might infer from the above discussion that the arguments delivered in favor of the biological approach leave open the possibility of language having evolved as a genetic product but do not unambiguously point in this direction: it cannot be excluded that language has evolved biologically, but other options are not excluded. The arguments can therefore not be said to refute the cultural approach in any sense. It should be noted that there is very little recent literature in defense of the biological approach, which gives the impression that proponents of the biological approach have cut their losses against the cultural approach. Also, most of the arguments that have been raised in favor of the cultural approach to language evolution have not yet been refuted and are therefore still standing.

## 5 Conclusions

The present paper has discussed the cultural approach to language evolution, according to which natural languages have emerged as a result of cultural transmission, in many of its aspects. Cultural evolution is said to account not only for the fact that humans are capable of using language, but also for the complexity that language came to have. After having provided a general introduction to the main cornerstones of the cultural approach, several studies, especially ones involving agent-based designs, were discussed which seemed to endorse aspects of the cultural approach in such a way that cultural evolution is seemingly capable of meeting the demands on a theory of language evolution. Finally, on the basis of a key paper advocating the biological approach to language evolution, some points of critique to the cultural approach were raised and discussed. It seemed that most of these arguments were mostly used for upholding the plausibility of the biological approach rather than for nullifying the plausibility of the cultural approach. Based on the evidence from empirical studies and the countering of the arguments that have been raised against it, I would like to conclude this paper by positing that many aspects within the cultural approach can be said to be

highly plausible candidates for shedding light on several aspects of the evolution of natural language. ■

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# On the underlying structure of Virgin Islands Dutch Creole serial verb constructions<sup>7</sup>

A corpus study into the syntax of Virgin Islands Dutch serial verbs

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## KEYWORDS

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## ABSTRACT

Research on creoles as typologically (non-)distinct from non-creoles has revealed that they typically share a clustering of structural features (Daval-Markussen, 2013; Blasi, Michaelis & Haspelmath, 2017). One such feature is the serial verb construction (SVC). In (1), from Virgin Islands Dutch Creole (VIDC), lexical verb *flig* combines with serial verb *lo*, yielding a meaning best translated as ‘fly away’.

1) Am ha flig lo  
3.sg PST fly go  
"S/he flew away."

Despite considerable research interest in SVCs in creoles and good documentation of VIDC, little research has been done on the underlying structure of SVCs and less still on the structure of VIDC SVCs. With regard to the latter, I consider two possible structures; one of ‘serialized’ VPs and one of serialized IPs/clauses (Muysken & Veenstra, 2007). I explain that these hypotheses are inadequately described and operationalized in literature and devise my own principled interpretation and methodology. Specifically, I propose finding material heading phrases bigger than VPs between the two verbs in an SVC constitutes evidence for an analysis of VIDC SVCs as IP-/clause-serializing. Then, I bring this diagnostic to bear on VIDC SVCs manually extracted from the NEHOL corpus (Van Sluijs, 2014). Statistical analysis suggests an analysis of VIDC as VP-serializing, although my findings are consistent with both hypotheses.

## 1. Introduction

Creolistics stands out as a branch of linguistics that concerns itself with relatively young contact languages that emerged under singular and, sometimes, well-

<sup>7</sup> Several words of thanks are due: I owe many thanks to dr. Cefas van Rossem (Meertens Instituut) for kindly sharing his knowledge on and enthusiasm for VIDC, along with his files documenting the spoken and written language which constituted the main sources of data for this corpus study. My thanks also go out to Romy van Drie (UU) and Liesje van der Linden (UU) for helping me set up the corpus used in this study and proofreading a draft of this article for publication. Finally, I would like to thank Marjo van Koppen and Roberta D’Alessandro for the inspiring elective course and their supervision of the research reported here. Of course, all errors in the corpus and its analysis are my sole responsibility.

documented circumstances. As the birth of creoles can often be pinpointed with temporal accuracy unparalleled elsewhere in the study of natural languages, they offer unique case studies of language emergence and development. Though it is an increasingly popular field of inquiry, consensus has yet to be reached on the typological status of creoles as (un)exceptional. This debate centres on the question of whether or not, due to their origins in language contact, they are typologically distinct from non-creoles. Proponents of the Creole Exceptionalism hypothesis (e.g. McWhorter, 2018) argue that, because of the break in transmission of L1 competence and reduced pidgin stage that creoles thus necessarily go through, they are a distinct subset of natural languages. Critics of this hypothesis (Aboh & DeGraff, 2017) hold that any typological distinctness is due to the younger stage at which creoles are studied and that there is no break in transmission. Regardless of one's stance towards this hypothesis, several computational studies have demonstrated that there seems to be a clustering of structural features typical of creoles (Daval-Markussen, 2013; Blasi, Michaelis & Haspelmath, 2017).

In the present study, I focus on one structural feature shared by many (but not all) creoles: the serial verb construction (henceforth SVC) (see McWhorter (1992) for an overview of (non-)creoles that have SVCs). One creole that has SVCs is Dutch-based Virgin Islands Dutch Creole (henceforth VIDC). To my knowledge, most, if not all, previous studies on SVCs in VIDC focus on describing their surface characteristics. Due to the wealth of available VIDC data, it is somewhat surprising that the VIDC SVC has not been the object of any in-depth structural analysis. This is where my corpus study comes in: by examining SVCs manually extracted from the NEHOL (Van Sluijs, 2014) database, I go beyond the extant descriptive analyses and ask what the underlying structure is to the VIDC SVCs. The possibilities I consider are that VIDC is a language that 'serializes' clauses or VPs. Based on principled predictions, I examine the hypotheses against the empirical domain of the corpus and conclude that the findings are in line with both due to the implicational hierarchy in which the hypothetical language-types are ordered. Statistical analysis, however, points in the direction of an analysis of VIDC as VP-serializing.

This article is structured as follows: in section 2, I offer a general description of SVCs in general and give an overview of what is already known of the construction in VIDC. Here, I also elaborate on what my research question and hypotheses are based on. Section 3 goes on to give relevant sociolinguistic information on VIDC and to describe the corpus used in this study. In section 4, I hold the hypotheses to the light of my analysis of the SVCs in this corpus and some data from external sources. Section 5 concludes.

## **2. Serial verb constructions**

### **2.1. A general overview of SVCs**

An SVC is a grammatical construction of two verbs close to each other without being connected, all the while entering into complex syntactic and semantic relations. As Muysken and Veenstra (2007) explain, several attempts have been made

to come to a more formal definition of SVCs. For the purposes of the present study, I restrict myself to the criteria they list. An SVC consists of two verbs that have:

- i. only one grammatical subject;
- ii. at most one grammatical object;
- iii. one specification for tense/aspect:
  - often only on the first verb;
  - sometimes on both verbs, but agreeing in the specification given;
  - sometimes only on the second verb;
- iv. only one possible negator;
- v. no intervening coordinating conjunction;
- vi. no intervening subordinating conjunction;
- vii. no intervening pause.

Although this description of SVCs may seem familiar to the auxiliary-verb combination of perhaps more familiar, Western languages, there are differences. The most significant of these is the fact that the verbs in an SVC are both base-merged in VO positions, whereas auxiliaries are base-merged in a functional position like IO.

Rather than being set in stone, these descriptive criteria paint a picture of the generic SVC, as exceptions to some of them have been found: Ewe allows the verbs in its SVCs to be differentially marked for aspect (Ameka (2006), cited in Sabino (2012)), in clear contradiction to criterium (iii) above. Furthermore, VIDC exhibits SVCs with more than two verbs (Sabino, 2012).

Sabino (2012) describes a first distinction in SVCs between symmetrical and asymmetrical SVCs. In a symmetrical SVC, the two verbs are both lexical or 'major' verbs restricted only in that they cannot be copulas, existentials or stative verbs (Aikhenvald (2006), cited in Sabino (2012)). In asymmetrical SVCs, one of the verbs is more or less lexically restricted per language and is considered the 'minor' or serial verb (SV) of the construction. The other verb of the pair is typically unrestricted and can come from any class of verbs like copulas, but also lexical verbs. Cross-linguistically, these SVs come from similar semantic classes and seem to contribute similar meanings to their respective SVCs across languages (see McWhorter (1992) and Muysken & Veenstra (2007) for overviews of typical SVs, their meanings and their distribution across languages).

A second dichotomy in SVCs across languages is that between those consisting of serialized IPs and those consisting of serialized VPs (mentioned in Muysken & Veenstra (2007) and in turn ascribed to Ayówalé (1988) cited therein)<sup>1</sup>. Some crucial aspects of this dichotomy are not made explicit. For one, it is not spelled

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<sup>1</sup> In an earlier version of their chapter (Muysken & Veenstra, 1994), they mention the dichotomy concerns clause-serializing languages as opposed to VP-serializing languages. It is unclear to me why they change their terminology. In addition, in their 2007 chapter they use clause-serialization and IP-serialization (and terms derived thereof) interchangeably. In the remainder of this paper, I refer to clause-serializing and VP-serializing languages and remain agnostic as to the exact intended definition of the clause in Muysken and Veenstra's terms.

out specifically what is meant by serialization of clauses or VPs. I consider the following definition as functional. I take VP-serialization to mean that the SV VP takes another VP as its complement, as in figure 1 below.

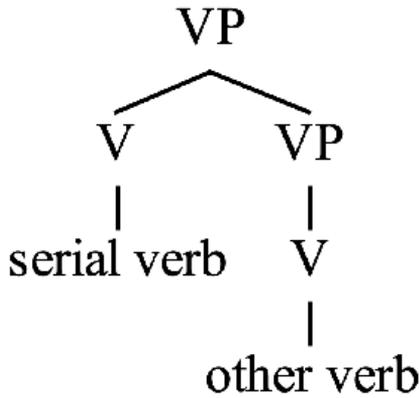


Figure 1. Underlying structure of an SVC in a VP-serializing language

Clause-serialization, then, would mean that the VP instead takes a clausal complement which dominates the VP containing the other verb, as in figure 2.

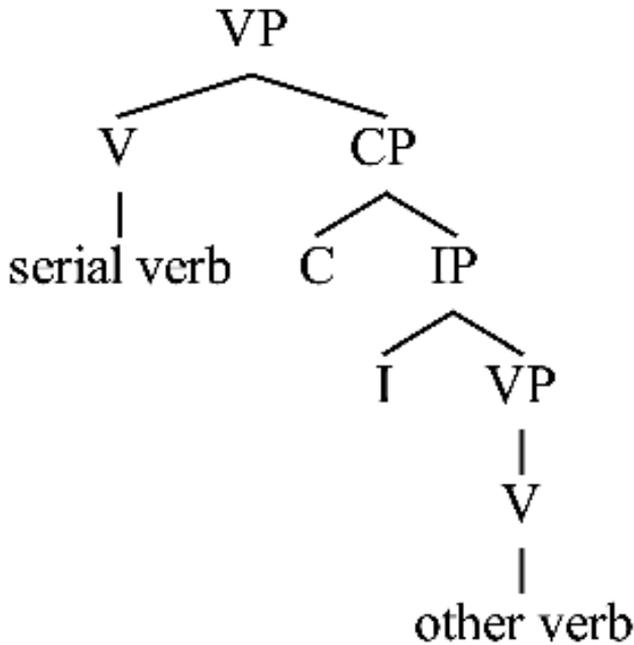


Figure 2. Underlying structure of an SVC in a clause-serializing language

What is also not made explicit is on what grounds the distinction between one type of languages and the other is made. According to the authors, the categories are on an implicational hierarchy: languages that serialize clauses also have structures with serialized VPs, whereas the inverse does not hold. However, they only mention that clause-serializing languages exhibit "*relatively more independence between the different subevents denoted by the separate verbs and free lexical selection*" and that phrase-serialization is marked by "*relatively less independence or thematic restructuring and a limited set of participating verbs*". Obviously, a diagnostic containing *relatively* begs for a more principled alternative, as any difference between the categorization of preconceived clause- or phrase-serializing languages and new data to the contrary can gratuitously be explained away through the vagueness inherent to the definitions on which the categorization is based. In other words: any categorization of languages based on these descriptions borders on being unfalsifiable. Thankfully, an alternative diagnostic is possible given the conceptualization of the two structures as described above: uncontroversially taking clauses and VPs to be different maximal domains, one would expect material to potentially be found between the verbs in the SVC. More specifically, in case the SVC in question consists of serialized clauses one should be able to find material indicative of structures larger than VPs, such as structurally high adverbial phrases, negation and TMA (Tense/Mood/Aspect) markers, between the verbs in the SVC.

### 3. Serial verbs in VIDC

In VIDC "*not much has been done on serial verb constructions*" (J. H. McWhorter, personal communication, March 2019) and this is reflected in the literature. Sabino (2012) provides by far the most extensive account of VIDC SVCs, giving an overview of VIDC SVs and their semantic and lexical properties. It is important to note here that not all sources list the same SVs and sometimes, sources are in direct contradiction (e.g. Muysken and Veenstra (1994) say VIDC lacks a TAKE SV, whereas Sabino (2012) lists it as one of its SVs). In this study, I restrict myself to the VIDC SVs *lo* (GO) and *ko* (COME), as they are the SVs all prior literature seems to agree can function as SVs in VIDC. Furthermore, as Muysken and Veenstra (1994) explain, these belong to the most frequently observed SVs from a cross-linguistic perspective.

As SVs, *lo* and *ko* can function as both minor and major verbs in the SVC. As minor SVs, they convey a directional and/or purposive meaning. As major verbs, they retain their full lexical meaning. This can be seen in the examples below, taken from Sabino (2012) (glosses, translations, boldface (for SVCs) and underlining (for relevant SVs) original).

- 2) Am O **lo** kri di duksak mais **ko** gi di hunduhan  
 3.sg PST DIRA/PURP get the sack corn come give the rooster  
 "S/he went away and got/to get the sack of corn and returned and gave/to give it to the rooster."

- 3) Am ha **flig lo**  
 3.sg PST fly go  
 "S/he flew away."

In (2), *lo* is a minor SV in the SVC *lo kri*, imparting directional/purposive meaning to the constructing. In (3), it is a major SV in the SVC *flig lo*. Partly synonymous with the other verb in the SVC (*flig*), they jointly convey a manner of departure.

In (4), *ko* functions as a minor SV in the SVC *ko ko tre*. This is an example of a multiverb (i.e. containing more than two verbs) SVC, where both *kos* express a minor SV meaning: directionality and purpose respectively. In (5), *ko* functions as a major SV.

- 4) ...am nu kan **ko ko** tre di gut it...  
 ...3.sg now can DIRT PURP dig 3.sg thing out...  
 "...S/he could now come in order to remove the thing..."
- 5) Nit en kopu am na kan **kri kom** it...  
 Not a/one penny 3.sg NEG can get come out  
 "Not a/one penny could fall out..."

Sabino's detailed description on trajectories of grammaticalization and lexicalization processes that *lo* and *ko* and their respective SVCs are part of notwithstanding, what little literature on VIDC SVCs exists does not go into detail on the underlying structure of serialized verbs in the language (Van Sluijs, 2017; Sabino, 2012; McWhorter, 1992). Muyskens and Veenstra (1994, 2007), for instance, give an overview of several creoles as divided over their clause-serializing and VP-serializing categories. Though the authors do mention VIDC in their article, it is not among the languages categorized. The research question of this study then straightforwardly presents itself: what is the underlying structure of the SVC in VIDC? Based on the proposed dichotomy described above, the two possible hypotheses are the following:

- I. The underlying structure of the SVC in VIDC is one of clause-serialization
- II. The underlying structure of the SVC in VIDC is one of VP-serialization

If hypothesis (I) is true, one would expect to be able to find material in between the verbs in the VIDC SVCs indicative of clausal structure. If hypothesis (II) is true, one would not expect to be able to find such material. However, if this is what one finds, a hard conclusion cannot be drawn because such data would be in line with both hypotheses.

The next section provides relevant sociolinguistic information on VIDC and the corpus used in the study.

## 4. The present study

### 4.1. Virgin Islands Dutch Creole

The creole under consideration in this study is VIDC, sometimes referred to as Negerhollands (Negro-Dutch), though this name has fallen into disfavour due to its pejorative connotations. VIDC is a contact language that emerged at the end of the seventeenth and the beginning of the eighteenth century on the US Virgin Islands (then the Danish Antilles). It most likely emerged on Dutch plantations on St. Thomas as a result of contact between slaves from different parts of West Africa and European colonists. The African slaves spoke mostly Gbe languages which formed the substrate of the contact language (Sabino, 2012). Though the islands were under Danish control at the time, the Dutch settlers vastly outnumbered all other European populations, which resulted in the mainly Dutch-lexifier influence on VIDC. Other European languages spoken on the islands include Danish, English and Spanish.

Robbert van Sluijs (2017) reports it was spoken by the majority of the Afro-Caribbean population in the area. Also, it appears to have been spoken by children locally born to the colonists. Already at the end of the eighteenth century, it was an object of study and described in grammars (Van Rossem, 2017). The language died with the last speaker, a descendant of the original slave population of the Virgin Islands, in the twentieth century. Nowadays, it is studied mostly through written sources consisting in large part of products of Moravian missions to the area to spread the Christian faith to the slaves, such as (translations of) letters dictated or written by slaves and missionaries, translations of passages of the Bible and reports of and (language) manuals for the mission. Some VIDC data survived in the form of (translations of) transcriptions of spoken conversations and folktales. There are also some audio recordings of the last speakers of the language.

The mainly textual heritage of the language available today has sparked the creation of the NEHOL database; a digitally available database of digitized documents containing VIDC texts based on originally spoken and written data (Van Sluijs, 2014). This database formed the foundation for Van Rossem's (2017) dissertation and a subset of it, along with (a subset of) his personal VIDC files, form the empirical body of this study.

### 4.2. The present corpus

For the purposes of the present study, a corpus of instances of *lo* and *ko* in the available files in the NEHOL database and related sources was made manually. Due to the lack of standardization in VIDC spelling, different orthographic variants of these verbs were entered into the corpus (e.g. *lo(o)(p)* and *ko(o)(m)* respectively), along with a reference to the source material they originated from and a translation if provided. After this first course-grained search for SVs, two human annotators considered each instance of these potential SVs and determined (based on temporo-aspectual information, clausal structure, translations and original glosses if provided) whether the verbs found in this way occurred in an SVC in the sentence. In case of doubt; if this doubt was resolved after careful deliberation, a justification (i.e. a source with decisive information) was added for the user's consideration. In cases where the doubt was not resolved, the most conservative

choice was made (i.e. it was classified as whatever it could be other than an SV). Finally, information was added about any material intervening between the two verbs in the SVCs found in this way.

In total, thirty-six SVCs were extracted from twenty-seven files of varying contents and sizes. In the following section, I present a qualitative and quantitative analysis of the relevant SVCs found in this way and show what they can tell us about the underlying structure of VIDC SVCs.

## 5. Results

Of the thirty-six SVCs extracted, thirty-two consisted of an SV immediately following or preceding the other verb in the construction, that is, with no material in between the two. The remaining four can be found below. Per SVC, I give original glosses and translations if provided. If not provided, I give my own and mention this in discussing the SVCs.

- 6) Mi ka ki kom lo ko (Nelson, 1936)  
 1.sg PFV see come DURA come  
 "I have seen him coming."

(6) is analyzed as containing the SVC *kom ko*, meaning 'come here'. Between the verbs in the SVC, we find the aspectual marker *lo*, glossed (by me) as DURA. This would be an interesting SVC, as we find a TMA marker (which are usually found higher up in the structure of the clause than the VP) between the two verbs, which would suggest more than VP-structure being present. However, looking at the (original) translation, I find there is reason for doubt. It is unclear where the third person singular object *him* in the translation comes from, given the sentence as it was found in the file. As becomes clear from the gloss, no word of morpheme indicates an object in the sentence, which contradicts the translation. This would suggest that either the translation or the gloss is faulty. I think the gloss is wrong, based on an incorrect transcription. Recall that the original Nelson (1936) files are handwritten and transcribed for digital storage in the NEHOL corpus. Indeed, digital copies of the original files reveal a striking similarity between the author's handwritten letters *h/k* and *a/o* respectively. It is thus not a stretch to assume that the VIDC third person singular masculine pronoun *ham* was mistaken for *kom* and transcribed as such. According to this analysis, the original sentence would be like (7), with no SVC present in the first place, as *lo* would be analysed as an aspectual marker to *ko*. For these reasons of unreliability, I dismiss this datum.

- 7) Mi ka ki ham lo ko  
 1.sg PFV see 3.sg DURA come  
 "I have seen him coming."

Nothing seems wrong, however, about the SVCs in (8) and (9). In (8) (my gloss, original translation), we find the SVC *stier lop*, with intervening object *mi*, roughly meaning 'send me away'. In (9) (my gloss, original translation), which is found twice in the dataset due to recurrence in the files, we find the SVC *bring kom*, again with an intervening object, *die*, roughly meaning 'bring that here'. In both SVCs,

we find material between the verbs. The most straightforward analysis of these objects is one in which they are VP-internal. Whether they are internal to the VP projected by the first or the second verb, this means this material is not indicative of structure larger than VPs. Additionally, this finding is consistent with findings by Sabino (2012), who gives more examples of VIDC SVCs with intervening objects in the form of pronominals, independent demonstratives and full NPs, as shown in (10), where *di difman* intervenes.

- 8) **Stier** mi **lop** na ju Plantaj (Kingo, 1770)  
 send 1.sg go to 2.POSS plantation  
 "Send me to your plantation."
- 9) Mi no a **bring** die **kom**? (Oldendorp, 1777)  
 1.sg NEG PST bring that come  
 "Hab ich es nicht gebracht?"  
 ("Haven't I brought it?")
- 10) DΛ polisman a skreu: **brinj** di difman **ko**  
 The policeman PST scream: bring the thiefman come  
 "The policeman screamed: 'bring the thief here'"

These are the only SVCs in the corpus with material between the two verbs. All seem serializations of at least VPs, though more structure cannot be inferred from these data points since we do not find unequivocal evidence of bigger structure between the verbs. Hence, no categorial conclusion can be drawn from these data about the underlying structure of VIDC SVCs. Recall that clause-serialization and VP-serialization are on an implicational hierarchy: any language that allows the former allows the latter, but not *vice versa*. This means that any evidence in favour of VP-serialization is consistent with both analyses of the language in question, as the possible SVCs in VP-serializing languages are a proper subset of the ones possible in clause-serializing languages. Therefore, the current data cannot tell us with absolute certainty to which of the two types VIDC belongs and I conclude that the current data are ultimately consistent with both hypotheses. However, the present results render plausible an analysis along the lines of a VP-serialization-type language because of the absence of evidence of clause-serialization: in an extensive corpus of twenty-seven files (some of which of lengths of over thirty-five pages), only thirty-six SVCs were found, none of which show any overt reflexes of serialization of anything bigger than VPs. In addition, not having found any of the material hypothesized to be possible in between two clause-serialized verbs does not mean such material does not occur in VIDC: of the thirty-six SVCs found twenty-two occur with verbal negation, modal or aspectual modification (as in example (9)). All of this material precedes the SVC. A (rudimentary) chi-squared test using the numbers in table 1 (with zero values transformed to one) tells us that this is a significant result ( $\chi^2 = 38.35$ ,  $df. = 1$ ,  $p < .001$ ), adding to the plausibility of VIDC being a VP-serializing language and lending support to hypothesis (II).

Table 1  
Observed and chance distributions of structurally higher material (N = 22) in-between and surrounding (preceding/following) verbs in SVCs

	NEHOL	Chance
In-between	1	11
Surrounding	22	11

I leave the reader with two final notes based on Sabino's (2012) data. She reports aspectual markers in between the two verbs of an SVC. In (11), copied from her, we find that, in fact, an aspectual marker is possible between the two verbs of the SVC.

- 11) ki am lo **kuri** lo **lo**.  
 see 3.sg PROG run PROG go  
 "See him/her running away."

However, she also mentions that this marker is "*copied onto the second verb*", not specifying what this process of copying entails, but implying that the aspectual marker originates as a marker on the first verb and only then is placed in between the two verbs. At present, I do not know the exact mechanics and structure underlying this copying of aspectual markers and am thus hesitant to flag this as definitive proof of structure greater than VPs in VIDC SVCs.

Finally, Sabino also mentions so-called 'switch-function' SVCs. In the switch-function SVC in (12) (again taken from Sabino (2012)), two readings are possible, among them one in which the object of one verb (in this case the first one) is the subject of the other verb (in this case the second one).

- 12) so dan am a **rup** tekoma **ko**...  
 so then 3.sg PST call Tekoma come...  
 "So then s/he called Tekoma to come..."  
 "So then s/he called Tekoma and Tekoma came..."

This means that under one reading, we find an (understood) object-subject between the two verbs of the SVC. This raises the question of what position *tekoma* occupies in the structure of the sentence. Given that subjects are conceived of as being in [Spec, IP], this could suggest structure bigger than a VP in the serialized verb-constituent, suggesting clause-serialization. Even if this 'lower' subject is in the object position of the 'higher' verb, this would require the assumption that *tekoma* moved there, presumably through or from the subject position of the lower verb-constituent. This construction bears similarities to ECM constructions like *I see him walk*, in which a matrix clause object originates from an embedded subject position. An important difference is that in ECM constructions, the embedded clause is non-finite, whereas the serialized constituent in (12), based on the translation provided, can be interpreted as finite.<sup>2</sup> However, it is unclear at

<sup>2</sup> At first glance, the finiteness of the second verb in the SVC appears to be in contradiction with the gloss, which does not indicate any marking for finiteness on the second

present what structure is behind this switch-function SVC. These two final points could be promising objects of future research.

## 6. Conclusion

Based on existing literature on SVCs and VIDC, I posed the research question as to what the underlying structure of the VIDC SVC looks like. Taking the existing hypotheses of clause- and VP-serialization and formulating a principled diagnostic to check the two against, I have conducted a corpus study based on the NEHOL database and similar, related sources. Though categorial evidence in favour of one or the other hypothesis is not found, statistical results can serve only to make probable an analysis of VIDC as VP-serializing and, hopefully, spark future research into this question. ■

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verb. Recall, however, that SVCs may be marked as a whole by one specification for tense/aspect. The translated finiteness of the second verb in the English translation may thus be due to the past tense morpheme a preceding rup. An anonymous reviewer rightly points out that, if the second verb were itself syntactically finite, this would imply clausal structure of the serialized constituent, since the lower verb would have to check its phi-features at some functional projection. This would constitute an argument for hypothesis (I), since the relevant functional projection would have to be in between the two verbs of the SVC. However, VIDC does not exhibit verbal inflection other than through of morphemes like (k)a (found in many examples presented throughout the article, including (12)) and, since none are found marking the second verb ko in (12), I conclude it is not syntactically marked for finiteness in a way that would be conclusive of hypothesis (I). This does raise the question of how exactly the shared specification of tense/aspect marking in SVCs such as in (12) works, that is: is it necessarily only the first verb that is finite if the SVC as a whole is marked for tense/aspect or can the second verb too be finite if it is part of an SVC marked as a whole for tense/aspect as in (12)? Should the latter option be possible, this again raises the subsequent crucial question of what functional projection the second verb checks its feature against: the distant one headed by a or one in between the two verbs, headed by a null element? To answer this question here is beyond the scope of the present study, but could serve as a potential object of future inquiry.

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# Emotion Word Use in Schizophrenia

## How emotion words can inform our understanding of clinical symptoms

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### KEYWORDS

emotion words  
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### ABSTRACT

Schizophrenia is a complex chronic mental disorder and is characterized by disturbances in thought, perception, and behavior. Patients suffer from severe symptoms which can be classified in positive symptoms and negative symptoms, ultimately leading to deficiencies in language and emotion perception, emotion processing and emotion expression. From previous studies, researchers were able to conclude that clinical symptoms in schizophrenia find their reflection in language. In this sense, the aim of this paper is to investigate symptoms, outcomes of previous research on the link between language, emotion, and schizophrenia to see what the link between clinical symptoms and emotion word use of patients looks like. After discussing previous literature on these topics, I present two examples of the untypical emotion word use in patients and combine these insights with the emotion processing model by Vingerhoets et al. (2000). Due to the model's focus on the role of neurological, psychosocial and situational factors, I will be able to illustrate the influence of clinical symptoms of schizophrenia on general emotion processing further. In the future, this line of research could improve our understanding of schizophrenia by gaining further insight into characteristic features of language of patients.

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## 1. Introduction

Language itself can be defined as one of our primary means of communication which makes it possible for humans to express their emotions in a very unique way. While the vast complexity of human language offers many advantages, it also creates countless vulnerabilities for disturbances, such as hearing impediments, speech disorders or mental illnesses (Deutsch-Link, 2016). One particular mental illness, namely schizophrenia, has been shown to produce many different deficits in language. Patients with schizophrenia suffer from various language and emotion centered impairments, including a deficit in judging emotional states or expressing emotions themselves. However, previous studies have majorly focused on investigating emotion perception, expression, and processing within this patient group (Cramer et al, 1989; Hong et al. (2015); Kohler et al. (2000)). The use of emotion words has not been investigated much. Emotion words can generally be defined as words used by the speaker to describe emotional states, such as anger, disgust or joy. This is surprising since recent findings suggest that specific language factors,

such as complexity of speech, speech rate, and use of particular word categories, like emotion words, could potentially be indicators of clinical components of mental illnesses (Cohen et al., 2009).

Linking this information to the assumption that typical clinical symptoms in schizophrenia have a reflection in language, would indicate that there is a possibility that one could uncover the underlying basic symptoms through language impairments (Obrębska & Obrębski, 2007). However, language impairments have to be thoroughly investigated themselves and are often not easy to diagnose. Consequently, the aim of this paper is to provide insight into whether emotion word use can be utilized as a fast and reliable method of scanning speech to identify major symptoms in schizophrenia. This would combine the clinical and linguistic point of view, which are often described as entirely separate paradigms. In order to do so, I want to gather information on general clinical symptoms of schizophrenia, outcomes of previous research on the link between language impairment, emotion and schizophrenia, and emotion word use to answer the following research question:

What does the link between clinical symptoms of schizophrenia and the emotion word use of patients look like?

To answer this research question, I want to first discuss the necessary aspects for an official diagnosis of schizophrenia (2.1) before looking at existing literature on emotions in patients with schizophrenia (2.2). In section 3, these investigations will be combined to answer the research question of the paper by looking at some exemplary clinical symptoms and how they could be reflected in the emotion word use of patients. The examples will then be further analyzed and put into context using an adapted version of the emotion processing model by Vingerhoets et al. (2000). The last section concludes the paper and lists possible limitations of emotion word research in schizophrenia and gives outlook for further research.

## 2. Schizophrenia

### 2.1. Diagnosis

According to the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-V), schizophrenia is defined as a chronic mental disorder characterized by disturbances in thought, perception and behavior, which affects approximately 7 out of 1000 people (American Psychiatric Association, 2013). It is a syndrome, which means that there is a cluster of different symptoms associated with it and different patients might experience different symptoms. These symptoms are immensely diverse and are most often categorized in two different sets: positive symptoms and negative symptoms (Kay et al., 1987).

As noted by Obrębska & Obrębski (2007), positive symptoms typically add a feature to a patient which is normally not experienced by healthy individuals. In addition, positive symptoms respond well to medication. In this sense, they add something to normal behavior. Examples for positive symptoms in schizophrenia are psychotic

symptoms like delusions, which are defined as false beliefs that a person might feel very strongly about, or hallucinations, which refer to things that a person senses but are not real. In contrast, negative symptoms are deficits or lack of normal behavior. As such, negative symptoms include, for instance, poverty of speech, low emotional expressiveness, or anhedonia, which is the inability to experience pleasure or avolition, which is defined as a decrease in emotion.

In general, the DSM-V notes that people with schizophrenia seem to go through three phases, typically in order. During the first phase, which is called the prodromal phase, people seem to be withdrawn which is often compared to depression disorder (American Psychiatric Association, 2013). During the second phase, the active phase, patients experience more severe symptoms. Finally, they enter the third phase, which is called residual phase, which involves cognitive symptoms, like not being able to concentrate. Afterwards, they enter the prodromal phase once again and the cycle starts over.

Taking all of this into account, for an official diagnosis of schizophrenia, patients have to have at least one positive symptom out of delusions, hallucinations or disorganized speech and at least either disorganized behavior or negative symptoms (American Psychiatric Association, 2013). So, they could not just experience disorganized behavior and negative symptoms but need an additional positive symptom. Although some people suffer from cognitive symptoms as well, they are not specifically needed for a diagnosis. In addition, signs of these disturbances have to be ongoing for at least 6 months, so they will be in one of the three phases for a minimum of that time. However, there has to be at least one month of the active phase, in which symptoms are the most apparent. Finally, those symptoms cannot be attributed to other conditions, such as substance abuse.

When looking at language impairment in schizophrenia, the paper by Deutsch-Link (2016) summarizes crucial information on linguistic perspectives in language production in schizophrenia. While phonology, morphology, and syntax seem to remain intact, the lexicon, semantics and pragmatics show signs of impairment. Looking at the vocabulary of patients with schizophrenia, she reports that poverty of speech and a reduction in content of speech are noticeable. This shows, for instance, in a tendency to replace words they might have difficulties with by creating new words, such as *handshoe* as a literal replacement for the word *glove*. Moreover, the semantic disruption becomes visible through a loss of meaning of utterances or dysfunctional use of words, where words seem to be stuck together without meaning or relation to one another. Lastly, an impairment in pragmatics manifests itself in an overall tendency of speech to take a long and complicated path to get to a point instead of taking the more obvious and direct route, as well as by a tendency to deviate from the topic of discussion completely.

## 2.2. Emotions in Schizophrenia

The processing of emotion is a crucial part of successful social interactions throughout life. Researchers argue that emotions develop over time and serve a variety of inter- and intrapersonal functions, such as helping us recognize and assess critical situations, strengthening relationships or making important decisions (Kring & Elis, 2013). However, schizophrenia often interferes with and disrupts these emotion-centered functions, which ultimately influences many different areas of life. Considering this major effect of emotion deficits in schizophrenia, it is not surprising that deficiencies in emotion areas have been observed since the earliest descriptions of the illness (Bleuler, 1911). Since then, many studies provide evidence for patients suffering from an array of language and emotion-centered impairments.

One field of emotion deficits in schizophrenia is emotion perception, which refers to the ability to correctly identify emotions in other individuals or stimuli in general. Cramer et al. (1989) found that patients inaccurately judge emotions conveyed in a particular scene compared to the interpretations of healthy individuals. These findings are confirmed by the research of Yildirim et al. (2018), who studied the relationship between perception and thought disturbances in schizophrenia. They found that patients with schizophrenia display deficits in recognizing happy, sad, fear, anger, and neutral facial emotions compared to a healthy control group.

Another field of emotion-centered deficits in schizophrenia is emotion processing and emotion expression, which relates to an impaired displaying of emotions across different areas of the individual, like in their faces, voices or bodies. The study by Kohler et al. (2000) examined the emotion processing deficit in schizophrenia and confirms that there is a relation between neurocognitive performance and the severity of symptoms of patients with schizophrenia. In particular, the researchers found a significant correlation between an emotion processing deficit and the negative symptom of alogia, or poverty of speech, and the positive symptoms of hallucinations and thought disorder. Another study focusing on the differences in speech in schizophrenia and healthy controls was conducted by Hong et al. (2015). The researchers analyzed narratives in which participants had to describe past experiences, which evoked one of the five basic emotions out of happiness, sadness, anger, fear and disgust. Their results showed that narratives of happy, sad, and anger emotions depict the most differences between the two groups. However, the study only included a very small sample size.

Although, as mentioned in the introduction, research has illustrated that different language factors, including emotion words, can indeed be used to analyze clinical symptoms, only a very limited number of studies on schizophrenia has focused on word use of patients so far. In the study by Obrębska & Obrębski (2007), the researchers examined patients with positive and negative types of schizophrenia. In the experiment itself, patients were asked to describe different pictures which illustrated different emotional scenarios. The lexical analysis of the answers reveals that patients with positive symptoms produced longer sentences than patients with

negative symptoms or healthy controls. Furthermore, there is a difference in use of different word classes, such as pronouns, showing that patients with positive symptoms use the personal pronoun *I* in speech more often. The utterances by patients with negative symptoms are further less lexically abstract and shorter overall in length.

Linking the relation between emotions and word categories and how they are used in schizophrenia, the study by Minor et al. (2015) provides some insight. The researchers conducted a lexical analysis of semi-structured interviews with schizophrenic patients on their lives and illness. The analysis indeed confirmed the hypothesis that clinical variables can be predicted by different word categories.

One of the only studies actually investigating emotion word use of patients was performed by St-Hilaire et al. (2008). The study aimed to verify whether there is a relation between the use of emotion words during free speech and the actual emotional experience of patients. However, they could not find a difference in the number of emotion words used between patients with schizophrenia and a healthy control group. Nevertheless, it should be highlighted that the tasks in their experiments did not elicit emotional responses or memories, so only a very limited number of emotion words were used by the participants. This can be regarded as a significant limitation of this study and its results.

### 3. Emotion Words in Schizophrenia

After looking at clinical diagnostics of schizophrenia and establishing an understanding of what emotion and language related deficits generally look like in this chronic mental illness, it becomes evident that so far there are no studies directly investigating whether there is a clear link between emotion word use and typical symptoms in schizophrenia. Nevertheless, since there appears to be a clear link between emotion and schizophrenia, I want to use these insights to answer the research question of what the association between emotion word use and symptoms in schizophrenia could look like. In order to do so, I want to briefly describe emotion word use and how it is already used in a clinical context before combining the information in this paper to discuss some examples and how they can be linked to an emotion processing model.

Generally speaking, the expression and use of emotion words can convey information about the emotional and physical state of the speaker but also provide information about the relation between the speaker and the listener (Cohen et al., 2009). Therefore, it can be said that analyzing the use of emotion words can lead to interesting findings and information on a wide range of topics including psychopathological problems. In fact, the use of emotion words is already used in clinical environments, for instance, in researching the benefits of trauma resolution by writing or talking about upsetting experiences which ultimately leads to improvement in theoretical and practical therapy setting (Pennebaker, 1992). In order to analyze the speech of patients, researchers have opted to use lexical analysis. This method

appears to be very suitable for disorders which involve language impairments, such as schizophrenia (Cohen et al., 2009). The lexical analysis of utterances of patients with schizophrenia can be regarded as a convenient and immediate method of scanning the patient's speech to identify major symptoms of schizophrenia which might otherwise go undetected during assessment or would take longer to be recognized (Minor et al., 2015). Since emotion words are already being used in other clinical conditions, I want to provide some examples on what the emotion word use could look like in two exemplary symptoms.

Firstly, a common positive symptom in schizophrenia is experiencing delusions. Delusions are, among other things, defined as an "overrepresentation of abstract and metaphysical termini or verbal abuse of death, power and hostility themes" (Obrębska & Obrębski, 2007, p. 65). When considering the five basic emotions of joy, fear, anger, disgust, and sadness, the aforementioned themes can easily be put into relation to the category of anger emotion words. This would mean that the speech of a patient suffering from this positive symptom and the language and emotion deficits associated with it, will likely be represented by an overuse of emotion words belonging to the anger category when, for instance, asked to talk about an emotional experience. This observation would likely be increased even more when the emotional experience is based on or evokes anger emotions.

As for negative symptoms, an example is anhedonia, which is defined as the inability to experience pleasure, and has been a prominent personality trait in individuals with negative schizophrenia (Cohen et al., 2009). In this example, it can be expected that patients with anhedonia will show an increase in using emotion words which describe negative feelings, such as sadness or fear, while discussing or recalling pleasurable memories, since their ability to recall happy memories or experience positive emotions is impaired.

To illustrate further what the emotion processing deficit in schizophrenia looks like, I want to introduce the model by Vingerhoets et al. (2000), which has been adapted to represent general emotion processing. It focuses on the role of neurological, psychosocial and situational factors in emotion processing.

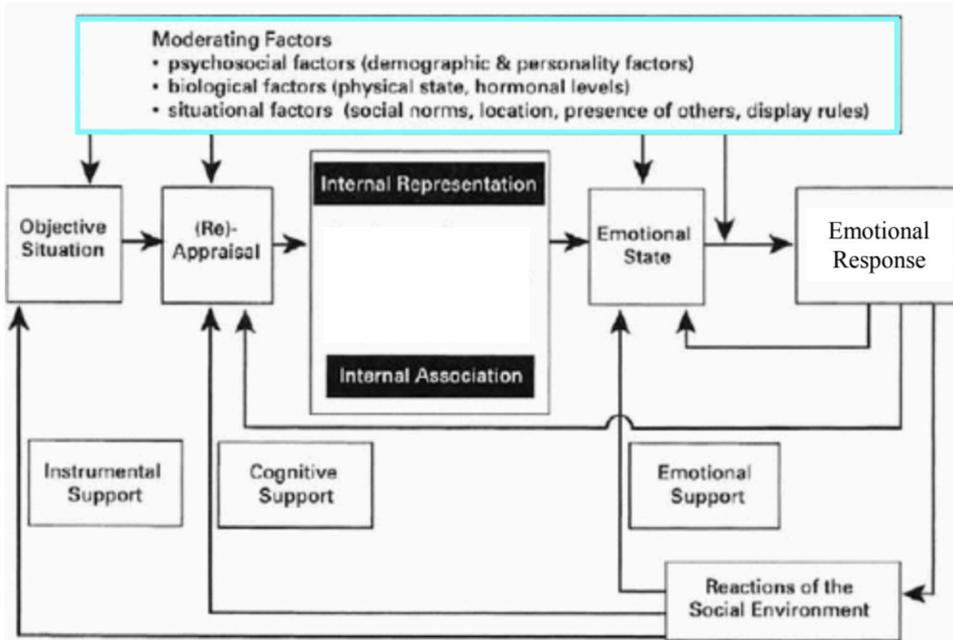


Figure 1. The adapted Model of Adult Crying by Vingerhoets et al. (2000).

In this model, emotion processing commences with an objective situation which is being appraised. Appraisal in this sense refers to the judgement of the experiencer on whether the given situation is personally relevant (Vingerhoets et al., 2000). The model also highlights the connection between appraisal and moderating factors, namely psychological, biological, and situational factors. If the situation is deemed relevant, appraisal sets emotion programs into motion which are being evaluated within the context of internal associations. Different emotions are generally differentiated by the various types of appraisal. For instance, a dangerous situation might induce fear while losing a loved one evokes feelings of sadness. However, the same emotions can be initiated by different appraisals. Moreover, these emotion programs are collections of responses based on previous experiences and they can be altered by biological or social factors, as well as physiological aspects. In this sense, emotional responses can be modified by being exaggerated, diminished or even inhibited before they are even expressed.

The model exemplifies that emotional responses strongly interact with the environment and the individual, which can lead to an unexpected or untypical emotional response. This becomes especially important when looking at individuals with schizophrenia. The various symptoms which are associated with schizophrenia alter the emotional responses of patients in different ways. Considering the examples introduced in this section, delusions could, for instance, exaggerate the feelings of hostility towards a certain stimulus which would alter the emotional response and lead to the increased use of anger-centered words. Similarly, anhe-

donia will act as an altering factor by modifying the emotional responses in a way that positive emotions as a reaction towards positive situations or memories are being inhibited or even diminished completely or altered in a way that only negative responses are being considered by the patient. The alteration of memories has been investigated by results in cognitive neuroscience by Kring & Elis (2013). Their study revealed that healthy individuals typically anticipate the future and how to emotionally react towards certain situations by relying on information from past experiences. However, research suggests that patients with schizophrenia have difficulties holding on to emotional experiences from the past and, therefore, have a hard time when developing emotional reactions. This would further serve as an added level of explanation for the modification of emotional responses in schizophrenia.

#### 4. Conclusion

Many studies show that positive and negative symptoms as opposite ends of the continuum of clinical symptoms in schizophrenia are related to language impairment but, so far, no uniform way to easily identify these issues has been found. This paper showed that emotion word use can add another layer to existing methods by using lexical analysis to deepen our understanding of how language differences between patients and healthy individuals reflect the experiences of people with schizophrenia. Consequently, the very complex diagnosis of schizophrenia could be made more accessible. While emotion word use might not be a suitable lexical category to identify every possible symptom, it can surely be used for some manifestations in schizophrenia which have a heavy relation to language and emotion expression, as illustrated in the examples of delusions and anhedonia in the previous section. Emotion words could also be combined with other word categories, such as pronouns, for a lexical analysis which is fitting for more complex symptoms or to further distinguish between negative and positive symptoms. In the future, emotion word use could further be helpful in finding an answer to the question when exactly emotion deficits emerge. Research has not yet been able to show whether emotion impairment in schizophrenia is a consequence of the mental illness itself or whether it was priory already present. A couple of studies, like the research by Kring & Elis (2023), have looked into people with early signs of schizophrenia before the emergence, which is typically between ages 18 to 25. The early signs often include milder forms of the typical symptoms, such as hallucination or delusions. Emotion word use would be an easy way to analyze speech of people who show signs of schizophrenia to establish a kind of 'early-warning system'.

Although emotion words could inform our understanding of schizophrenia, there also appear to be limitations and difficulties to the use of emotion words, some of which I quickly want to mention. Firstly, many symptoms appear to have no clear relation to emotion word use. One example would be disorganized speech which is a typical positive symptom of schizophrenia and signals that an individual has trouble following a logical train of thought which manifests in the way they speak.

Although this symptom will clearly be visible in the language of a patient, it does not have an obvious relation to emotion word use. As a second confounding factor, the line between the different emotion categories is not always clear-cut. Some emotion words might belong to multiple categories or the interpretation depends on the speech context which makes the speech analysis more complex. Thirdly, the nature of schizophrenia itself poses problems to conducting consistent and reliable research outcomes. Depending on which phase the patient is in during the conduction of the study, the severity of symptoms can vary greatly. Also, different medications, which are primarily used to treat positive symptoms, can influence the responses of patients. Overall, this means that future research has to find solutions to some crucial limitations in emotion centered studies, such as establishing a standardized measure of emotion and consistent stimuli or even relying on the same diagnostic criteria. If researchers succeed in describing the features of language of patients with schizophrenia by focusing on emotion word use in the future, clinical personnel would gain a new and useful diagnostic tool and patients would get the chance of rapid and professional help. ■

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# How emotional is language acquisition?

## On the importance of emotion in the acquisition of the first language

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### KEYWORDS

first language acquisition  
emotion  
cooperation  
infants  
Infant Directed Speech  
lexical acquisition

### ABSTRACT

Drawing from research on children's sensitivity to emotion and on the links between language and emotion, the present research targets the question of what role emotion plays in first language acquisition. More precisely, it asks whether emotion might be a tool that is exploited during the acquisition of the linguistic system and in what ways it might be used. It is proposed that the emotion system constantly interacts with the language system since the early stages of infancy, and that the two systems influence each other while developing. Furthermore, after studies that assess how strikingly better human babies are in interacting and cooperating with their fellow humans than other primates (Warneken et al., 2006), the present review connects the first forms of interaction between caregivers and infants (and, later on, the other way round) with the model proposed by Tomasello (2008) for human cooperative reasoning. Precisely, if emotion expression and emotion recognition are among the fundamental bricks that ensure human communication, they must be present and play a role since very early on as first cues to attend and understand human interaction, and in such a fashion they accompany - and contribute to - the whole process of language acquisition.

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## 1. Introduction

There is one prominent aspect that draws a very clear line between humans and other animals and living species: the quality of their communication. Many species have developed some form of communication between members of the same species or group, but only human beings are capable of strikingly precise and creative forms of communication. They exploit the finely-tuned means of language to convey very specific messages, or express extremely punctual states, notions or ideas. Language is a technical tool, an extremely versatile collection of sign-to-meaning mappings, but humans also employ other means to better shape their communication or add hues to it. Emotion is the primary of these means, and it is mostly expressed through bodily devices such as voice (tone, sentence intonation), posture, gestures and facial expressions.

Humans are such experts in using these bodily devices that the same facial expression, for instance, is used to convey different emotions. The consequence is that on the recipient's side much attention must be paid to the facial expression itself, and all the other emotional and linguistic cues must be carefully considered

too in decoding and categorising what emotion the speaker is conveying.<sup>1</sup> As a study by Ekman and colleagues suggests (1988), people are good at masking opposite emotions under the seemingly same smile. Ekman and colleagues analyzed videotapes of subjects describing positive feelings truthfully (when they did experience them) and falsely (when they did not experience the feelings, but faked them), and found that the ‘true’ trials could be distinguished from the ‘fake’ ones by closely analysing the type of smile and the facial muscles involved in it.

Such data show how, during interactions, the ability to read emotions in others and use them to complete the message provided by the linguistic means is crucial to human communication. A model that captures the various aspects of human interaction, which terms them *norms of cooperation and cooperative reasoning*, is the one proposed by Tomasello (2008), reproduced below in Figure 1.

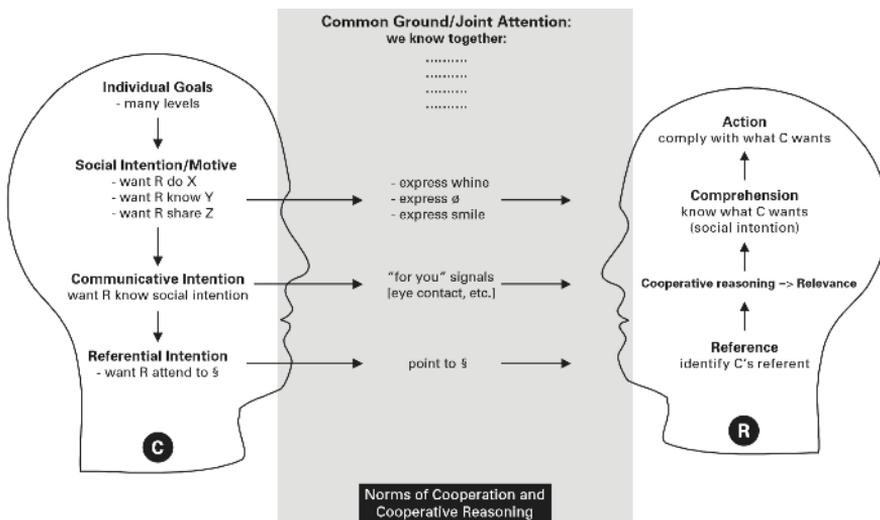


Figure 1. Norms of Cooperation and Cooperative Reasoning (Tomasello, 2008, p. 98).

In Tomasello’s model emotion is part of the common ground, and it is the means through which the communicator expresses their social intention. As it is easily noticed, the expression of a social intention and its decoding are central in the model, indicating that they are fundamental in human communication. Therefore they must have some sort of salience even at a very early stage in human development, such as infancy and childhood. Indeed, if the model faithfully accounts for the building blocks of human interaction, it does not only apply to adult interaction, but also to the ‘primitive’ forms of communication that exist between caregivers and infants. After all, it is clear that infants cooperate with caregivers and fellow humans, as soon as it is cognitively possible to them, by attending to communicative situations (and starting to decode their content).

1 Of course, emotion can also be conveyed through language alone: consider for example novels, or any written language form. For the purpose of the present paper, however, I will only refer to spoken interaction and communication.

With these premises the present paper aims to address the research question of *what role emotion plays in the acquisition of the first language*. In other words, the focus of the present research is on the degree to which human infants are sensitive to emotion, whether (and how) they decode different emotions in their caregivers' speech and how they use such cues in the process of acquiring language. The relevance of such a question is precisely in addressing one of the resources used in the process of language acquisition, and thereby in casting further light on this complex phenomenon.

Section 2 of the paper addresses the research question: Section 2.1 provides some preliminary data on the interaction between the linguistic and the emotional system, Section 2.2 focusses on children's sensitivity to emotion, and Section 2.3 dives into how individual temperament plays a role in acquisition and how human babies are especially good at cooperation. Finally, Section 3 draws the conclusion that, since emotion is tightly intertwined with language since very early on, it accompanies the acquisition process and contributes to it. The preliminary account offered is that emotions are used as cues for attending linguistic interactions and understanding them in absence of a fully developed language system.

## 2. Emotion in first language acquisition

What are the links between the emotion and the language system? To what extent are children sensitive to emotion in caregivers' speech? How important are factors such as individual temperament in the acquisition process? The present section addresses these questions and others, with the common denominator of how emotion interacts with language during acquisition.

### 2.1 Language and emotion as systems: links and influences

Language reflects emotion, that is, language provides precise means to express emotion. Therefore the common assumption is that experienced emotion affects language and the latter 'merely' shows it. But the influence can go the other way round too, so that language influences the concept we have of emotion. More precisely, language functions as a "context for the perception of emotion", as Feldman Barrett and colleagues argue (2007, p. 327), and it shapes the way we perceive emotion in others. Feldman Barrett and colleagues review a number of studies that point to the fact that language, and especially emotion words, can cause a "perceptual shift in the way that faces are seen" (p. 329). For instance, words describing anger connected to a scared facial expression might influence our judgement and make us think that what we are seeing in the face is indeed anger. In sum, the linguistic system can definitely influence the emotion system.

When considering the early stages of development of children, the question of the influence (mutually) exerted by the two systems is even more crucial. Given that the two systems are developing, together with the rest of the brain and the body, understanding if there is already an influence would cast light on how the individual developmental processes work and how 'powerful' the systems already

are. Bloom and Beckwith (1969) conducted a longitudinal study with 12 children, assessing them from 8-9 to 30 months of age, and they concluded that the two systems clearly proceed in parallel and seem to compete for cognitive resources. When children started acquiring and expressing emotion words, Bloom and Beckwith observed that they expressed an emotional state shortly after having uttered the corresponding emotion word. That leads them to hypothesise that the language system and the emotion system take up a great amount of cognitive resources, and therefore children cannot express emotion and language at the same time, as they don't have enough cognitive power yet. This is evidence of how the two systems' development proceeds in parallel, for there is no stronger, earlier developed system that requires less cognitive effort in working.

A final, remarkable piece of evidence of the existing link between language and emotion is in Infant Directed Speech (IDS). Trainor and colleagues (2000) elicited both Adult Directed Speech (ADS) and IDS, asking their participants to imagine being in emotional situations, and they found that, contrary to common assumptions, ADS and IDS do not differ much in terms of prosody when expressing the same degree of emotional content. What constitutes the main difference between the two registers is that in 'normal', non-experimental circumstances ADS does not express much emotional content, whereas IDS is characterised by the constant expression of emotion, due to the fact that prosody (hence emotion) is the only channel for the message to be conveyed to a baby. Therefore, as IDS is arguably the only (or at least the very first) type of speech that babies hear, it is clear that their first linguistic experiences are rooted in emotion-rich speech. In other words, language is immediately, and constantly, intertwined with emotion in the input that babies receive, which makes it likely for humans to conceive language and emotion as tightly connected.

## 2.2 Children's sensitivity to displayed emotion

Given the pervasiveness of emotion in the language that babies are exposed to, it is not surprising that children mostly rely on emotion for their early communication. For instance, as shown by Sorce and colleagues (1985), children facing a fake cliff together with their mother first inspect the emotion displayed by the mother, and then opt for crossing the fake cliff or not. Indeed, in the trials when the mother was instructed to display fear, the number of children crossing the cliff was significantly lower compared to when the mother was instructed to display joy or interest.

Children usually count on adults' emotional state towards a novel object or situation before developing a response to it. This is because their emotional system is still developing and they don't have a proper value system either, so it seems that their very appraisal of the stimulus has to be mediated by the reaction of the more experienced adults around. This indicates that children need to be sensitive to emotion in adults, since it is their only communicative channel until they become somewhat proficient in using language.

Indeed, the acquisition process itself seems to take emotion into great account, as both adults and children are more prone to learn new words when they are accompanied by a happy face. Clément et al. (2013) tested both adults and 3 year-old children by having avatars propose two conflicting labels for a novel object, and found that subjects were more likely to choose the label offered by the avatar displaying a happy face as opposed to an angry or neutral one. This shows how crucial emotion-reading mechanisms are for learning vocabulary, and the fact that the effect was found for children as well as for adults indicates that the said mechanisms are definitely in place since a very young age, which is consistent with the above considered data on IDS and the pervasiveness of emotion in it.

### 2.3 Temperament and cooperativity

It is by now clear that children are exposed to a language tightly intertwined with emotion, and that they are quite sensitive to emotion displayed by caregivers. But how about children's own emotion displays?

Dixon and Smith (2000) collected data from questionnaires completed by mothers of children from the age range of 7 to 21 months and for the ages of 13 and 20 months, with a focus on temperament and communicative abilities. They noticed that overall positive affectivity, defined in terms of a tendency to display positive emotionality, was positively associated with language development in both production and comprehension. Their results seemingly conflict with those suggested by Bloom and Beckwith (1969), according to whom children who spent more time in a neutral affect expression acquired more proficiency in language, and did so earlier than children who expressed emotion more often. Dixon and Smith then propose a distinction in the timing of emotion display: when it happens at the same time of language processing, and its occurrence as a general personality trait. They argue that it might indeed be the case that, as suggested by Bloom and Beckwith, the emotion system takes up as many cognitive resources as the language system does, and therefore they conflict when employed at the same time. However, an overall positive temperament might enhance the chances for the child to engage - and be engaged - in interactions with adults, and hence increase the amount of exposure to language.

Finally, evidence from behavioural tests on cooperativity conducted by Warneken and colleagues (2006) shows that human babies are much better at cooperating with fellow humans than chimpanzees. Children as young as 18-24 months are already successful in taking interest and participating in "problem-solving activities and social games" (p. 640). In addition, as an experimental manipulation, Warneken and colleagues instructed the adults involved in the activities to stop collaborating at a certain point during the trial. No chimpanzee even tried to regain the human's attention, whereas children employed a series of communicative tools to make at least one attempt at it. This marks humans as great communicators, and very sensitive ones too, in that they care for their partner's attention and keep engaging it in order to solve a cooperation puzzle.

The data on humans' unique cooperative ability pair up with the proposal by Tomasello (1988, and, more extensively, 2000) that interaction, cooperation and "joint attentional processes" (p. 83) are the key to language acquisition. That is, children need interactions that require cooperation between them and adults, which in turn requires the participants to direct joint attention towards the focus of the interaction or puzzle at hand, in order to start acquiring words and building up grammar.

### 3. Conclusion

Summing up the reviewed evidence, it seems clear that emotion is very closely related to language since early infancy and during child development: IDS, with its characteristic of always expressing emotion, is the first linguistic form children come in contact with, and the development of the emotional and the linguistic systems proceeds in parallel. Evidence that the emotion system does not precede the language system in development comes from the fact that young children always check the adults' emotional reaction to novel objects or situations before developing a response of their own to them. Therefore early human communication, pre-verbal as well as verbal, can be definitely said to always involve emotion (on the caregivers' side) and emotion-reading abilities (on the children's side).

What is even more striking in terms of language acquisition is that emotion plays a crucial role in vocabulary acquisition, as children, like adults, evaluate the facial expression and the emotion displayed by the speaker and trust speakers displaying positive emotions more. Of course vocabulary acquisition is not a bare and isolated process where an adult proposes words and the child acquires them, but, on the contrary, takes place during human interaction. Indeed, adopting the proposal by Tomasello (1988, 2000), the outlines of the acquisition picture involve cooperative interaction and joint attention between child and adult. The child's own temperament, in the form of overall positive affectivity, makes for higher chances of such interactions to happen, which are, as explained above, the very ground for communication, and hence learning, to take place.

To sum up what we considered so far, emotion seems to be an actual tool for acquisition, and a very useful one too. Not only is it the only communicative means during the pre-verbal stage of development, when abstract components such as word meanings and functions are not yet acquired, but it helps children attend human interactions and build joint attention, as well as engage in interactions in the first place. Therefore it seems very likely that, in this sense, emotion might function as a first guideline for children to attend language and hence, in time, to start building the abstract form-to-meaning mappings of language. This, of course, on the side of serving as the first 'meaning' that children can extract from linguistic communications (especially in early infancy).

A final note on suggestions for further research seems due, considering that the analysed phenomenon is a rather complex one, and that a clear and definitive

account hasn't been agreed upon yet. It would certainly be interesting to investigate how emotion keeps influencing acquisition in terms of affecting children's response to the novel and the corrective input that they receive throughout the process. It might be important to look at how the emotion conveyed in the input itself changes or shifts in intensity over time, since IDS stops being the default communication mode when children reach a certain age, and the IDS directed to a 3-4 year old child is certainly different from that directed to a newborn baby or infant. In conclusion, if we asked so far what role emotion plays in language acquisition, and we replied with considering that it has a fundamental importance in the process, the new question to address might then be: how long does emotion play such a crucial role? ■

*Find the online version of this article, including appendices, at [linguujournal.nl](http://linguujournal.nl).*

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# Visit to Berlin

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Elina interned at the Humboldt Universität in Berlin where she investigated what influence language similarity between German and Dutch has on the acquisition of Dutch gender.

“I was very happy to have a place to work where other researchers were working on similar topics. In this way, I also got a sneak peak of what it is like to work in academia”

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From November 2019 up until January 2020, I did my internship at the Humboldt Universität in Berlin. Under the supervision of Prof. Artemis Alexiadou, I did research on Dutch heritage speakers whose dominant language is German. These bilingual speakers learned both Dutch and German from an early age, but since they live in Germany, their Dutch proficiency often differs from native speakers of Dutch living in a Dutch-speaking country. I investigated what influence language similarity between German and Dutch has on the acquisition of Dutch gender in this group. After finishing my bachelor's degree in German, I also wanted to use this opportunity to intern in a German-speaking country, which is one of the reasons why I went to Berlin.

During my internship I shared an office in a building that is typical for the German Plattenbau from the German Democratic Republic (GDR). In other words, it was quite ugly and old. Nonetheless, I was very happy to have a place to work where other researchers were working on similar topics. In this way, I also got a sneak peak of what it is like to work in academia and I could ask them questions if I ran into any difficulties. Every Monday, there was a meeting from the research group. It was interesting to hear in these meetings what other researchers were doing. I also presented my own pilot study. I designed this study from scratch. This meant a lot of reading, creating items, and finding participants. The latter was difficult, since I was looking for a very specific participant group. After many emails I found some participants. Although I did not gather very much data, I got some interesting results, which I hope to explore further in my thesis.

Not only did I enjoy my internship, but the city itself was also very enjoyable. Berlin is a city with a lot of history and many contrasts. If you see a nice building, there often is a ugly building next to it. My first full day in Berlin was exactly 30 years after the fall of the wall, which was special. There was a concert at the Brandenburger Tor and commemorations were held. In addition, Berlin's history is visible all around you every day when walking through the city. There are for example several museums on the history of the Second World War or the Cold War, as well as on older periods like the antiquity. I also did a guided tour in which stories of people who tunnelled to freedom in the GDR were told and I saw an original escape tunnel. An advantage of being in Berlin in December is that there are many Christmas markets, which I loved to visit. Something that made my stay unforgettable as well were my roommates. This was not only a very nice opportunity to talk in German, but we had a lot of fun together as well. I taught them some Dutch, we went jogging and had dinner together.

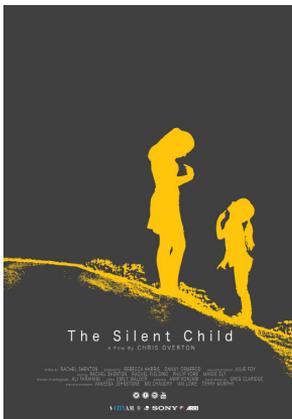
In conclusion, I really enjoyed my internship! Doing this abroad made it a special memory for me! If you doubt interning or studying abroad, I would definitely recommend it. Of course there are difficult moments during which you miss home, but it is also a special experience in which you learn more about yourself. It is important to start organizing it early, since some forms need to be filled in and you have to find a room. Once you are abroad, start doing fun things from the beginning. Time flies and before you know it, you already have to go home. ■

# The Silent Child: een emotioneel verhaal met een sterke boodschap

The Silent child: a moving story with a strong message

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## *The Silent Child*

Chris Overton en Rachel Shenton

### Aangrijpend voor iedereen

De Oscarwinnende korte film *The Silent Child* volgt een familie met, in de ogen van de ouders, twee perfecte kinderen, en één niet helemaal perfect. Dit is alleen omdat Libby niet op dezelfde manier kan communiceren als de rest van haar familie. Libby, 4 jaar oud, is namelijk doof geboren. Op het eerste gezicht lijkt het dat de familie veel moeite heeft om met haar doofheid om te gaan; bij de drukke ochtenden praat iedereen tegen elkaar terwijl Libby afgezonderd aan tafel zit en het gesprek als toeschouwer bekijkt. De pogingen van Libby's moeder om haar te leren praten mislukken, waardoor de ouders besluiten maatschappelijk werkster Joanne in te huren.

### De onderschatte waarde van gebarentaal

Wanneer Joanne Libby gebarentaal leert, gaat er een wereld van communicatie voor haar open. Waar Libby zich eerst geïsoleerd voelde en zich afzonderde van anderen, brengt deze film prachtig in beeld hoe het ontdekken van een manier om te communiceren haar tot leven brengt. Hoe meer tijd er verstrijkt, hoe meer Libby gaat gebaren. Ze begint zelfs te gebaren naar haar familie.

En dan is het de moeder van Libby, Sue, die zich geïsoleerd begint te voelen, omdat zij Libby's taal niet begrijpt en naar eigen zeggen geen tijd heeft om het

te leren. Tegen het einde van de film besluiten de ouders Joanne weg te sturen en te focussen op spraaktherapie en liplezen voor hun dochter. Het einde van de film laat je dan ook leeg en onbevredigd achter, als Libby inmiddels op school zit zonder begeleiding, volledig afgezonderd van haar leeftijdsgenoten.

### **Brengt een maatschappelijk probleem aan het licht**

De film brengt heel helder het belang van taal naar voren. Het laat duidelijk zien dat niet alleen taalbegrip heel belangrijk is, maar dat het sociale aspect -converseren- minstens net zo belangrijk is. Doordat Libby alleen maar kan begrijpen wat er wordt gezegd, maar niet kan reageren, is ze vaak een toeschouwer in plaats van een onderdeel van het gesprek. Dit heeft als gevolg dat Libby zich onbegrepen voelt en in zichzelf keert. Deze film herinnert je eraan dat taal niet slechts een systeem is; het sociale aspect moet niet onderschat worden.

Dat de producenten van deze film een passie hebben voor de dove samenleving, is duidelijk. Coproducent, schrijver én acteur in de film, Rachel Shenton (Joanne), is al jaren activist en pleit voor meer ondersteuning voor dove kinderen op school. De treurige feiten aan het einde van deze film maken deze boodschap opnieuw erg duidelijk. "Meer dan 78% van de dove kinderen gaat naar een reguliere school zonder specialistische begeleiding". De film brengt scherp in beeld hoe makkelijk het is voor dove kinderen om zich eenzaam te voelen - zelfs in hun eigen huis.

*The Silent Child* is een emotioneel verhaal over de obstakels van het niet kunnen horen; zowel voor het kind als voor de rest van de familie. De film brengt deze boodschap haarfijn over en brengt eveneens meer bewustzijn over hoe kinderen met een beperking in het algemeen worden behandeld. Libby is namelijk een normaal kind met een beperking, maar wordt door haar familie behandeld alsof ze minder waard is dan hun kinderen zónder beperking.

De film is prachtig geschoten, met vele shots uit vogelperspectief en stiltes die luider spreken dan gesproken scènes en het verdient zeker de Oscar die het gewonnen heeft.

Ik zou *The Silent Child* aanraden aan iedereen die geïnteresseerd is om te zien tegen welke obstakels je aan loopt als je doof bent of een nieuwe kijk wil krijgen op het belang van taal en communicatie.

Chris Overton, de regisseur en coproducent van deze film, studeerde aan de Sylvia Young-theaterschool in Londen en heeft vervolgens 18 jaar als acteur gewerkt. Hij is als acteur het meest bekend van zijn rol Liam McAllister in *Hollyoaks*. Echter, hij heeft altijd een passie gehad voor het werk aan de andere kant van de camera. Voor zijn debuut als regisseur koos hij voor een onderwerp waar hij en zijn vrouw een passie voor hebben; de dove samenleving.

Zijn vrouw, Rachel Shenton, studeerde Performing Arts aan Stoke-on-Trent College en werkt inmiddels al 16 jaar als actrice en is ambassadeur van de National Deaf Children's Society.

De film ontving goede kritieken en heeft 33 onderscheidingen gewonnen, waaronder de Oscar voor "*Live Action Short Film*" in 2018. ■

# The Daily Linguist

## Books, movies and documentaries

### The Silent Child (2017)

The Silent Child is a 2017 short film centering around Libby, a profoundly deaf four year old girl who lives in a world of silence. One day, fresh faced social worker Joanne turns up and teaches Libby the gift of communication, encouraging the girl to connect to the world around her. Inspired by real life events. <https://www.thesilentchildmovie.com/>

### Docu-film: Doof kind

## Media

### Blog 'De Taalpassie van Milfje'

<http://milfje.blogspot.com>

### Blog 'All Things Linguistic'

<https://allthingslinguistic.com>

### Gender Balance Assessment Tool

<https://jlsumner.shinyapps.io/syllabustool/> This is a website on which you can enter your syllabus of a course or a reference list to see the percentage of women-authored literature that has been used.

### De Het application

Are you learning the Dutch language and do you keep on struggling to find the right article? No more! The De Het application will free you of the trouble

of being tongue-tied trying to remember the right article for that particular noun. The app is quick and free and even allows you to test your article-knowledge with a quiz!

## Other

### DRONGO 2020

### Anéla/VIOT Juniorendag 2020

### The IMPRS Conference: Interdisciplinary Approaches to the Language Sciences

The IMPRS Conference is an international, three-day conference aimed at junior (RMA and PhD) researchers, organised by the International Max Planck Research School (IMPRS) for Language Sciences. It will take place from June 3-5 2020 at the Max Planck Institute for Psycholinguistics in Nijmegen, the Netherlands. In this year's edition, it will focus on two themes (Language Disorders and Memory & Learning) and explore them from multiple viewpoints, such as genetics, psychology, (neuro)biology, linguistics and computer science. Check out their website for more information: <http://imprsconference.mpi.nl/> ■

