Multimodal-Bilingual Oral Narrative Development of Zulu Children and Adults

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BY

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DECLARATION

This Thesis is my own work and all primary and secondary sources have been appropriately acknowledged. The thesis has not been submitted to any other institution as part of an academic qualification.

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ABSTRACT

Title: Multimodal-Bilingual Oral Narrative Development of Zulu Children and Adults

When children's speech abilities develop, so do their use of co-speech gestures. To test for this postulation, the study requested 55 L1 Zulu speakers to narrate what they saw from a short wordless *Tom and Jerry* cartoon. 25 of the participants performed the narrative in their L2 and 30 of the participants performed the narrative in their L1.The narration took place in the participants second language which is also their medium of instruction.

Our predictions were investigated by studying the narrative development of children belonging to two different age groups (5-to-6 years old and 9-to-10 years old); whose first language is Zulu and their second language is English. Adult groups were used as target groups. To study the effects of bilingualism we compared the current studies' data to previous research conducted on L1 Zulu narratives. The questions which the following study aimed to explore were as follows; what kind of effect will bilingualism have on story-telling and narrating? Will there be an age effect on the multimodal narratives between the 5/6 year old learners and the 9/10 year old learners? And lastly, what kind of differences and similarities occur in gesture production between the L1 Zulu speakers that narrated the story in their L2 and the L1 Zulu speakers who narrated the story in their L1?

The results showed a strong effect of age on language complexity, discourse construction and gesture for both languages, confirming that development of speech and gesture are a part of the same language process. Zulu narratives were longer and followed to the norms of orature, unlike the L2 English narratives. This confirmed that language has an influence on discourse construction. This developmental shift towards a more complex narrative, through words and gestures, as well as the effect of language is discussed in terms of the theoretical implications in the study of gesture and discourse development.

Keywords: gestures, co-speech gestures, second language acquisition, bilingualism, discourse development, Zulu children

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CHAPTER 1: Introduction

1.1 Background of Present Study

The purpose of the present study is to provide a better understanding of the development of children's speech abilities by looking at it from a multimodal perspective. This research stems from the multimodal reality of speech which states that the speaker or listener integrates auditory and visual information from linguistic, prosodic and gesture sources and combines this information into one single message (McNeill, 1992; Kendon, 1980; Goldin-Meadow, 2006).

Current research is limited to phonological, syntactic, lexical and semantic aspects, however this is now evolving and moving towards a broader scope of the interaction of different aspects of communication (Gullberg, de Bot & Volterra, 2010). Several researchers have now illustrated that gesture and speech form a tightly integrated system during language production and comprehension (McNeill, 1992, 2005; Goldin-Meadow, 2003; Kita and Özyürek, 2003).

According to McNeill (1992) and (Kendon, 2004), gesture can be defined as symbolic movements of the hands and arms that we see when people talk. The hand and the movement is symbolic because it represents thought in action. Gestures are not fixed actions but rather they reveal the idiosyncratic imagery of thought, nevertheless they coexist with speech. These symbolic movements are thus recognised by onlookers as communicatively relevant (Gullberg, 2010). Individuals not only gesture in order to aid their speech utterances to keep their listeners engrossed in what is being said nor do they gesture only provide information that doesn't occur in the speech act itself. But individuals also gesture to people who are not able to see, i.e. blind individuals, as well as gesture when they are alone such as when talking on the phone (Goldin-Meadow *et al*, 2009). Thus, the role of gesture is inseparable from the act of speech and this inseparable relationship is used in a complementary manner (McNeill, 1992; Kendon, 2004).

Research investigating this integrated multimodal language system has postulated that the acquisition of the verbal elements of languages and the acquisition of the gestural elements of language are part of the same developmental process. These investigations have illustrated to us that gesture and speech emerge at the same time, starting at the very beginning of a child's developmental stages.

As early as 10 months of age, children begin to use gestures to show interest in an object, or to draw attention to objects in their immediate environment (Bates, 1976). McNeill (1992) further

goes on to show us that at 18 months of age children begin to use referential co-speech gestures (gestures occurring with speech) in order to construct referential communication.

Adding to this, several other researchers (Colletta, 2004; Graziano; 2009; Kunene, 2010) show that the ability to use communicative gestures increases in comprehension and in production as the child grows older. Older children produce more gestures that are more diverse and specialised in order to reach the target language used by adults.

The question which we now ask, is how one investigates this postulation of an intertwined multimodal development process? This we study seeks to explore the development of linguistic behaviour by analysing verbal and non-verbal linguistic behaviour during a narrative activity.

The narrative is an extended form of discourse. It is defined (Onega and Landa, 1996) as a succession of events reported to one or more interlocutors or readers (in written text). This can be achieved through either orally being reported by a speaker or in the form of written texts by a writer (Kunene, 2010). In the field of language studies, discourse is seen as a complex form of language which individuals build from a textual level (Bruner, 1991). The current usage of language, by adults relies on their ability to comprehend and generate linguistic information (narratives and verbal explanations and reasoning; expository discourse) which they observe at the textual level (Bruner, 1991).There are two properties that are displayed by discourse; cohesion and coherence (Merritt, Culatta, & Trostle, 1998). Equally, these are two properties which define the written use of language, with the intention that an individual's later speech development is directly related to the acquisition of reading and writing abilities. However they are not equivalent in the course of dialogue which is built outside the sequencing of short speech-turns (Merritt, Culatta, & Trostle, 1998). Short speech-turns follow a certain sequence of language, however, dialogue does not follow that sequence. Thus a dialogue cannot be directly related to the acquisition of reading and writing.

Discourse abilities require the existence of cognitive and social decentering abilities, however young children take a few years to develop these abilities even when they can communicate. The ability to produce a cohesive and coherent narrative text, therefore develops in parallel to the increase in cognitive and linguistic skills of a child. This developmental process carries on until the child reaches adulthood, where the production of texts becomes increasingly more complex and typologically different. McNeill (1992) identified that texts can be organised on three different levels. The narrative level is related to the account of events, according to the

author; the meta-narrative level relates to the structure of the story during its construction, on behalf of the narrator; and the para-narrative level is related to its own personal experience, compared to the story being told and the references to the link between narrator and their interlocutor. McNeill (1992) further observed that the type of gesture that an individual may use, varies per narrative level, as illustrated in the following figure (Adapted from Kunene, 2010); narrative level, as illustrated in the following figure (Adapted from Kunene, 2010);

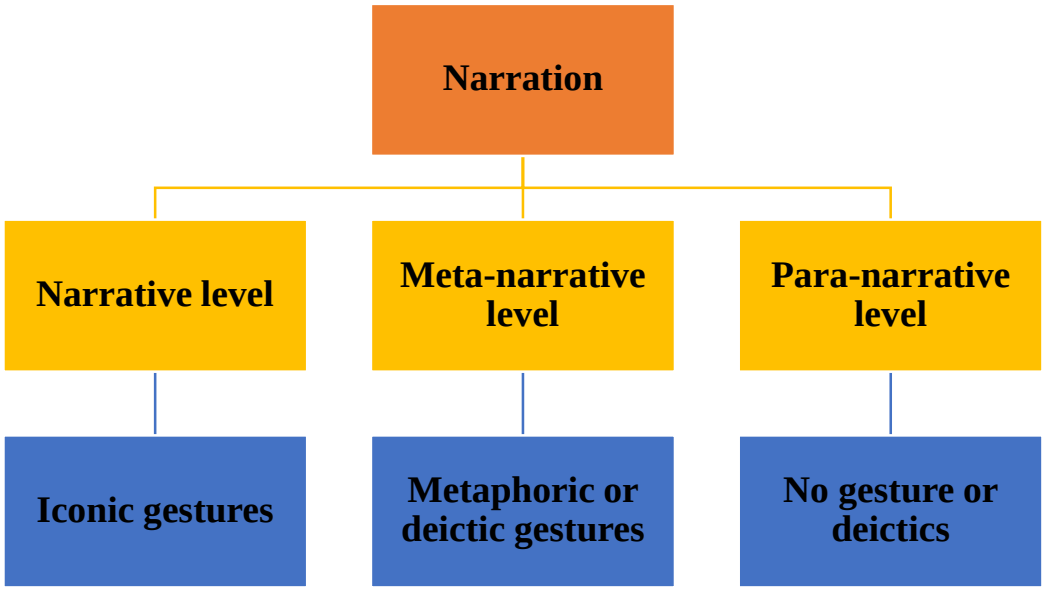

Figure 1: *The Narrative Structure and Gesture*

Gestures have the ability to change in relation to the narrative activity. This change reveals to us that gesticulation can substitute language, modulate language or make language more precise; this change does however depend on the situation. Gesture can determine the perspective and level of narration because of the role of voice which it takes. By taking on the voice-role gestures can highlight what is important in the context of discourse as well as highlight what is not important (McNeill, 1992; Kunene, 2010). Studies conducted by Colletta (2004) and Graziano (2009) show that the production and comprehension of gesture develops with age. As the child gets older, their gestures become more varied and specialised during discourse. This occurs as the child is now moving towards similar adult-like gesture usage.

Bruner (1990) proposes that the narrative plays an important role in language acquisition. One of the main challenges in producing a narrative, is the requirement to integrate different abilities. In addition to the linguistic abilities that this integration presents, it further presents more cognitive difficulty of developing the hierarchical structure which a narrative is composed of. This inability displayed by children is seen as an important factor of discourse because it allows researchers to trace the appearance of discourse as well as its development in

children's speech (Colletta, Pellenq & Guidetti, 2010). Research in this area will provide insight for a better understanding of later language acquisition, literacy acquisition as well as social-cognitive development. In addition, through the investigation of narratives we can observe not only linguistic developments but also the development of the gestural system.

Previous research (Kendon, 1995, 2004; McNeill, 1992; Streek & Knapp, 1992, Leonard & Pinheiro, 1993; Bouvet, 2001, Kita & Özyürek, 2003; Özyürek *et al*,, 2008) have shown and agreed that a speaker's use of gesture is influenced by the language structure of their language. Özyürek *et al* (2008) state that research on children's development of language specific and universal syntactical packaging, shows that children are sensitive to language-specific effects from an early age. Özyürek bases this on Talmy's language typology. Slobin (1996) has further gone on to say the linguistic structure of a language can influence the cognitive organisation of the speaker.

For this reason we have chosen to investigate discourse and gesture abilities displayed by bilingual individuals.

In today's day and age, bilingualism is now the rule and not the exception. Bilingualism is defined as having the ability to speak two or more languages (Harley, 2008).

Harley (2008) has pointed out, there are numerous advantages associated to studying bilingualism. Harley firstly points out that it is of practical importance to many communities. Secondly, through the investigation of bilingualism, psycholinguistics should inform us about the best way of teaching people a second language. Thirdly, it helps us answer questions such as, how do bilinguals represent the two languages? Do they have a separate lexicon for each language, or just separate entries for each word? Furthermore, how do bilinguals translate between two languages? Harley lastly points out that studying bilingualism is a useful tool for examining other cognitive processes.

As Bialystok, Craik, Green and Gollan (2009) identified, not only do some countries support bilingual populations because of cultural and linguistic diversity within its country, but moreover an increased mobility has enlarged the number of individuals who have become bilingual at all levels of society. This stands especially true in a country like South Africa, where it has eleven official languages. Some South Africans are born bilingual and some South Africans have bilingualism thrust upon them later in life, for various reasons. Circumstances leading to bilingualism are associated with different sets of social, cognitive and personal

factors which undoubtedly intervene in as well as determine any potential effects of bilingualism (Bialystok *et al.*, 2009).

1.2 The Current Study

Research conducted in the field of gesture has mainly focused on the relationship between form and meaning of gesture (Suyeon, 2009), however, not enough research has been conducted in the field of second language acquisition and gesture. Research that has been conducted for second language acquisition, has either focused on gesture as part of second language assessment (Gullberg & McCafferty, 2008) or to a lesser degree, gesture in the classroom (Goldin-Meadow and Valezo,Alibali & Klatzky, 2003).

Some researchers have shown that the study of gesture has favoured formal linguistics and views language as an innate biological gift; thus focusing on language competence and neglecting language performance or more specifically gesture (Harris, 2003; Gullberg & McCafferty, 2008). However, the last few decades have seen a shift of focus, language is not just being researched along the binary of competence and performance, but rather research has moved towards a perspective which embraces the importance of language in use. This new approach to the study of language is used to illustrate how language is contextually situated in interaction and how it also relates to the internal psychological processes (Gullberg & McCafferty, 2008).

Research on gesture has revealed a close link between language and gesture (McNeill, 1992; Kendon, 2004; Beattie, 2004) as well as studies on second language acquisition. As stated by Gullberg (2006), there are three reasons which show the importance between gesture and language acquisition. Firstly, from the work that has already been conducted in the fields of cross-cultural and cross-linguistic gestures; gestures are seen to be part of what learners are able to acquire in a target language. To further elaborate on those findings, gestures can now be studied as a developing system in their own right; for both production and comprehension of a second language. The second point brought to light is the close link which exists between gestures, language and speech. Gestures which learners' deploy whilst using a second language and the interaction which accompanies the use of gesture; can offer valuable insight into the processes of acquisition as well as into the planning and processing difficulties (Gullberg, 2006). When looking at comprehension and language, gesture also plays a potential role in the analysis and understanding of those topics.

This inseparable relationship will be the focus of the following investigation. The following research project aims to provide insight as to why the combinatory study of gesture and second language acquisition may be able to provide future researchers with data which may be used to examine the effects that multimodal narratives have in second language acquisition.

1.2.1 Something New

To substantiate the above points, we have chosen to investigate bilingualism by analysing narratives performed by L2 English speakers whose L1 is Zulu and their medium of instruction is their L2. The Bantu language, Zulu, is one of the languages that fall under the great Niger-Congo family. Like all Bantu languages, Zulu is a tonal agglutinating language which is a verb-framed language (Kunene, 2010). This characteristic serves as a difference in comparison to English which is a satellite-framed language using Talmy`s typology.

Leornard Talmy`s (1985) typology is based on the linguistic encoding of events. The typology states that there is a two-way split tendency of all languages, in terms of how a 'motion' event and 'path' and 'manner' are packaged linguistically. This is seen as a two-way split tendency as not all languages are one or the other, some languages mix the two (Talmy, 1985, 1991; Hickmann, 2003; Özçaliskan & Slobin, 1991; Slobin, 2006). The motion event is when something moves from one point to another, the path is its trajectory in space and the manner is how the motion happens when it moves.

The distinction between languages which Talmy observed, points out that in some languages motion verbs can incorporate information about the path of movement, and in other languages the path of movement is conveyed by verb 'satellites' which are prepositions and articles. Languages which use motion verbs to incorporate information about path are referred to as 'verb-framed' languages and languages that convey path of movement by verbs are referred to as 'satellite-framed' languages. Talmy further goes on to suggest that languages differ in whether verbs of motion incorporate manner of motion or whether the manner of motion must be expressed by another grammatical construction such as adverbial phrases (Talmy, 1985, 1991; Kunene, 2010).

Research based on the linguistic encoding of events have revealed that the 'event' has been identified as a basic building block of language and cognition and the linguistic structure of a language is able to influence the cognitive organisation of a speaker (Talmy, 2000).

This study investigates the effect that this typological difference has on the performance of a narrative, as well as the gestural production during the narrative. We seek to explore whether there will be a difference in performance due to the effect of language.

When investigating bilingualism, majority of research was conducted on either comparing European and-or American languages against each other, gestures and foreign language teaching or studies were conducted where bilinguals were being compared to monolinguals. Additionally, previous and current bilingual research places focus on analysing the errors which may occur due the effects of bilingualism. The present study moves away from those regularly researched topics and rather places focus on 1) the effects of bilingualism within a South African context, thus we compare bilingual individuals to bilingual individuals who perform the same task just in their different languages; and 2) the effect that South African bilingualism might or might not have on the developmental process on language and gesture.

A country like South Africa, enriched with so many languages, has many challenges to face. Bilingualism carries many assumptions, as pointed out by Bialystok *et al.* (2009). There are expectations for education, values around literacy, standards for language proficiency, the purpose for which one or both of the languages are used, the level of community support for the home language, and the identity of the individual as a member of a majority or minority culture. There is no single outcome and definitely no definitive consequence that follows from incorporating more than one language in an individual's daily life. However, the consequences of bilingualism affect educational policy, social organisation and conceptions of mind.

1.2.2 Basic Education in South Africa

Language has always been an issue in South African education. It stems from the drive for education to be taught in a learner's mother-tongue to the ever-pressing need to be able to use international languages, i.e. English. Education is based on the South African Education policy of 1997. This policy states that; both societal and individual multilingualism are the global norm today (education.gov.za, 2012). It further assumes that the learning of more than one language should be a general practice and principal in society. The policy was set in place to counter disadvantages which resulted from different kinds of mismatches between home language and languages of learning and teaching (education.gov.za, 2012).

From the third grade (the third/last foundation phase grade, average age 9.5 years) it is compulsory for every learner to learn not only the language which they are being taught in but

also an additional language; referred to as the first additional language (FAL). This was set in place to encourage multilingualism, it however does raise the question of the effect it has on the language development of the child.

What makes the proposed study more appealing to language researchers is the continuous issue that parents want their children to be educated in English instead of their home language. Possible reasons for this could be seen as follows;

- Parents feel it is in the child's best interest to be educated in an international language such as English, because it will ensure a successful financial and social future for the child (education.gov.za, 2012).

- Parents believe that the job market demands knowledge of English and even though Tertiary institutions have incorporated an African language as part of their medium of instruction, majority of the facilitation is performed in English (education.gov.za, 2012)

- Schools may not have the resources, infrastructure or motivation to accommodate more than one language as the teaching medium (education.gov.za, 2012)

From the above points it can be noted that the usage of the child's home language (when referring to an African language), seems to slowly fade away because parents are encouraging the use of English as the primary means for communication. The question that we can now ask ourselves is, what effect this on-going language-battle has on our children. To answer this question we look at whether or not the child's first language has an influence on the child's second language. This stands for motivation as to what the effect of bilingualism has on the language development of the child. Will the child be more comfortable narrating in their second language if their second language seems to be the teaching medium and their medium of communication? To answer this we will compare our L2 English narratives to narratives performed and already investigated in a comprehensive study conducted on Zulu L1 narratives (Kunene, 2010).

On commencement of our study, we posited that narratives which were performed in the participants L2 would be shorter that than the narratives performed in the participants L1. Confirmation of this hypothesis will illustrate to us that bilingualism does have an effect on story-telling.

1.3 Rationale and Predictions

1.3.1 Rationale

The study of gesture has generated a wide interest in the field of psychology, linguistics and communication-related fields (Suyeon, 2009). It has been proposed by Kendon (2004) that gesture research has contributed towards answering the many questions that lie ahead as to why human beings gesture when they talk.

The questions which the following study aims to explore are as follows:

1. What kind of effect will bilingualism have on story-telling and narrating; with regards to accuracy, sequence of events and referents?

2. Will there be an age effect on the multimodal narratives between the 5/6 year old learners and the 9/10 year old learners?

3. To what extent can co-speech gestures be used in the oral narrative to inform us on how bilinguals store short term information?

4. What kind of differences and similarities occur in gesture production between the L2 English participants and the L1 Zulu participants?

1.3.2 Predictions

Prediction 1: We predict that, irrespective of language, age has an impact on the narrative content produced. There will be less information in terms of the narrative content from the 5-6 year old age group when recounting the narrative compared to the 9-10 year old age group.

Prediction 2: Due to language difference, we predict that there will be a difference in narrative performance in terms of oral narrative schema of the narrative. We predict this due to the difference in story-telling structures between English and Zulu.

Prediction 3: If L2 speakers produce similar co-speech gesture results in comparison to the L1 speakers then we predict that these bilingual speakers use a shared representation of their co-speech gestures.

Prediction 4: We also predict that, L2 participants will produce more gestures to compensate for language, as they will be narrating in their second language.

1.4 Study Outline

All of the above mentioned points will be explored as follows;

Chapter 1: Introduction

As seen, this chapter will introduce the research topic at hand as well the rationale of this study.

Chapter 2: Literature Review

This chapter will consist of a literature review, pertinent to this study, of various authors who have conducted research in the field of second language research and multimodality.

Chapter 3: Methodology

The methodology applied in this study will be explained under this chapter

Chapter 4: Findings

This chapter comprises of a quantitative analysis of the data gathered as well as the findings from the analysis

Chapter 5: Qualitative study

Chapter 5 presents a qualitative analysis of some findings evoked in the previous chapter

Chapter 6: Discussion and Conclusion

Here we will provide conclusions made about the current investigation, followed by a discussion on the topic of multimodal development in bilingualism.

In addition to the above stated chapters, appendices consisting of the experimental protocol, coding manual, consent forms, participant information sheets as well as ethics clearance certificates have been attached. A list of references which aided in my theoretical scaffolding will also be provided.

CHAPTER 2: Literature Review

2.1 Introduction

The current study investigates how discourse develops in second language (L2) acquisition from a multimodal perspective (verbal and non-verbal modalities). In order to investigate the development of discourse, we investigate how first language (L1) Zulu speakers narrate a wordless cartoon in their L2 which is English. To further our understanding of this development, we review various theories associated to second language acquisition in conjunction with theories of co-speech gestures. The theories and principles we look at, provide us with the necessary framework to understand what second language acquisition involves. Many theories and principles on second language acquisition have been proposed to us over the past few decades. These theories help us, not only to understand but also aid us in, conducting research in the field, replicate previous research methods for different contexts and aid us in making informed decisions on second language acquisition theories and research. However, due to the vast amount of theories associated with second language acquisition, we only delve into three main topics, bilingualism, bilingualism and memory and co-speech gestures.

2.2 Bilingualism

During the process of investigating bilingualism, it became apparent there is no agreed-upon definition regarding bilingualism among researchers. The definition of what a bilingual is or what bilingualism consists of ranges from either being too limiting or too broad of a definition.

In Butler and Hakuta (2005), the authors found 2 definitions from Bloomfield (1993) and Haugen (1953). Bloomfield (1993: 56) defines a bilingual as an individual who has "native-like control of two languages" but on the other hand Haugen (1953) defines a bilingual as an individual who is fluent in one language but who can only produce complete meaningful utterances in the other language. Bloomfield's definition does however pose a problem as it limits the number of individuals who canbe classified as a bilingual. Thus more researchers prefer a broader definition. The definition provided by Haugen allows researchers to classify even early-stage L2 learners as bilinguals as well as include bilingual individuals whose proficiency levels in both languages vary.

For the purpose of the study at hand, we have opted for the broader definition of bilingualism. The advantage of adopting this notion is that this broader definition incorporates the

developmental process of second language acquisition into the scope of bilingualism (Hakuta, 1986). Thus we use the definition proposed by Butler and Hakuta (2005) that a bilingual may be defined as an "individuals or groups of people who obtain communicative skills, with various degrees of proficiency, in oral and/ or written forms, in order to interact with speakers of one or more language in a given society" .

Furthering this definition of bilingualism, the process of becoming bilingual can either fall under simultaneous or sequential bilingualism. Simultaneous bilingualism occurs when the individual acquires their first and second language at the same time. Sequential bilingualism on the other hand refers to bilingualism which occurs when the individual acquires a second language after already acquiring a native language. Sequential-bilingual individuals may also be classified into early and late bilinguals, depending on the age and exposure to the language(s). When the child acquires their first language first and then acquires their L2 relatively early in their childhood, researchers have classified this as early-sequential-bilingualism. Late-sequential bilingualism occurs when the individual's second language is learnt later in their lives, generally from adolescents or adulthood (Harley, 2008; Carroll, 2008).

Sequential bilingualism is also referred to as second language acquisition. The participants chosen for the study at hand have already acquired their first language and are now in the process of learning their second language. Thus to study the development of discourse in bilinguals, the age groups chosen range from early-sequential bilinguals to late-sequential bilinguals. Through the investigation of sequential bilingualism, we are able to identify the impact and various effects of this category of bilingualism.

Additionally, Bialystok *et al.* (2009) point out to us that, across the major linguistic features such as sounds, words and grammar, bilingual and monolingual children follow a similar timetable for milestones that largely reflect cognitive ability. However, the linguistic competence that the children are acquiring develops differently. This difference occurs in bilingual children due to their knowledge having to be divided between their two languages. Thus Bialystok *et al.* (2009) state that the understanding of bilingual language ability and the bilingual mind more broadly requires understanding the interfaces of the linguistic and cognitive systems of bilingual individuals. The studies discussed by Bialystok and colleagues investigates this interface by comparing bilingual individuals to monolingual individuals. One of the main findings was the different levels of performance that bilingual and monolingual children performed. They showed that there is compelling evidence, that on average, bilingual

children know significantly fewer words in each language than comparable monolingual children (Bialystok *et al.*, 2009). They further point out and discuss various other studies investigating the same topics of interest regarding bilingualism.

Hence the current study differs. Our study does not compare bilingual speakers to monolingual speakers, but rather bilingual speakers who perform in their second language, English, and these results are compared to bilingual speakers who perform the same task in their first language, Zulu.

As a result the current study chooses to investigate the effect bilingualism will have on story-telling and narrating; with regards to accuracy, sequence of events and referents, and whether or not there will there be an age effect on the multimodal narratives between the 5/6 year old learners and the 9/10 year old learners. Furthermore this study has chosen to investigate the kind of differences and similarities that occur in gesture production between the L2 English participants and the L1 Zulu participants.

In order to understand the linguistic and cognitive interfaces that bilinguals possess and use, we explore the development of discourse starting with a 5 to 6 year old age groups. We then ask ourselves, having acquired a first language, what stages does the individual actually go through to acquire a second language?

Saville-Troike (2006) proposes three stages of SLA;

1) The initial state
2) The intermediate state
3) Final state

The initial state is characterised by the combinative use of L1 knowledge, world knowledge and skills of interaction. These skills and knowledge can either interfere or assist with the development of L2. The general agreement amongst linguists is that the individuals' prior L1 knowledge provides the individual with a big component and advantage during the process of L2 learning. This is seen as a transference of L1 knowledge to the L2 during the L2 development. However, there are researchers (McLaughlin, 1984) who do not favour the transfer hypothesis. McLaughlin claims that the transference of L1 to the L2 language cannot occur unless the child is isolated from his/her peers in the target language. To further substantiate this point McLaughlin also asserts that the same processes are involved in all language acquisition, "there is a unity of process that characterizes all language acquisition,

whether of a first or second language, at all ages" (cited from Carroll, 2008; McLaughlin 1984:220).

The intermediate state is characterised by the varying contexts that the L1 can be transferred into the L2. This transference is either seen as an interference which can have a negative impact of the L2 development; or the transference is seen as a positive characteristic where it aids in the L2 development. Saville-Troike (2006) defines this state as the first stage of where an L2 learner begins to express themselves in the L2 during the developmental process until the development of the L2 ends. Lastly, the final state in second language acquisition is seen as a continuation of the intermediate state, to native-like competence in L2which, depending on the individual, may not always be achieved. In order to study the development of discourse in L2, the age-groups chosen from the study are in the beginning and intermediate stages of bilingual language development. The third group of the study at hand, the adult group, can be seen as the group in who are in their final state, thus we use this group as a target as well as a control group to allow us to measure the proficiency the children will attain as they grow older.

2.3 Discourse

As previously mentioned, in the field of language studies, Bruner (1991, 1990) defines discourse as a complex form of language which individuals build from a textual level. Bruner further goes on to say that adults rely on their ability to comprehend and generate linguistic information, such as narratives and verbal explanations and reasoning, which they observe at the textual level. Thus Bruner proposes that the narrative plays an important role in language acquisition. Due to the narrative being seen as an extended form of discourse (Bruner, 1990)

Most literature investigating child language development, looks at children from birth to 5 years of age. Studies that investigate children older than 5 years of age aim to study the development of children's literacy skills, more specifically written discourse (Kunene, 2010).

We present a study which seeks to explore the development of this linguistic behaviour by analysing linguistic behaviour during a narrative activity from 5 years of age till adulthood.

In order to be competent in the discourse it is required that the individual possess the knowledge of the structural syntactic and semantic properties of the language at the sentential level, as well as the knowledge of the pragmatic properties of well-formed discourse (Hickmann, 2003). It is for this reason we have chosen to investigate the development of the linguistic stratagem of discourse, i.e. the narrative. However, the term discourse has a variety of different meanings

of which it is associated to. These meanings can range from discourse referring to any form of 'language in use' to a naturally occurring language (Brown & Yule, 1983). For many linguists, discourse can be defined as anything "beyond the sentence" (Schiffrin, Tannen & Hamilton, 2001). Another definition provided by Burr (1995: 48) states that discourse may be seen as;

"asset of meanings, metaphors, representations, images, stories, statements and so on that in some way together produce a particular version of events…surrounding any one object, event, person, etc., there may be a variety of different discourses, each with a different story to tell about a world, a different way of representing it to the world"

Stemming from these various definitions, it can be seen that the underlying meaning of discourse refers to language that is organized according to the various patterns that people's utterances follow, depending on their social context (Jorgensen & Phillips, 2002). For the purpose of this research study, focus will be placed on spoken discourse but more specifically oral narratives.

2.3.1 Oral Narratives

As argued by Bruner (1991), humans organise their experiences and memory of events or situations in the form of narratives. Thus it can be seen that the role of the narrative forms a crucial part of our communication system (Kunene, 2010). From a cultural aspect; through narratives, children are able to broaden their thinking by experiencing how different cultures understand and resolve conflict (Meritt, Cullatta & Trostle, 1998). Previous empirical research has pointed out four chief reasons for the importance of studying oral narratives; 1) classroom instructions is a form of connected discourse, thus narrative skills are crucial in literacy (Adler, 2012), 2) in speech therapy, for the diagnosis of speech disorders and the identification of potential learners with language reading problems, narratives are used as a diagnostic tool (Norbury & Bishop, 2003; McCabe & Rollins, 1994), 3) other researchers have found evidence that associates narratives to conceptual and cognitive development (Hickmann, 2003; Berman & Slobin, 1994; Bruner, 1991; Vygotsky, 1962). Lastly, and more applicable to the current study, 4) narratives are useful to observe the development of language skills. In addition to the linguistic difficulties that an individual might face, narrating a story requires an integration of several components. As a result, narratives are seen as more cognitively challenging. The act of narrating a story requires an individual to provide a hierarchical-sequential structure. Attention to the pragmatics is an important component of meaning and further contributes to the acquisition of language resources (Berman, 2008). Research in this area provides insight

for a better understanding of later language acquisition, literacy acquisition as well as on social-cognitive development.

Narratives can be seen as a dominant form of extended discourse. As children grow older, so does their narrative complexity (Bamberg, 1985; Berman & Slobin, 1994; Hickman, 2003; Colletta, 2004; Kunene, 2010).

The three main challenges children are faced with as they develop their narrative skills are seen as follows (Carmiol and Sparks, 2014);

i) They must learn to produce structured units of extended discourse,
ii) They need to learn that the audience may know little or nothing about the events being told, and lastly,
iii) Children need to consider the possibility that the listener may interpret the story events differently than they might interpret them.

Before the age of 10 years a child has not yet developed the entire-complexity of discourse. This is demonstrated in previous narrative studies (McNeill, 1992; Berman & Slobin, 1994; Colletta, 2010; Kunene, 2010). As cited in Kunene (2010) Fayol (2000) explains that from a cognitive perspective, understanding a narrative is to construct a mental model of a situation; a causal chain of events that link different actions to the goals of characters. This is further substantiated by a study conducted by Colletta (2004) that showed that children organise their narratives in scripts until the age of 9 to 10 years.

Children younger than 5 years, for instance, rarely produce causal chain sequences; but rather they produce script-like stories. These script-like stories are short prototypical action sequences. These sequences are the ones children would spontaneously act in free-play (mummy feeding baby; teacher teaching child; doctor nurse patient etc.) (Colletta, Guidetti and Pellenq, 2010)

The inability to produce causal chain sequences as displayed by children, is seen as an important factor of discourse because it allows researchers to trace the appearance of discourse as well as the development in children's speech (Colletta, Pellenq & Guidetti, 2010). The current study therefore aims to provide insight as to how the discourse of a bilingual individual develops.

2.4 Gesture

Stories or narrations are not just a succession of events or episodes that occur one after the other, but rather they are structured on multiple levels with subtle shifts of time and space, distance between narrator and narrated as well as an integration of the sequential with the non-sequential. This is seen as the most fundamental dimensions which gesture tracks. No two gestures can be seen as completely identical, from one gesture to another, the depicted imagery sometimes remains partially the same but at other times it can also partially change (McNeill, 1992). It is those changes that become the focus in aiding the listener to better understand the events and the story.

It is therefore crucial to investigate the role of gesture which includes additional clues to the narrative act or discourse act.

According to McNeill (1992), gesture can be defined as movements of the hands and arms that we see when people talk. The hand and the movement is symbolic because it represents thought in action. Gestures are not fixed actions but rather they reveal the idiosyncratic imagery of thought, nevertheless they coexist with speech.

2.4.1 Gesture in Relation to Language

Individuals not only gesture in order to aid their speech utterances to keep their listeners engrossed in what is being said nor do they gesture only provide information that doesn't occur in the speech act itself. But individuals also gesture to people who are not able to see, i.e. blind individuals, as well as performing acts of gesture when they are alone (Goldin-Meadow *et al*, 2009). Thus, the role of gesture is inseparable from the act of speech and this inseparable relationship is used in a complementary manner (McNeill, 1992; Kendon, 2004).

As cited in Gulberg and McCafferty (2008), there are various proposed theories that account for the relationship between speech and gesture; for both domains of communication and psychological aspects. The first theory proposed focuses on speech as the primary aspect and gesture as an auxiliary aspect, or; the theory regards gesture and speech as equal partners. The first option is where gesture is seen as an aid in lexical retrieval and the second option views gesture as an instrument in the process of representing and packaging pictorial or descriptive thought for verbalisation (Gullberg & McCafferty, 2008).

The second set of theories regard gesture as a fundamental aspect of an utterance. These sets of theories do however differ in focus. Some theories will focus on the interplay between

pictorial or descriptive and linguistic thinking, others will place emphasis on speech and gesture as integrated with thought and lastly some theories will place emphasis on the communicative intention behind both modalities which are used to form a coherent multimodal utterance (Gullberg & McCafferty, 2008).

Kendon (1972, 1980 and 1988) proposed to us the theory of the relationship of gesture and language. Through this theory, Kendon proposed that gesture does not follow speech, but rather speech and gesture originate from the same source. As a result of this proposition a new focus in research was born. Kendon (1980) was the first to propose the continuum hypothesis of bodily movement in relation to speech. McNeill (1992) later elaborates the different characteristics of each of these elements of the continua.

Figure 2: Kendon's Gesture Continuum

Gesticulation is the spontaneous bodily movements that always accompany speech. Pantomimes occur when the individual's hands or arms depict objects or actions but speech is not compulsory. Emblems are arbitrary or iconic conventionalised signs, which are specific to a society or a community. Speech is not compulsory with these emblems and are easily understood by the community or society. Sign languages are gestures and postures that form a complete system of linguistic communication. Research conducted by Kendon, showed that gesture in conjunction with speech utterances have an integrated relationship. This integrated relationship was fundamental in the direction of future research on gesture and its role in language, as it showed that gesture and language are closely linked but are fundamentally different. McNeill (1992) then later labelled this continuum as the Kendon continuum/ gesture continuum and further elaborates the different characteristics of each of the features on the continuum (McNeill, 2012)

Inspired by Kendon's continuum, McNeill examines the relationship between gesture and speech, from a cognitive psychological perspective. McNeill (2000: 2-5) then later modified the continuum to the "four continua" as found below (adapted from Kunene, 2010);

Continuum 1: Relationship to speech			
Gesticulation Presence of speech obligatory	***Emblems*** presence of speech optional	***Pantomimes*** Absence of speech obligatory	***Sign languages*** Absence of speech obligatory

Continuum 2: Relationship to linguistic properties			
Gesticulation Linguistic properties absent	***Pantomime*** Linguistic properties absent	***Emblems*** Some linguistic properties present	***Sign Languages*** Linguistic properties present

Continuum 3: Relationship to conventions			
Gesticulation Not conventionalised ……	***Pantomime*** Not conventionalised	***Emblems*** Partly conventionalized	***Sign Languages*** Fully conventionalized

Continuum 4: Character of the semiosis			
Gesticulation Global & synthetic	***Pantomime*** Global & analytic	***Emblems*** Segmented & synthetic	***Sign Languages*** Segmented & analytic

Following the four-continua, McNeill went on to classify various gesture types and these gesture types is commonly used in current gesture literature.

There are 4 gesture categories; iconic gestures, metaphoric gestures, beats and deictic gestures. Each of these gesture types are associated to a particular function which the gesture carries. An *iconic gesture* is a gesture which has a concrete, semiotic link to the meaning of speech. This specific type of gesture is used to not only reveal the image in the speaker's mind but to also express the point of view the speaker has chosen to describe. Similar to iconic gestures are *metaphoric gestures*; these gestures are illustrative and representational. However, these gestures only illustrate abstract ideas by describing forms, events and actions in space. *Beat gestures* have more to do with rhythm of speech than its meaning. These gestures are often small and occur during stressed syllables or during emphasis that occur rapidly. Individuals also use beat gestures to indicate a shift between narrative levels. Thus to show a change from the telling of the story, or talking about the story or coming out of the story, a beat gesture will be used. Last in McNeill's gesture classification are *deictic gestures.* Deictic gestures are pointing movements of a referential nature, used to indicate objects or events in the concrete world.

These gesture categories can be found throughout the performance of the narrative task. The narrative-language task which children are involved in is a key predictor of the types of gestures children produce. Through the use of the narrative task, we can identify and compare gestures related to one or more episodes across languages and age groups. This allows us to identify any developmental patterns or language patterns which may occur through gesture production.

Furthermore, co-speech gestures can help us understand issues such as the nature of representations and knowledge at a given moment in time, also referred to as language as product. These co-speech gestures can also aid us in understanding how these representations are set out in real time, as well as the changes in representations characteristic of acquisition; also referred to as language as process (Gullberg, 2010).

2.4.2 Early Co-Speech Gesture Development Research

As cited in Gullberg and McCafferty (2008), there are various proposed theories that account for the relationship between speech and gesture; for both domains of communication and psychological aspects. The first theory proposed focuses on speech as the primary aspect and gesture as an auxiliary aspect, or; the theory regards gesture and speech as equal partners. The first option is where gesture is either seen as an aid in lexical retrieval and the second option views gesture as an instrument in the process of representing and packaging pictorial or descriptive thought for verbalisation (Gullberg & McCafferty, 2008).

The second set of theories regard gesture as a fundamental aspect of an utterance. These sets of theories do however differ in focus. Some theories will focus on the interplay between pictorial or descriptive and linguistic thinking, others will place emphasis on speech and gesture as integrated with thought and lastly some theories will place emphasis on the communicative intention behind both modalities which are used to form a coherent multimodal utterance (Gullberg & McCafferty, 2008).

For the purpose of the proposed study, the theory which integrates speech and gesture will be used for analysis of the data which will be collected. In the present study, we will investigate the effect of age and language of the oral narrative from a linguistic and gestural perspective. This study will look at Zulu L1 speakers when they speak in English; their L2. There is already a comprehensive study on Zulu L1 narratives (Kunene, 2010) which will provide us with a comparative basis.

Generally Children begin to produce gestures at 10 months of age. According to Bates (1976) children begin to use their gestures to show interest in an object, or draw attention to objects that are in their immediate environment (Kunene, 2010). During the first year of the child's development, they begin to produce gestures such as; pointing their fingers, head shakes or head nods and even greeting gestures. These gestures occur, mostly, due to their imitation of their caregivers (Kunene, 2010). These 'first-year' gestures are seen to replace vocabulary. The development of co-speech gestures occur from 16-18 months of age (Capirici, Iverson, Pizzuto, 1996; Özçaliskan & Goldin-Meadow, 2006). Research in this field has shown that co-speech gestures, whether a manual or head gesture or a facial expression, which is linked to the child's speech, begin to further develop and vary as the child grows and develops (Colletta, 2004; Colletta & Pellenq, 2007; Colletta, 2009; Sekine, 2007; Graziano, 2009, Kunene, 2010).

Language acquisition literature (Bruner, 1983; Iverson *et al*, 2000) have established that deictic gestures are important for the young baby. These deictic gestures or pointing gestures are seen as precursors to the simple or initial use of vocabulary (Bruner, 1983; Iverson *et al*, 2000; Bates, 1976; Capirci, Iverson, Pizzuto, Volterra, 1996; Butcher & Goldin-Meadow, 2000; Volterra, Caselli, Capirci & Pizzuto, 2005; Özçaliskan & Goldin-Meadow, 2006). Additionally, children begin to produce iconic gestures (McNeill, 1992) which are less dependent on context and are used as word replacements (Iverson *et al*, 1994). For example this is where children can open and close their fist to represent a person leaving; substituting for the gesture which represents the hand wave of goodbye (Guidetti, 2003).

Following the acquisition of these gestures, we observe a developmental shift in a child's co-speech gesture production. The more vocabulary a child acquires the less gestures are produced (Acredelo & Goodwyn, 1985; Iverson *et al*, 1984). Gestures which were creatively produced by the baby begin to disappear and are replaced by vocabulary, while other gestures which form part of the baby's environment are further developed into co-speech gestures.

Thereafter, McNeill (1992) has stated that, between the ages of 2 to 3 years the child's iconic gestures begin to develop. For McNeill, the child will either use gesture or the child will use speech, but will not use gesture and speech at the same time. McNeill (1992; page 295-296) gives a brief summary of the development of co-speech gestures;

i) From 3 to 4 years, the illustrator gestures increase. More iconic gestures are used and beat gestures begin to appear. Children produce these gestures to justify needs or desires.

ii) From 5 to 6 years, the child narrative begins to show cohesive clues. Metaphoric gestures begin to emerge.

iii) From 7 to 12 years, the rest of the gesture types in a narrative begin to increase; more spontaneous gestures. From this point on, until the child reaches adolescents, more beat gestures, abstract deictic and metaphoric gestures begin to gradually be acquired by the child.

However, contrary to the 2 to 3 year age belief, various other researchers as cited in Kunene (2010) (Capirici *et al,* 1996; Goldin-Meadow, 2003; Guidetti, 2003) show that this claim is not valid, as children of less than 2 years begin to produce gestures at the same time as speech.

Much of the co-speech-gesture developmental research conducted places focus on the child from a few months of age, up until they reach their school going age (Allen *et al.*¸ 2007; Özçaliskan & Goldin-Meadow, 2006; Goldin-Meadow, 2003; Guidetti, 2003). Our study however, differs in this regard as it places focus on children from the school going age up until adulthood. Previous research in the later acquisition stage as researched by Colletta (2009), Graziano (2009), McNeill (1992) and Kunene (2010) observe that gesture and speech do indeed develop in parallel and confirms McNeill (1992:295) that gesture and speech are "components of a single system from the earliest periods".

2.4.3 Later Co-Speech Gesture Development Research

Co-speech gestures are seen as research tools in providing insight and understanding on a speakers 'unspoken thoughts' (Goldin-Meadow, 1999).

Previous research conducted on the relationship between gesture and narratives was studied to examine gesture performance in isolation. This research was performed to examine how the narrative affected gesture. However, co-speech gesture research now examines how gesture affects the narrative (McNeill, 1992).

McNeill (1992) proposed that gesture reflects the discourse functions of the sentence it occurs with. Thus, we can use gesture to study discourse. Through the analysis of co-speech gestures we are able to study the discourse structure of a speaker during their narrative because gesture expresses what is not necessarily in the speaker's speech.

Gullberg (2006a) has proposed one of the most crucial reasons for studying gestures in a second language context. She states that, from the gestures which second language users perform, it

makes it possible for researchers to understand how second language (L2) learners solve problems which are related to language and discourse. Furthermore, these gestures also help researchers to understand how the L2 learners acquire their target language in social and cognitive situations. In addition to this, Gullberg emphasizes that L2 learners utilise gestures to compensate for their lack of linguistic knowledge and to promote knowledge among native and non-native speakers (Suyeon, 2009). The role of gesture as a compensation is termed by Gullberg (2006a) as a communicative strategy.

Gullberg's collaborators have focused their research on children's multimodal language behaviour which is assumed to accompany the narration of events. The methodology places emphasis on language activity being indirectly related to narrative behaviour, instead of describing specific narrative abilities (Colletta *et al,* 2010). Furthermore, this methodology did not allow researchers to study gestures as a whole, but focus was placed on representational gestures which are relevant to the expression of motion (Colletta *et al,* 2009).

McNeill (1992) in a collection of studies that followed, a theory that centres on a speech–image dialect in the creation and production of thought was formed. Each of these modalities, i.e. speech and gesture, has its own defining characteristics. However, they both intertwine with thought in accordance with the particulars of context (Gullberg & McCafferty, 2008). Similar to Gullberg and collaborators, McNeill also analysed children's narratives from a multimodal perspective, but emphasis was placed on representational gestures solely (Colletta *et al*, 2009).

McNeill (1992) further postulates that gestures and speech are semantically and pragmatically co-expressive. The gesture that accompanies an utterance also presents the same or closely related meanings semantically and performs the same functions pragmatically. For example, iconic gestures represent utterances that depict concrete objects and events but they also fulfil a narrative function.

With regards to methodological approaches, McNeill (1992) proposes the method of story-telling or narrating. This method refers to the entire set of events that make-up conveying of a story by one person to another. The same method, is used in the study at hand. As previously stated, through the use of the narrative we are able to conduct systematic comparisons between age groups as well as between languages.

These stories or narrations are not just a succession of events or episodes that occur one after the other, but rather they are structured on multiple levels with subtle shifts of time and space,

distance between narrator and narrated as well as an integration of the sequential with the non-sequential (McNeill, 1992). This is seen as the most fundamental dimension which gesture tracks. No two gestures can be seen as completely identical, from one gesture to another, the depicted imagery sometimes remains partially the same but at other times it can also partially change (McNeill, 1992). It is those changes that become the focus in aiding the listener to better understand the events and the story.

A narrative is not just a two-dimensional plane, it does not only focus on the syntactic and the pragmatic partnership which co-exist, but rather it is a three dimensional plane which incorporates imagery as well.

In accordance with the methodology of story-telling to analyse gesture, McNeill (1992) proposed three different narrative voices which speakers employ (refer to Figure 1,page 10).

The first voice is the *Narrative Level*: this consists of references to the events from the world of the story proper (McNeill, 1992). The defining characteristic of sentences at this level is that the listener takes them to be faithful representations of world occurrences in their actual order. This temporal constraint is what determines the narrative level (McNeill, 1992). The narrative level must somehow be distinguished so that the listener will understand that the order in which the sentences on this level appear is itself part of the story. Films and cartoon narrations customarily have a story line in which events occur in a certain order and thus the narrative level is the core of the narrators concern in recounting the stimulus (McNeill, 1992). Gestures play an important role in marking sentences whose order is a simulacrum of the storyline.

Following the first voice is the *Meta-narrative Level:* the narrator makes an explicit reference to the structure of the story as he/she builds the story up (McNeill, 1992). What constitutes the meta-narrative level is the clauses presenting the story are interwoven with the narrative level. Unlike the *Narrative-Level, the Meta-narrative Level* is unconstrained by the order of events in the real or fictive world. In order for the speaker to make any reference to the meta-narrative; the speaker is required to manipulate the story as a unit and to objectify it (McNeill, 1992), and to comment on the story as an event itself.

Lastly, the *Para-narrative Level*: this is where story - tellers also make reference to their own experience of observing the film or cartoon and or to the event of story-telling itself (McNeill, 1992). The narrators step out of the official narrators' role, they speak for themselves as their own personality and their emphasis is on the relationship of narrator to listener.

These three levels are fundamental to the investigation into multimodal narratives in L2 learners because these will help examine the different voices that L2 learners utilize to narrate a story. Following these guidelines with regards to late language acquisition is another significant researcher namely Jean-Marc Colletta and collaborators. In a study on L1 oral French narratives of 122 participants, Colletta and Pellenq (2009) found that children found it difficult to summarize stories or events. Adults on the other hand summarized sufficiently, however, their narrations comprised of more complex sentences and commentary. The hypotheses which were aimed to be proven had been confirmed. Adults did produce shorter and more complex narratives, and certain gesture types used by the French participants were over-represented compared to other types (Colletta *et al*, 2009).

What should be noted from this is that the current study focused on one language plus the narratives occurred in the participant's first language. The following investigation will differ with regards to the narrator's language. The participants of the current study study will narrate their story back to the researcher in their second language and not their first language. However, the work conducted by Colletta *et al* (2009) provides this study with a comprehensive examination on narratives from a speech and gesture point of view, and allowing for comparisons to take place.

2.5 Why a comparative study of English and Zulu?

For the purpose of the proposed study, the theory which integrates speech and gesture will be used for analysis of the data which was collected. In the present study, we will investigate the effect of age and language of the oral narrative from a linguistic and gestural perspective. This study will look at Zulu L1 speakers when they speak in English; their L2. There is already a comprehensive study on Zulu L1 narratives (Kunene, 2010) which will provide us with a comparative basis.

In Kunene (2010) the aim of the study was to investigate the way children integrate the linguistic and kinetic resources in organised speech acts such as storytelling, and to observe the multimodal aspects of oral narratives from a cross-linguistic and cross-cultural point of view. This study investigated Zulu and French which are not only typologically different but also culturally different. The author of the study expected to see a production of gestural behaviour during the narrative task, if speech and gesture were tightly linked. The study also predicted that the gestural expression will be coordinated to the verbal production and lastly, Kunene (2010) predicted that the narrative activity develops with age from both the verbal and

the non-verbal dimensions. The study not only yielded results which were similar to the results of the study conducted by Colletta and collaborators (2009), but it also illustrated to us the cultural difference that occur between languages. This study provided researchers with developmental information in a language that was previously understudied.

Kunene (2010) found that adults produced shorter and more complex narratives, and certain gesture types used by the L1 Zulu participants were over-represented compared to other types. Furthermore, children found it difficult to summarize stories or events. Adults on the other hand summarized sufficiently, but their narrations comprised of more complex sentences and commentary. With regards to the relationship between age and gesture, Kunene (2010) found that when participants produced narratives in their L1 there was an effect of age; gesture production increased as the linguistic abilities became more complex. The findings produced in Kunene (2010) confirm the existing hypothesis in gesture literature that stipulates that the longer the narrative activity, the more co-speech gesture appears. We can now ask ourselves, what effect bilingualism has when the child is narrating in their first language. In order to further delve into this question we need to understand Zulu.

2.5.1 The Impact of Language Structure

Kendon (2004: 345) postulates *"there is also a possibility that structural differences in spoken languages have consequences or differences in how gesture is employed"*

Kendon (2004) investigates the relationship that occurs between gesture and language structures, to find outhow exactly an individual gestures are organised in relation to their speech phrases. Through the structural analysis of gesture and language structure, since McNeill (1992), research regarding the relationship that occurs between gesture and speech has significantly increased. Kendon's research sparks an interest in how gesture may be similarly or differently produced depending on the structure of the specific language.

Previous research (Kendon, 1995, 2004; McNeill, 1992; Streek & Knapp, 1992, Leonard & Pinheiro, 1993; Bouvet, 2001, Kita & Özyürek, 2003; Özyürek *et al*,, 2008) has shown that a speakers' use of gesture is influenced by the language structure of their home language. Özyürek *et al* (2008) state that research on children's development of language specific and universal syntactical packaging shows that children are sensitive to language-specific effects from an early age. Özyürek bases this on Talmy's language typology.

Özyürek (2008: 1040), goes further on to say that "gestures reflect a gradual shift to language-specific representations during speaking". Thus it is important to study the acquisition of co-speech gestures in speakers whose language structures differ. Studies along these lines have greatly enhanced our understanding of the syntactic packaging of MANNER and PATH in typologically different languages (Kunene, 2010). However, the authors of Özyürek *et al* (2008) only place focus on language activities which are indirectly related to pragmatic discourse productions and not the complete narrative ability that an individual is capable of.

As a result, research investigating co-speech gestures which occur during narrative tasks such as Colletta (2009), Graziano (2009), McNeill (1992) and Kunene (2010) and the current study hopes to fill the gap between oral language development and cross-linguistic variation in speech and gesture by giving a holistic perspective of multimodal narrative development.

2.5.2 Difference in the Language Typology

As stated above,on the language the individual is using, the gestures they produce might be different. For the current study we look at two different languages spoken by participants whose L2 isEnglish; a satellite framed language, to Zulu which is a verb framed language.

As cited in Kunene (2010, p24), let us consider the following examples illustrating the difference between the two languages;

a) John ran into the room (English)

In the English phrase, we note that one verb 'ran' which explains the manner of movement, is used with the PATH word 'into' to show what direction the agent is doing and the manner of how they are doing it.

In Zulu the same sentence would be:

b) uJohn **ungene** ekameleni **agijima.**

"John enters the room, running."

On the other hand, we notice the number of verbs used in the Zulu example is more than that which is required in the English example.

2.5.3 Difference in Story-Telling

Not only is there a difference in the typology of English and Zulu, but there is also a difference in the way in which a story is told in English and Zulu. Story telling plays a very important role amongst Zulu speakers, and this oral tradition is still present in Zulu culture (Kunene, 2010). Children hear tales from their care-givers before going to bed as well as any time during the day. Orature is a complex system of the Zulu and Bantu cultures whose effects are felt in the current educative system of South Africa. As cited from Kunene (2010) Ramaila (2005;2:11) gives an account of how children come into orature;

> *"Regarding indigenous education however, they would argue that children received long term wisdom through dramatized, narrated and sung folklore from early stages of their development. Methods of teaching included amongst others, modelling, rituals and storytelling. The subject matter incorporated the occupational, the religious and the environmental factors. Thus indigenous education may be seen as non-depreciating or durable, partly because of combining the sacred and secular factors."*

Furthermore, when children begin formal education in South Africa, beginning as early as foundation phase, children are taught the more Labovian structure (Labov and Waletsky, 1967) of story-telling. The socio-linguist William Labov put forward a six-part structure for oral-narratives. This was based on his extensive fieldwork in New York, analysing oral-accounts of narrative events. The Labovian structure of story-telling differs from orature, as it follows set categories when telling a story.

The Labovian structure begins with the *abstract* of the story, which indicates that a narrative is about to start and the speaker wants the listeners attention. This is then followed by the *orientation* of the story which indicates the who, the what, the when and the why of the story. The orientation provides the scene and provides further contextual information. Following the orientation of the story is the *complicating action*, providing a range of narrative detail. The *resolution* of the narrative provides the listener(s) with what finally happened, the rounding off of events to give the narrative closure. The narrator also provides additions to the basic story and this is seen as the *evaluation* category. The evaluation includes the highlighting of attitudes or it commands the listener(s) attention at important moments. Finally, the narrative ends with the *coda*, this might include a return to the initial time frame of the narrative.

When Zulu speakers produce a narrative, their perception of a narrative differs. Instead of following the Labovian structure of story-telling, Zulu speakers use their cultural skills to deliver a narrative with little digression into the commentary, explanation or interpretation mode (i.e. coda) as possible. This was seem in the comparative study conducted in Kunene (2010) between French and Zulu speakers. However, the current study investigates whether or not the same effect of orature occurs when the participants are of the same cultural group but are performing the narration in two different languages.

These reasons stand for motivation as to why it is important to study the effect of bilingualism has on the language development of the child. Will the child be more comfortable narrating in their second language if their second language seems to be the teaching medium and their medium of communication? This study investigates how the difference in language structure would impact the multimodal development of a speaker when their L1 is Zulu and their L2 is English. Would there be a difference in the number of gestures performed or would the development be similar?

2.6 Summary

In this chapter we have discussed language acquisition, bilingualism and co-speech gestures. We have highlighted points on both L1 and L2 acquisition from both a theoretical and South African perspective. We then further highlighted the topic of discourse and how co-speech gestures occur with discourse. These topics discussed provided light into the current study at hand and why we have chosen to investigate the development of discourse in L2 learners from a multimodal perspective. The section to follow will discuss the methodology used to conduct the current study.

CHAPTER 3: Methodology

3.1 Introduction

The aim of this study is to investigate the development of discourse from a multimodal perspective, and so we have chosen these three age groups (refer to Table 1 below) to help trace the development. The methodology used in this study is adapted from the study of Colletta *et al.* (2009; 2010), Kunene (2010) and originally used by McNeill (1992). The story-telling method refers to the entire set of events that make up conveying of a story from one person to another. Furthermore, this study can be seen as an experimental study because the investigator will be using a language production elicitation task in order to investigate the impact that bilingualism has on the language development of the target groups of learners.

The method chosen for the present study consists of showing a short wordless animated cartoon to the participants and they in turn retell the story to an interviewer. The chosen methodology has been well documented by previous researchers and enables us to not only substantiate findings but also conduct comparative studies; in this case we compare L2 English narratives to L1 Zulu narratives.

As stated by Mittelberg (2007), there are various merits associated to using this story-telling method for data-collection. Firstly, this method can be used to investigate speakers of different languages, different age groups and even investigate speakers with certain language impairments. Secondly, this method provides a common denominator due to the cartoon-imagery, semantic content, sequence of events and more importantly narrative structure. Thirdly, in terms of gesture production, by using the story-telling method, researchers would be able to identify any gesture patterns which might occur within and across different interpretations of a single scene from the cartoon. And lastly, when researchers are comparing two languages, this specific method allows researchers to recognize trends in the distribution of semantic features across modalities.

We can therefore state that the current research project is seen as using a quasi-experimental research methodology because we are controlling environmental factors such as the participants constituting our data-set as well as the physical setting in which the data-collection is taking place (Mittelberg, 2007). This study consists of 2 data-sets; a L2 English data-set and a L1 Zulu data-set. In the sections to follow we will first explain the L2 English data-set followed by L1 Zulu data-set explanation.

3.2 Participants

For this study, the selection of participants consists of two parts; for the initial selection of participants, literacy teachers, for both grades chosen for this study, will be asked for an overview of their classes Term 1-literacy marks. Children who obtained an average mark for their first term mark will be given the option of participating in the study.

3.2.1 Pre-Selection of Participants

Assessing a learner's oral proficiency, specifically for a second language, remains a problem mainly because it is dependent on what one's theory of communicative competence and language is (Stam, 2006). Furthermore, most narrative testing-tools are adapted for international languages and are not always well adapted to testing South African languages. It has been proposed that one of the most popular means for assessing a learner's oral proficiency has been to conduct an oral proficiency interview (Stam, 2006; Hendricks *et al.*, 1980; Ross & Berwick, 1992). Previous researchers rated these oral proficiency interviews using proficiency guidelines from either the Foreign Service Institute or the American Council on the Teaching of Foreign Languages (Stam, 2006). Customarily, the interview is audio-taped for later inter-reliability testing and consists of a face-to-face interview between interviewer and chosen participant.

The oral proficiency test not only aids in testing the proficiency of the participant, but is also used as a means to familiarize the participant with the interviewer. Becoming familiar with the participants, especially younger children, is an important aspect during field work. As stated by Ruth Barley and Caroline Bath:

"this can be particularly important when doing research with young children as the inclusion of a familiarization period in conjunction with an overall reflexive approach can give the child control of the research context and their ability to actively consent to take part or not."
(2014: 182)

Not only did the researchers conduct the oral-proficiency interview but they also interacted with the chosen age groups during school breaks and when introducing themselves to the various classes and teachers, in order to create familiarization with the young children.

Following the oral proficiency interview, the interviewer then rated the participant's pronunciation, grammar, vocabulary, fluency and comprehension and was rated as follows;

Grammar	1	2	3	4	5	6
Vocabulary	1	2	3	4	5	6
Fluency	1	2	3	4	5	6
Comprehension	1	2	3	4	5	6

The highest the participant could score under each category was 6 points and the highest total points a participant could yield was 24 points. The lowest a participant could score under each category was 1 point and the lowest total a participant could yield was 4 points. However, for the purpose of this task, if the participant yielded a score of less than 12 points in total, then the participant was excluded from the data set. Subsequently the participant was then assigned a level of proficiency and selected as a possible candidate or not (refer to Appendix A for examples of an interview).

3.2.2 Participants for Study 1: L2 English Participants

The participants chosen for this study consisted of 30 participants; 20 school learners and 10 young-adults. These participants use English as their medium of instruction at school.

This investigation was conducted at a public school in the Kwa-Zulu-Natal region where the schools primary medium of instruction is in English. We chose to collect our data in Kwa-Zulu-Natal where most speakers were certain to be L1 speakers of Zulu. In addition, for us to keep the research conditions similar to the L1 study (used for the comparative study) we chose Kwa-Zulu-Natal to collect our data.

These school learners had to have achieved an average of between 50% - 65% in English literacy at the end of their first school term. Once these learners were identified, using their teacher's mark-sheets, the researchers conducted the oral-proficiency test to test for L2 proficiency. The young adults were randomly selected from the University of Zululand, they were chosen on the results of their oral-proficiency test. These young adults were used as the target group.

Three age groups were selected for this research project. Group 1 consisted of school learners aged between 5 to 6 years, Group 2 consisted of school learners aged between 9 to 10 years and Group 3 consisted of young adults who are at tertiary level of education. 10 participants were chosen from each age group. Under each group, these 10 participants consisted of 5 girls

and 5 boys. Thus resulting in a corpus of 30 participants. However, not all 30 of these participants were used for final analysis

	Number of Participants	Gender	Average Age in Years
Group 1: 5-6 Years	8	3 Boys 5 Girls	5.1
Group 2: 9-10 years	8	3 Boys 5 Girls	9.5
Group 3: Adults	9	4 Boys 5 Girls	23.2

Table 1: *Number of L2 English Participants*

The table provided above, shows the total number and the mean age of the participants for the English data. The final corpus of participants selected were based on various criteria; the oral-proficiency test, the quality of the video and sound, the production of a complete narrative as well as, on the averages provided within each age group. Out of the 30 participants filmed, we only analysed 25 participants.

3.2.3 Comparative Study: L1 Zulu Participants

The data used for the comparative study is taken from an already comprehensive study on L1 Zulu narratives conducted by Kunene (2010). From the Kunene (2010) study, only three age groups and 30 participants were chosen from the data-set. As divided in the L2 English study, 5 girls and 5 boys were chosen for each age group. Thus 10 participants for Group 1 (5 to 6 years), 10 participants for Group 2 (9 to 10 years) and 10 participants for Group 3 (young-adults) was selected.

For our comparative study we removed outliers from those three age groups, to even-out the number of participants needed to conduct analysis for the comparative study. Table 2 presents the totality of our corpus which was analyzed.

Age Group	Average Age in Years		English		Zulu	
	English	Zulu	Girls	Boys	Girls	Boys
Group 1	5.1	5.7	5	3	5	5
Group 2	9.5	9.5	5	3	5	5
Group 3	23.2	23.4	5	4	5	5

Table 2: *Complete Data Sample*

3.3 Procedure

As previously mentioned, before the actual data collection may begin, familiarisation with the participant needs to occur. This helps the participant to overcome any fear or shyness of the situation or of the interviewer. As used with previous research using the same methodology, an experimental protocol is provided (attached in Appendices). As stated in the above section of this chapter, we use this familiarisation time to assess the learner's level of oral proficiency as well.

Using an existing protocol to test the hypothesis which this study aims to confirm, we have chosen a cartoon extract that will be no longer than 3 minutes long; participants will have to watch the cartoon twice. Once the participant has watched the full extract, they will have to narrate the story back to the interviewer from memory. This performance is thus story telling (McNeill, 1992).

We used the same cartoon used in previous research for several reasons 1) there is an existing oral narrative database that will allow for comparative analysis 2) the cartoon provides the same stimulus to compare the L1 Zulu to the L2 English data, this helps to identify any gesture patterns which might occur within and across different interpretations of a single scene from the cartoon 3) when comparing these two languages, gesture and-or linguistic patterns may be identified. Through identification of these patterns, aspects of information management and gestural action and how these two modalities are intertwined are revealed to us (Mittelberg, 2007).

3.3.1 The Cartoon

The participants were asked to watch a 2:45 minute extract of the American wordless *Tom and Jerry*[1] cartoon extract and then narrate the story which it portrayed. The participant's narratives were video-recorded for later analysis. The cartoon starts with a mother bird leaving her egg in the nest (Figure 3a); the egg accidentally falls out of the nest (3b); and rolls into Jerry's house (3c); the egg hatches in Jerry's house (3d) and a baby woodpecker emerges; the baby bird then starts to destroy Jerry's furniture (3e) and after a few failed attempts to calm the bird down (3f) Jerry gets upset and takes the bird back to its nest (3g) (Kunene, 2010).

[1]Created by William Hanna and Joseph Barbera for Metro-Goldwyn-Mayer and Warner Bros. Barbera, Joseph (1994). *My Life in 'Toons: From Flatbush to Bedrock in Under a Century*. Atlanta, GA: Turner Publishing. pp. 76. ISBN 1-57036-042-1

3a  3b  3c  3d 

3e  3f  3g 

Figure 3: *Plotline of Tom & Jerry Cartoon*

Participants were told that the experiment was on storytelling and were not made aware of the gesture aspect of the experiment. If during the narration, the participant seemed to have difficulty in remembering the narrative, the interviewer asked certain questions such as; "and then what happened" or "what else do you remember" or the interviewer would repeat the last phrase that the participant used. These specific prompts were given in order not to provide clues to the participant and not to influence the experiment.

The story-telling method proposed by Colletta *et al.* (2009), provides the researcher with a basis to interpret the gestures without relying on the speech content itself for interpretation. This provision occurs because the cartoon extract chosen is regarded as a known stimulus. A second advantage to conducting research with a known stimulus, is that it allows the researcher to make event-by-event comparisons across speakers. The researcher will then be able to look at the same event and see how it appears in speech and gesture (McNeill, 1992).

Each interview was filmed with a camcorder. The video cameras used were *Sony HDR-CX190E* Digital HD Video Camera Recorders. The cameras were placed at certain angles to focus on capturing the participant's body from the knees to the head. The cameras built-in microphones were used to capture the speech of the speakers (interviewer and participant).

3.4 Transcription and Coding

The data transcription was performed using *ELAN* software. *ELAN* is an annotation tool used to create, edit, visualize and search annotations for video and audio data. This software was specifically designed for the analysis of language, sign language and gesture (http://www.mpi.nl/tools/, 2012). Using the annotation scheme reported in Colletta *et al.* (2009), transcription was done to annotate for speech turns, clauses, narrative clauses, macro-

units, micro-units, pragmatic acts and co-speech gesture. Each of these annotations are regarded as different tiers.

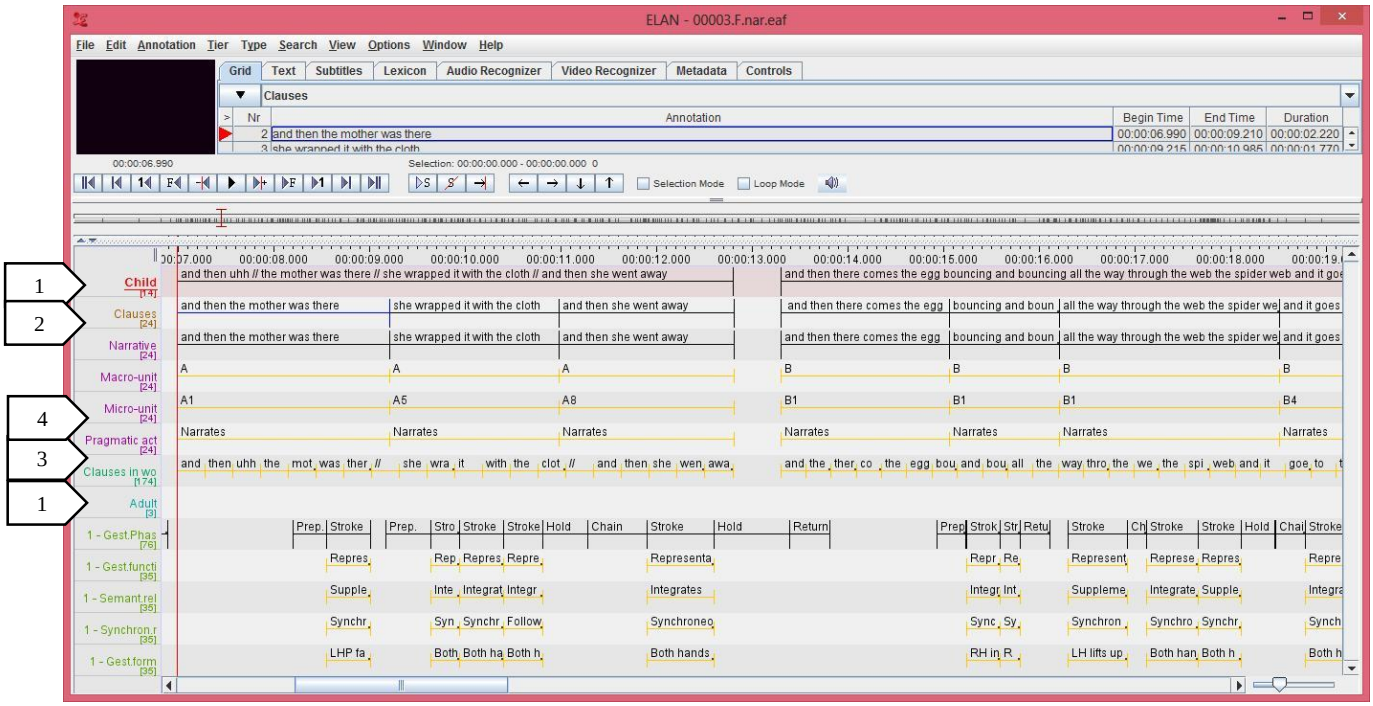

Figure 4: *ELAN Transcription and Annotation Grid*

3.4.1 Speech Coding

The speech provided by the participant was an exact replication of what the participant had said in his or her narration. The speech was then orthographically transcribed. Transcriptions included each word, pause, repetition, hesitations as well as any errors performed by the participants. Two tracks are allocated on the grid for this annotation; one track for the interviewer and one track for the child participant or the adult participant (labelled as 1 on Figure 4). The transcription is orthographical and presents the entirety of the remarks made by the speakers. This is referred to as the speech turn.

To aid in segmenting speech-turns accurately, each video file is converted into a sound wave file and imported into *ELAN*. The end of a speech turn is indicated by a flat line on the sound wave (Figure 5).

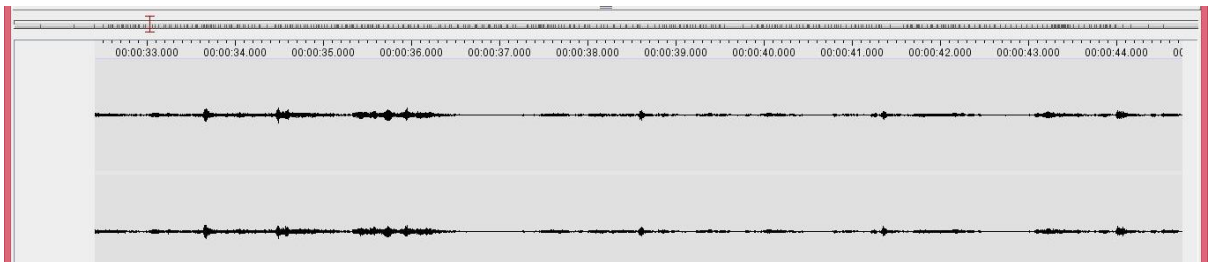

Figure 5: *Sound Wave Example*

Following this phase, we then had to classify the oral transcriptions into clauses (labelled as 2 on Figure 4). Classifying the oral transcriptions into clauses aids the researcher(s) in verifying the developmental change towards complex syntax. Clauses can be seen as the 'neatened-up' speech turn where all pauses, repetition, hesitations and errors are removed.

What poses as a challenge is the identification of what a clause is. For the purpose of this study and in line with previous research conducted using the same methodology, a clause can be defined as a continuation of words including a verb matched by its satellites as subject and complement(s) (Kunene, 2010).

The following examples from English and Zulu illustrate how we coded for a clause (Kunene, 2010:36);

a. "It was caught by the spider web".
   This was coded as a clause as it contains one verb predicate "caught" in it.

b. "Iqanda lagxhuma, lawela olwembini".
The egg jumps, it falls into the spider web.

   This was coded as having two clauses as it contains two verb predicates "gxhuma" (root for jumps) and "wa" (verb root for falls) in it.

3.4.1.1 Discourse Narrative Levels

Each clause was then categorised as expressing the part or whole of a speech act. Thus clauses were further categorised as either narrating, explaining, interpreting or commenting (Colletta, 2004) (labelled as 3 on Figure 4). This aids us in investigating how age and culture affect pragmatic discourse dimensions of the narrative activity; this is also seen in Berman & Slobin (1994) and Hickmann (2003).

a) **Narrating:** when the participants tells the even as it occurs in the cartoon.
e.g. "The bird was knitting";

b) **Explains:** when the participant includes a supplementary explanation to the narrated event such as it appears in the cartoon.
e.g. "Jerry took the baby bird back to the nest because it was naughty";

c) **Interpreting:** when the participant presents an inference or an interpretation concerning the situation or the intentions of the characters, the participants makes some sort of assumption.
e.g. "It looked at the time and realises it is time to leave";

d) **Commenting:** when the participants present information that is neither an implicit nor explicit aspect of the course of the events, but instead the participant presents a 'meta-narrative comment' that relates to a character, an action, or any aspect of the story. The participant may also present a 'para-narrative comment' which relates to the action of telling the story-judgement or personal appreciation.
e.g. "It is a crazy bird" or "I liked when the egg rolled to the house" or "It made me laugh when the bird destroyed everything".

3.4.1.2 Discourse Macro-Structural Level

Thereafter, the *Tom & Jerry* cartoon was segmented into macro-episodes as seen in Table 3 and micro-episodes (Colletta, 2004: Appendix E). The clauses which are categorised as containing narrative content is further categorised under a macro episode (labelled as 4 on Figure 4).

Episode Code	Episode Description
A	In the nest
B	From the nest to bed
C	The hatching
D	Imprinting
E	Damage
F	How to calm the baby bird
G	Back to the nest

Table 3: *List of Macro-Episodes*

These macro-episodes help us to estimate a degree of accuracy and also indicate to us what participants are able to recall from the narrative. Several clauses may be assigned to a single

macro-episode. Similarly, several clauses may also be assigned to a single micro-episode. However, on the other hand a clause may not be assigned neither a macro nor a micro-episode.

3.4.2 Annotation of the Gesture Level

In Kendon's work (1972, 1980, and 2004), a pointing gesture, a representational gesture or any other hand gesture (an excursion of the body during speech) can be defined as a gesture phrase. The gesture phrase possesses several phases; the preparation, stroke i.e. the meaningful part of the gesture phrase, the retraction or return and the repositioning for a new gesture phrase. However, some gestures are nothing but strokes; a head gesture or a facial expression; these are meaningful right from the start till the end of the movement and they have no preparatory nor any retraction phase. Our basis in identifying a gesture is; any co-speech gesture phrase or isolated gesture stroke that needs to be annotated (Colletta *et al.*, 2009).

3.4.2.1 The Phase of the Gesture

Our transcription grid allowed for the annotation of the gesture within the following parameters;

The first three phases stated below are the three main phases of the gesture as proposed by Kendon (2004, p112)

1) **The Preparatory Phase (prep):** this is the movement which precedes a hand gesture stroke. This movement takes the hand(s) from their initial position/ place of rest, to where the gesture begins. Different to hand movements, the position of head, the bust or shoulders is fixed. These movements can therefore not be 'prepared' as hand movements but are rather annotated as 'strokes'.
2) **The Stroke Phase:** this is the meaningful height of the excursion of the gesture phrase of a hand gesture, or a movement of the head, shoulders or chest. This could also be a facial expression. It is at this point that the content of the gesture lies and where the gesture and the speaker's speech is used simultaneously.
3) **The Returning Phase:** this is the movement which brings the hands back from their position at the end of a hand-gesture-stroke to a rest position. This rest position may or may not be identical to the preceding one.

   The following phases are regarded as optional phases and may or may not be performed by the individual;

4) **The Hold Phase:** this occurs when the participant maintains their hand(s) in their position at the end of their hand-gesture-stroke, before the returning phase or a chained gesture.
5) **The Chain Phase:** this is the movement which brings the hand(s) from their initial position at the end of a hand-gesture-stroke to the place where a new stroke begins, without returning to a rest position between the two strokes.

3.4.2.2 Attributing Function to Gesture

The above proposed gesture phases are accompanied by various functions. According to several researchers, as cited in Colletta *et al* (2009); Scherer (1984), McNeill (1992), Cosnier (1993), Calibris (1997) and Kendon (2004); all stand in agreement that gestures carry the following main functions: Gestures can be used as an aid in identifying (pointing gestures) or representing concrete and abstract referents. Gestures can be used to express social attitudes, mental states and emotions and that help perform speech acts and comment on own speech as well as others. Gestures are used to mark speech and discourse and lastly, gestures may help to synchronise own-behaviour with the interlocutor's in social interaction (Kendon, 2004 and Colletta *et al*, 2009).

After identifying the gesture we then attributed a function to each gesture stroke. We used the gesture coding classification devised for another study in narrative development, documented in Colletta *et al.*, (2009); Kunene, (2010). Referential gestures: gestures that "are a part of referential content of their respective utterances" (Kendon, 2004:158). Among these gesture we classified the following gestures into the annotation grid of each gesture stroke; using this coding scheme we were able to choose between the following seven gestures:

1) Deictic Gestures
2) Representational Gestures
3) Framing Gestures
4) Performative Gestures
5) Discursive Gestures
6) Interactive Gestures
7) Word Searching Gestures

Due to the nature of the narrative task, not all the gestures we coded for were expected to appear. Deictic gestures which require objects or characters to be in the immediate environment to be pointed at, were only found once from all 55 videos coded. Similarly, performative

gestures were also expected to be few as there was no requirement for speech acts to occur more in dialogue, thus there were little to no performative gestures produced in both data sets. There was little to no need for the participants to perform any speech acts such as questions, requests, acceptance, denial, etc. Thus we will provide explanations on representational, discursive, word-searching and framing gestures. Please refer to Appendix: E for a complete explanation of all 7 gesture functions.

A hand or facial gesture, associated or not to other parts of the body and which represents an object or a property of that object, a place, trajectory, an action, character or an attitude, are classified as **representational gestures** (Colletta *et al,* 2009). These gestures may also symbolise an abstract idea or concept.

Kendon (2004) defined pragmatic gestures as gestures which "may relate to features of an utterance's meaning that are not part of its referential meaning or propositional content" (Kendon, 2004:158). These pragmatic gestures are; framing, performative and discursive gestures.

Gestures with a modal function: gestures are not only manually performed; there are gestures which are emotionally performed. Emotive gestures places focus on facial expressions, and these facial expressions are classified as **framing gestures**. These gestures occur during assertive speech acts and in addition they display an emotional or mental state of the speaker (Colletta *et al,* 2009).

Pragmatic function is also found in gestures with a parsing function: a gesture which aids in structuring speech and discourse by highlighting or accentuating certain linguistic units, are classified as **discursive gestures** (Colletta *et al,* 2009). These gestures may also mark discourse cohesion by linking clauses or discourse units.

Lastly**, word searching gestures** are identified by hand gestures or facial expressions which indicate that a speaker is searching for a specific word or expression (Colletta *et al,* 2009).

3.4.2.3 Definition of the Relation of Gesture to Corresponding Speech

After classifying the gesture under the various functions, a definition of the relation of the gesture to its corresponding speech act needed to be identified (Colletta et al, 2009).

When defining the relationship the gesture has with the speech act it is accompanied with, deictic gestures either reinforce the speech act or it complements the speech act. Representational gestures on the other hand substitute, integrate or supplement its accompanied

speech act. Discursive gestures could reinforce, integrate or supplement the speech act which it accompanies. Interactive gestures always supplement what the speaker intends to say and word searching gestures always substitute what the speaker intends to say. Performative gestures also supplement the speech act which it is accompanied with, however it may also reinforce the speech act. Framing gestures generally add a supplementary significance to the linguistic information, however as previously stated these gestures were not coded.

The paragraphs to follow provide detailed explanations of what each relationship is and will make it clearer why these relations are attributed to the above stated functions.

A gesture may **reinforce** the speech act when the information brought by the gesture is identical to the linguistic information it is in relation to (Colletta *et al,* 2009). However representational gestures may not be annotated under this definition because a representational gesture's pictorial or descriptive properties always say more than the linguistic information (Kendon, 2004 and McNeill, 1992).

Complementary function of gesture is when the information provided by the gesture provides a necessary complement to the incomplete linguistic information provided by the verbal message (Colletta *et al,* 2009), thus the gesture disambiguates the message.

The **supplementary** function of gesture occurs when the information brought by the gesture adds a supplementary significance to the linguistic information (Colletta *et al,* 2009).

Integration of gesture and speech occurs when the information provided by the gesture does not add supplementary information but rather makes it more precise (Colletta *et al,* 2009). This is due to the pictorial or descriptive properties that the gesture holds.

A speaker's speech and gesture may also **contradict** one another. This occurs when the information provided by the gesture is not only different from the linguistic information it is linked with, but also contradicts it (Colletta *et al,* 2009).

3.4.2.4 Temporal Placement of the Gesture

The fourth stage of gesture annotation indicates the temporal placement of the gesture stroke in relation to the corresponding speech. There are three temporal placements which a gesture may be classified under; synchronous, anticipates and follows.

When the stroke of the gesture begins at the same time as the corresponding speech segment, it is classified as **synchronous** (Colletta *et al,* 2009). The speech segment may be a syllable, a word or a group of words.

If the stroke begins before the corresponding speech segment; the speaker begins the gesture while delivering linguistic information prior to the one corresponding to it, the gesture is classified under **anticipates** (Colletta *et al,* 2009).

Lastly, the temporal placement is classified as a **follow** when the stroke begins after the corresponding speech segment (Colletta *et al,* 2009). The speaker will begin the gesture after having completed speaking or while delivering linguistic information latter to the one corresponding to it.

3.4.2.5 Gesture Form

For the purpose of this study, as part of the annotation process a brief linguistic description of each annotated gesture stroke was given. The description of the gesture stuck to the most salient points about the gesture.

Description of the body movement consisted of; head, chest, shoulders, 2 hands, left hand, right hand, index, eyebrows, mouth, etc.

If there was a trajectory; direction of the movement, towards the top, bottom, left, right, front, back, etc.

If there was a hand shape, the form of the hand was described; flat, cutting, closed in a punch-like form, curved, palm up, palm down, fingers pinched, fingers in a circle, etc.

And lastly, the gesture itself; head nod, beat, circular gesture, rapid or not, repeated or not, etc.

3.5 Validation of the Gesture Annotation

As the data was being coded, the work which was already completed had been validated by a second coder. If the second coder did not agree with what we had annotated, an explanation and discussion had occurred with a third coder or arbitrator, as to why those gestures were wrongly coded and corrections took place. The validation phase only applied for the identification of a gesture unit, its function and the relation it had to the speech segment.

In order to measure the reliability of the data analysed, the first aspect reviewed was whether or not there was the presence of a gesture. In terms of gesture strokes, 99.6% of the strokes were accurately coded.

Following the agreement or disagreement of the presence of a gesture, the gesture function had to be reviewed as well. Of the total number of gesture functions, 99.7% of the functions had been agreed upon. Once again, if the second coder did not agree with what we had annotated an explanation and discussion occurred with a third coder or arbitrator, as to why those gestures were wrongly coded and corrections took place. However if there was good justification for why certain gestures were categorised under those functions, those gestures remained unchanged.

The data transcribed on *ELAN* was then exported to EXCEL for quantitative and qualitative analyses. The chapter to follow will discuss our findings.

3.6 Ethics Statement

Participation in the following investigation only occurred once ethics clearance had been granted from both the Ethics Board of the University of the Witwatersrand (See Appendices for clearance certificate)as well as from the Kwa-Zulu-Natal Departments of Education (see Appendices). Furthermore, participants were only chosen once consent had been granted from both the school as well as the parent/legal-guardian responsible for the child.

Consent forms and participant information sheets were given to the parent/legal guardian(s) of the participants chosen to partake in the study (see Appendices). Complete anonymity was guaranteed to the participants and their parent/legal guardian(s). Both the consent forms and participant information sheet was not only given to the parent/legal guardian(s) in English, but also in the participants L1; Zulu. In addition, assent from participants who were younger than 18 years of age was also obtained.

CHAPTER 4: Results Chapter

4.1 Introduction

This chapter reports on the findings of the language background questionnaire as well as the oral narrative elicitation task. The study investigates bilingualism of Zulu children and adults. In order to show the effects that bilingualism might or might not have, we will first present the results of the L2 English speakers' performance and then proceed with a comparative analysis of L1 Zulu speaker's narrative performance.

Each age cohort was assigned a group number; the 5 to 6 year group was defined as group one, the 9 to 10 year cohort is group two and the adults' cohort is group three. The terms 'group' and 'age' will be used interchangeably throughout this study. Girls and boys will be used to describe gender for all our participants even though our adult participants are young adults.

4.2 Questionnaire Results

Before the analysis of the data collected could be commenced, we first had to identify the participants who we could not use for the research project. The selected participants were chosen according to their L2 proficiency. As discussed in Chapter 3, the participant's proficiency was measured by using an adapted proficiency questionnaire and was rated as follows;

Grammar	1	2	3	4	5	6
Vocabulary	1	2	3	4	5	6
Fluency	1	2	3	4	5	6
Comprehension	1	2	3	4	5	6

The highest the participant could score under each category was 6 points and the highest total points a participant could yield was 24 points. The lowest a participant could score under each category was 1 point and the lowest total a participant could yield was 4 points. However, for the purpose of this task, if the participant yielded a score of less than 12 points in total, then the participant was excluded from the data set.

For the 5 to 6 year old group, 8 of the 10 participants scored between 12 to 24 points. 2 of the 10 participants had to be excluded because they had scored in total below 12 points.

For the 9 to 10 year old, all 10 participants scored between 16 to 24 points and no participant was excluded due to proficiency.

The adult group scored between 20 and 24 points and no adult participants were excluded due to proficiency. The adults were chosen as a target group in order for us to investigate whether there is indeed a L2 developmental pattern, however during the analysis of the data, we found that even though these adults scored 'proficiently' during the test, their level of proficiency is still questionable. We note this due to the speech errors noted during the transcription process. Due to the nature of this study, we decided not to delve into the speech errors, but this has been noted as perhaps becoming a future qualitative study.

4.3 Informational Quality

Of the total number of 30 participants, all the participants were able to provide a narrative. However, due to the nature of the narrative the children groups (5 to 6 years old and 9 to 10 years old) provided shorter narratives than the adults. In addition all the narratives which were performed consisted of hesitations and repetitions. These hesitations and repetitions were predominantly performed by the children groups.

> **Example 1:** Group 1 Speech Turn: 5 Years, Boy, PP.nar
> *"then he close it then the egg come out then then then the egg fall then hit the:: the then:: the egg the egg hit the the uhm uh:: the bed"*

> **Example 2:** Group 2 Speech Turn: 9 Years, Girl, PL.nar
> *" uhm at first there was a uh:: uhm:: a lady bird knitting sitting on a egg"*

> **Example 3:** Group 3 Speech Turn: 23 Years, Girl, 00089.nar
> *"okay uhhh first of all uhhh *th- {self corrects} on top of a tree branch // uhhh was a bird"*

Provided above are examples of repetitions or hesitations provided by participants (Refer to appendices for a complete annotation key). In order to transcribe the narrative information into the clause tier, we then neatened up the information by removing the hesitations and repetitions to create the clause. To aid us in segmenting the participants speech accurately, we additionally used a sound wave software to help us identify where the speech turn began and where it ended (refer to Chapter 3: p37).

The informational quality provided by the participants was measured using the clause as an index of narrative ability. In terms of informational quality, we predicted that there would be an effect of age in the narratives provided by the participants; we predicted that there would be less information in terms of narrative content from Group 1 when recounting the narrative in L2-English, compared to Group 2. This predication stems from notion that Group 2 have been using their L2 for a longer period of time and are now moving towards a more mature manner of narrating events.

Age	Mean Number of Clauses
Group 1	15.3
Group 2	19.1
Group 3	25.6

Table 4: *Mean Number of Clauses and Words across Age Groups*

The table provided above confirms this prediction. For both the clause and word measures, we observed the lowest means for the narratives provided by Group 1 and the highest means for the narrative was provided by Group 3. Provided below is an example of how clauses differ between the age groups within one macro episode.

Example 1: Group 1- 5 years, Boy, PP.nar

[then the egg come out][then the egg fall][then the egg hit the bed]

Number of clauses for Macro Episode B = 3 clauses

Example 2: Group 2 – 9 Years, Girl, PN.nar

[the egg was jumping][then fell in a web][and then the web broke][and then it fell into a flower][then it rolled into toms house]

Number of clauses for Macro Episode B = 5 clauses

Example 3: Group 3 – 23 years, Girl, 00003.nar

[and then there comes the egg][bouncing and bouncing][all the way through the web the spider web][and it goes onto the flower][and then the flower passed it through][all the way to the house][and then all the way to the bed]

Number of clauses for Macro Episode B = 7 clauses

Our prediction further supports research conducted by Berman and Slobin (1994) where a narrative task was performed by participants of the same age groups. Berman & Slobin (1994) found that their 9-year-old group constructed well-organized accounts of the story and they demonstrated a good command of complex syntax, in comparison to the 5-year-old children. They also found that using adults as a target group, they indeed went beyond the 9-year-old

group in the overarching thematic organisation they assigned to their narratives. This shows an effect of age in the narrative performance. Based on the examples above, we can observe a similar discourse-complexity-trend found in the Berman and Slobin (1994) study.

4.3.1 Pragmatic Type of Clause

In order to analyse the discourse structure of the narrative of our data, we considered the various pragmatic acts discussed in the Chapter 3 (Methodology). The clauses were categorised as pragmatic acts that either i) narrated the events of the story, ii) commented about the story events, iii) interpreted the story events and iv) explained the story events.

The pragmatic act which had the highest appearance was the narrative clause at 80.5% of the total number of clauses across all ages (see Table 5). As postulated in previous studies (Colletta, 2004; Kunene, 2010) we can further confirm that development of a more complex discourse would occur as the individual increases their use of the non-narrative clauses.

Age Group	Narrates		Comments		Interprets		Explains		Total
	#	%	#	%	#	%	#	%	
5 to 6 years	117	95.9	4	3.3	1	0.8	0	0.0	**122**
9 to 10 years	131	85.1	3	1.9	13	8.4	7	4.5	**154**
Adults	131	67.2	22	11.3	27	13.8	15	7.7	**195**
Total	**379**	**80.5**	**29**	**6.2**	**41**	**8.7**	**22**	**4.7**	**471**

Table 5: *Pragmatic Acts per Age*

The above table shows that as age increases, the use of the non-narrative clauses increase but the percentage of the narrative decreases. This result was expected due to the nature of the task. As cited in Kunene (2010), a previous study on spontaneous narratives, conducted by Colletta (2004), the author found that children who are younger than 9 years of age were less likely to shift between the 2 narrative levels with ease.

The adults produced 67.2% of narrative clauses and the remainder of the discourse was produced with non-narrative clauses. In addition, we can also see that the younger participants predominantly produced narrative clauses and only made 0.8% use of non-narrative clauses.

In order to provide a better overview of the age related effect on pragmatic clauses, grouping of the pragmatic clauses had been decided on, as seen in Kunene (2010). Commentary, interpretive and explanatory clauses are grouped as non-narratives, as seen below in Table 6.

Age Group	Mean Number of Narratives	Mean number of Non-Narratives
Group 1	14.63	0.63
Group 2	16.38	2.88
Group 3	18.56	7.11

Table 6: *Mean Number of Narratives and Non-Narratives*

From the tables provided above, we see that the Group 3 produced 67.2% narrative clauses of the total clauses. This showed to be the least percentage, however, Group 3 produced the most amount of non-narrative clauses. Thus the adult group used more complex phrases to retell the narrative compared to the children groups involved in this study. This finding was also found in previous research (Colletta *et al.*, 2010 and Kunene; 2010).

Consequently, from the above given results, we can confirm the hypothesis that age does in fact play a role in the development of discourse. Our results confirm that complex discourse abilities are not fully acquired during the early stages of language acquisition, but instead these complex abilities are developed and acquired during later stages of language acquisition (Berman & Slobin, 1994).

4.3.2 Syntactic Complexity and Discourse Coherency

A narrative is a form of extended discourse and requires the organization of utterances into a coherent and cohesive message. Thus for this study we looked at the different discursive clues that our participants produced in order to create a coherent narrative. By examining the various types of connectives used by the participants, it allows us to further analyse the informational quality of the narrative.

Due to our initial prediction of the younger groups producing less clauses than the older groups, we expected that the older the participant, the more discourse clues will be used because of the increase in narrative length. To investigate this age effect we looked at the amount and types of connectives used within each age group.

There are four different categories of discourse markers or connectives which the participants may have used (Colletta *et al.,* 2009); i) Discourse structure markers which are used to announce the opening or the end of a conversational unit as well as to organise the discursive progression;

Example 1: Group 1 – 5 years, Girl, PE.nar
[and put on that tree][***then*** that was finished][2] –

'then' used to organize the discursive progression.

Example 2: Group 2 – 9 years, Girl, PN.nar
[so *he went outside]/[****so*** *he went out to fetch some food]* –
'so' used to announce the beginning of a clause.

Example 3: Group 3 – 22 years, Girl, 00058.nar
*[****at first*** *that cartoon she was knitting]* –

'at first' used to announce the beginning or a conversational unit or clause.

Example 3: Group 3 – 24 years, Boy, 00049.nar
*[****okay*** *firstly i think the other one was knitting a jersey or something]/[****okay*** *well firstly there was this bird]*–

'okay' used to announce the beginning or a conversational unit or clause.

ii) Logical, chronological and spatial connectives which mark inter-clause relationships within explanatory sequences/narrations and descriptions;

Example 4: Group 1 – 5 years, Girl, PE.nar
*[****and*** *the other one he drop it]{referent-cobweb}[****and*** *the other one he drop it]{referent-flower}[****and then*** *that man he give him the bread][****and then*** *he was taking him][****and then*** *he want that man to sit down][****and then*** *that thing was taking that chair out]* –
'and' used as a logical connective; 'and then' used as a chronological connective.

[then he get ***underneath****][to cover it]/[and that egg went* ***on top*** *of him]* – 'underneath', 'on top' used as spatial connectives

Example 5: Group 2 – 9 years, Boy, PK.nar
*[****then*** *it picked the lamp into half][****then*** *the mouse was taking the chair][****then*** *sitting on the chair]* – 'then' used as a chronological connective.

[and sat ***underneath*** *him]* – 'underneath' used as spatial connectives

[2] [xx] – indicates one clause

Example 6: Group 3 – 23 years, Boy, 00049.nar

*[and took him back][**because** he cant handle it]/ [**because** like it was the first thing that it saw] –*

'because' used as a logical connective

Example 6: Group 3 – 23 years, Girl, 00003.nar

*[**and then** she went away][**and then** there comes the egg]/[and then after it cracked][**and then** it came out][**then** the little bird came out][**and then** its like it says its mom]*

'and then' used as a chronological connective;

'then' used as a logical connective.

*[and then it rolled **under** jerry] –*

'under' used as a spatial connective

iii) Argumentative connectives which mark inter-clause relationships within argumentative sequences, these mark opposition, justification, concession, counter-argumentation, consequence and summary

Example 7: Group 2 – 9 years, Boy, PK.nar

*[he sat **but** their was no chair]/ [**but** then the bird ate the chair]/ [jerry tries to feed it][**but** it was too fast to eat]* – 'but' used as a counter-argumentation connective.

*[then she decided to go out][**because** she saw the time]*- 'because' used as a justification connective.

Example 8: Group 3 – 23 years Boy, 00049.nar and 0003.nar

*[and then its like it says its mom][**but** its not its actual mom]/ [the funny thing i dont know][**buts** the way it was eating][you see so aggressive]* – 'but' used as a counter-argumentative connective.

The last connective category is iv) Enunciative connectives used to signal meta-discourse. Individuals use meta-discourse markers (verbs) to announce that in what follows they will explain, show, argue, claim, deny, describe, suggest, contrast, add, expand or summarise a point (http://peabody.jhu.edu, 2015). A table of connectives is provided in the Appendices.

Example 9: Group 3 – 23 Years, Boy

*[**i dont think** i remember the actual sequence the same]/[**im not sure** of the sequence]/ [**i think** the bird went] –* ‘

I don’t think’, ‘im not sure’, ‘I think’ are used to signal meta-discourse.

Table 7 (next page) illustrates all the different types of discourse markers used by the L2 participants. We can also see that in relation to the number of clauses produced by the 3 age groups, Group 3 produced the most number of clauses and thus produced the most number of connectives. In addition, Group 3 also used a larger variety of connectives compared to Groups 1 and 2. We can see that there is an age-related difference on discourse markers.

Berman and Slobin (1994) found that 5-year-old children open nearly every clause with *‘and’, ‘then’* or *‘and then’* which serve to chain one event to the next in ongoing narrative sequences. This can also be seen in the data gathered from this study. Most of the connectives used by Group 1 consists of ‘and’, ‘then’ or ‘and then’. Berman and Slobin (1994) state that this occurs because the 5 year old children are relying on a more narratively motivated temporal schema of one event following another instead of more spatial framing of events. Thus the 5-year-old children use overt markers of connectivity for the purpose of chaining clauses within the extended discourse. On the other hand the 9-year-old children, similar to the findings of Berman and Slobin (1994), mostly produced the connective *‘then’* in order to present one event after the other in a series and they rely less on the use causal connectives such as *‘because’* or *‘so’.*

	Type i	Type ii	Type iii	Type iv		
Age-Group	**Discourse Structure Markers**	**Logical, Chronological and Spatial Connectives**	**Argumentative Connectives**	**Enunciative Connectives**	**Total Number of Connectives**	**Total Number of Word**
Group 1	then (14)[3]	if (1), and (59), and then (28), on top (1), underneath (1), on (3), in (7)	0	0	114	660
Group 2	then (27), so (7)	and (28), and then (31), underneath (1), on (9), inside (1), in (7), into (5), by (1)	because (1), but (4)	0	122	894
Group 3	well (1), then (26), okay (2), so (10), firstly (2), at first (1)	because (4), and (39), and then (42), the end (1), after (8), on (3), on top (1), in (16), into (3), under (2), by (4), basically (2)	but (8)	I don't know (2), I think (5), I'm not sure (1), I don't think (1)	186	1477

Table 7: *Types of Connectives Used Within Each Age Group*

Lastly, Group 3 has shown to have used a larger variety of discourse markers which were not used by the children groups. This is not due to a larger or more learned vocabulary which the adults possess, but instead this is seen as a reflection of thematic cohesiveness in adults from both the current study at hand and the study conducted by Berman and Slobin (1994).

We also observe that the children groups did not produce any enunciative discourse markers, yet the adults produced them. This is a result of the adults providing more complex narratives, allowing them to use more meta-discourse in their narratives.

The above reasons confirm our prediction to be true; the older the group, a bigger variety of connectives are used during a narrative task, indicating a more complex narrative as the participant matures.

In summary of the linguistic analysis, we saw that the Adult group produced longer narratives in comparison to the children groups; they also produced more complex sentences in order to retell the story and lastly they also commented, interpreted and explained the narrated events, showing a greater difference between the Adult group and the younger groups. We also saw that this narrative complexity developed with age; i.e. the younger the participant was the less complex the retold story was and the older the participant the more complex the retelling of the

[3] (x) indicates the number of times the discourse marker occurred

story became. This can be further seen when analysing the 9 to 10 year old group, this group began to move more towards a complex or 'adult-like' narrative difficulty.

4.4 Gesture Analysis

Gesture, speech and language are increasingly seen as linked in production, comprehension and development. These various modalities form a cohesive system which is planned and processed together (McNeill, 1992;; Goldin-Meadow, 2003; Kendon, 2004; Gullberg, 2010). When analysing the gestural production produced by the participants, we noticed that the children groups produced a fewer number of gestures compared to the adult groups. We additionally noticed that the gestures which were predominantly produced, by all three age-groups, were representational gestures. The section to follow will elaborate these points.

4.4.1 Type of Gesture Stroke

To analyse our co-speech gestures we only looked at the stroke of the gesture as this carried the meaning of the gesture.

Age Group	Total Number of Strokes
Group 1	79
Group2	137
Group 3	519

Table 8: *Number of Gesture Strokes*

Table 8 above, shows us that Group 3 of the participants produced the most number of gesture-strokes. This number then decreases as the participant's age decreases. However, it can be argued that groups 3's number of strokes may be increased due to the type of gesture which the participant produces, therefore we look at the number of strokes in relation to the number of gestures (refer to Chapter 3 for a full explanation of gestures phases).

To further investigate the effect of age on co-speech gestures, we also look at the number of strokes produced in relation to the number of clauses produced by each age group.

We expect that there is an effect of age on co-speech gestures.

Looking at Table 10 provided below, a similar pattern of co-speech gesture production can be noticed when comparing the number of strokes produced, in relation to the number of clauses produced by each group. We see that Group 1 produced the least number of clauses as well as the least number of strokes compared to Groups 2 and 3.

Age Group	Total Number of Strokes	Total Number of Clauses
Group 1	79	122
Group2	137	153
Group 3	519	230

Table 9: *Number of Strokes compared to Number of Clauses*

As stated in Chapter 3, each stroke is further annotated with a specific gesture function. These gesture functions help us to identify what message the gesture is in fact sending across or more specifically the thought-process of the narrator. Table 10 provides an overview of the various gestures produced by the L2 participants in each age group. By looking at the Table 8 below, we can see that representational gestures was the predominantly produced gesture out of the various types, yielding a total percentage of 68.3%. This high occurrence of representational gestures can be accounted for due to the nature of the task; the story telling task.

The second highest occurring gesture performed was discursive gestures (16.8%), followed by word searching gestures (7.7%) and framing gestures (5.2%). These high occurrences are also due to the nature of the story-telling task.

The participants were not required to question, request, accept, etc. and thus yielding a low occurrence of performative gestures (1.5%). Observation during the data-collection process further substantiates this point as participants mostly produced performative gestures when responding to a question from the interviewer. These responses were not coded as they fell outside of the narrative task.

	Representational		**Discursive**		**Framing**		**Performative**		**Deictic**		**Interactive**		**Word Searching**		**Total Number of Gesture Strokes**
Age Group	**#**	**%**	**#**	**%**	**#**	**%**	**#**	**%**	**#**	**%**	**#**	**%**	**#**	**%**	
Group 1	58	77.3	2	2.7	0	0.0	2	2.7	0	0.0	0	0.0	13	17.3	**75**
Group 2	98	71.5	21	15.3	1	0.7	1	0.7	1	0.7	0	0.0	15	10.9	**137**
Group 3	343	66.1	100	19.3	37	7.1	8	1.5	0	0.0	3	0.6	28	5.4	**519**
Total	**499**	**68.3**	**123**	**16.8**	**38**	**5.2**	**11**	**1.5**	**1**	**0.1**	**3**	**0.4**	**56**	**7.7**	**731**

Table 10: *Types of Gesture and Percentage of Frequency*

Gesture types which yielded a percentage of 5% or less were excluding from further analysis. For the purpose of this study and due to the nature of the task we placed focus on representational gestures, discursive gestures, word searching gestures and framing gestures.

4.4.2 Co-Speech Gesture Development

The study seeks to investigate the developmental factor of co-speech gesture. Thus we seek to identify whether or not co-speech gestures develop with age or not. Our prediction was that; as gestures develops in parallel with an individual's linguistic abilities, our data would show a developmental pattern.

4.4.2.1 Representational Gestures

A representational gesture is defined as a gesture which represents an object, a property of the object or may symbolise an abstract idea (Colletta *et al.*, 2009). The participants of this study were required to narrate a cartoon which was shown to them. Due to this instruction, we expected this high occurrence of representational gestures, because the participant had to refer to characters and objects which were not situated in their immediate environment. What was more interesting to us was the relationship between the gesture and its linguistic unit. This will be further discussed in this chapter.

4.4.2.2 Discursive Gestures

This type of gesture is either used to place emphasis on certain linguistic units or they are used as an aid in structuring speech and discourse. Referring back to our previous discussion on discourse markers/connectives. We had witnessed that when the participants were narrating their story they produced a large number of connectives. This result complements the 16.8% of discursive gestures produced.

4.4.2.3 Word Searching Gestures

The nature of the story telling task entailed participants to recall a cartoon which was shown to them. We had predicted that due to the participant having to narrate their recollection of the story in their L2, a higher number of word searching gestures would occur. This prediction was confirmed as word searching gestures were the third highest gesture type produced.

4.4.2.4 Framing Gestures

The 7.1 % of framing gestures which were produced by group 3 of our participants, occurred during the telling of an event, or whilst they were commenting on an aspect of a story or they displayed this gesture when commenting on the narration itself. These framing gestures expressed an emotional or mental state of the speaker (Colletta *et al.,* 2009). However, the children groups did not yield less than 1% of framing gestures. This demonstrates to us that the children participants were not as emotionally invested in the narration. Additionally the fewer

framing gestures produced by the children illustrates that they have not reached full discourse maturity and thus produce less complex narratives.

By analysing the most frequently occurring gestures (refer to Figure 6 below) we see that there is indeed an effect of age on co-speech gesture production. What is however interesting to note, is that, even though there is an increase in gesture production as the participant matures, Group 2 (9 to 10 years old) seem to be almost on the same level as Group 1 (5 to 6 years old) in terms of representational and discursive gestures. Group 2 shows to be moving towards Group 3, however, in agreement with previous notions, as stated by Berman and Slobin (1994) and Labov (1972) that pre-adolescents still have a long way to go in development of their narrative skills. Thus this also seems to be reflecting in their gesture production.

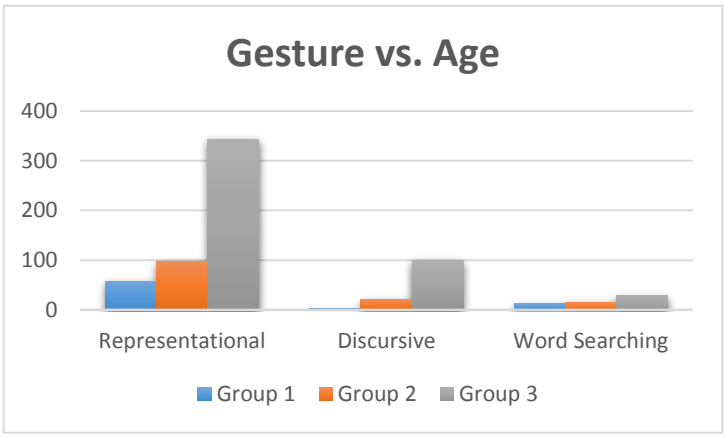

Figure 6: *Graph to show Gesture and Age*

In summary of the co-speech gesture analysis, we saw that the Adult group produced more gestures in comparison to the children groups. This coincided with the high number of clauses produced by the adults. Thus showing us that age does indeed have an effect on the development of co-speech gestures.

4.5 Comparative Analysis of L2 English and L1 Zulu

4.5.1 Introduction

In order to study the influence that bilingualism has on the development of discourse or narrative acquisition from a multimodal perspective, we compared the English speakers' narratives to Zulu speakers' narratives of the same age groups. The proposed study looked at children and adults whose first language is Zulu and their second language is English. A comprehensive study on Zulu L1 narratives was already investigated (Kunene, 2010) and this study will allow us to compare and identify any similarities and differences which occur when a participant narrates in their L2. Our study aimed to investigate whether or not children and-or adults would be more comfortable narrating in their second language if their second language seems to be the teaching medium and their medium of communication. By comparing the two studies, this further aids in confirming or invalidate the proposed hypothesis and predictions stipulated in our study.

In our study we have already seen that age does play a role in the development of discourse skills; but is this true across all languages? And further more we can ask ourselves what role does of bilingualism play when the same task is performed in the participants' second language.

4.5.2 Participants of the Comparative Study[4]

The participants for the English study were the same as the ones used in the L2 English analysis (refer to above section). The participants from the Zulu study were chosen according to gender and age. Table 11 presents the totality of our corpus which will be analysed in this chapter.

	Average Age in Years		**L2 English**		**L1 Zulu**	
Age Group	**L2 English**	**L1 Zulu**	**Girls**	**Boys**	**Girls**	**Boys**
Group 1	5.1	5.7	5	3	5	5
Group 2	9.5	9.5	5	3	5	5
Group 3	23.2	23.4	5	4	5	5
Total	**12.6**	**38.6**	**25 Participants**		**30 Participants**	

Table 11: *List of Participants of Comparative Study*

As in the L2 English analysis, age was defined as a specific group; the youngest age group was defined as group one, followed by group two and the oldest age group was defined as group 3, thus, throughout this study the terms 'group' and 'age' will be used interchangeably.

[4] For a complete discussion on selection of the L1 participants refer to Chapter 3

4.5.3 Findings

Similarly to the way in which we had measured the informational quality of the L2 participants between the various age groups, we have chosen to measure the informational quality of the narrative between the two languages. We predicted that there would be an effect of language in the narratives provided by the participants; we predicted that there would be less information in terms of narrative content from the L2 English participants compared to narratives recounted in L1 Zulu.

Through the comparison of the two languages, our results show that when participants narrate in their L2, they produce shorter narratives than the Zulu participants (see Table 12). This result further confirms our prediction that when participants are asked to narrate a story in their L1 they produce a longer narrative compared to the participants who narrated the story in their L2. To further understand why the Zulu participants produced almost double the number of clauses, we compared and analysed the various pragmatic acts produced by the L1 and L2 participants.

Pragmatic Clause	English	Zulu
Narrates	16.6	36
Comments	1.1	1.3
Interprets	1.6	1.8
Explains	0.9	0.8
Mean Number of Clauses	**20.2**	**40.6**

Table 12: *Mean Number of Pragmatic Clauses*

Table 12 illustrates to us that the L1 Zulu participants produced 90% narrative-pragmatic acts, whereas the L2 English participants produced 82% narrative-pragmatic acts. This reveals to us that the Zulu participants provided 8% more narrative content. Due to the nature of the task, we expected the participants to produce more clauses which fell under the narrative pragmatic act, and fewer non-narrative clauses. As found by Kunene (2010) Zulu speakers have a different perception of the task and would use their cultural skills to deliver a narrative with as little deviation into the commentary, explanation or interpretation mode as possible. Our data-sample is too small to confirm this postulation, however, a trend leading to toward confirmation of this postulation can be seen.

When observing the non-narrative clauses, we see that the L1 Zulu participants also commented and interpreted more of the narrative compared to the L2 English participants. This can be seen as a result of the Zulu participants producing a higher number of clauses. By virtue of the higher number of clauses produced by the L1 Zulu participants, we would have expected

all non-narrative clauses to higher than that seen in the L2 English data-set. Yet, this was not illustrated. The L2 English participants produced more explanations compared to the L1 Zulu participants.

The few explanations provided by the Zulu participants can be seen as resultant of a possible cultural effect. Zulu is a language with a long oral tradition (Kunene, 2010). Story telling plays an important role amongst Zulu speakers. The tales that children would hear from their care-givers before going to bed or throughout the day (in Zulu) differs from the way in which story telling is taught and narrated in English (Kunene, 2010).

Based on this, we can postulate that meta-discourse/meta-narrative comments do not occur similarly in each language, this holds especially for the explanation category.

Due to the biggest difference occurring between the narrative clauses, the remainder of the comparative analysis will be focused on the differences or similarities that we find within the narrative clause.

4.5.3.1 Narrative Clauses

The first point of departure when comparing the narrative clauses, was to investigate whether or not there was a developmental pattern within the narrative clauses. When looking at the two languages and the varying age groups (see Figure 7), we observe that Group 1 produced the least number of narrative clauses. However, this number does increase as the participant's age increases. This concurs with the findings in the L1 study and agrees that the low number of narratives produced in Group 1 is due to the 5 to 6 year-old children being on the border of their development and have not yet fully developed their discourse abilities compared to Group 2.

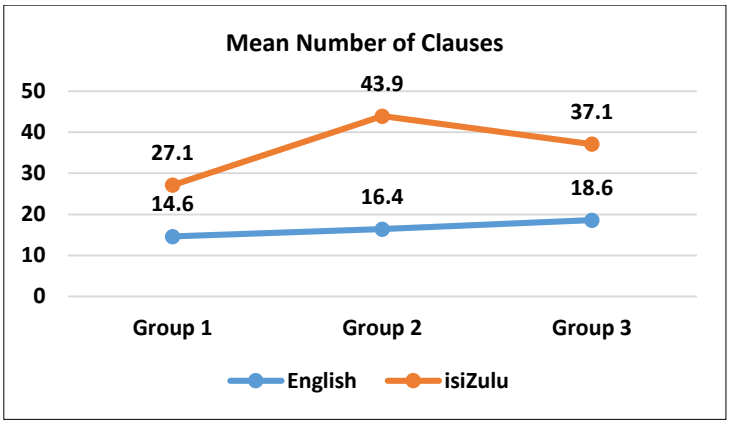

Figure 7: *Graph to show Mean Number of Clauses*

We observe that narrative-skill-development does not occur the same way in L2 English as it occurs in the L1 Zulu. With the Zulu participants, at the age of 9 to 10 years, the participants peak in their narrative clauses and then decrease as they get older and as their discourse abilities develop further. We do not observe this in the L2 English data-set. Instead we see that the three age groups are not that far apart from each other. We posit that this decrease in narrative clauses occurs due to the adults providing more complex narratives by producing more non-narrative clauses within their narratives. Furthermore these L1 Zulu 9 to 10 year old children are beginning to learn how to decrease the number of information in their narratives to reach their target group.

Previous psycholinguistic research (Kunene, 2010) on French children (Colletta *et al.*, 2009) and Italian children (Graziano, 2009), both hypothesised that children aged below 10 years of age; when given a story-telling task, the children would tell the story in its entirety, and children over the age of 10 years would begin to summarise the story in a more adult like manner (Colletta *et al.*, 2009). This however, is not seen with the above data provided. Our study shows that the younger the participant the shorter the narrative would be and the older the participant, the longer the narrative would be.

To summarise our comparative linguistic analysis, the data produced the following results;

i) In both samples we note that everyone was capable of producing a narrative.
ii) We then observed that meta-narrative levels or meta-discourse does not occur similarly in each language and,
iii) We also observe a different developmental pattern that occurs in both English as compared to Zulu speakers.

4.5.3.2 Gesture Analysis

We then proceeded to analyse the participants speech and gestural performance. As before, with the L2 English data set, for the comparative study we only analysed the gesture-stroke, the function accompanying the stroke and its temporal relation. The table below presents the mean number of strokes produced in each language.

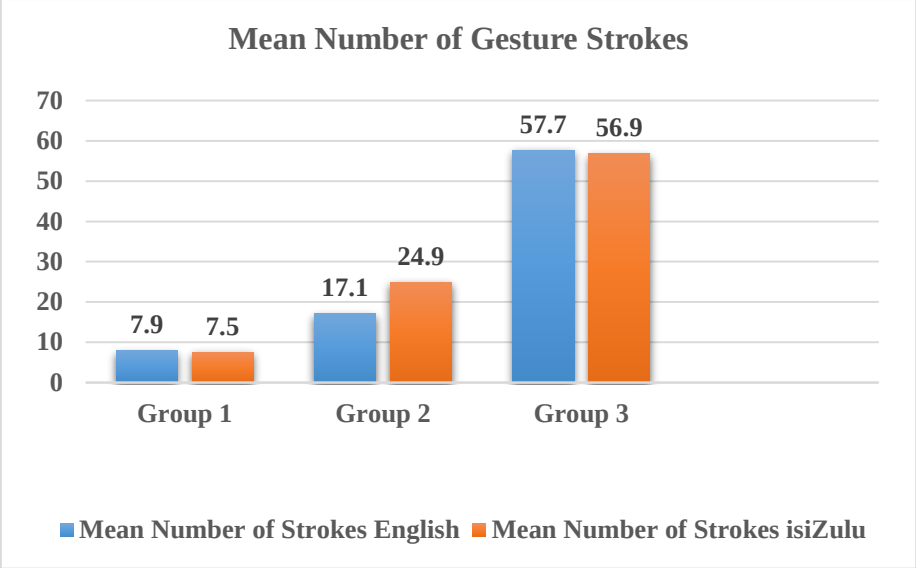

Figure 8: *Mean Number of Gesture Strokes*

We proceeded to analyse whether or not there is an effect of age; either a similar or different developmental pattern; in either data sets. Looking at the mean number of strokes, we noticed that in both L2 English and L1 Zulu, Group 3 produced more gesture strokes than Group 2 and Group 2 produced more gesture strokes compared to Group 1. As witnessed and postulated by Kunene (2010) this reveals that children at 10 years of age have not yet fully mastered the discourse behaviour of the target language. In conjunction with Kunene (2010) our study postulates that in L2, participants from Group 1 and Group 2 have not yet mastered their discourse behaviour of their L2. This now shows us that as the participant moves towards mature discourse abilities, not only does their linguistic ability develop but so do their gesture abilities.

We further observe that the target groups from both language cohorts are almost at the same level. We further observe that the 5-to-6-year old children (Group 1) and 9-to-10 year old children (Group 2) of the L2 English data-set are not that different from Group 1 and Group 2 in the L1 Zulu data-set. However, it can be seen that Group 2 of the L1 Zulu cohort is closer to their target group than the L2 English speakers.

We further proceeded to investigate the function associated with the co-speech gesture to find whether or not their gestures would differ due to a language difference.

4.5.3.2.1 Types of Gestures

As Gullberg (2010) proposes, if bilinguals have separate meaning representations, then they should display two separate gesture patterns; one for each language. However, through analysis

of the data, we see that for both languages, the same gesture types yielded a high production rate. L1 Zulu and L2 English participants both produced a high number of representational, discursive and word searching gestures. This leads to the confirmation of our hypothesis that bilingual speakers do not store their co-speech gesture representations separately, but rather, use a shared representation of their co-speech gestures.

To further substantiate this hypothesis other studies as cited in Gullberg (2010) presented results where L2 speakers whose speech is target-like yet they gestured in L1 ways. In context of the current study, this can be seen as true because there is not much of a difference in the types of gestures produced by the L2 participants. The L2 English participants, seem to produce similar gestures just as the L1 Zulu participants.

Although speakers differ in how much they gesture, they are remarkably consistent in how and with what elements they gesture (Gullberg, 2010). Due to the nature of the narrative task, the following gesture types were expected to yield a high production rate; representational gestures and discursive gestures.

Age Group	Representational Gestures		Discursive Gestures		Word Searching Gestures		Framing Gestures	
	L2	L1	L2	L1	L2	L1	L2	L1
Group 1	7.3	5.3	0.3	0.3	1.6	1.1	0	2
Group 2	12.3	20.2	2.7	1.2	1.9	1.9	0.1	0.9
Group 3	38.1	38.7	11.1	7.2	3.1	5.6	4.1	2.7
Total	**57.65**	**64.2**	**14.1**	**8.7**	**6.6**	**8.6**	**4.2**	**5.6**

Table 13: *Mean Number of Types of Gestures*

Noticing the means displayed in Table 13, we see that when participants perform the narrative task in their L1 they produce more representational, word-searching and framing gestures, than the L2 English participants. However, when performing the narrative task in L2, the participants produced more discursive gestures. In accordance with the higher number of narrative and non-narrative clauses produced by the L1 Zulu participants, the same pattern can be identified in their gesture production. These participants produced a higher number of representational gestures compared to the L2 English participants. Similarly, the L1 Zulu participants also produced a higher number of non-narrative clauses compared to the L1 participants. This corresponds to the higher production rate of non-representational gestures.

Representational gestures were the most produced gestures from both the L1 Zulu data and the L2 English data. Thus we compare and analyse these gestures further and how they might differ or similarly present themselves in L1 Zulu and L2 English.

Our first observation stems from the effect of age. We first observe that Group 3 from both data sets produce more representational gestures compared to Groups 1 and 2 (see Figure 9). As hypothesized by Kunene (2010), by the age of 10 years, Zulu children are still at their acquisition stage of co-speech representational gesture usage. Due to this, the younger the participant, the less representational gestures they produce. The L2 English data-set concurs with this hypothesis, as the participants who are 10 years or younger of age produce less representational gestures compared to their adult group.

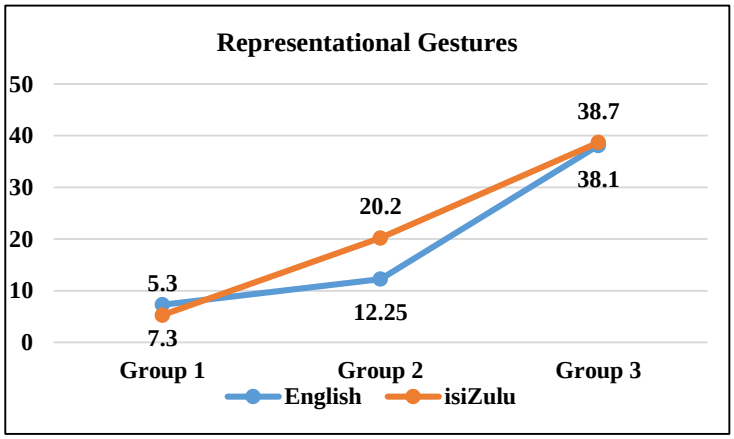

Figure 9: *Graph to show Representational Gestures*

Figure 9 shows the curve of development of representational gestures produced in both the L2 English data-set and L1 Zulu data-set, within the three age groups. We note the increase in the number of representational gestures produced, across the age groups in both languages, as the participant matures. This curve thus serves as confirmation that the production of representational gestures does indeed develop with age, even when the participant in performing a narration in their second language.

A further observation, is Group 3 from both data sets produced almost the same mean-number of representational gestures, even though the narrative task was being performed in different languages. Group 3 from the L1 Zulu data-set produced a mean of 38.7 and Group 3 from the L2 data-set produced a mean of 38.1 representational gestures. For both the current research project and Kunene (2010) Group 3 was selected as a target group to investigate whether or not a developmental pattern occurred. Our current findings illustrate to us that during the earlier

years of co-speech gesture development differences are likely to occur between the two languages, as displayed by Group 2 and Group 1.

This finding illustrates that when L1 Zulu participants are performing a narrative task in their L2, once they reach maturity, they still express their representations similarly to the way in which they would be expressed in their L1. This finding coincides with previous second language acquisition studies that have found that even advanced L2 speakers continue to target information for expression typical of the L1, instead of the L2, where they are mapping L1-typical meaning onto L2-typical morphosyntactic structures. Thus L2 speakers seem to look for ways to express the representations and perspectives of the L1 instead of changing to the perspective typical of the L2. (Gullberg, 2010).

Due to this finding, we have conducted a qualitative analysis on the production of representational co-speech gestures. This will be discussed in the next chapter of our study.

These similar representations reveal to us that despite the narrative being performed in different languages, the L1 and L2 participants share the same visuo-spatial representations. However, despite this superficial similarity, through a detailed analysis of the various types of gestures produced by either language-cohort, we note that there are language specific differences. And these are displayed through the non-representational gestures.

As stated under the L2 English analysis, a high number of word searching gestures were expected because the participants were narrating in their L2. However, what we did not expect from the L1 data-set was the large number of word searching gestures produced. In Kunene (2010) they hypothesised that the L1 Zulu participants wanted to provide more detail for the narrative which resulted in more clauses, thus leading to an over-load on the short term memory, with more information to recall. This then results in the production of more word searching gestures. The L2 English participants, despite having to recall the story in English, we confirm that these participants used less word searching gestures because of the shorter narrative which they provided.

The L2 English participants produced more discursive gestures and this correlates to the increased number of discourse markers produced by the participants of this cohort (refer to L2 study discussion). Furthermore, when observing the target groups, we see that the L2 English

participants produced more framing gestures than the L1 target group. This correlates to the more explanatory clauses provided by the L2 target group.

4.6 Summary

Through comparative analyses, it was possible for us to confirm previous findings that the development of discourse from a multimodal perspective does develop with age (Colletta, 2004; Colletta *et al.*, 2009; Kunene, 2010). In this chapter, we looked not only at the linguistic abilities of two language groups but also the gesture abilities which accompany those linguistic abilities. The first group which we analysed was L2 English participants. We examined 3 different age groups (5 to 6 years, 9 to 10 years and adults) and the pragmatic abilities which they possess, and how they not only develop liguistically but also with respect to their gesture development. The groups chosen stem from early primary school level to intermediate primary school level. The adult group was used as a target group to help measure the stages of development and what the younger groups should be moving towards.

Zulu is seen as a lesser-learned language in the field of child development (Kunene, 2010) by conducting a comparative analysis of Zulu and English, we aimed to provide insight into how a bilingualism effects the development of children who are frequently being exposed to their L2, not only at home but also in an educational setting. Furthermore, we aimed to provide insight into how an L1 Zulu speaking child develops their L2 pragmatic functions of discourse when entering school and after school.

Observations showed that as the children mature or develop in age, so do their linguistic abilities. These developments however do not only occur in discourse, but also in the development of gesture. We also observed that narratives performed in L2 were shorter and less detailed compared to narratives performed in L1; proposing; that later language acquisition takes a longer time to fully develop.

We illustrated that the developmental patterns are different for either language. We observed that children who are younger than 10 years of age have not yet mastered their complete-complex discourse abilities which are displayed by the adult groups. From the age of 10 and upwards, children and adults are able to navigate their narrations between the meta-narrative and para-narrative level, they are able to provide information not directly related to the story itself.

Furthermore, we demonstrated that the gesture produced, as similar as they were, were also language specific.

Previous research which hypothesised that speech and gesture are intertwined and that they indeed co-develop; our results serve as further substantiation that gesture and speech develop linearly.

The following chapter presents a qualitative analysis of macro-episode B and its gesture relation.

CHAPTER 5: Qualitative Analysis

5.1 Introduction

The following chapter aims to discuss how these macro and micro episodes present themselves in both the L1 Zulu and L2 English data. We will further investigate the co-speech gesture relationship which occurs within a specific micro episode between the two languages. The narrative is broken up into two structural components; the macro-structure and the micro-structure. The term "macro structure" (or "macro-episodes"), refers to the higher-order hierarchical organisation of the narrative. This organisation includes an episodic structure as well as story grammar (Stein & Glenn, 1975; Heilmann, Miller, Nockert and Dunaway, 2010; Skerra & Gagarina, unknown). The micro-structure (or micro-episodes) incorporates linguistic devices that establish referential and relational coherence on both the setential and intersetential level (Halliday & Hasan, 1976).

The extract of the *Tom & Jerry* cartoon was segmented into macro-episodes; as explained in the Methodology chapter. The segmentation of the cartoon allows for analyses of the entire narrative based on the structural characteristics of the narrative. In addition, by analysing the macro episodes which are further segmented into micro-episodes, we can estimate the degree of accuracy of the retelling of the story provided by each participant.

We predicted that there would be a difference in the narrative performance due to the difference in oral narrative schema of the narrative in either language. When performing a narrative in English, there are set categories which the narrative needs to follow. However, when performing a narration in Zulu, the narratives are more elaborate and do not follow these set categories.

In terms of development, we noticed that there was no effect of age in this particular task. By the age of 5 years, we observed that all participants were able to perform the narrative task. This coincides with previous studies findings that children are able to perform narratives by the age of 5; a child is capable of remembering the principal points of a story and retelling them in in a chronological order (Kunene, 2010). Thus we did not analyse the effect of age qualitatively.

5.2 Macro Structural Analysis of both Speech and Co-Speech

In both the presented study as well as the Kunene (2010) study, we see that all macro-episodes were recalled. We further observe that for the L2 English participants, these participants recalled macro-episode A and B the most. However, in the L1 Zulu data-set, these participants recalled macro-episode B and F the most.

Macro Episode	English	Zulu	Categories
A	89	173	Abstract
B	122	258	Orientation
C	39	111	Complicating Action
D	33	134	
E	35	151	
F	47	229	Resolution
G	60	102	

Table 14: *Number of Macro Episodes in each Language*

Using Labov and Waletzky's (1967) categories of 'Abstract', 'Orientation', Complicating Action', 'Resolution' etc., (Willihnganz, 2010) participants from the L2 English data-set recalled paid more attention to the abstract of the story and the orientation of the story. By paying attention to the abstraction and orientation part of the story, the L2 English participants paid attention to how the *Tom & Jerry* cartoon began as well as what the cartoon involved and when and where it was taking place.

L1 Zulu participants however, paid more attention to the orientation of the cartoon and the resolution of the narrative. These participants chose to recall what the cartoon involved and when and where it was taking place as well as the final events rounding off to the narrative closure.

In order to investigate the relationship of the co-speech gestures, we first had to identify the number of gestures produced under each macro-episode. Through the identification of the number of gestures produced, we are able to identify whether or not there was a co-speech gesture relationship. Table 15 below provides an overview of, the total number of gestures produced, under each macro-episode, by each age group as well as by each language.

Age Group	A		B		C		D		E		F		G	
	L2	L1	L2	L1	L2	L1	L2	L1	L2	L1	L2	L1	L2	L1
Group 1	26	9	5	19	5	4	1	8	3	8	7	17	5	5
Group 2	26	24	37	61	4	30	18	22	4	37	25	53	6	11
Group 3	82	119	126	134	39	46	48	63	37	60	43	90	31	132
Total	**134**	**152**	**168**	**214**	**48**	**80**	**67**	**93**	**44**	**105**	**75**	**160**	**42**	**148**

Table 15: *Number of Gestures produced in each Macro-Episode*

We observe that the L2 English participants produced the most gestures under macro-episode B (168 gestures), followed by macro-episode A (134 gestures). This coincides with the highest recalled macro-episode. The L2 English participants recalled macro-episode B (122 times) and macro-episode A (89 times).

However, in the L1 Zulu data-set, we see that these participants produced the most gestures under macro-episode B (214 gestures) followed by, macro-episode A (152 gestures) and then F (160 gestures). Once again this coincides with the number of times each of these macro-episodes were recalled. These three macro-episodes yielded as the highest three macro-episodes recalled; macro-episode B was recalled 258 times, macro-episode F was recalled 229 times and macro-episode A was recalled 173 times.

This finding illustrates to us that there is a cultural effect on the way in which a narrative is told. When the participants were performing the narrative task in their L1-Zulu, they stuck to performing the narrative in accordance to the norms of orature. However, when the participants performed the narrative in their L2, they performed the narrative in a more Labovian manner.

These high recollections in conjunction with the number of gestures produced under each macro-episode, further confirms what was previously stated by McNeill (1992) that gesture does reflect the discourse functions with which it occurs. Moreover, it also reveals to us that these two modalities are intertwined with thought in accordance with the particulars of context (Gullberg & McCafferty, 2008).

To compare these two languages more closely, we proceeded to select macro-episode B; due to its high linguistic as well as gesture output.

5.2.1 Analysis of Macro-Episode B

The decision to further analyse macro-episode B is due to the detail entailed in this macro-episode. As seen in Table 16 provided below, this macro-episode allows for the participants to

produce a fair amount of action during the narration. Would a similar gestural pattern occur in the L1 Zulu and L2 English gestural behaviour or will it present similarities?

As seen in the discussion of the previous chapter, the language group which yielded the most clauses also produced an increased number of gestures. We expect the same pattern would occur within this macro-episode. The language group which recalled the most number of macro-episodes would also produce the most number of gestures.

In order to analyse the co-speech gesture relation we first had to identify which micro-episode of macro-episode B was recalled the most, in either data-set.

Code	Description of Micro-Episode
B1	The egg jumps about
B2	The egg falls onto a cobweb
B3	The cobweb breaks
B4	The egg falls onto a flower
B5	The flower drops the egg on the leaf
B6	The egg rolls from the leaf to the house
B7	The egg pushes the door open
B8	The egg rolls up until it reaches the bed

Table 16: *List of Micro-Episodes for Macro-Episode B*

5.2.2 Linguistic Analysis of Macro-Episode B

We observe that almost all micro-episodes of B were recalled in both languages across the three groups. Group 1 of the L2 English data set did not recall micro-episode B3 at all. This finding does not come across surprising, due to the nature of the task, the age of the group as well as the language that the task was being performed in, not having recalled a specific micro-episode is possible. Additionally, even though micro-episode B3 was recalled by Group 1 of L1 Zulu participants, it was the least recalled micro-episode in the L1 Zulu data set.

We further see that when the participants performed the narration in their L2, less micro-episodes were recalled compared to when the narration was performed in L1 Zulu. We identified in the previous chapter that the narratives which were performed in L1 Zulu were longer than the narratives performed in L2 English (by measurement of clauses), thus the lesser number of micro-episodes produced by the L2 English participants is in agreement and was to be expected.

Language	Age Group	B1	B2	B3	B4	B5	B6	B7	B8	Total
English	**Group 1**	4	4	0	4	3	3	2	15	**35**
	Group 2	7	2	1	5	3	1	1	14	**34**
	Group 3	16	9	4	4	4	8	1	12	**58**
Total		**27**	**15**	**5**	**13**	**10**	**12**	**4**	**41**	**127**
Zulu	**Group 1**	10	9	3	5	4	8	9	10	**58**
	Group 2	20	11	9	14	10	13	4	7	**88**
	Group 3	17	16	6	8	9	10	7	14	**87**
Total		**47**	**36**	**18**	**27**	**23**	**31**	**20**	**31**	**233**

***Table 17**: Number of Micro-Episodes*

As we have previously stated, in Chapter 4, the L1 Zulu narratives were longer than the L2 English narratives due to the effect of orature. Table 17 once again confirms the effect of culture on story telling as we can see that within macro-episode B, the L1 Zulu participants produced more micro-episodes compared to the L2 English participants. In addition and in line with the Labovian categories stated above, the L1 Zulu participants paid more attention to the Orientation of the story than the L2 English participants; as displayed by Table 17.

Moreover, each language group paid more attention to different micro-episodes. With the L2 English data-set, we see that these participants recalled, episodes B8, B1, B2 and B4 respectively. In addition, in the L1 Zulu data-set, these participants paid more attention to episodes B1, B2, B8 and B6 respectively. This serves as an interesting observation, as the same micro-episodes were recalled the most in both languages, but what was the least-highest recalled in L2 English was the most recalled in L1 Zulu. Thus, the L2 participants placed more attention on the egg rolling to Jerry's bed whereas the L1 participants placed more attention to the egg jumping out of the nest.

It is also interesting to note that, in L1 Zulu, micro-episodes B5, B7 and B3 were the least recalled amongst the participants. These three micro-episodes were also the least recalled amongst the L2 English participants.

L2 English	Number of Times Recalled	L1 Zulu	Number of Times Recalled
B8	41	**B1**	47
B1	27	**B2**	36
B2	15	**B8**	31
B4	13	**B6**	31
B6	12	**B4**	27
B5	10	**B5**	23
B7	4	**B7**	20
B3	5	**B3**	18

Table 18: *Number of Recalled Micro-Episodes of Macro-Episode B; Highest to Lowest*

Through close examination of the most recalled and the least recalled micro-episodes, we observed that the direct and indirect agents are different for certain episodes. Through semantic examination, we observe that in micro-episodes B1, B2 and B8, the direct agent causing the action (in each of these episodes) is the egg. However, in micro-episodes B3, B5 and B7, the egg was not the direct agent, but rather the indirect agent and was not the main cause of the action occurring in those episodes.

Having identified, the most recalled micro-episodes of macro-episode B, we then proceeded to analyse the gestures which occurred in this macro-episode. We want to identify whether or not the same gestural pattern will occur as it has in the linguistic analysis of macro-episode B.

5.2.3 Gesture Analysis of Macro-Episode B

5.2.3.1 Representational Gesture Analysis

During our initial comparative analysis of the global number of gestures produced by either language groups, we identified representational gestures as being the most produced. This result is expected due to the nature of the narrative task. Globally we observe that during the L1 Zulu narrative task, participants produced more representational gestures; in comparison to the L2 English participants. Previous research conducted by Gullberg (2012) investigated gesture rates and showed that learners and bilinguals typically produce more gestures than native speakers and monolinguals. Table 19 below, disagrees with Gullberg's finding as here we see that the L1 speakers produced more gestures than the L2 speakers.

Language	Age Group	B1	B2	B3	B4	B5	B6	B7	B8	Total
English	**Group 1**	1	1	0	0	0	0	0	1	**3**
	Group 2	14	1	0	7	2	3	0	2	**29**
	Group 3	26	10	3	6	8	14	3	27	**97**
Total		**41**	**12**	**3**	**13**	**10**	**17**	**3**	**30**	**129**
Zulu	**Group 1**	3	5	1	3	1	2	0	0	**15**
	Group 2	9	8	8	9	6	9	1	3	**53**
	Group 3	20	21	6	10	7	15	4	12	**95**
Total		**32**	**34**	**15**	**22**	**14**	**26**	**5**	**15**	**163**

Table 19: *Number of Representational Gestures per Micro-Episode*

Following the representational gesture result, we then proceeded to analyse at which point during micro-episodes B1 to B8 these representational gestures occurred. During the L1 narrative task, most of the representational gestures were produced during micro-episode B2 (34 gestures) followed by micro-episode B1 (32 gestures) and B6 (26 gestures). As stated above, the most (verbal) recalled micro-episodes in the L1 Zulu data-set were B1, B2, B8 and B6 respectively.

In the L2 English data-set, we note that most of the representational gestures produced occurred during the narration of micro-episodes B1 (41 gestures), B8 (30 gestures) and B6 (17 gestures). The most (verbally) recalled micro-episodes of this data-set was B8, B1, B2 and B4 respectively.

In both the L1 and L2 data-sets, B6 was the third highest (representational) co-speech gesture micro-episode, thus we proceeded to analyse the gesture form of the gestures produced under this micro-episode. Through the analysis of the gesture form, we are able to identify whether or not there is a typological effect of language occurring.

We initially observed that in the L2 English data-set, Group 1 participants did not produce any representational gestures under micro-episode B6, in comparison to the Group 1 of the L1 Zulu data-set. Furthermore we see that Group 2 of the L2 English data-set only produced 3 representational gestures compared to the 9 representational gestures produced by Group 2 of the L1 Zulu cohort. Due to this, we then placed our attention on the adult groups of the two cohorts.

Even though there is not a large difference in the number of representational gestures produced under micro-episode B6, we noticed that the way in which these gestures were performed differed.

As previously stated, Kunene (2010) proposed that Zulu may be termed as a Verb-Framed language, according to Talmy's language typology. Thus, Zulu uses motion verbs to incorporate information about PATH (Kunene, 2010). Whereas in English, MANNER and motion are indicated by the verb and PATH is indicated by a satellite.

During the L2 narrative task, the participants provided either PATH information, or MANNER information but never both at the same time. In addition, the gestures produced coincided with their linguistic information.

1a)  1b) 

00003.nar: BT 00:23:991 00003.nar: BT 00:25:971

'all the way to the house'

***Figure 10**: 23 Year Old Girl; 00003.nar*

2a)  2b) 

00006.nar: BT 00:52:932 00006.nar: BT 00:54:681

'and from the flower it rolled down to the mouse house'

***Figure 11:** 24 Year old, Boy, 00006.nar*

As we can see from images 1a) and 1b) of Figure 10, the participants has her right hand open, with her palm facing the left-side. She then moves her hand towards the right. Her hand movement also coincides with her speech, '*all the way to the house'*. In images 2a) and 2b) of Figure 11, this participant does not use his hands, but rather he uses his head. In image 2b) we see that he has moved his head towards the right. The head movement towards the right, shows where the egg is moving to after falling out of the nest, i.e. *Jerry's* house. Once again, we see that the participant's gesture corresponds to his speech, '*and from the flower it rolled down to the mouse house'.* This sort of gesture-forms were predominantly performed by L2 English participants, where they would express the PATH that the referent was moving in and not the MANNER.

However, when analysing the Zulu adult participants, we observed a different gestural behaviour for micro-episode B6. We noticed that unlike the participants in the L2 English data-set, the L1 Zulu participants provided a combination of both MANNER and PATH in their gestures. These gestures were also a reflection of what was provided in the linguistic information which it accompanied.

3a) 

Siyama: BT 00:43.450

Lawa

"it fell [the egg]"

3b) 

Siyama: BT 00:45.620

elokhuzana esidlekeni

"from the nest"

3c) 

Siyama: BT 00:47.300

kulwembu

"into the spiderweb"

Figure 12*: Zulu Male Participant*

When looking at images 3a) to 3c) of Figure 12 (adapted from Kunene, 2010), we can notice the participant has his forearm on the right and the right hand is semi closed with palm facing down in the form of an egg going down. The fore-arm makes a downward motion, illustrating the egg falling down. The hand itself is depicting the shape of the egg. In the 3b), the right arm is at the lower right with the palm facing downwards, fingers spread out towards the lower centre. In this image, he is illustrating how the egg, the referent maintained by the left hand,

leaves the nest, illustrated by the right hand. These gestures maintain the same referents from the first image. In 3c), we see both arms extended to the extreme periphery of the left and the right side. From this example, we can see that both the MANNER as well as the PATH of the efferent is being expressed by the participant.

Stam (2015) states that English speakers almost never have MANNER in gesture when there is none in the accompanying speech (McNeill & Duncan, 2000). The results from the current study, agrees with this statement and further shows that there is an effect of language on gesture. The L2 English participants did not display PATH in neither speech nor gesture but instead displayed MANNER in both speech and gesture. This further confirms the results found in Stam (2015), where the study of L1 Spanish speakers, narrating in their L2 (English), showed different patterns of thinking for speaking about motion. In Spanish the participants would express path linguistically with verbs and their PATH gestures would occur with path verbs. When narrating in L2-English, the L1 Spanish speakers expressed PATH linguistically and their PATH gestures occurred with satellite units.

In order to further investigate the effect of language, we had to examine the semantic relationship of these representational gestures.

5.2.3.2 Semantic Relationship between the Representational Gesture and Speech

Representational gestures can either integrate the speech act, where the gesture does not add information to the verbal message, but rather makes the verbal message more precise; or; they can supplement the speech act, where the information brought by the gesture not only serves to specify the linguistic information associated to it, but also add additional meaning.

Age Group	Integrating Gestures		Supplementary Gestures	
	English	Zulu	English	Zulu
Group 1	2	4	1	11
Group 2	4	31	25	22
Group 3	37	42	61	54
Total	**43**	**77**	**87**	**87**

Table 20: *Number of Integrating and Supplementary Gestures*

Table 20 provides an overview of the number of integrating and supplementary gestures produced in relation to the representational gestures under macro-episode B. Integrating gestures do not add information to the verbal message, but instead make it more precise (Colletta *et al.* 2009). Whereas, supplementary gestures do not serve only to specify the

linguistic information with which they occurs, but they also add supplementary significance (Colletta *et al.* 2009).

Our first observation is that supplementary gestures were the dominantly produced gesture types for both the L1 Zulu participants and the L2 English participants. It is noteworthy that although the L1 Zulu speakers produced a higher number of supplementary gestures, this number is equal to the supplementary gestures produced by the L2 English speakers. This shows that the L2 English speakers produced a proportionally higher number of supplementary gestures despite producing fewer gestures than the L1 Zulu speakers.

We postulate that due to the narrative task being performed in the participant's second language, they produced more supplementary gestures to provide additional information to their speech. These participants did not indicate the referents of the micro-episode in their speech, and used gesture to indicate the micro-episode referent.

Integrating gestures makes the verbal message more precise. When performing the narrative in their L1, more integrating gestures were performed. These gestures corresponded to the speech in order to add emphasis to the speech. We attribute this gestural performance to the cultural norms of telling narratives in Zulu. When the participants are performing the narrative task in their L1, they provide all information about the narrative. These participants want their listeners to completely visualise what they are saying. Thus the information provided by their gestures are almost visual reproductions of what they are saying.

5.3 Summary

In our qualitative analysis, we examined certain aspects of our findings that needed further clarity based on our quantitative analysis. In our previous chapter we discussed the development of oral narratives in the two languages. In this chapter we did not focus on the effect of age, but rather the effect of language. We first identified that a bilinguals speech and gesture modalities are intertwined. When yielding high linguistic/verbal results, the gesture production rate is also high. We saw that when participants performed the narrative task in their L2 language, their linguistic information and gesture only displayed path of motion or manner of motion; but never a combination of the two. On the other hand, when the participant performed the narrative in their L1 language, they predominantly produced a combination of manner and path of motion in both their linguistic information and gesture behaviour, revealing an effect of language as well as belonging to different language typologies of expressing

motion events. We also found an effect of bilingualism on gesture production, during the performance of a narrative task. When the task is being performed in the participant's second language, the gestures appear to provide additional information to their narrative through the means of supplementary gestures. However, when the participant performs the narrative in their L1, their gestures provide more redundant information to the narrative which serve to reinforce the verbal message.

CHAPTER 6: Discussion and Conclusion

6.1 Summary of Findings

The main aim of this dissertation was to study the development of bilingual oral narratives of Zulu speaking children and adults from a multimodal perspective. We investigated this development by analysing the speech and gestural behaviour during a language production task of the oral narrative. A total of 36 children speakers of L1 Zulu and L2 English between the ages of 5 and 10 years were studied in relation their respective adult group in order to measure the children's evolution in comparison to the target groups. There were a total of 19 adult participants across both languages. To further analyse the bilingual aspect, we compared the L2 English data to an already existing corpus of L1 Zulu oral narratives.

We analysed a total corpus of 55 monologues of recounting a cartoon in both English and Zulu; consisting of 25 L2 English and 55 L1 Zulu oral narratives. The analysis first examined L1 Zulu speakers when they were narrating the cartoon in their L2 language, English. This cohort consisted of three age groups; 5-to-6-years old, 9-to-10 years old and adults. The second part of our investigation consisted of a comparison of the L2, English narratives to 30 L1 Zulu speakers narrating in their L1. The same three age groups that were in both languages were used in the comparison.

Our results, on the one hand, confirmed many findings that were already proposed by other researchers (McNeill, 1992; Colletta, 2004; Colletta *et al.* 2009; Graziano, 2009; Gullberg, 2010; Kunene, 2010). Children under the age of 10 years have not yet fully mastered their storytelling skills; and on the other hand, our results brought additional aspects that have not yet been explored. By studying the same cultural group speaking in different languages we find that the structure of the narrative is performed differently in both speech and gesture.

In this chapter, we will first summarise our findings of the L2 English narratives and then the core results of the comparative investigation.

In the analysis of linguistic devices of discourse, based on our quantitative analysis, our results show an evolution in the emergence of pragmatic, discursive and gestural competency of children of 5-to-6-years. These 5-to-6-year old children are at the beginning of their formal

education journey. Their cognitive, linguistic and communicative skills are not yet fully developed. The 9-to-10-year old children, who have been in school for longer and have been exposed to their L2 for a longer period of time, their cognitive, linguistic and communicative skills are more enhanced than the younger group.

With age, the length and complexity of the children's narratives and co-speech gestures increased (Bamberg, 1985; Berman & Slobin, 1994; Hickmann, 2003; Colletta, 2004; Colletta *et al.,* 2009; Graziano, 2009; Kunene, 2010). Based on these studies, we predicted that the 5-6-year old children would produce shorter narratives than the 9-to-10 year old children and these two children groups would produce shorter narratives and less co-speech gestures compared to their adult participants. Our results confirmed this hypothesis. The gradual increase in length of narratives is an indication of the children's ability to produce autonomous narratives during school going years. The 9-to-10-year old children produced well organised accounts of the narrative and this indicated that they had a good command of complex discourse clues as seen in their use of connectives. The older the child the more sophisticated the use of different categories of connectives used to link clauses. This also confirms the findings of key research on discourse development

To further confirm the evolution of discourse, we looked at the number of narrative and non-narrative clauses produced by the L2 English participants. As demonstrated by Colletta (2004) and Kunene (2010), a more complex discourse would be indicated by an increase of non-narrative clauses during the retelling of the story. Young children between the ages of 5-to-6 years stay in the narrative mode as much as possible. Whereas the 9-to-10 year old children show an emergence of ability to navigate between the acts of commentary, interpretation and explanation. This finding was also confirmed by Colletta and his collaborators (2009). Adults are more able to move freely between the various complex discourse devices, in comparison to children 10 years of age and younger. Even though the 10 year old children show the ability of moving towards a more complex discourse behaviour, they have not yet reached the target language usage. This was further confirmed by our analysis of discourse clues used by the participants during their narrations. The children groups used less discourse clues, due to their shorter narratives, compared to the adult groups who provided more complex narratives.

The theoretical framework which was used as an underlying basis for our research, is founded on several research investigations that propose that gesture and language develop in the same

place in the mind and these modalities are part of a single process (McNeill, 1992; Kita & Özyürek, 2003). If these modalities do emerge from the same place then as the length of the participant's oral-narrative increases, so should their number of gestures produced. Our results confirm this hypothesis. We identified that gesture does indeed increase with age.

McNeill (1992) postulates that different types of gestures are produced in the narrative, meta-narrative and para-narrative levels. Our final result in the analysis of the L2 English narratives, found that with the performance of complex discourse, the number of non-referential gestures increased. We measured four representational gestures, pragmatic gestures and lexical retrieval gestures. The adults had a lower percentage of representational gestures (66.1%) compared to both children groups. The 5-to-6-year old children produced 77.3% of representational gestures and the 9-to-10-year old children produced 71.5% of representational gestures. This shows that the youngest participants stayed in the narrative level whereas the adults moved between the three narrative levels, as outlined by McNeill (1992). The adults produced a higher number of non-representational gestures, such as discursive, framing, and lexical retrieval gestures; in comparison to the children groups. The gradual increase of non-representational gestures demonstrates a developmental shift towards a more complex discourse behaviour, at a pragmatic level (Colletta, 2004; Colletta *et al.,* 2009; Kunene, 2010). The increased non-narrative clauses coincided with the increase of non-representational gestures. Thus, providing further confirmation to the hypothesis that speech and gesture are intertwined and they emerge from the same place (McNeill, 1992).

The second part of our investigation was to investigate the effect of language on the development of discourse ability between L2 English narratives and L1 Zulu narratives. The L1 Zulu participants produced more clauses than the L2 English participants. Our findings also showed that, irrespective of language, there is a development in oral narratives. Children younger than 10 years of age have not yet mastered complex discourse abilities which are seen in the adult target groups. We identified that the pattern at which this development occurs differs between the two languages. The L1 Zulu participants at the age of 10 years peaked in the number of clauses they provided, and then decreased in the adult group. This occurred because the L1 Zulu adults appeared to condense information more, and were able to use sophisticated discourse clues such as the connectives to link their clauses. With the L2 English participants, there was no peak, and the children groups appear to be further from the story telling abilities of the adults.

In investigating the different types of pragmatic clauses, regardless of language, the narrative clauses yielded the highest result. L1 Zulu participants produced 8% more narrative clauses than the L2 English participants. However, the non-narrative clauses showed an interesting difference. Despite their superficial similarity, when looking in detail at the non-narrative clauses, we postulated that meta-discourse or meta-narrative-levels do not occur similarly in each language. This assumption was based on the L2 English participants' behaviour as they produced more explanatory clauses than the L1 Zulu participants.

The gesture analysis showed that the L1 Zulu participants produced more gestures than the L2 English participants. As Gullberg (2010) proposed, if bilinguals have separate meaning representations, then they should display two separate gesture patterns; one for each language. However, our analysis of the data, reveal that for both languages, the same gesture types yielded a high production rate. L1 Zulu and L2 English participants both produced a high number of representational, discursive and word searching gestures. This leads to the confirmation of our prediction that bilingual speakers do not store their co-speech gesture representations separately, but rather, use a shared representation of their co-speech gestures.

When L1 Zulu participants are performing a narrative task in their L2, once the participant reaches maturity, they still express their representations similar to the way that representations would be expressed in their L1. This further coincided with previous second language acquisition studies that have found that even advanced L2 speakers continue to target information for expression typical of the L1, instead of the L2, where they are mapping L1-typical meaning onto L2-typical morphosyntactic structures. Thus L2 speakers seem to look for ways to express the representations and perspectives of the L1 instead of changing to the perspective typical of the L2. (Gullberg, 2010). Similarly, as with the representational gestures, even when L1 Zulu participants are performing a narrative task in their L2, even after the participant reaches maturity, they still express their representations similarly to the way in which their representations would be expressed in their L1. Thus, the non-representation gestures follow the same pattern in both languages.

Looking in closer detail however, we noted that gestures produced were language specific. We identified this language-specific difference through analysis of the non-representational gestures produced. The L2 English participants had more discursive and framing gestures, than the L1 Zulu participants. However, the L1 Zulu participants produced more word-searching

gestures. The higher number of discursive gestures produced by the L2 English participants correspond to the increased number of discourse clues produced during their narratives. What was not expected was the higher number of word-searching gestures produced by the L1 Zulu participants during their narratives. Kunene (2010) hypothesised that more word-searching gestures are produced in the L1 Zulu narrative due to the lengthier narratives provided by the participants. Our study further confirms this hypothesis.

To further investigate the effects of language on discourse, we also conducted a comparative-qualitative analysis on the cognitive ability of recollection in this narrative task. The story-telling was based on the visualisation of a brief cartoon and each event of the cartoon was segmented into macro- and micro-episodes. There were no differences between all the children groups and the adults, all macro-episodes were recalled. There was no indication of age-related differences in the recollection of the episodes. By the age of 5 years, a child is capable of remembering the principal points of a story and retelling it in a chronological order.

Differences began to emerge when specifically looking at language typology and culture. Orature is a complex system of the Zulu and Bantu cultures whose effects are felt in the current South African education system. When children begin formal education in South Africa, beginning as early as foundation phase, children are taught the more Labovian structure (Labov and Waletsky, 1967) of story-telling. The socio-linguist William Labov put forward a six-part structure for oral-narratives. The Labovian structure of story-telling differs from orature, as it follows set categories when telling a story. This was noticed when looking at which macro-episodes were recalled the most in either language. In the L1 Zulu cohort, participants chose to pay close attention to the orientation and resolution of the cartoon, whereas the L2 English participants paid more attention to the abstract and the orientation of the story. This revealed to us that when L1 Zulu speakers perform a narration in their L2, they use a more Labovian structure to retell the story. Conversely when L1 Zulu speakers are narrating in their L1 they stick to the norms of orature.

A further indication of the difference in language appears in the specific qualitative-analysis of the macro-episode B. From both data-sets we identified that, when the agent of the micro-episodes of B was not the direct agent of that specific micro-episode, the participant's paid minimal attention to that micro-episode. However, when the agent was the direct cause of action, those micro-episodes were recalled the most.

In the gesture analysis of this macro-episode we analysed the number of representational gestures produced under macro-episode B. once again, we found that the relationship of speech and gesture are intertwined, where there was a high linguistic recall, more gestures were produced. This occurred irrespective of language.

Previous research (Kendon, 1995, 2004; McNeill, 1992; Streek & Knapp, 1992, Leonard & Pinheiro, 1993; Bouvet, 2001, Kita & Özyürek, 2003; Özyürek *et al*,, 2008) has shown that a speakers' use of gesture is influenced by the language structure of their home language. Özyürek *et al* (2008) states that research on children's development of language specific and universal syntactical packaging shows that children are sensitive to language-specific effects from an early age. Özyürek bases this on Talmy's language typology. Our analysis further complemented previous research on the effects of language structure. When participants were performing the narration in their L1, their gestures provided information on both manner and path. Their gestures also corresponded to their linguistic information. However, when the participant was performing the narration in their L2, their gestures as well as speech either referred to manner or referred to path, but the two were never combined.

To conclude our findings, children younger than 10 years of age have not fully mastered the skills of delivering complex narrative, in comparison to adults who use both complex verbal-discourse and co-speech gestures. This happened irrespective of language. Culture and the linguistic structures also have an effect on the discourse strategies that speakers use when performing a narrative. In the L2 English data we see that the participants produced more narrative clauses under the abstraction element, and in the L1 Zulu data, the participants produced more narrative clauses under the setting element. And their respective gestures reflected this difference, with more representation gestures occurring with the corresponding macro episode.

6.2 Limitations and Future Recommendations

The scope of this study did not cover certain analyses which would add information on the development of speech and gesture in narratives. Contributing to the limited analyses was first and foremost, the size of our data-sample. Our data sample was too small. This was the result of video-recordings which we were unable to use, as well as too few interviews conducted. Certain results emerging from our data-sets showed cultural trends, however, we could neither confirm nor invalidates this trend as our data-sample was too small. Furthermore, the cohort of L2 participants were different to the participants who were part of the L1 cohort. This could

have had an effect on our results due to individual variation that occurs when people speak and gesture.

Beneficial to the research on the development of bilingual-multimodal discourse, would be studies which investigate how discourse clues such as categorisation of clauses (e.g. subordinate, independent, main etc.), the syntactic clues (anaphors, connectives); the identification of syntactic complexity (subordination clues) etc. and how they appear in the L1 data-set and then compare them to the discourse clues found in the L2 data set. Future investigation on the differences which may or may not occur between oral and written Zulu narratives in comparison to L2 English oral and written narratives would be valuable in the understanding of bilingualism, especially from a South African perspective. The majority of research conducted on bilingualism is investigated from a European or American point-of-view. Thus many of the research methodologies and stimuli are not designed for a country like South Africa where we are rich in language diversity. Designing stimuli and creating adaptations for South African context would contribute towards our understanding of bilingualism in South Africa.

From the findings presented above, various questions began to emerge. The first question that emerges is the question of language transfer. English and Zulu are from different language families, as a result is it possible for a transfer of language to occur when performing a task in the second language? In the context of the current study, we did not notice any language transfer characteristics as none of the participants displayed overt code-switching. But on the other hand, we did notice a number of speech errors, such as the incorrect irregular past tense verbs which the participants used, or incorrect use of pronouns. Another speech-error identified was the pronunciation of the /ð/-sound which majority of the participants replaced with a /d/-sound. As this was not the focus of our study, a future study, perhaps a possible PhD topic would be to investigate the presented speech errors.

In relation to education, when one looks at the overall performance; even though the mental representations of the participants proved to be similar, we ask ourselves is the quality of the second language sufficient? When conducting the proficiency tests, the adult participants of the L2 English study scored appropriately to be regarded as proficient. However, the level of their proficiency could be considered questionable. The majority of the errors performed were performed by our target group. When comparing the narratives to the L1 narrative study, we see a big difference in informational quality. We expected a better result from our target groups

due to their longer exposure and usage of their L2. This however was not the case. As early as the age of 5 years, by having the child's second language as the language of learning and teaching (LOLT), children are formally introduced to their second language, before being fully adept in their first language. Ample research has been conducted on the critical age hypothesis where researchers are consistent with the notion that children need to be exposed to language early in life to develop properly (Carroll, 2008). The South African education policy implements an additional language (FAL) as a compulsory subject in the foundation phase of the child's schooling career. The implementation of such a strategy does not necessarily provide a positive outcome (as witnessed in our target group). Moreover, as previously mentioned, South Africa is rich with language variety and majority of the time the LOLT is the child's second language and thus the addition of FAL is the child's third language. Consequently the formal exposure to a number of languages before the child is fully adept in their L1 could lead to a lower quality of language proficiency. Children are also being informally immersed in their second language as parents are encouraging the use of English at home, instead of the home language. Due to this we see that the level of proficiency/acquisition in the target group is not where we are expecting it to be. Therefore we need to evaluate the impact that language immersion is having on language development as well as within our education system.

6.3 Conclusion

In conclusion, the present work presents a South African approach to the multimodal analysis of children's pragmatic and semiotic development of discourse. The results of this study present an exciting future direction on the expanding research of multimodal narrative research of discourse, especially from a South African point-of-view. Moreover, research on the impact of gesture on language and it's intertwined relationship, serves to provide further understanding of how the human mind processes language.

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APPENDICES

APPENDIX A: Oral Proficiency Test

ADAPTATION OF THE FOREIGN SERVICE INSTITUTE
ENGLISH LANGUAGE ORAL INTERVIEW
GUIDELINES FOR THE ORAL PROFICIENCY INTERVIEW

The point of the oral proficiency interview is to elicit natural speech from the speaker and to maintain a brief conversation that will allow the interviewer to form a global evaluation of a person's language proficiency. Since the purpose of this assessment is to obtain a GLOBAL measure of language proficiency, the interviewer need not focus on specific aspects of the language, such as mastery of the irregular past tense or subject-verb number agreement, or control of the fricatives. Rather, by carefully following the proficiency descriptions provided in the interview form the interviewer should be able to give a global rating on each of the five aspects of language: grammar, vocabulary, fluency and comprehension.

The following steps may be taken:

1. Put the person at ease.

2. Introduce yourself and let the person introduce him/herself.

3. Start by asking questions that require simple answers.
   - How old are you?
   - What grade are you in?

4. Proceed by asking student more open ended questions:
   - When is your birthday?
   - How old are you?
   - What grade are you in?
   - Who is your teacher?
   - What language do you speak at home?
   - Who do you stay with at home?
     - What language does your mum speak?
     - What languages does your father speak?
     - What language does your guardian (gogo, auntie, malumi, etc.) speak?

LANGUAGE PROFICIENCY INTERVIEW (LPI)
RATING SCALES

NAME: _____

DATE: _____

INTERVIEWER: _____

Grammar	1	2	3	4	5	6
Vocabulary	1	2	3	4	5	6
Fluency	1	2	3	4	5	6
Comprehension	1	2	3	4	5	6

Comments: _____

_____

_____

_____

_____

LANGUAGE PROFICIENCY INTERVIEW (LPI)
RATING SCALES

NAME: **PS**

DATE: **5th June 2014**

INTERVIEWER:

Grammar	1	2	3	4	(5)	6
Vocabulary	1	2	3	4	(5)	6
Fluency	1	2	3	4	(5)	6
Comprehension	1	2	3	4	(5)	6

Total: 20/24

Comments: *answers to question-:*

Understood questions, confident to answer, very audible

Birthday: I don't know

Age: 5 years

Grade: R

Teacher: Miss Jansen

Siblings: 1 brother and 1 sister

Language: speaks Zulu to mom and dad, speaks English to Miss Jansen

Holiday: Enjoyed the holiday, played with toys, bathed and went to sleep

Favourite toy: Barbie, has 2 Barbie dolls

Television: Likes watching TV

Favourite TV program: Popeye

What do you want to be when you grow up: A teacher

PROFICIENCY DESCRIPTIONS

Accent

- Pronunciation frequently unintelligible.
- Frequent gross errors and a very heavy accent makes understanding difficult, require frequent repetition.
- 'First language accent' requires concentrated listening, and mispronunciations lead to occasional misunderstanding and apparent errors in grammar or vocabulary.
- Marked 'First language accent' and occasional mispronunciations which do not interfere with understanding.
- No conspicuous mispronunciations, but would not be taken for a native speaker.
- Native pronunciation, with no trace of 'First language accent'

Grammar

- Grammar almost entirely inaccurate except in standard phrases.
- Constant errors showing control of very few major patterns, and frequently preventing communication.
- Frequent errors showing some major patterns uncontrolled and causing misunderstanding.
- Occasional errors showing imperfect control of some patterns but no weakness that causes misunderstanding.
- Few errors, with no patterns of failure.
- No more than two errors during the interview.

Vocabulary

- Vocabulary inadequate for even the simplest conversation.
- Vocabulary limited to basic personal and survival areas (time, food, family, etc.).
- Choice of words sometimes inaccurate, and limitations of vocabulary prevent continuous conversation on everyday topics.
- Vocabulary adequate to carry on basic conversation but some circumlocutions are present.
- Vocabulary almost as broad and precise as would be expected of a native speaker.
- Vocabulary apparently as accurate and extensive as that of a native speaker.

Fluency

- Speech is so halting and fragmentary that conversation is virtually impossible.
- Speech is very slow and uneven except for short or routine sentences.
- Speech is more hesitant and jerky than a native speaker; sentences may be left uncompleted.
- Speech is occasionally hesitant, with some unevenness caused by rephrasing and groping for words.
- Speech is effortless and smooth, but perceptibly non-native in speech and evenness.
- Speech on various topics as effortless and smooth as a native speaker‘s.

Comprehension

- Understands too little for the simplest type of conversations.
- Understands only slow, very simple speech on common everyday topics; requires frequent repetition and rephrasing.
- Understands careful, somewhat simplified speech directed to him, with considerable and rephrasing.
- Understands quite well speech directed to him, but still requires more repetition or than a native speaker.
- Understand everything in conversation except for very colloquial or low-frequency items, or exceptionally rapid or slurred speech.
- Understands everything in both formal and colloquial speech to be expected of native speaker.

APPENDIX B: Protocol and Procedure for Experiment

Experimentation protocol

Setting: school settings are preferable to control the familiarity variable (to preserve an impersonal relationship between adult and child). The interviewer is not the teacher and the data is not recorded in the classroom or with other children wandering about.

If impossible: family settings can be used with, preferably, an interviewer who doesn't know the child.

NOTE: it is however important to have a friendly disposition to remove shyness or fear from the child participant.

Equipment

- A laptop which will allow the children to watch the cartoon (the cartoon is the first three minutes of Tom and Jerry)
- A digital video camera (camcorder) should be positioned in order to film the interaction between the child and the adult, at a 45 degree angle facing the camera, preferably against a plain background (white or clear wall)

Progress

>>> **Phase 1 : Viewing of the cartoon**

(The child, sitting alone on a table, out of filming view)

Important: of preference, choose children who are at ease in oral communication. Begin familiarising the child with a little informal exchange.

Then: (Translate this into Zulu)

"I will show you a cartoon and you will tell me about it. This is a cartoon about the mouse whose name is Jerry. You will see what happens to him and a baby bird. Pay attention, watch this cartoon well because you will then have to tell it the best way you can »

Allow child to watch the cartoon twice.

>>> **Phase 2 : Narration of the cartoon**

(The child, filmed in interaction with adult)

Remove the PC and position the child facing the video camera, the interviewer sits by his side.

Directions to the child:

"Did you like it? Now, tell me the story you have just seen, the whole story and the best way you can"

Prompts:

1. ***In case of silence, too short account or synthetic summary, ask "what else happened? Can you tell more about it?"***
2. ***If you think the child has finished his account, ask "have you finished? Anything else happened?"***

>>> **Phase 3 : Explantation**

(The child, filmed in interaction with adult)

The child responds to questions asked by adult:

"Now can you explain to me:

1. In the beginning of the cartoon, why does the mother bird leave the nest?

2. How does the egg arrive at Jerry's house (Jerry is the mouse)?

3. Why is the baby bird happy to see Jerry?

4. Why does Jerry take him back to the nest?"

Important : The aim is to collect diverse types of explanations (hypothesis formulation in 1, procedural explanation in 2, theory of mind in 3, causal explanation in 4) that require the use of a variety of linguistic tools.

1. Do not over prompt the child
2. If the child is too shy to talk, thank them and move onto next participant

APPENDIX C: Participant Information Sheet

University of the Witwatersrand

Participants' Information Sheet
Project title: The Development of Discourse in Second Language (L2) Acquisition from a Multimodal Perspective

Good day,

What is the purpose of the study?
I am Saaliha Ahmed, an honours student of Dr Ramona Kunene-Nicolas from the Department of Linguistics at the University of the Witwatersrand. I am conducting a study on the development of discourse that occurs in bilingual children from a multimodal perspective.

The main aims of the research are:

1. What kind of effect will bilingualism have on story-telling and narrating; with regards to accuracy, sequence of events and referents.
2. How will the narrating-voices differ between girls and boys.
3. How will the gestures that 5-6 year old learners use be different from the gestures that the 9-10 year old learners use.

Who will participate?
Ten 5-6 year old participants and ten 9-10 year old participants. Both age groups will be from the same school situated in the Province of Kwa-Zulu-Natal.

Procedure?
Participation in this study is completely voluntary. If you choose to be part of my investigation, as a participant, I will ask you to watch a 3 minute cartoon-extract, and then immediately narrate the story back to the researcher (myself). Following the narration, I will ask you to perform a sentence repetition task, where you will be asked to repeat a set of standard sentences back to me. The child's education will not be interfered with as I will be conducting research according to the school's stipulated time-table. The investigation will take place over 7 to 14 days (1-2 weeks) and as a researcher I will just be video recording the narrations.

What are the possible benefits of taking part?
Whilst there may be no personal benefits to your participation in the study, the data gathered can contribute towards a better understanding of how the development of discourse occurs in bilingual children from a multimodal perspective.

Confidentiality?
Complete anonymity will be guaranteed if and when observations and data need to be presented for academic purposes. Only my supervisor and I will have access to the data gathered.

What will happen to the results of the study?
The results of the study will be used in my Masters Research essay only. Findings from this study will contribute towards a better understanding of how the development of discourse occurs in bilingual children from a multimodal perspective. If parents are interested in the outcome of the investigation, results will be provided on request.

Should you have any questions or desire further information, please feel free to contact –

Myself:
Miss Saaliha Ahmed
076-333-2842
saalihaahmed@hotmail.com

Supervisor:
Dr. Ramona Kunene Nicolas
011-717-4183
Department of Linguistics
ramona.kunenenicolas@wits.ac.za

Thank you for reading this information sheet, and if it is possible, participating in the study.

Sincerely,

Saaliha Ahmed

Department of Linguistic

APPENDIX D: Consent Form

University of the Witwatersrand

Dear Parent or Guardian:

I am Saaliha Ahmed, a master's student of Dr Ramona Kunene Nicolas from the Department of Linguistics at the University of the Witwatersrand. I request permission for your child to participate in a research study to be used for my master's dissertation. I am conducting a study on how the development of discourse occurs in bilingual children from a multimodal perspective. Participants who have given consent will be video-recorded.

The study consists of the following activities:

- The participant will watch a 3 minute cartoon extract and narrate the story back to the researcher (myself).

Only Dr. Kunene Nicolas and I will have access to information and all research recorded. At the conclusion of the study, children's responses will be reported as group results only. Participation in the study is voluntary. Your decision whether or not to allow your child's participation will not affect your child's daily routine at school. Should you grant permission for your child to participate but your child refuses to; your child is free to refuse to participate. If your child is willing to participate, he/she is free to end participation at any time.

Once the study has been completed, results will be available for parents on request.

Should you have any questions or desire further information, please feel free to contact-

Myself:

Miss Saaliha Ahmed

076-333-2842

saalihaahmed@hotmail.com

Supervisor:

Dr. Ramona Kunene Nicolas

011-717-1000

Department of Linguistics

ramona.kunenenicolas@wits.ac.za

Keep this letter after completing and returning the signature page to me.

Sincerely,

Saaliha Ahmed

Department of Linguistics

Please indicate whether or not you wish to allow your child to participate in this project by checking one of the statements below, by signing your name and returning it to me.

- ☐ I do not grant permission for my child to participate in Ms. Saaliha Ahmed's study of how the development of discourse occurs in bilingual children from a multimodal perspective.
- ☐ I do grant permission for my child to participate in Ms. Saaliha Ahmed's study of how the development of discourse occurs in bilingual children from a multimodal perspective
- ☐ I do grant permission for my child's image to be shown, only for academic use, from the video footage collected.
- ☐ I do not grant permission for my child's image to be shown, only for academic use, from the video footage collected.

_____ _____

Signature of Parent or Guardian Printed Parent/Guardian Name

_____ _____

Printed Name of Child Date

APPENDIX E: Coding Manual

Multimodal Data Transcription and Annotation with *ELAN*

Coding Manual

Projet ANR Multimodalité

ANR-05-BLANC-0178-01 et -02

Written by:

Jean-Marc Colletta

In consultation with:

Magdalena Augustyn, Geneviève Calbris, Olga Capirci, Carla Cristilli,

Jean-Marc Colletta, Ozlem Ece Demir, Susan Goldin-Meadow, Michel Grandaty,

Maria Graziano, Benedeta Guidarelli, Michèle Guidetti, Adam Kendon, Ramona Kunene, Susan Levine, Lidia Miladi, Agnès Millet, Saskia Mugnier, Seyda Özçaliskan, Catherine Pellenq, Isabelle Rousset, Jean-Pascal Simon,

Aurélie Venouil

Coding manual

1. Transcription and conventions of transcription

2. Linguistic Annotation (6 stages)

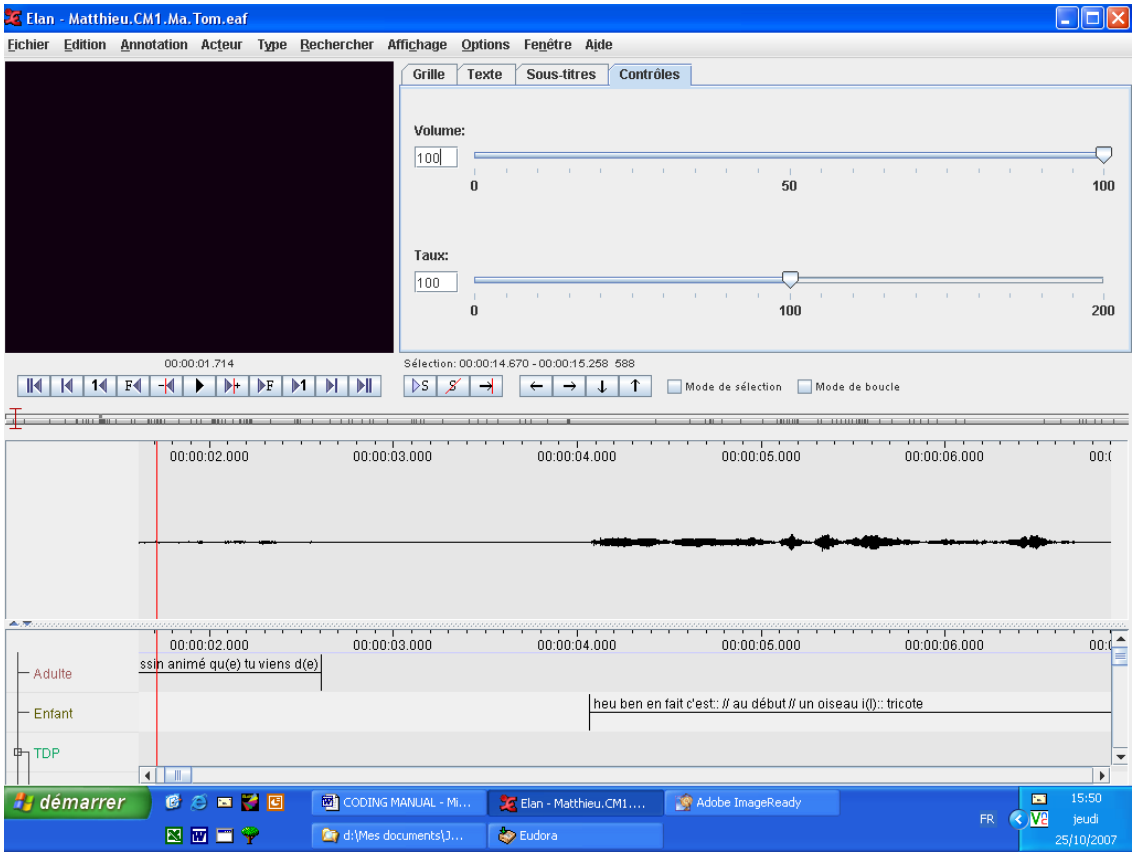
3. Narrative Annotation (5 stages)

4. Annotation of explanations (1 stage)

5. Gesture transcription and analysis (5 stages)

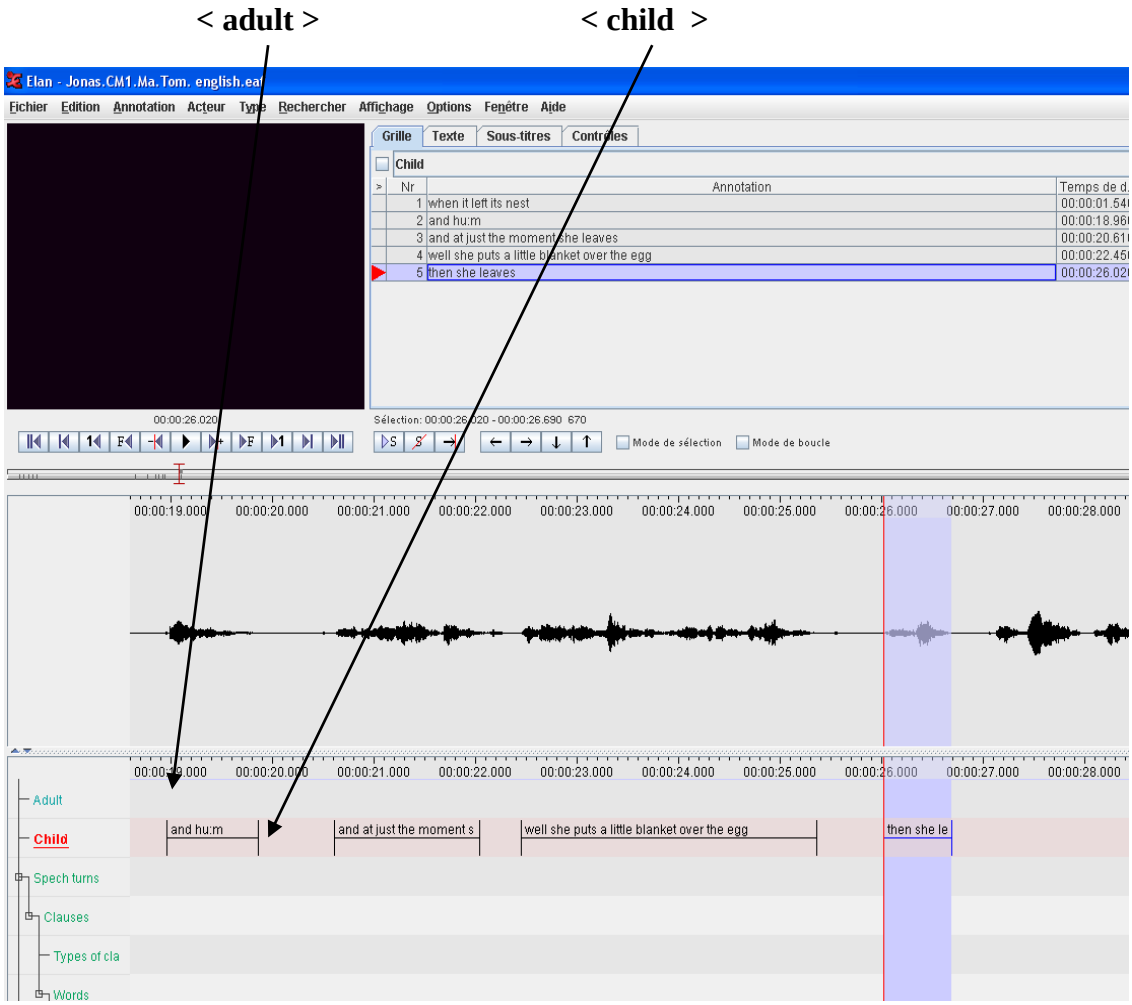
The transcription of both the narrative and gestures are carried out using the software *ELAN*.

Here is an outline of the interface:



1. Transcription conventions

• The transcription of the words of the speakers appears on two tracks



• The transcription of the words is to be treated clause by clause.

E.g
"and after egg it rolled"
"mmhm"
"it rolled to the house of the mouse"

• The transcription is **orthographical** and presents the entirety of the remarks of the speakers.

1.1. Conventions of linguistic aspects

the *button = respect the exact pronunciation of the child ("coat" for "goat"; "button" for "mutton") and
the *coat precede the phoneme or the syllable which does not correspond to the standard form with the * star sign

the go/ goat
he ret/ returns = to announce the unfinished words (goat, returns) with a / sign at the end of the word

(be)cause
(i)t is necessary = highlight the phonemes or syllables elided by ()

[no / know] = to put the terms for which one hesitates between []; to give the two possibilities

heu heum mm = hesitations

(xxxx) = note the terms or segments impossible to identify by crosses: an x per syllable/ (xxxx)

{to laugh} {sigh} = transcriber's comments

NO = use capital letters to note strongly accentuated words; no capital letters for proper names

1.2. Conventions for prosodic aspects

// = highlight the pauses between two segments of speech

? ! = use these two punctuation marks exclusively and only when necessary, to announce a question or an exclamation

no::, we::ll = vocalic lenghtening

2. Linguistic annotation

Stage 1 : < Speech turns > segmentation of child speech turns

Speech turns are annotated when the words of the child occur:

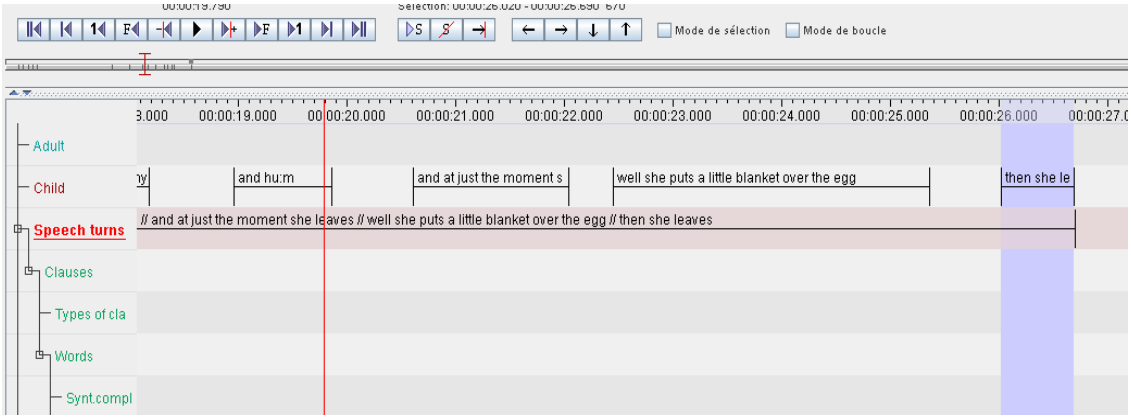
- after a prompt from the adult during the narrative task ;

- after a question or a prompt from the adult during the explanation task.

Reminder: in the task of recounting the narrative, one considers two types of **prompts:**

1. In case of silence, or too short a narrative, the adult asks "what else happened? Can you tell me more?"

2. When the child is towards the end of his narrative, the adult asks: «have you finished? Did anything else happen?"



Note: in the narrrative task, it happens frequently that the child delivers his complete narrative the first time, without being prompted by the adult, therefore, there is only one speech turn to be annotated.

Stage 2: < Clauses > segmentation of the child words in clauses

Work is facilitated by the preliminary transcription of the words clause by clause.

We call a **clause**:

- A predicate matched by one, two or three arguments (logical approach), or
- A continuation of words including a verb matched by its satellites as subject and complement(s) (grammatical approach).

Examples are given at stage 3.

In the case of an **incomplete clause**, one annotates it like a single clause if the speaker formulates a verb.

On the other hand, at this stage, one standardizes the words to allow the linguistic analysis (segmentation in words):

- removal of the non-linguistic signs such as: / () * ?
- removal of the comments of the transcribers between { }
- removal of hesitation marks and vocalic lengthening
- removal of the false starts when it is of a syllable, a word or a group of words
- removal of the restarts when it is about the repetition of a word or a group of words

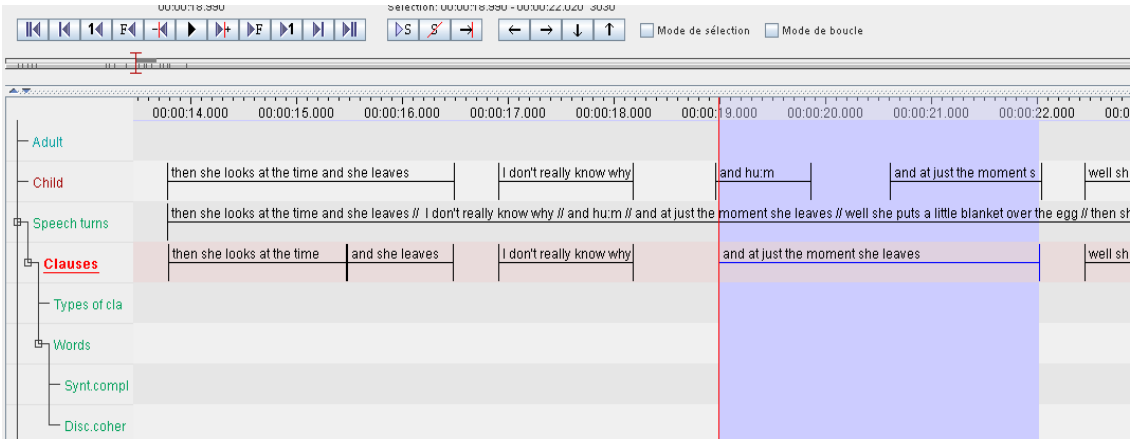
E.g. (see illustration) :

ha (be)cause // if the egg it did not arrive	>>>	ha because if the egg it did not arrive
it would not ha::ve have been a good story {laugh}	>>>	it would not have been a good story

Note: maintain restarts when it is the repetition of a whole clause or a reformulation.

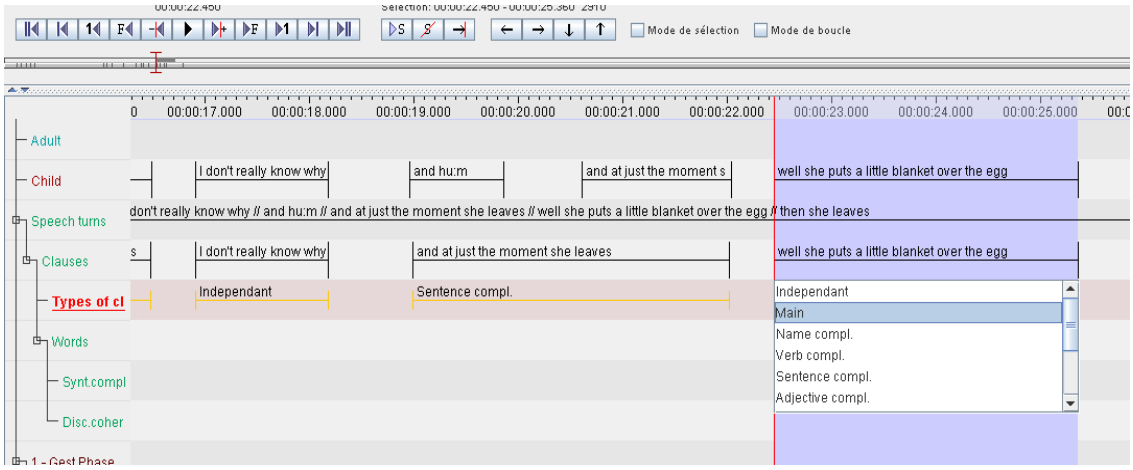
E.g. :

After Gromit I mean Wallace's dog he says…	>>>	After Gromit I mean Wallace's dog he says..



Stage 3: < Types of clauses > Categorization of the clauses

Double click on the place where you wish to annotate, and then click on the value chosen on the drop-down menu



< **Nominal sentence** > : annotation of non predicative expressions (do not include the clauses introduced by a presentative copula such as “it is” or “there is”)

E.g.: No example in the French corpus

< **Independent** > : isolated clause, surrounded or not by connectors (between brackets)

E.g. :
it looks at its watch
(then) it leaves
(and) it leaves the egg in the nest
(and) (in fact) the egg (afterwards) it shakes
(and) it turns around the nest

< **Independent with presentative copula** >: isolated clause, surrounded or not by connectors (between brackets), introduced by a presentative copula of the type “there is”, “it is”, “here”

E.g. :
there is a sheep
it is a mother bird in a nest

< **Main** >: clause to which a noun or adverbial clause is attached

E.g. : see following

< **Main with presentative copula >:** subordinate clause (underlined noun clause or adverbial clause) dependant on a main clause introduced by a presentative copula like “there is”, “it is”, “here” (in bold)

E.g. :
There is the sheep [which wants to leave]
It is a mother bird [who knits]

< **Verb complement > :** subordinate completive clause (underlined) dependent on the main clause verb (in bold)

E.g. :
He says [I leave tomorrow]
Wallace’s owner says [you were hungry at night]
His mother tells him [to be carefull]
He wants [Marie to eat]
He asks [if Wallace will leave]
He saw [that there were many things {which had disappeared}]
He learned [to be a hunter]
She knows [that she has all the time]
I don’t know any more more [what it is]
They called some people [for them to come and see {what is happening}]

< **Sentence compl.** > : subordinate adverbial clause (underlined) dependent on a main clause (in bold)

E.g. :
And afterwards [when he looks at things] **it was all eaten**
Afterwards [he had eaten so much] **he fell asleep**
I left [without him seeing]
She takes something [to bring it to her grandmother]

< **Noun complement** >: subordinate clause (underlined) dependent on a nominal group subject or complement (in bold)

E.g. :
The children [who were sleeping] heard nothing
He sees **something** [which moves]
He read **the newspaper** [where they wrote about the accident]

< **Focalised noun complement.** >: subordinate clause (underlined) dependent on a nominal group (in bold) introduced by a presentative copula

E.g. :
There is **the sheep** [that wants to come out]
It is **the wolf** [that won]
It is **time** [to eat]
He saw **that there were many things** [that had disappeared]

< **Adjective complement** > : subordinate clause (underlined) dependant on an adjective (in bold)

E.g. :
It is very **hard** [to verify his work]
I am **happy** [to see you]

< **Adverb complement** >: subordinate clause (underlined) dependant on an adverb (in bold)

E.g. :
Luckily [we found it at last]

< **Infinitive** >: subordinate non finite adverbial or completive clause (underlined)

E.g. :
He went to the river [to search for stones] (adverbial)
He sees [him go] (completive)

< **Factitive** >: subordinate causative clause (underlined)

E.g. :
He makes [him come down from the bed]

Note: It is considered that one deals with one and only one clause when the verb 1 in a sequence [finite verb1 + non finite verb 2] is:

- either an aspectual verb:

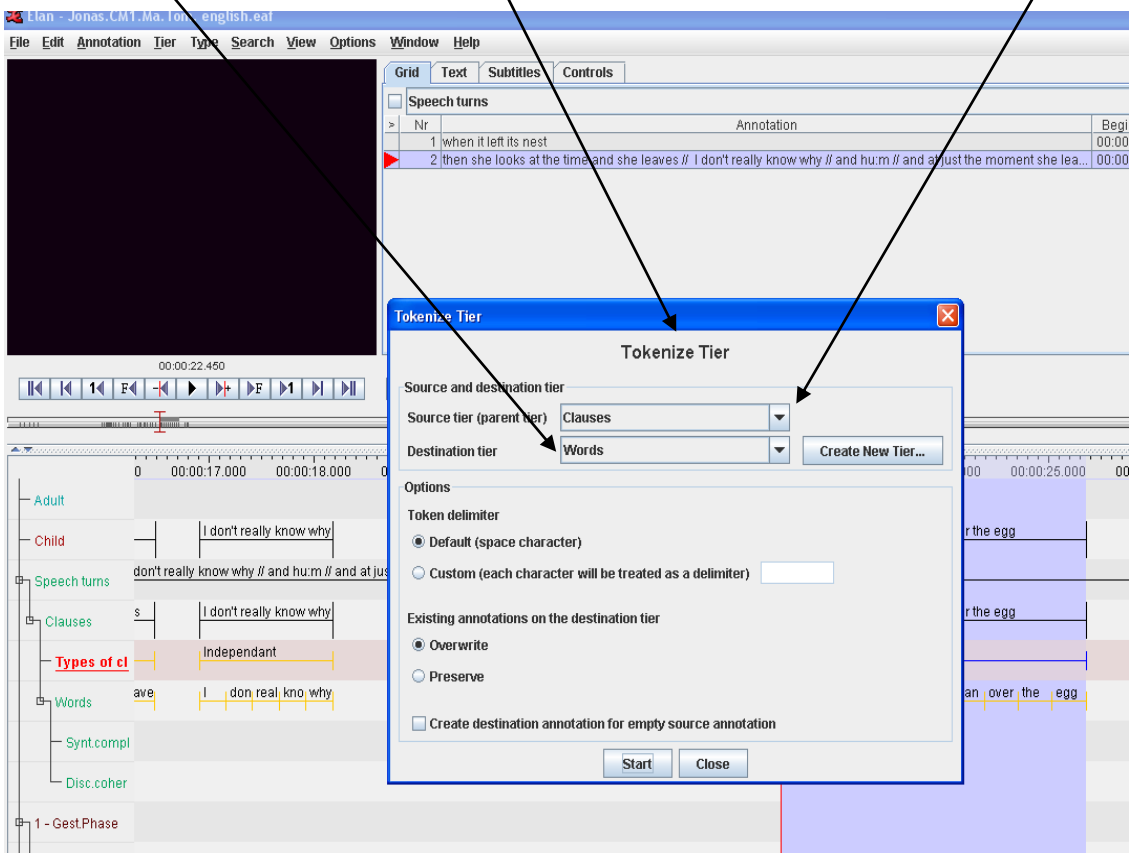
E.g. :
he **is about** to leave the nest
he **begins** to bang with his beak
he **hurries** to go to grandmother's house

- or a modal verb:

E.g. :
she **is allowed** to go to eat
the little boy **could** not catch the ball
the bird **wants** to destroy everything
She **had** to see her grandmother

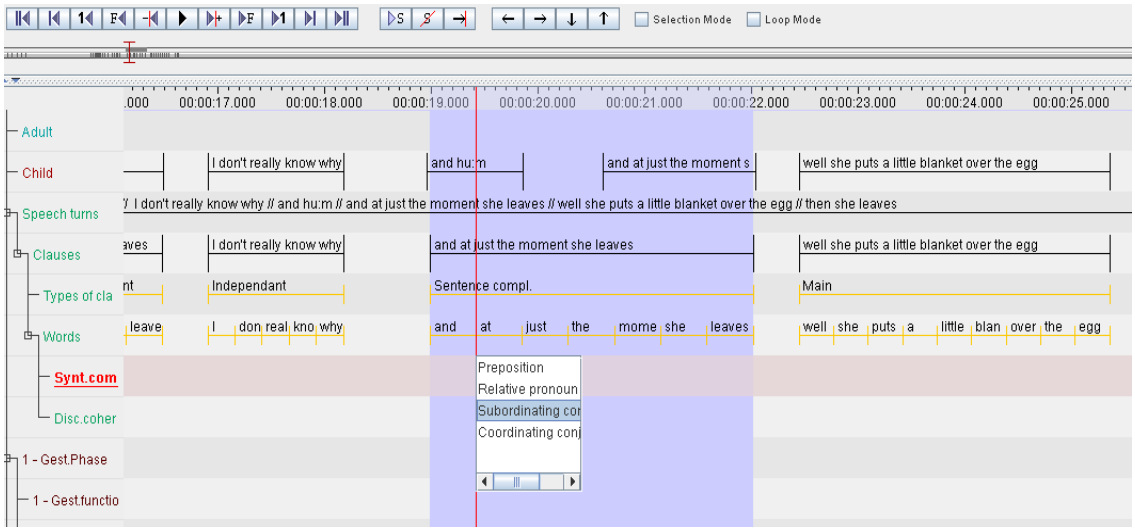
Stage 4 : < Words > Word segmentation

By using the command « tokenize tier » from the « Tier » menu. Then by defining « source tier » and « destination tier » as following :



Stage 5 : < Synt.Complex.clues >: Identification of syntactic complexity (subordination clues)

Double click on the place where you wish to annotate, then click on the value chosen in the drop-down menu:



We annotate:

< **Subordinative conjunctions** >: subordinating conjunctions such as:
that, when, like, so that, of what, because, whereas, without, all that, etc

< **Relative Pronouns** >: the relative pronouns:
who, who, where, of which, etc

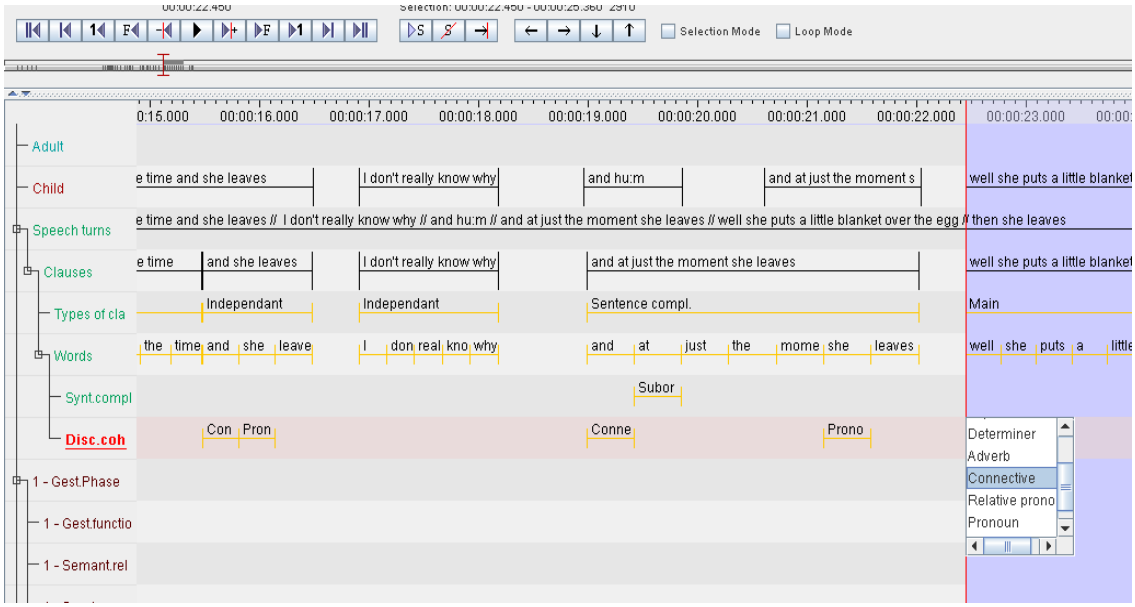
< **Prep** >**:** prepositions and prepositional locutions introducing an infinitive:
E.g. :
to see you better
I ask you **to** leave
the mouse comes out **in order to** take it back to the nest

Note: Other subordinates such as adverbs, adverbial phrases, etc may be annotated by leaving the annotation box empty.

Note: when the word is in two segments like “so that” or “in order to”, one annotates only at one place.

Stage 6: < Disc.Coherence.clues > identification of connectives and anaphora

Double click on the place where you wish to annotate, then click on the value chosen in the drop-down menu:



6.1. Connectives : one annotates like **< Connective >** all the words which have a role of either marking the discourse structure, or marking logical, chronological, spatial, argumentative or enunciative relationships beween clauses. See examples in the table below (extracted from Colletta, 2004).

Discourse structure markers	They allow to announce the opening or the end of a conversational unit (well, now, then, okay, so…), and to organize the discursive progression (initially, firstly, to start, secondly, in the second place, then, lately, lastly, to finish, finally…).
Logical, chronological and spatial connectives	They mark inter-clause relationships within explanatory sequences (logical connectives such as if…then, therefore, because, consequently…), narrations (chronological connectives such as and, then, before, at the same moment, afterwards, later…) and descriptions (spatial connectives such as at the top, below, under, near, on the left, on the right, further, in front, behind…)
Argumentative connectives	They mark inter-clause relationships within argumentative sequences. They mark opposition (no, on the other hand…), justification (because, since, indeed, moreover…), concession (certainly, of course, it is true that…), counter-argumentation (but, however, nevertheless…), consequence (thus, also, therefore, consequently…), summary (finally, all in all, in short, definitely…)
Enunciative connectives	They signal metadiscourse (otherwise said, I want to say, it means…)

6.2. Anaphora : one annotates all the words which have a role of reiterating a former referent. Anaphoric function (referent in bold, anaphora underlined) can be carried by:

< Noun > a noun or a nominal group: **the mouse**… Jerry… the mouse Jerry

< Determiner > a determiner: **a sheep**… the sheep… this sheep

<Pronoun> a personal pronoun : **a sheep**…it entered the house

< Relative pronoun > a relative pronoun: there is **a sheep** which gets off a truck
and there it sees **the plant** which had been eaten

< Zero anaphora > : no example in french

< Other > : anaphora carried by a verbal group, an adverb, a clause, etc (to be annotated by leaving annotation box empty)

Note 1: in the case of the possessive determiner like in "the bird… its mom". One does not regard "its" as anaphora at the time of the first mention of the referent "mom".

Note 2: when there is repetition of the co-reference in the same clause (focalisation), one only annotates the first anaphoric reference (underlined) and one ignores the second (in italics)

E.g. :

Wallace… I know [that Wallace *he* adores cheese]
< Noun >

A sheep… The sheep, *it* is eating the leaves
< Det >

The bird… it pecks [all that it finds, *the bird*]
Pronoun >

Note 3 : when one annotates the files corresponding to the explanations, one annotates as anaphora the first mention of a referent if and only if this referent was mentioned explicitly in the question or the prompt of the adult..

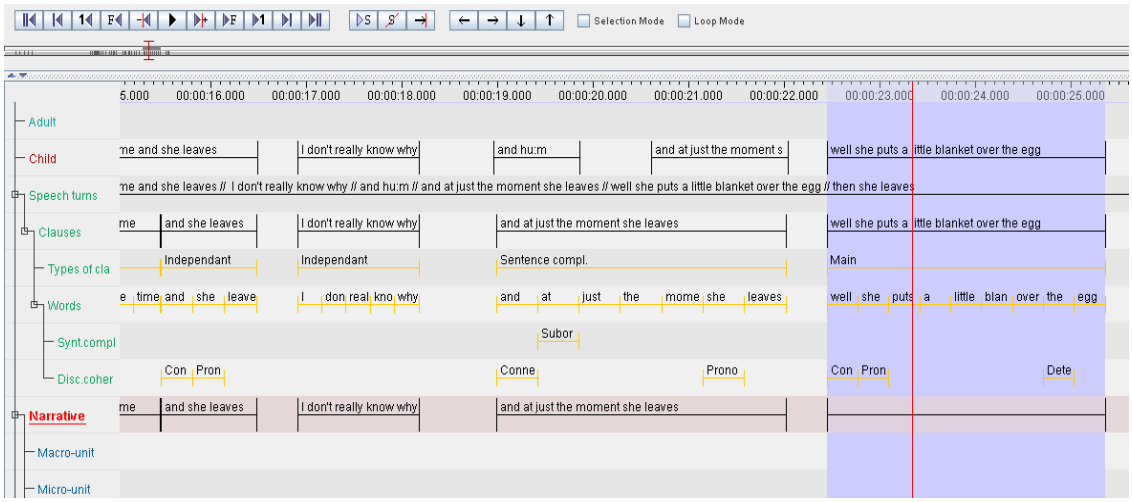
E.g. :

Adult: why was the **baby bird** glad to see the mouse?
Child: because it believes that it is its mom
< Pronoun >

3. Narrative annotation

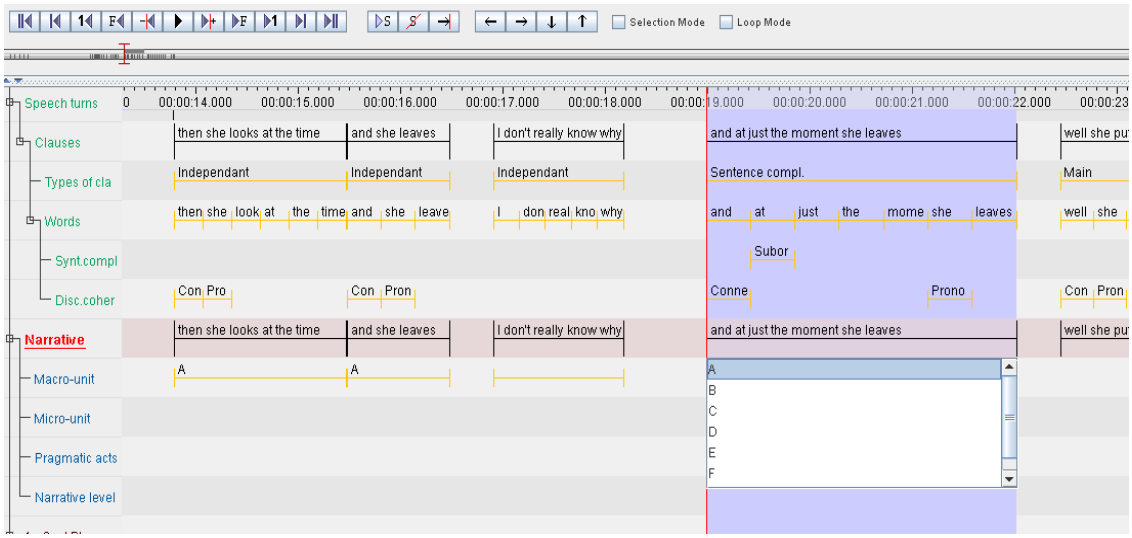
Stage 1: < Narrative > resumption of the segmentation of the child's clauses

It is enough to copy the annotations already recorded at stage 2.



Stage 2: < Macro-unit > categorization of the clauses in macro-episodes

Double click on the place where you wish to annotate, then click on the value chosen in the drop-down menu:



List of macro-episodes :

Episode code	Episode description
A	In the nest
B	From nest to bed
C	The hatching
D	"Imprinting"
E	Damage
F	How to calm the baby bird
G	Back to the nest

.

Note 1: Several clauses can be assigned to a macro-episode, and conversely, it can happen that a macro-episode is not the subject of any clause.

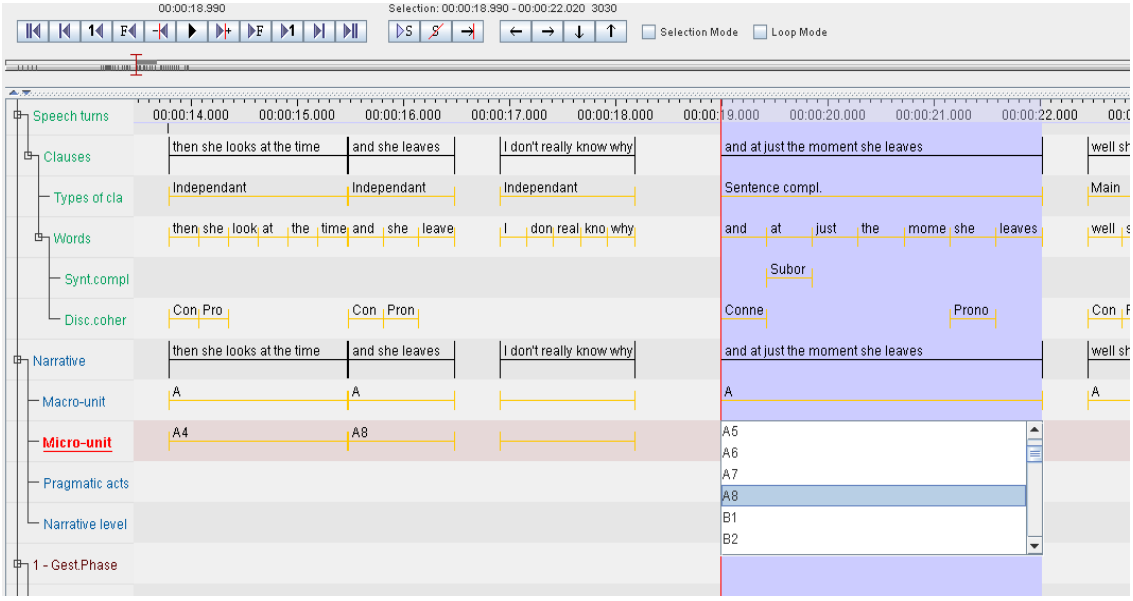
Note 2: when the words of the child do not correspond to any identified macro-episode: the child evokes events out of the history (e.g. hereafter), explains, comments on or interprets (cf. stage 4), one leaves the annotation empty while clicking outside the drop-down menu.

E.g. :
"I don't really know why"

(See above annotation illustration)

Stage 3: < Micro-unit > categorization of the clauses in micro-episodes

Double click on the place where you wish to annotate, then click on the value chosen in the drop-down menu:



List of micro-episodes :

Code	Description of micro-episode
A1	The mother knits
A2	The mother looks at the egg
A3	The mother knits
A4	The mother looks at the time
A5	The mother puts down her knitting
A6	The mother tucks in the egg
A7	The mother looks at the egg
A8	The mother leaves
B1	The egg jumps about
B2	The egg falls on a cobweb
B3	The cobweb breaks
B4	The egg falls on a flower
B5	The flower drops the egg on a leaf
B6	The egg rolls from the leaf to the house
B7	The egg pushes the door open
B8	The egg rolls up until it reaches the bed
C1	The mouse turns on top of the egg
C2	The egg wakes the mouse
C3	The mouse discovers the egg
C4	The egg makes the mouse fall from the bed
D1	The egg cracks
D2	The baby bird runs with its shell on the head
D3	The mouse removes the shell
D4	The baby bird runs in circles
D5	The baby bird thinks the mouse is its mother
D6	The baby bird hugs the mouse
D7	The mouse pats the head of the baby bird
E1	The baby bird sees something
E2	The baby bird runs and climbs on the chest of drawers
E3	The baby bird attacks the drawers with its beak
E4	The baby bird destroys the lampshade
E5	The mouse wants to catch the baby and gets knocked on the head
E6	The bird makes a hole on the wall
E7	The mouse holds the bird by its beak and vibrates
E8	The mouse places the bird
F1	The mouse has an idea
F2	The mouse searches for something to eat
F3	The mouse holds out a morsel of food
F4	The baby bird eats
F5	The mouse hands another morsel of food
F6	The baby bird eats the morsel of food as well as the mouse's arm
F7	The mouse shakes himself free
F8	The bird gets stuck on the floor
F9	The mouse pulls the bird free
F10	The mouse wipes its forehead and prepares to sit down
F11	The baby bird destroys the stool and the mouse falls
G1	The mouse looks at the bird angrily
G2	The mouse takes the bird in his arms
G3	The mouse takes the bird outside
G4	The mouse looks up, he searches by turning his head right then left
G5	The mouse sees something and smiles
G6	The mouse climbs on the tree until reaching the nest
G7	The mouse places the bird inside
G8	The mouse waves goodbye
G9	The mouse leaves

Note 1: several clauses can be assigned to a micro-episode, and conversely, it can happen that a micro-episode is not the subject of any clause. When the words of the child do not correspond to any identified micro-episode: the child evokes events out of the history, explains, comments on or interprets (cf. stage 4), one leaves the annotation empty by clicking outside the drop-down menu.

E.g. :
"Well it is woodpecker I mean a mother woodpecker who makes an egg"

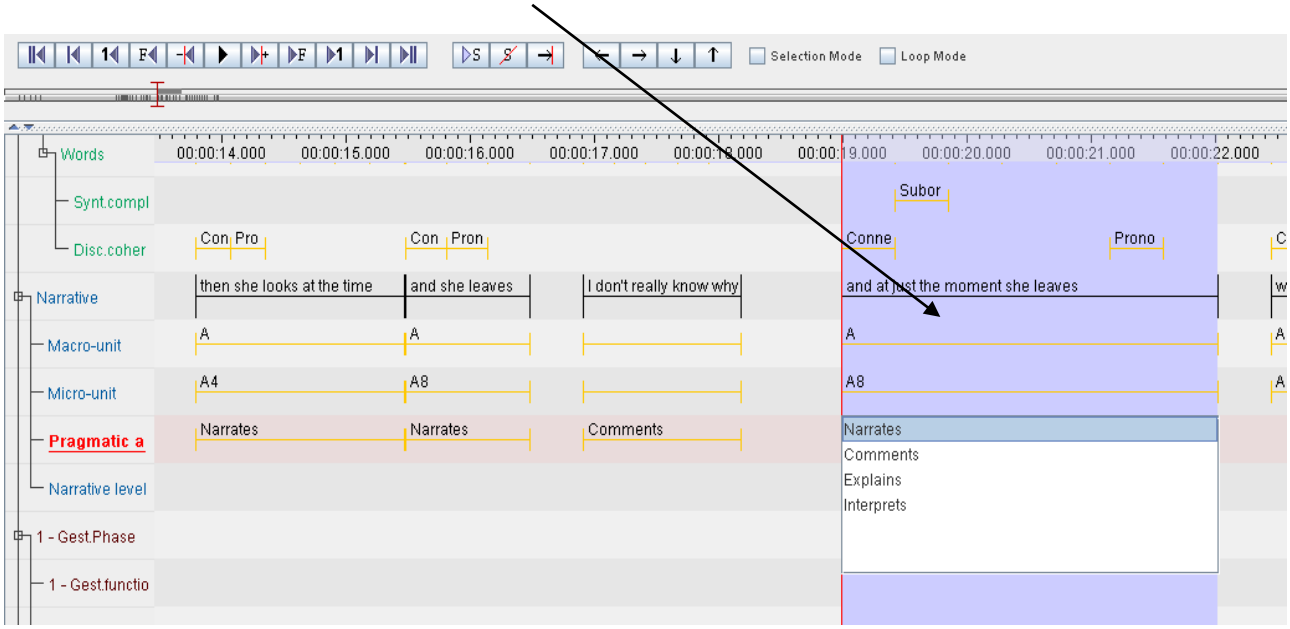
Note 2: when the child's words correspond to a micro-episode identified without using word for word the formulation suggested, the corresponding micro-episode is all the same selected.

E.g. :

"well in fact at the start a bird knits"	< A1 > : The mother knits
"after it (the egg) trembles"	< B1 > : The egg jumps about
"and then it (the egg) turned around the nest"	< B1 > : The egg jumps about
"and it slips to a flower"	< B5 > : The flower drops the egg on a leaf…

Stage 4: < Pragmatic acts > categorization of the clauses as expressing speech acts

Double click on the place where you wish to annotate, then click on the value chosen in the drop-down menu:



Select :

< narrates > when the clause takes the description of a micro-episode or states the explicit dimension of this micro-episode: the child tells the event such as it appears in the cartoon.

> **Thus:** any clause having been identified at stage 3 as corresponding with a micro-episode is to be annotated with < narrates >

< explains > when the clause imports a precision of a causal nature: the child includes a supplementary explanation to the narrated event such as it appears in the cartoon.

> E.g.:
> (then afterwards he tries to sit down) **because he (Jerry) is tired**
> (he takes it back to his nest) **because it's breaking everything**

< interprets > when the clause presents an inference or an interpretation concerning the situation or the intentions of the characters: the child invents from the event, makes some hypothesis…

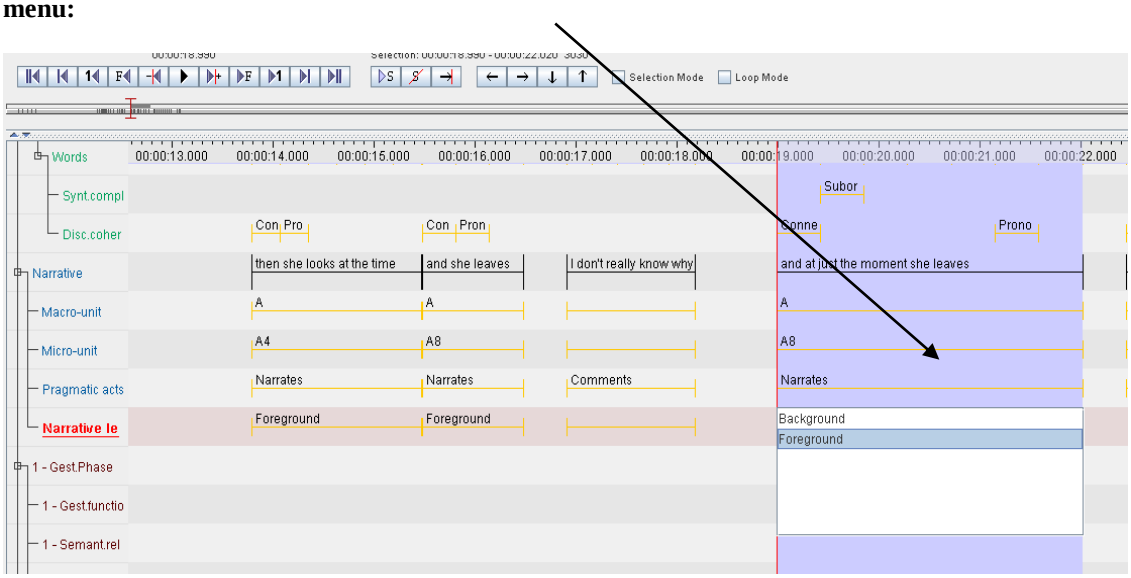
> E.g.:
> (then it looks at its alarm clock) **it realizes {that it is the hour [to leave]}**
> >>> 3 clauses to be annotated with < interpret >

< comments > when the clause deals with neither the explicit aspects, nor the implicit aspects of the course of the events but presents a "meta-narrative comment" relating to a character, an action or any aspect of the story, or a "para-narrative comment" relating to the action of telling the history (judgement, personal appreciation…)

> E.g.:
> **it is a crazy bird**
> **I like [when the egg falls into the spider web]** >>> 2 clauses to be annotated with < comments >

Stage 5: < Narrative level > categorization of the clauses as expressing foreground *vs* background of the story

Double click on the place where you wish to annotate, then click on the value chosen in the drop-down menu:



Select :

< **Foreground** > the content of the clause describes the course of the events such as they appear in the cartoon.

E.g.:
then it looks at its alarm clock

< Background > the content of the clause gives information on the the background of the events: the beginning (micro-units A1, A2 and A3 mainly), the end (micro-units G8 and G9 mainly), or describes characters or places.

E.g. :
well, at the beginning there is a bird knitting

Note: Two options:

1. the child recounts the events using the present tense as the linguistic tense: the change from background to foreground is marked by the use of a connective introducing a new event (suddenly, and then)

   or:

2. the child is using the past tense as linguistic tense: the change from background to foreground is marked by the tense that is used: imperfect for the background, simple past tense (or preterit) for the foreground

We leave the annotation empty when the clause is annotated with < comments > at stage 4, since the child is no longer telling explicit or implicit aspects of the story.

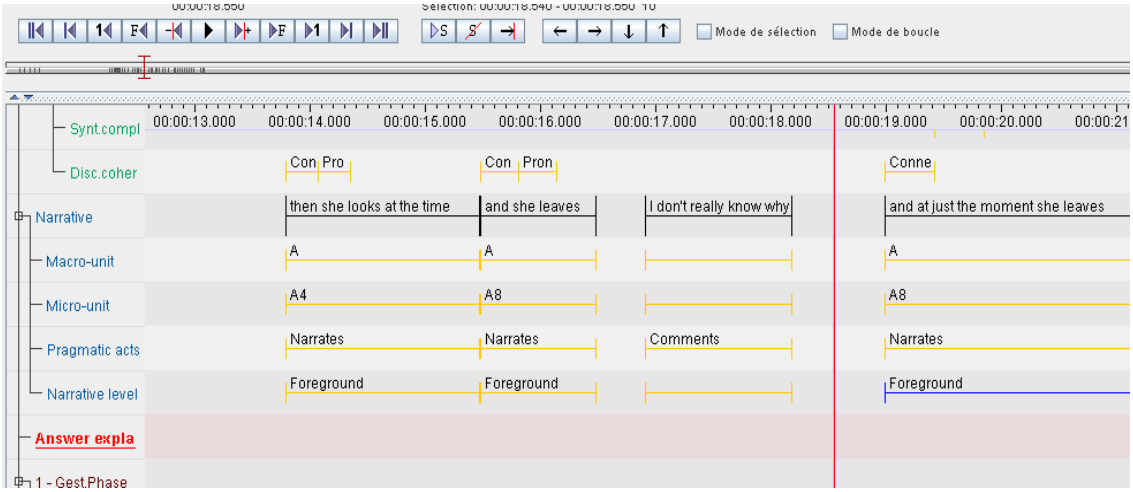
4. Annotation of Explanations

Stage 1: < Answer explanation > partial resumption of the segmentation of the child's clauses

After each question or a request for an explanation by the adult, you need to make a brief annotation which indicates if there is or not an answer by the child.

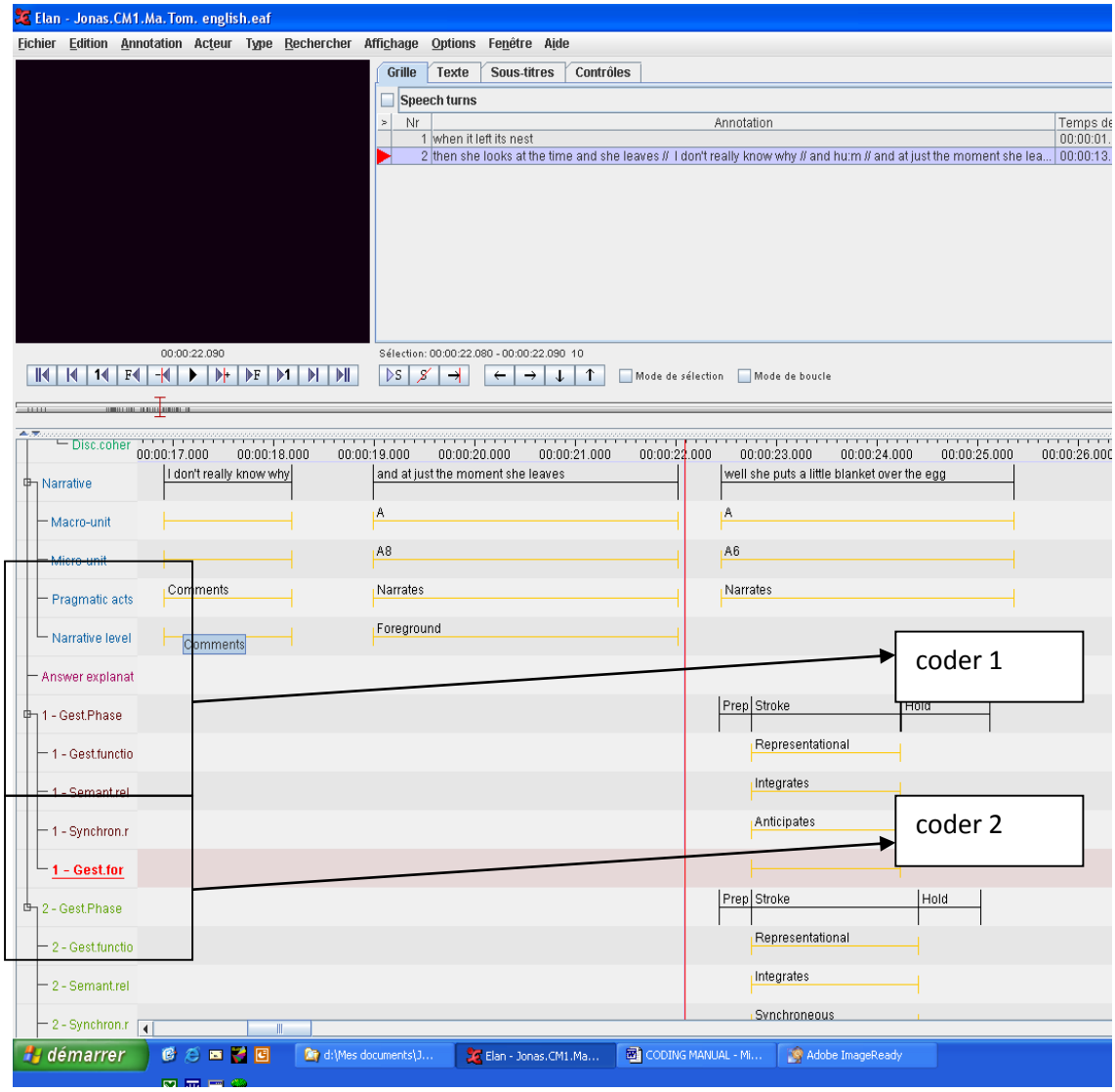
Select < 0 > on the drop-down menu if there is no response

Select < 1 > on the drop-down menu if there is a response from the child.



5. Gesture Transcription

It is carried out in parallel by two independent coders 1 and 2, who annotate each, the various stages:



For each of the following stages, there will be corresponding examples of the options of the roll-down menus in the file *ELAN* "Jonas.CM1.Ma.Tom.eaf".
One opens this file on *ELAN* with the corresponding audio and video files which are appendixed to the present document in file "ANR Coding Manual".

Stage 1: < Gesture Phase > identification of gestures and annotation of the gesture phases

1.1. Identification of the gesture units

To identify the gesture units that it is on the point of annotating, the coder takes into account the three following criteria, to which it allows a value between 0 and 2:

If the **movement** is:

- Easy to perceive, of good amplitude, marked well by its speed	2	
- not easy to perceive, of small amplitude, not marked by its speed	0	
- between the two		1

If **location** is :

- in frontal space of locutor, for interlocutor	2
- on a side, little or not locatable by the interlocutor	0
- between the two	1

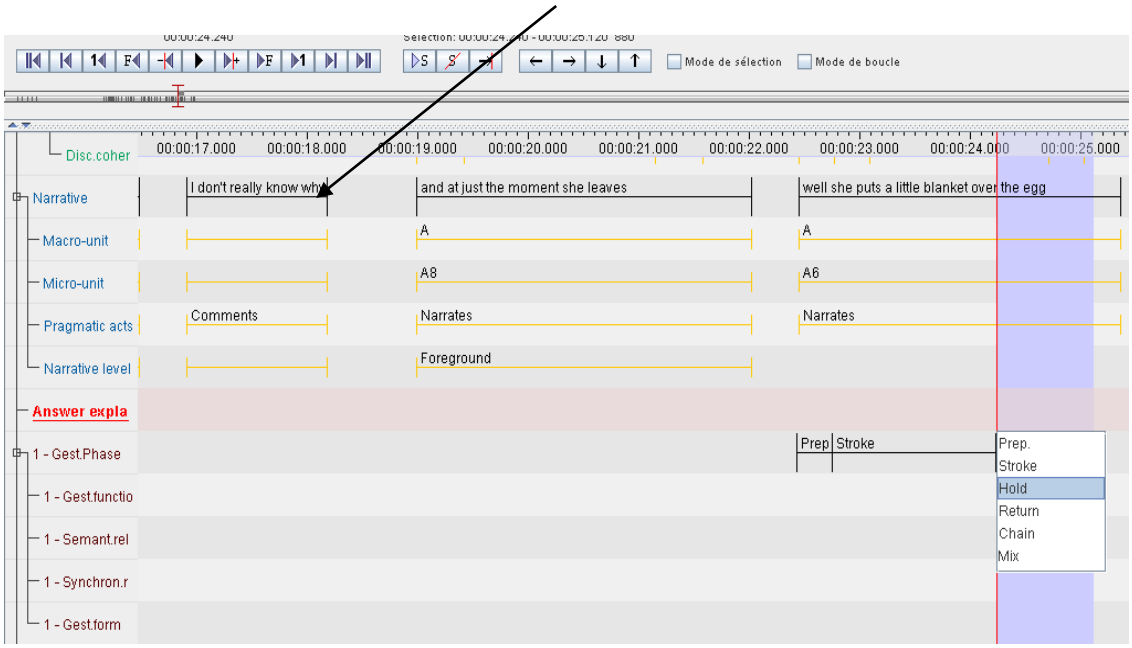
If the **configuration** (in the case of a manual gesture):

- corresponds to a precise shape hand or a well marked trajectory	2	
- corresponds to an imprecise form or trajectory	0	
- between the two		1

One identifies the movement as a gesture if the sum of the allotted values is > 3

1.2. Annotation of the gesture phases

Double click on the place where you wish to annotate, then click on the value chosen in the drop-down menu:



One selects one of the six following values (see examples in A. Kendon, 2004, chap.7) :

< **stroke** > = the gesture itself, which is a hand gesture, or a movement of the head, shoulders or bust.

Note: every stroke corresponds to a gesture: the number of strokes which one annotated must thus correspond to the number of gestures which one identified in the sequence.

< **prep** > = the movement which precedes a hand gesture stroke, which takes the hand(s) from its (their) initial position (at place of rest) to where the gesture begins.

< **return** > = the movement which brings back the hand(s) from its (their) position at the end of a hand gesture stroke to a rest position, identical or not to the preceding one.

< **chain** > = the movement which brings the hand(s) from its (their) initial position at the end of a hand gesture stroke to the place where a new stroke begins, without returning to a rest position between the two strokes.

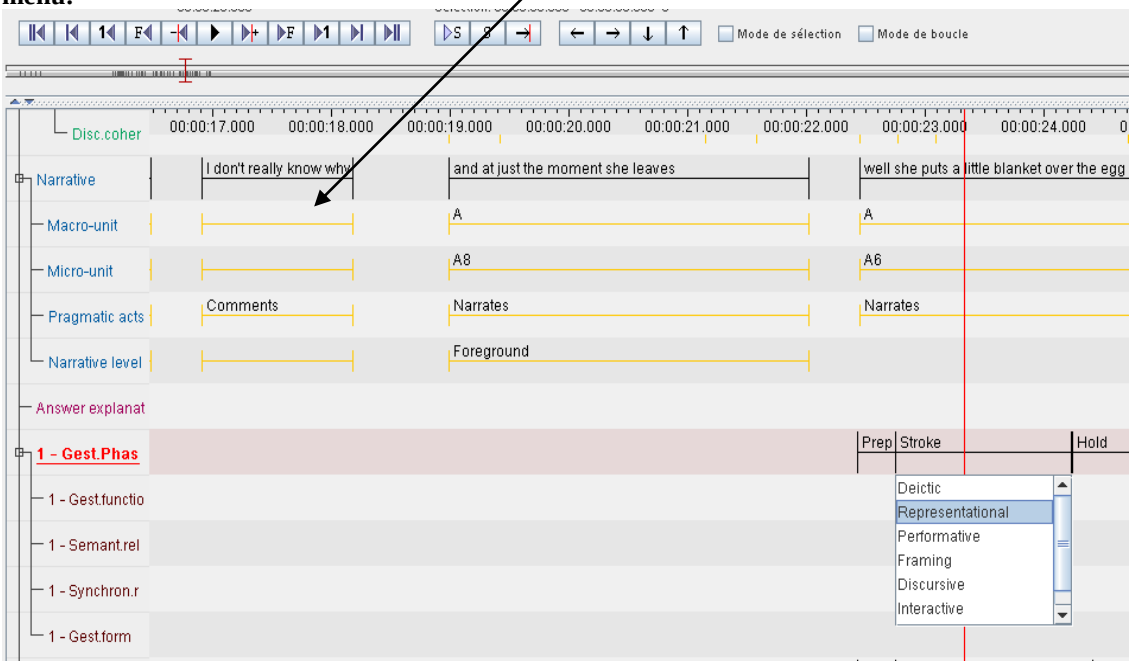
< **hold** > = the maintaining of the hand(s) in its (their) position at the end of a hand gesture stroke, before the returning phase or a chained gesture.

< **mix** > = we do not use this annotation.

Note : contrary to hands, the position of head, the bust or shoulders is fixed. These movements can therefore not be "prepared" as hand movements and consequently can only be annotated as "strokes".

Stage 2 : < Gesture.function> attributing function to gesture

Double click on the place where you wish to annotate, then click on the value chosen in the drop-down menu:



Select:

< **Deictic** > = hand or head gesture pointing to an object present in the communication setting, or to the interlocutor, or to oneself or a part of the body, or indicating the direction in which the referent is found from the actual coordinates of the physical setting.

E.g. :

- The locutor points to himself while saying « this is what I understood »

****

Note: not all pointing gestures have a deictic function. A deictic pointing gesture strictly implies the presence of the referent or its location from the actual physical setting, and these gestures are rare in a corpus of spoken narratives. When the speaker points while speaking of a character, an object or an internal localisation of the story, the gesture does not have a deictic function but a representational function (or a discursive function in the case of an anaphoric use of gesture).

E.g. :

- The speaker points ahead of himself and upwards, while saying: "Jerry climbs on top of the tree"

******

< **Representational** > = hand or facial gesture, associated or not to other parts of the body, which represents an object or a property of this object, a place, a trajectory, an action, a character or an attitude, or which symbolises, by metaphor or metonymy, an abstract idea.

Examples of gestures representing objects, properties, places, trajectories, actions, characters from the concrete world :

- 2 hands drawing an oval form to represent the egg
- 2 hands drawing the form of a container to represent the nest
- Rapid movement of the hand or index high then low to represent the fall of the egg
- Hand or head movement, in the direction to the right, to the left, high or below to represent the trajectory of an object or a character
- Rapid or repeated hand movements in a picking form to represent the woodpecker attacking an object
- Arms and hands mimicking carrying an object to represent Jerry when he takes the bird to the nest
- Rapid sagging movement of the body to represent Jerry falling down
- Movement of the head + gaze above to represent Jerry searching for the bird's nest

…

Examples of gestures symbolising abstract ideas:

- Hand or head gesture pointing to a spot that represents a character (the bird, Jerry) or an object (the nest, furniture)

- Movement of the hand towards the left to symbolise « before », the past or the perfect, or towards the right to symbolise « after », the future or the imperfect.
- Movement of both hands flat, palms towards the top, to express the idea of wholeness.
- Head gesture of negation to express ignorance or the incapacity of the character
- Gesture of the hand and shoulders to express helplessness, the inability of a character to do something

< **Performative** > = gesture which allows the gestural realisation of a non assertive speech act (response, question, request for confirmation, etc.), or which reinforces or modifies the illocutionary value of a non assertive speech act.

Example of gestures which accomplish a speech act:
- Nodding head for an affirmitive response
- Hand or head gesture for a negative response
- Shrugging, associated or not with a doubtful mimic, to express ignorance as an answer to a question

Examples of gestures reinforcing the function of the act expressed verbally:
- Vigorous head nodding accompanying an affirmative response
- Vigorous head shaking gestures accompanying a negative response

Examples of gestures modifying the function of the act expressed verbally:
- When the gesture or the mimic contradicts speech : not seen in Grenoble corpus

< **Framing** > = gesture occurring during narration (during the telling of an event, or commenting an aspect of the story, or commenting the narration itself) and which expresses an emotional or mental state of the speaker.

E.g. :
- Face showing amusement to express the comical side of a situation
- Shrugging or facial expression of doubt to express incertitude of what is being asserted
- Shrugging or facial expression to express the obviousness of what is being asserted
- Using « finger inverted commas » to express distance in relation to terms used
- Frowning and staring above to express reflection while trying to recall the story or the next event

< **Discursive** > = gestures generally brief which aid in structuring speech and discourse by the accentuation or highlighting of certain linguistic units, or which mark discourse cohesion by linking clauses or discourse units with the help of anaphoric gestures or gestures accompanying connectives.

Examples of accentuating or highlighting gestures:
- Rhythmic movements (beats) of the head or hands accompanying the accentuation of certain words or syllables
- Raising of eyebrows accompanying the accentuation of certain words or syllables

Examples of segmentation or demarcation gestures:
- Rapid movement of the hand sketching the gesture of hunting/ chasing something to signify changing an episode, when coming back to the narrative after a commentary or vice versa

Examples of gestures of discourse cohesion
- Hand sketching the form of an item to symbolise the topic or the title of the story
- Hand sketching the form of a item to symbolise an episode of a story
- - Hand or head abstract pointing gesture with an anaphoric function: pointing to a spot in the frontal space to refer to a character or an object previously referred and assigned to this spot)
- Brief hand gesture or beat accompanying a connective

< **Interactive** > = gesture accompanied by gaze towards the interlocutor to express that the speaker requires or verifies his attention, or shows that he has reached the end of his speech turn or his narrative, or towards the speaker to show his own attention.

E.g.:
- Rapid hand or head movement, including a gaze towards the interlocutor in quest for his attention
- Nodding head while interlocutor speaks
- Orienting the head and gaze towards the interlocutor at the end of speech turn or narrative.
- …

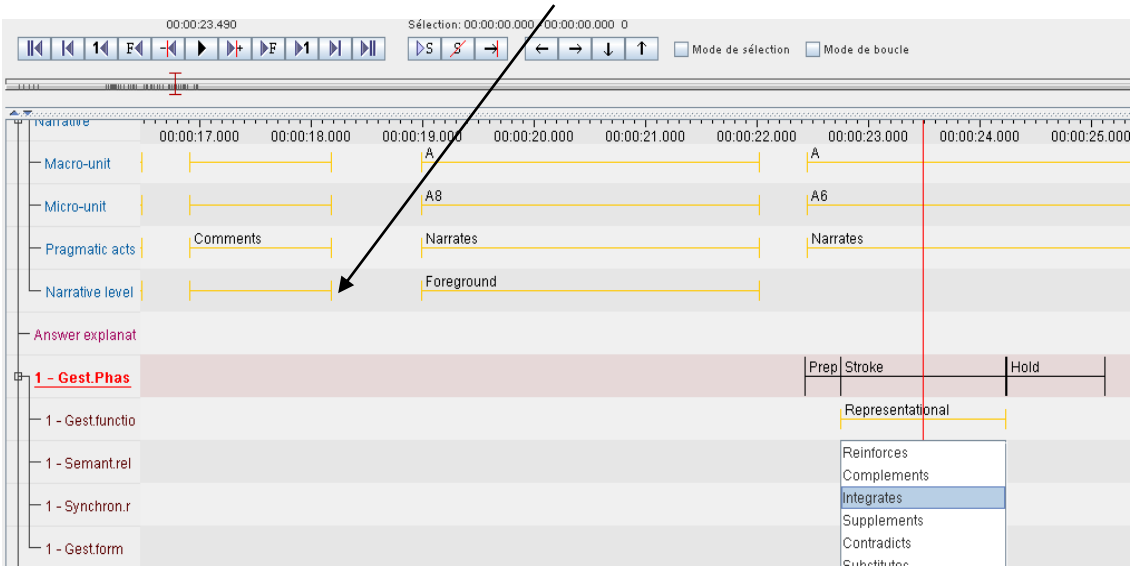
< **Word Searching** > = Hand gesture or facial expression which indicates that the speaker is searching for a word or expression.

E.g. :
- Frowning and staring above while searching words
- tapping fingers, with or without a mimic of reflection, while searching words

Note: If the gesture appears difficult to categorize, if it appears to fill two or many functions at the same time, we can annotate it as <**mixed**> by leaving the annotation empty. But it is preferable to select one function: the function that appears dominant.

Stage 3 : < Semant.relation> definition of the relation of the gesture to corresponding speech

Double click on the place where you wish to annotate, then click on the value chosen in the drop-down menu:



Select:

< **Reinforces** > = the information brought by the gesture is identical to the linguistic information it is in relation with.

E.g. :
Nodding head accompanied by a « yes » of an affirmative
Shrugging acompanied by a « I dont know » or a response full of doubt
A deictic pointing gesture towards an object explicitly named

Note : this annotation does not concern the < representational > gestures, as the information brought by the gesture always says more than the linguistic information.

< **Complements** > = the information provided by the gesture brings a necessary complement to the incomplete linguistic information provided by the verbal message: the gesture disambiguates the message.

E.g. :
Pointing gesture accompanying a location adverb like « here », « there »
Pointing gesture aiming at identifying an object explicitly named

Note : this annotation only concerns the < deictic > gestures.

< **Integrates** > = the information provided by the gesture does not add information to the verbal message, but makes it more precise.

E.g. :
« she leaves »
******** : shifting of the left hand towards the left side, indicating the direction of the displacement.
« the egg moves »
********** : oscillation of the hand representing the vibrations of the egg
« it makes the mouse move »
********** : oscillation of the hand representing the vibrations of Jerry.

Note : this annotation only concerns the < representational > gestures.

< **Supplements** > = the information brought by the gesture not only serves to specify the linguistic information that is in relation with, but also adds a supplementary signification.

Examples of representational gestures providing a supplementary signification:

- « he tries to come out »
  ********** : vertical agitation of the hand to represent the baby bird moving inside the egg
- « the egg jumps »
  ********** : oscillation of the hand which in addition, shifts towards the bottom.

…

Examples of performative gestures providing a supplementary meaning:

- Vigorous nodding accompanying an affirmative
- Vigorous shaking of head accompanying a negative response

…

Examples of framing gestures providing a supplementary meaning:

- Face showing amusement signs to express a comical side of the narrated event
- Face showing disgust to express a depleasing action
- Shrugging or showing a mimic of doubt to express incertitude of what has been asserted

…

Note: all < framing > gestures are annotated with < supplements >, unless if they contradict the verbal message (cf. following annotation)

< **Contradicts** > = the information provided by the gestures is not only different from the linguistic information in which it is linked but contradicts it.

E.g. :
When the gesture or mimic contradicts speech : not seen in Grenoble corpus

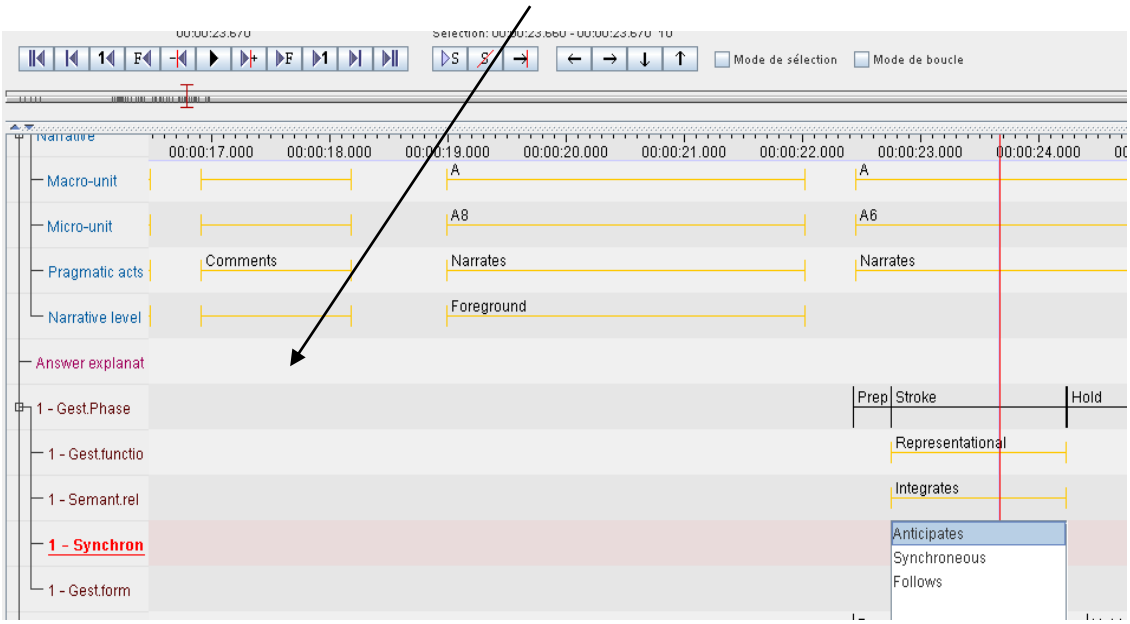
Note : this annotation normally concerns only the < framing > and < performative > gestures**.**

< **Substitutes** > = the information provided by the gesture replaces linguistic information.

E.g. :
Nodding in affirmative response
Shrugging and mimic showing ignorance as a response expressing doubt
Pointing gesture aimed to identify an object in the absence of speech

Stage 4 : < Synchron.relation > indication of the temporal placement of the gesture in relation to the corresponding speech

Double click on the place where you wish to annotate, then click on the value chosen in the drop-down menu:



Select:

< **Synchronous** > = The stroke begins at the same time as the corresponding speech segment, whether it is a syllable, a word (noun, verb, adjective, connective….) or a group of words (the notation **** corresponds to a gesture hold).

E.g. :
She leaves
****

< **Anticipates** > = the stroke begins before the corresponding speech segment: the speaker starts his gesture while delivering linguistic information prior to the one corresponding to it.

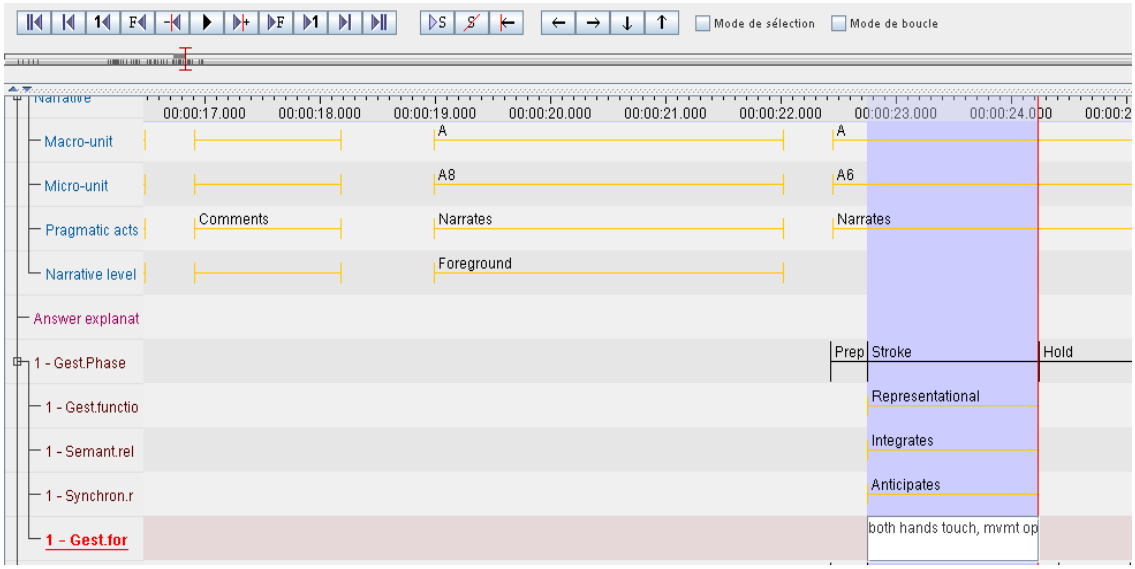
E.g. :
Errrrr _ – this this made it jump everywhere
****

< **Follows** > = the stroke begins after the corresponding speech segment: the speaker begins his gesture after having finished speaking, or while delivering a linguistic information posterior to the one corresponding to it.

E.g. :
It falls – it goes on top of a spiderweb
****

Stage 5 : < Gest.form >

Double click on the place where you wish to annotate, then type the information you wish to input in the block:



We give a brief description of the annotated movement sticking to its most salient points:
- body part of movement: head, chest, shoulders, 2 hands, left hand, right hand, index, eyebrows, mouth….
- if there is a trajectory: direction of the movement (towards the top, bottom, left, right, frontal, behind…..)
- if there is a hand shape: the form of the hand (flat, cutting, closed in a punch-like form, curved, palm up, palm down, fingers pinched, fingers in a circle….)
- the movement itself: head nod, beat, circular gesture, rapid or not, repeated or not…

References

1. Transcription conventions adapted from *VALIBEL* :

http://valibel.fltr.ucl.ac.be/

2. Linguistic annotations (définition of the clause, categorisation of clauses, connectives and anaphora) are based on:

Berman, R.A. & Slobin, D.I. (1994). *Relating events in narrative : A crosslinguistic developmental study*. Hillsdale, NJ : Lawrence Erlbaum Associates.

Jisa, H. & Kern, S. (1998). Relative clauses in French children's narrative texts. *Journal of Child Language*, *25*, 623-652.

Colletta, J.-M. (2004). *Le développement de la parole chez l'enfant âgé de 6 à 11 ans. Corps, langage et cognition*. Hayen, Mardaga.

Diessel, H. (2004). *The acquisition of complex sentences*. Cambridge : Cambridge University Press.

3. Narrative annotation (episodes, narrative levels, pragmatic acts) are based on:

Labov, W. (1978). *Le parler ordinaire*. Paris, Minuit.

Berman, R.A. & Slobin, D.I. (1994). *Relating events in narrative : A crosslinguistic developmental study*. Hillsdale, NJ : Lawrence Erlbaum Associates.

Laforest, M., Dir. (1996). *Autour de la narration*. Laval, Québec, Nuit Blanche Editeur.

4. Gesture transcription (phases, functions, gesture-speech relationships) are based on:

Kendon, A. (2004). *Gesture. Visible action as utterance*. Cambridge. Cambridge University Press.

Özcaliskan, S. & Goldin-Meadow, S (2004). *Coding manual for gesture-type & gesture-speech relation*. Manuscript.

APPENDIX F: University Ethics Clearance

Research Office

HUMAN RESEARCH ETHICS COMMITTEE (NON-MEDICAL)
R14/49 Ahmed

CLEARANCE CERTIFICATE	**PROTOCOL NUMBER H13/08/29**
PROJECT TITLE	The Development of Discourse in Second Language (L2) Acquisition from a multimodal Perspective
INVESTIGATOR(S)	Ms S Ahmed
SCHOOL/DEPARTMENT	Language, Literature and Media
DATE CONSIDERED	16 August 2013
DECISION OF THE COMMITTEE	Approved Unconditionally
EXPIRY DATE	27/05/2016
DATE 28/05/2014	**CHAIRPERSON** (Professor T Milani)

cc: Supervisor : Dr R Kunene Nicolas

DECLARATION OF INVESTIGATOR(S)

To be completed in duplicate and **ONE COPY** returned to the Secretary at Room 10000, 10th Floor, Senate House, University.

I/We fully understand the conditions under which I am/we are authorized to carry out the abovementioned research and I/we guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee. **I agree to completion of a yearly progress report.**

_____ _____/_____/_____

Signature **Date**

PLEASE QUOTE THE PROTOCOL NUMBER ON ALL ENQUIRIES

APPENDIX G: Kwa-Zulu-Natal Department of Education Ethics Clearance

education

Department:
Education
PROVINCE OF KWAZULU-NATAL

Enquiries: Sibusiso Alwar | Tel: 033 341 8610 | Ref:2/4/8/1/115

Miss S Ahmed
85 Mint Road
Forosburg
Johannersburg
2092

Dear Miss Ahmed

PERMISSION TO CONDUCT RESEARCH IN THE KZN DoE INSTITUTIONS

Your application to conduct research entitled: **"THE DEVELOPMENT OF DISCOURSE IN SECOND LANGUAGE (L2) ACQUISITION FROM A MULTIMODAL PERSPECTIVE"**, in the KwaZulu-Natal Department of Education Institutions has been approved. The conditions of the approval are as follows:

1. The researcher will make all the arrangements concerning the research and interviews.
2. The researcher must ensure that Educator and learning programmes are not interrupted.
3. Interviews are not conducted during the time of writing examinations in schools.
4. Learners, Educators, Schools and Institutions are not identifiable in any way from the results of the research.
5. A copy of this letter is submitted to District Managers, Principals and Heads of Institutions where the Intended research and interviews are to be conducted.
6. The period of investigation is limited to the period from 01 May 2014 to 30 April 2015.
7. Your research and interviews will be limited to the schools you have proposed and approved by the Head of Department. Please note that Principals, Educators, Departmental Officials and Learners are under no obligation to participate or assist you in your investigation.
8. Should you wish to extend the period of your survey at the school(s), please contact Mr. Alwar at the contact numbers below.
9. Upon completion of the research, a brief summary of the findings, recommendations or a full report / dissertation / thesis must be submitted to the research office of the Department. Please address it to The Director-Resources Planning, Private Bag X9137, Pietermaritzburg, 3200.
10. Please note that your research and interviews will be limited to schools and institutions in KwaZulu-Natal Department of Education (Empangeni District)

Nkosinathi S.P. Sishi, PhD
Head of Department: Education
Date: 13 May 2014

APPENDIX H: L1 English Data; Narrative Extracts

Group 1: Child participants

PP; Boy; 5 Years

- what is this?
- yes
- I see:: // bird its knit
- an::d
- put down
- then he take the egg
- put // ehm:: put it down
- then *he {self corrects} she put
- then:: he take // his // what is this?
- the blanket
- then he close it then the egg come out then then then the egg fall then hit the:: the then:: the egg the egg hit the the uhm
- uh:: the bed
- then
- it the bird // xxx
- uhm then then the the m::
- the m:: the mouse go like this
- lay on it then he get underneath to cover it and then he he run
- then he take it uh: uhm:: what is this a bird then he put it in his in hm::
- his:: house and then he mother him and then he go

PE; Girl; 5 years

- a cartoon
- a cartoon
- *dat
- *dat // mom he he he he take the easter egg and and take the baby and put it to the easter egg and close it and *den and *den
- and *den
- uh was
- *dere was // was:: // hiding him and then
- *dat *dat easter egg // was coming out and *den ja coming to the flower and *den he getting in and *den *dat man he was sleeping and *dat *ting gots *dat man was sitting to *dat easter egg and *den
- and *den *someting he
- he
- he drop it and *da *oda one he drop it and *da *oda one he drop it and *den *dat man he give him *da bread
- and *den

- he was taking him and *den he want *dat man to sit down and *den yeah and *den *dat *ting was taking *dat chair out and *den *dat man was taking it and get it down
- and put on *dat tree
- *den *dat was finished

Group 2: Child participants

PN; Girl; 9 Years

- beginning
- the mother bird was sitting on its *her-*he-*her *her {self corrects} egg
- and then she was knitting then she decided to go out (be)cause she saw the time
- it was late so she had to go
- the egg *f-- {self corrects} was jumping then fell in a web and then the web broke and then it fall into a flower
- then it rolled into a Toms house
- Tom found the bird // the bird egg
- then the bird then:: the:: birds egg hatched
- then:: the bird the bird was born // and it was little and the bird went ate Toms wall and furniture
- and then Tom tried to give him food
- and the food finished then he was trying to sit down and think about what hes going to do with the bird
- then then the bird ate his chair
- then he decided that no i cant keep this bird so he went outside and then he found the tree of the nest then he went and walked a long way then he put the // egg back
- yes
- no
- yes

PK; Boy; 9 Years

- yes
- *der was a bird he was knitting // uh:: // a blanket
- he put his eggs // *he egg {self corrects} his eggs inside *den covered
- *den *da egg // jumped // from *da nest // to *da flower
- *den it went down and *den he went *den him it went // to *da mouses house
- *da mouse was sleeping *den *da egg went went under *da mouse
- *den *da mouse wake up
- he heard he heard something // jumping *den he saw it was a a bird a bird
- it was a small bird
- *den *da bird // was picking *da table
- it did pick *da table into half
- *den it it pick *da *da lamp *da lamp into half
- *den * den *da *mou- {self corrects} *da mouse

- *den *da mouse was sitting on in {self corrects} was taking *da chair *den sitting on *da chair *den *da *da bird pick *da chair
- he sat but *dere was no chair *da *da bird picked it
- pick it
- *den *da mouse took *da bird *den *den took *da bird to *da nest back to *da nest
- *den he is covered with with it *da with it *da blanket
- no
- yes
- yes
- yes

PL; Girl; 9 Years

- yes
- uhm at first there was a uh:: uhm:: a lady bird knitting sitting on a egg
- and//the egg
- the lady bird // looked at the watch // and and flew off
- left the egg in the nest
- and covered it with a blanket
- the egg jumped off
- and off to a web a spider web
- off to a flower and down the leaf // into Toms // into Toms house
- Tom
- Tom was sleeping
- and
- Jerry and
- when he woke up // he foun::d the egg
- s {sound} // on his::
- and he woke up and sat on it
- the // lil *b- {self coreects} the egg hatched
- the *littlely {self corrects} the bird looked kind of like a:: wood pecker
- it pecked wood // and *f- {self corrects} and Tom tried to feed it bread
- and // the:: *wood {self corrects} the bird just picked *the wood {self corrects} the bread
- and the *m- {self corrects} and Tom took it to its nest // and left it there
- yes

Group 3: Adult Participants

00003; Girl; 23 Years

- okay
- uhhh
- i think uhh there was an egg on the nest
- and then uhh // the mother was there // she wrapped it with the cloth // and then she went away

- and then there comes the egg bouncing and bouncing all the way through the web the spider web and it goes to the *fl- {self corrects} onto the flower the flower
- and then the flower passed it through all the way to the house
- and then:: all the way to the bed // where the mother was
- and then and the egg // hatched
- then there comes the baby,destroying // all the wooden stuff
- ja
- the mother tried to give him food // maybe // again // it was hungry
- and then // ja it did so, {self corrects} eats
- the the funny thing i dont know // buts the way it was eating you see {laughs} so aggressive so yeah and then now it // the mother took the baby back to the nest and then it was the end
- ja

00006; Boy; 24 Years

- obviuosly
- okay
- uhm
- there was a:: a bird // whi::ch was enclosing // its egg
- then making it
- putting it down putting it in the nest and making sure that its safe
- and
- i think the bird // went // in hunt for food
- and the and the:: the egg
- ironically
- it went out of the nest // an::d it was
- sort of
- mobile // and walking a::nd
- very ironic ofcourse // and // walking down the lea::ves // and it went to the:: flower // and from the flower it rolled down // to the:: mouse house
- the mouse was sleeping // and // ironically when the mouse // uhhmmm // woke up // there was a egg // next to // to him // and::
- very surprised
- the egg // hatched // and then the:: hatched a little // a little bird
- u::hmm
- sort of like a parrot
- with a:: // big beak a b* {self corrects} a beak
- which grinds wood // which grinds // everything // specially wood
- so that the mouse // welcomed // the the young bird lovingly
- and // from there
- it acts it acts // uhm // wild wild like very very ironically // to a sense that //
- it {self corrects} we may assume that it was it was hungry because the first assumption was that the mother was in search for food // and // then the mouse offered

// *the:: {self corrects} this young // bird // a bread // and grinded the bread // rigorously

- and grinded every wood material that was in the house
- xxx and the mou::se decided to // mitigate this problem that he had now he has {self corrects} had now in his house
- and
- he took // this little bird // uhm:: politely // an::d climbed the tree // and brought it back to the nest // where // the mother placed him uhh or or this young egg // where he // he belongs
- that was // the sense of the story

00089; Girl; 23 Years

- yes yes it had humour
- okay uhhh first of all uhhh *th- {self corrects} on top of a tree branch // uhhh was a bird
- which was uhm waiting for its egg to hatch
- and it was busy knitting
- and // you know checking out the time as well
- and then it had to leave for somewhere // and then
- and then okay *the bird uhm {self corrects} the egg // the egg jumped out somehow {laughs} // uhm some how it jumpped out // and and uhh fell into uhm {self corrects} onto a spider web
- which // *bounceced back up {laughs} and it went all the way down and was caught by a daffodil
- uhh which sent it rolling down // to // uhh:: is it a bear?
- well jerry // sent it to Jerrys place while sleeping and then it uhm rolled under Jerry and then it bounced Jerry up waking Jerry up and then after that it hatched // and after that
- uhm that bird // was starting to *chow the furniture {laughs} it was ja it was eating up the furniture uhh like rapidly speedingly
- and then
- uhm jerry tried to give it uhhh a slice of bread
- which just went down // twice as fast {laughs}
- a::nd then
- uhm
- ja
- and then // oh then Jerry took it up // to to the nest // yes // took it up to the nest layed it down that was the end of the cartoon

00058; Girl: 22 Years

- yes i did
- at first that cartoon
- uh:: she was knitting
- then after knitting

- she knit something like // an egg
- then:
- she left the egg there // in the tree
- then
- she goes down
- then {clears throat}
- the egg // came out from::
- that house of that birds house // is a // dont know what it called but it opens like a {laughs} then {clears throat} its going down
- then when it fell // its:: fell into the flower // then::
- from the flower to the leaf from the leaf // to the other
- to the land // then its moved // and open the door
- uhhhhh // then its // went through to the mother
- an::d // the mother {clears throat} and
- the mother:: // wake up // then:: the egg
- the egg // become a baby
- then // its destroys everything
- there is
- uhhhh // then she the mother took it uhhh a bread
- then she gave the the baby
- then the baby // was not trying to eat it but // just destroying {laughs} just as // she did on the other things // there
- uh::
- thats all that i // remember
- ja

00048; Boy; 24 Years

- yeah i enjoyed it
- im not sure of the sequence // but then // i can summarise it
- from // uhh the part where the mom leaves the the the egg in the nest and then
- its like this egnergetic na egg
- then its // go like a trampoline
- off the the the nest and then it was trapped in a
- it was trapped somewhere is it a
- in a spider web and then ja
- its came through a spider web and then it rolled until it its its was in the room
- where it was in the same room
- like he with a cat
- i think thats a thats a cat
- then // aftr it was in a a room where the cat its like the cat was pregnantt of a // a egg because it was in the back of the // sleeping cat and then // after it it cracked the egg cracked and then it came out
- because it was in the back of the // sleeping cat and then

- after it it cracked the egg cracked and then it came out
- then the // the littlely* // bird came out
- and then its like it says its // *i- {self corrects} its mom // but its not actually its actual mom // like it was the first thing that it saw {laughs}
- and then that that was a story like // that was the:: misunderstanding
- and then the problem that it it was giving the uh:: the cat was // it was too energetic // it was eating like everything
- it ate *e- e- {self corrects} its seat // it ate
- i dont think i remember // the actual sequence the same but then it was too energetic
- but at the end the cat decided to take it back to the to the nest
- and lay it in the nest and
- ja
- that was the end if
- im sure

00049; Girl; 23 Years

- hmmm
- like the entire thing?
- okay firstly // i think the other one was knitting uhhh a jersey or something
- up in the tree // and then he took whatever he was knitting and covered it and covered the egg with it
- and then left it there // and then the minute it went away the egg started bouncing bouncing and then it fell down
- and then it was caught by a spider web or something ja and then and then the egg just begin to move move to move and then until where it landed in partilar* {self corrects} in any {laughs} particular house and then its its went under somebodys sheet and then while it was there it started bouncing again and again and again until the the other one the cat woke up and realised oh it wa- {self corrects} it was // it was a bird
- just popped out of an egg and then
- {sound} uhh {laughs} when when the cat tried to feed the the the the the bird // bread
- it it started bitting* the entire thing up until where it bit the cats hands and then
- ja // and then what happened again
- mmmmm {thinks}
- ja
- i think thats just about it
- am i forgetting the most crucial parts
- uh hum
- mostly