

Exploring Ambiguity Within Children's Narratives

by

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Abstract

Cohesion is a key factor of intelligible language, so it is important to know when and how cohesion develops. This study focuses on linguistic ambiguity as a breakdown of cohesion within the fictional retellings of the Pink Panther cartoon *In the Pink of the Night* (DePatie, 1969) by 29 monolingual, English-speaking, Canadian children. Previous research has highlighted relationships between cohesion, ambiguity, and pronominal reference, though not the combination of all three. Therefore, this study seeks to fill the gap in the literature concerning cohesion in children's narratives with multiple characters, wherein ambiguity inversely measures cohesion. Ambiguity is calculated through the use of unclear pronominal reference with respect to specific characters within the narrative. This study utilizes previous research in conjunction with collected data to explore the use and clarity of pronominal reference in children's narratives. Results from this study imply that while children create cohesion the majority of the time, ambiguity emphasizes pronouns as a main factor of narrative cohesion.

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Table of Contents

	Page
TABLE OF CONTENTS.....	iv
LIST OF TABLES AND FIGURES.....	vi
LIST OF APPENDICIES.....	vii
INTRODUCTION.....	1
LITERATURE REVIEW.....	2
Cohesion.....	2
Narrative Development.....	5
Referential Function.....	6
THIS STUDY.....	8
METHOD.....	10
Participants.....	10
Procedure.....	10
Existing Database.....	11
Attempted Coding.....	12
Coding.....	12
ANALYSIS.....	14
RESULTS.....	15
Cohesive Pronoun Usage.....	15
Ambiguity.....	15
Strategies to Minimize Ambiguity.....	19
Child's Gender Differences.....	22

DISCUSSION.....22

 Ambiguous Pronouns.....23

 Systems.....24

 Intentionality.....24

 Future Work.....25

 Limitations.....27

 Conclusion.....27

REFERENCES.....28

List of Tables and Figures

Table 1	Categories of Pronouns.....	30
Table 2	Proportion of Ambiguous Pronouns.....	30
Figure 1	Components of Narrative Formation.....	31
Figure 2	Visual Representation of Cartoon.....	32
Figure 3	Visual Representation of a Child's Retelling.....	33

List of Appendices

Appendix A	Previous Coding.....	34
Appendix B	Detailing an Initial Ambiguous Utterance.....	37
Appendix C	“Other” Ambiguous Instances.....	38

Exploring Ambiguity Within Children's Narratives

The topic explored in this paper is cohesion, which is important in developing any narrative, whether it be a professional speech, written work, or simple conversation. Cohesion occurs when the interpretation of one piece of dialogue is dependent on another element. To communicate with an audience, the subject matter requires cohesion. As with any complex linguistic concept, the foundation of cohesion begins in development. This study focuses on the developmental process of acquiring cohesion, the absence of which results in ambiguity. The relationship between cohesion and ambiguity is explored within the framework of fictional narratives and pronominal reference, specifically third person pronouns.

My research question centers around the ability of children aged 8 to 11 years to maintain cohesion in fictional narratives. There is a gap in the literature surrounding ambiguity and cohesion in conjunction with pronominal reference. Many scholars have explored these variables either singularly or in pairs, but not a combination of all three. I aim to close this gap by blending various components of other studies into my own data and design, to explore previously unstudied connections within this research field. This study will increase understanding of children's narrative development, while simultaneously adding to the current base of research on this demographic of children aged 8 to 11 years. This research seeks to highlight and explore how children in this age group maintain cohesion across multiple characters by minimizing ambiguity in fictional narratives.

I will briefly summarize the larger topic of narratives and minimally touch on the related concept of coherence, in order to pave the way for an exploration of the many categories and subcategories within cohesion. Through this analysis of the literature on cohesion, I will highlight the relationship between cohesion and pronominal reference. Next, I will explore

children's narrative development regarding pronominal reference within narratives, highlighting ambiguous use of pronouns as a focus. I will then discuss the unique questions my study seeks to answer. Further, I discuss the method, including participants, procedure, and the coding scheme used in this study. Next, I present the analyses I conducted, followed by results, and lastly the discussion of my study.

Literature Review

Cohesion

The way in which narratives are formed creates an important foundation for understanding cohesion. Narratives are a body of work which are communicated to an audience through written or spoken word (Halliday & Hasan, 1976). Narratives can only be aptly communicated if the conditions of coherence and cohesion are both satisfied. Coherence, as a matter of unity within the narrative, is characterized by a sequence of events that flow logically, such that the story has a beginning, middle and end in respective order (Beliavsky, 2003). Alternatively, the way that cohesion creates flow in the story is by linking various elements of text together so reference to multiple characters may be clearly communicated.

Cohesion focuses on unifying multiple elements in a narrative, through shared relational meaning. Referential cohesion operates independently of the constraints of sentence structure, meaning that connections may be within the same sentence, in adjacent sentences, or many sentences apart (Halliday & Hasan, 1976). In order to be a clearly understood unit, each sentence has internal cohesion. However, in this study the focus is cohesion which spans the narrative.

There are two types of cohesion; lexical and grammatical (Halliday & Hasan, 1976), depicted in Figure 1. Within referential cohesion, there are three types of reference: demonstrative, comparative, and personal. Demonstrative reference uses adverbs to discuss

position, while comparative reference is indirect, using similarity to create connection. Though demonstrative and comparative reference are important foci from which researchers may gain understanding about narratives, these components are outside the focus of this study. Personal references indicate “who did what to whom” by specifying gender, case, number, and person based on word choice. Pronouns can be used multiple times to refer back to the same noun, creating a cohesive chain throughout the text.

Personal references, henceforth pronouns, are the larger focus of this study. Reference occurs when a pronoun links to a nominal subject elsewhere in the text. An example of referential cohesion is “The Pink Panther was throwing flowers...then **he** went back and **he** went to sleep.” The word “he” in both instances referred back to the Pink Panther; the referential link between noun and pronoun is the source of cohesion. The narrative as a whole becomes cohesive through the continual and unambiguous pronominal reference to subjects through various pieces of the text.

Ambiguous reference is a sub-category of personal reference, and the specific focus of this study. Ambiguous reference creates the possibility of cohesion depending on context around the pronoun. A reference is declared to be ambiguous when the connection is not eventually made clear and therefore does not become fully cohesive. The resulting lack of cohesion makes ambiguous reference the ideal category to understand how cohesion fluctuates within children’s narratives.

Pronouns become ambiguous when the connection to the referent is not clear. There are two primary ways ambiguity could occur: through connection to multiple referents, or no clear connection to any referent. Example 1 highlights how a pronoun can possibly refer to multiple characters, in this case the continual use of the pronoun “he” refers to multiple characters.

Example 1

and <u>the bird</u> kept on coming out over and over and over again	
trying to wake up <u>the Pink Panther</u>	
so then <u>the bird</u> tied this big heavy box to his tail	
and then when and he kept on cuckooing out	[bird]
and then eventually he pulled the lever	[Pink Panther]
and he went inside of the a little hole	[bird]
then he plugged the hole	[Pink Panther]
from then he tied	[?]
then he plugged the hole	[Pink Panther]
so <u>the bird</u> couldn't get out	

The bird is the referent “he” when the bird is cuckooing, but somewhere along the pronominal mentions, “he” switched to the Pink Panther because “he” is plugging the hole to stop the bird, though it is unclear where the change occurred. Therefore, the reference to the Pink Panther is ambiguous, because the connection is not clearly understood and could be misconstrued as reference to the bird due to its place as the most recent noun. Example 2 highlights an instance where a pronoun does not have clear connection to either character.

Example 2

and he tried to find it	[Pink Panther; bird]
but he couldn't	[Pink Panther]
and that's it	
and then he was	[?]
Ⓚ accidentally built his clock after	[?]
where it was	

The elliptical reference in “ Ⓚ accidentally built his clock after” is unclear, because there is no direct tie to either character. Both had been mentioned in the first line, but either character could have built the clock.

Ambiguity indicates the lack of cohesion in a given narrative, while pronominal reference is the site at which ambiguity occurs. Ambiguous reference may be discussed as the failure of cohesion. The lack of clear reference interrupts narrative progression and obscures the

interconnectedness of the story. I turn now to explore the development of storytelling in children as well as the ways children use pronominal reference within narratives, especially where ambiguous references are involved.

Narrative Development

As children grow, they develop greater linguistic capacities that are reflected by their abilities to create increasingly comprehensible narratives. Coherence occurs in children's narratives as young as preschool, though the stories gain complexity with age (Shapiro & Hudson, 1991). Children aged 3 to 5 years are developing coherence and by 9 they should be adept at coherent story-telling (Shapiro & Hudson, 1991, p. 961). Children create coherent narratives when they discuss events in proper chronological order. This study focuses on cohesion, but it is important to note that coherence creates a scaffold from which children further develop their narrative capacities, including the development of cohesion. As children better understand what a "story" is, they are able to make their narrative more complex, through additional details or more clear references to characters within the story. Children are able to develop their ability to attach clauses in a cohesive manner beginning at age 5 years and continuing through age 10 years (Shapiro & Hudson, 1991, p. 962).

Pronominal Reference

As children age, they manipulate language to form connections which bridge various events to create a narrative that is cohesive. Ambiguous reference decreases with age, increasing cohesion within the narrative (Colozzo & Whitely, 2015; Karmiloff-Smith, 1985). Cohesion is characterized by proper usage of pronominal reference to the subject, which decreases with age before increasing and finally achieving stability at ages 8 to 9 years (Karmiloff-Smith, 1985).

Though even preschool-aged children can use pronominal reference in their narratives, their abilities are nascent. In the narratives of this study, the Pink Panther is often referred to using the pronoun “he” during continual reference. Younger children are able to refer to characters clearly (i.e., using the correct pronouns to refer to a character) but even older children struggle to contain reference to one character, in that they may still use “he” to reference multiple characters; this was highlighted earlier in Example 1. Stabilization of this ability occurs between ages 8 to 12 years (Shapiro & Hudson, 1991; Karmiloff-Smith, 1985). Ambiguous endophoric reference continues to occur throughout children aged 5 to 10 years while full textual reference which is cohesive, is found in greater proportions among narratives of children aged 9 to 10 years (Beliavsky, 2003).

Referential Function

Narratives incorporate reference, which exists in one of two forms; nominals and pronominals. As children age, they are increasingly able to differentiate between, and consistently use nominal and pronominal forms to refer to a character. In turn, this creates cohesion as both nominal and pronominal forms are required to introduce, maintain, and reintroduce characters throughout a narrative.

Nominal Forms

Nominal forms explicitly state character reference, through the use of indefinite nouns (“a cat”) or definite nouns (“the cat”). English-speaking children aged 5 to 8 years utilized indefinite nouns, most commonly to introduce new characters (Chen & Lei, 2012; Colozzo & Whitely, 2015). German children aged 3 to 10 years most often used definite nouns to introduce characters. However, the difference in nominal form may be due to language differences (Bamberg, 1986).

Definite nouns (“the cat”) are also commonly used to maintain reference to character, as they indicate prior reference to the character (Colozzo & Whitely, 2015). Additionally, they dissipate ambiguity by creating a clear indication of character focus.

Definite nouns (“the cat”) are most often used for reintroduction. Italian-speaking children aged 6 to 10 years consistently used nominal forms for reintroduction (Orsolini et al., 1994). Nine-year-old Chinese-English bilinguals use similar expressions to English monolinguals when reintroducing characters, as both groups used definite noun phrases (Chen & Lei, 2012; Colozzo & Whitely, 2015). Children often choose a definite noun (“the cat”) because it indicates that the subject had previously been mentioned, which excludes indefinite nouns (“a cat”), but also signals that reference to the character had not been maintained (Colozzo & Whitely, 2015).

Pronominal Forms

Introducing a character with a pronoun is uncommon, because use of a pronoun for the initial mention of a character without further clarification is inherently ambiguous (Chen & Lei, 2012; Colozzo & Whitely, 2015). The lack of clarity regarding a referent leaves the audience wondering who the narrative is about; cohesion does not occur when beginning with a pronoun (Beliavsky, 2003).

Maintenance is concerned with continued discussion of a character over a period of time, wherein no other characters take over the focus of the narrative. Frequency of pronoun usage increased with age when maintaining reference to characters within the narrative (Colozzo & Whitely, 2015). Most children aged 3.5 to 4 years do not use pronouns at all for maintaining reference, instead opting for strictly nominal reference (Bamberg, 1986). Children aged 5 to 6 years use pronouns to both maintain and switch reference, creating ambiguity. The most complex

system children used, at ages 9 to 10 years, was to employ pronouns to maintain reference and nouns to switch reference. The difference in pronominal and nominal usage across various ages indicates a strategy which is relevant to the age group of this study regarding maintenance (Bamberg, 1986).

Nine-year-old Chinese-English bilinguals and English monolinguals used referential pronouns to maintain discussion of characters, indicating a cross-language preference for pronouns to maintain character focus (Chen & Lei, 2012; Colozzo & Whitely, 2015).

Ambiguity is most commonly found in the maintenance function because referential pronouns have the ability to effectively refer to any previous subject that agrees in person, case, number, and gender. Table 1 depicts all pronoun inflections used in this study. Therefore, multiple characters could be in third person, subject case, singular male; such as the Pink Panther and the cuckoo bird in the narrative the children tell in this study. Elliptical references (“⊗”) were included as a type of pronoun, despite not indicating any characteristic of common pronouns; elliptical reference is not spoken, and the child moves on to discussing the actions of the character. Ambiguity may also occur during reintroduction in cases like Example 1 where multiple characters use the same pronouns (Colozzo & Whitely, 2015).

Pronouns (“he”) are least commonly or effectively used for reintroduction, as they do not clearly state a character that is being brought back into focus.

This Study

The present study focuses on English monolingual children. Monolinguals were chosen because referring expressions differ between languages, and exposure to another language may influence the way a child uses language to develop a narrative (Chen & Lei, 2012; Hickmann & Hendriks, 1999; Hickman, Hendricks, Roland, & Liang, 1996). I address the overall question of

whether children aged 8 to 11 years use pronouns cohesively in fictional narratives. Therefore three smaller research foci were created:

To what extent are children aged 8 to 11 years able to cohesively use pronouns to refer to multiple characters? The age group of this study (8 to 11 years), was chosen for the diversity of narrative capabilities (Bamberg, 1986; Beliavsky, 2003; Chen, & Lei, 2012; Colozzo & Whitely, 2013). At this age, children are adept at using pronouns to refer to characters, however they may not yet have mastered the ability to cohesively refer to multiple characters consistently (Bamberg, 1986; Beliavsky, 2003; Colozzo & Whitely, 2015; Shapiro & Hudson, 1991).

What strategies do children use to minimize ambiguity within fictional narratives? Studies have reported pronominal strategies and general linguistic systems children use in narratives, so the previous research provides a basis for understanding how children modify already existing strategies to minimize ambiguity (Bamberg, 1986; Karmiloff-Smith, 1985).

Are there gender differences regarding cohesion in fictional narratives? The variable of gender is not often discussed throughout research of cohesion, pronominal reference, or ambiguity. As females typically acquire language more quickly than males, this question may provide insight into why some children can create cohesive narratives to a greater extent than others. One study found that females produced more complete pronominal references than males, which may potentially be supported by the findings of this study (Finestack et al., 2006).

There is a gap in the literature surrounding ambiguity and cohesion in conjunction with multiple pronominal references. The questions I have chosen highlight the gap, specifically regarding the amalgamation of the variables of pronominal reference, ambiguity, and cohesion.

Method

Participants

The participants from my study were originally from a larger study reporting on gestures throughout a range of fictional and autobiographical narratives (Marentette et al., 2020). This sample consisted of 29 of the 30 original participants. They were monolingual, English-speaking, Canadian children from ages 8 to 11 years ($M = 9.27$, $SD = 1.02$); 16 males and 13 females.

Ethics approval was received from the University of Alberta Research Ethics Board (Pro00041190); parents consented to their child participating and being filmed, and either did or did not give additional consent on whether the videotape of the child could be publicly shared, on a case-by-case basis. Each child assented to participating and being recorded before beginning their narrative.

Procedure

The children were given up to 8 autobiographical narrative prompts (bored, difficulty, enjoy, fight, gift, share, surprise and teacher) in order to tell a personal story, as well as two wordless, fictional Pink Panther cartoons (*Jet Pink* and *In the Pink of the Night*; DePatie, 1969). Their responses were videotaped and transcribed for coding purposes. From this data I reported on those 29 children who completed one specific Pink Panther story: *In the Pink of the Night* (DePatie, 1969). Within this story there were two characters, the Pink Panther and a cuckoo bird. This story was chosen because it involved many interactions of the character as well as scenes where they are acting independently of one another. A short summary of the cartoon is as follows:

In the story the Pink Panther deals with an annoying alarm clock. He sets up his fancy new cuckoo clock that contains a live cuckoo bird to chirp when it's time to wake up. The bird ends up chirping at random times all throughout the night, and he gets very annoyed at it. He finds numerous ways to quiet the bird, while the bird continually finds

ways to wake him up. Eventually the Pink Panther has had enough and throws the clock with the bird inside, over the bridge. The bird secretly rows the clock to safety, but the panther is tormented by the worry that he killed the bird. While he goes back to the river to find the bird, the bird sneaks into the house and sets the clock back up again. The Pink Panther eventually comes back and is excited when the cuckoo bird wakes him up. After that they sleep in the bed together and the bird breaks a new alarm clock when it rings in the morning.

Children watched the cartoon and then recounted the story to a parent while a video recorder captured audio and visual components of the child's story. The parent had not seen the cartoon; the intent was to encourage the child to make their references explicit in the story. See Figure 2 for a visual representation of the whole cartoon and Figure 3 for an example of the components that one child retold.

Existing Database

This study is based on a previously existing database (Marentette et al., 2020). Prior to my study, the data had been collected and transcribed into utterances (lines of text), as well as coded for age, gender, story type (fictional or autobiographical), story name (Fictional 1, Fictional 2, bored, difficulty, enjoy, fight, gift, share, surprise, teacher), time taken to complete the story, word count, words per minute, and story category (answer, sequence, goal, or story). Coding for utterance is further described here because it was relevant to this study.

Utterance

Each child's narrative was transcribed from the recording into utterances. Utterances were indicated by the presence of a main verb, which were each given a single line within the written transcript. Reported speech (i.e., "**he** said **he** was sorry") was not separated into different data entry lines, in order to keep the integrity of the statement. Repetitions or false starts were interpreted using the second article or phrase, as this was the intentional phrasing. For example, "went to sleep together in **the his** bed" was interpreted as "in **his** bed". Contractions were

separated and analyzed accordingly. For example “and then **he’s** like” was coded as “**he** was”. Exact repetitions (“from then **he he** tied”) were only analyzed once, while repetitions involving two pronouns (“at the very end of the first one **he they** were both”) analyzed only the second pronoun as the child was satisfied with that pronoun and could therefore continue on with the rest of the statement.

Attempted coding

As this study was exploratory, a multitude of coding techniques were used to capture relevant data. Appendix A contains various coding methods used. These initially seemed promising, yet did not accurately capture the patterns within this data set that were important for understanding ambiguity. They are included here to represent the full scope of variables considered in this analysis. Included are referential function, and referring expression.

Coding

Pronoun Identification

Pronouns inflect for four characteristics of the subject; person, case, gender, and number. An explanation for each characteristic is indicated below, along with the category of redundancy. These pronouns which were coded for were integral to the types of collapse as well as the types of repair.

Person. Personal pronouns, specifically those in the third person (he, it, they, him, it, them) were selected for further coding.

Case. Personal pronouns in the subject case (he, it, they) and object case (him, it, them) were selected for further coding. All character possessives (hers, his, its, theirs) were not coded due to the lack of distinction between the importance of the possessor versus object; as the

cartoon depicts the Pink Panther buying a cuckoo clock with a cuckoo bird, if a child were to say “his bird” it was unclear which character was the focus in the moment.

Gender. The genders of pronouns used in this study were masculine and neutral. No female pronouns were used to discuss the narrative. Only character pronouns (those which refer to the bird or the Pink Panther) and elliptical references (those which were implied by the existence of a verb without a stated noun) were included, while first (I/me), second character (you) and any clear references to the clock (pronominal or nominal) were excluded.

Number. Both singular (he, it) and plural (they) number were coded, depending on the scene in the narrative.

Redundancy. Instances where the child used a pronoun in conjunction with a noun for the same character (“And **he** the bird whacked it”) followed the same procedure as the use of two different pronouns.

Ambiguity

Ambiguity was a moment of confusion where it was unclear which character was doing what. An ambiguous utterance began an ambiguous region. An ambiguous region was counted by number of lines from the first utterance which led to confusion (see Appendix B); up until the last utterance before resolution. All unique lines between the first and last utterance were counted as part of a region, whether or not they contained character reference. An ambiguous pronoun was any character pronoun which existed within an ambiguous region.

Ambiguity in the childrens’ narratives varied in both number of ambiguous regions and number of utterances within a region. The way in which children used pronouns in order to explain their story determined the length (number of utterances) and frequency (number of regions) of ambiguity within their narratives.

Ambiguous regions were found through multiple readings of the transcripts and rewatching the children's narrative videos. Any instances that did not make sense to me (having watched the same cartoon the children did) were immediately ambiguous, and later analyses of the transcripts revealed patterns of how and where narratives collapsed, which then informed where further ambiguity occurred. Throughout this process the types and subcategories of structure collapse became clear.

Analysis

As the data I collected were not part of a true experimental study, I did not intend to discern a causal relationship between variables. The grouping variable was gender, while the dependent variables were count of pronoun production, count of ambiguous pronoun production, and count of type of collapse. The count of pronoun production determined whether children frequently used pronouns, while the count of ambiguous references highlighted the cohesive abilities in this age group. These variables also determined whether the children were able to use pronouns regarding multiple characters, as the lower the count of ambiguous reference denoted higher success children attained in differentiating pronouns between multiple characters. Using statistical methods, gender differences and overall cohesion of children's narratives were also determined.

A qualitative analysis of children's narratives revealed three types of regions across the various narratives. There were regions of ambiguity due to one of five types of collapses, regions where ambiguity was minimized in one of three ways, and regions that did not contain ambiguity for one of two reasons. The analysis was data driven, as it was created from the necessity to describe the diversity of approaches observed in the narratives.

Results

In this study 765 character pronouns were produced throughout all narratives within this data set by child ($M= 26.4$, $SD= 17.0$, range 3-73). Children produced a total of 158 ambiguous pronouns ($M= 5.4$, $SD= 5.8$, range 0-25). Table 2 depicts the distribution of ambiguous usage across pronouns produced. Across the 29 narratives, there were 45 distinct regions of ambiguity; together these contained 190 ambiguous utterances (by child, $M = 3.3$, $SD = 2.5$, range 0-6.5).

Cohesive Pronoun Usage

Some children did not create ambiguity within their narrative. There were 6 children who created no ambiguity; this accounted for 20.7% of all narratives. Of these, 3 were not ambiguous because the children utilized strategies to minimize ambiguity. The 3 remaining stories did not contain ambiguity because they used so few pronouns.

The remaining 23 children used character pronouns cohesively 79% of the time; these children used the ambiguous pronouns depicted in Table 2. This suggests that ambiguity was not yet entirely resolved in children aged 8 to 11 years.

Ambiguity

Although children appeared to use pronouns fairly cohesively, many of the instances where ambiguity occurred were where the two characters interact. The two primary systems that fell apart in these moments were gender and case, though the number system fell apart on occasion for children at a certain point in the narrative. There were also instances of children using a combination of systems, or none at all. In the examples below the character pronouns are bolded, the presumed referent is indicated on the right-hand side in square brackets, elliptical pronouns are indicated by “ \emptyset ”, the ambiguous pronouns are highlighted, and the nouns are underlined.

Gender

There were 16 instances (35.5% of all ambiguous regions) of gender collapse across narratives. These fell into two types.

Same Pronoun. One pronoun was used to refer to both characters in a single region, with no nominal reference in between ($n = 12$, 75% of gender instances). In Example 3 the child used “he” for the bird, then proceeded to use the same pronouns to reference the other character, without clarification.

Example 3

but then <u>the bird</u> thing makes a hole in the wall	
so then he goes out	[bird]
and then he knocks the door	[bird]
so then he will come	[Pink Panther]
and open it	

Pronoun Switch. A single character’s pronoun was interchanged with another pronoun ($n = 4$, 25% of gender instances). In Example 4 the child uses “him” for the bird in the first two mentions of this character, then switches to “it” for the bird in the last line.

Example 4

then <u>the pink panther</u> got really mad at him	[bird]
and ☺ grabbed his clock and him	[Pink Panther; bird]
And ☺ threw them	[Pink Panther]
☺ walked to the bridge	[Pink Panther]
and then ☺ dropped him in the water	[Pink Panther; bird]
and then he went to sleep	[Pink Panther]
and then he looked at the wall	[Pink Panther]
and then he realized	[Pink Panther]
that it wasn’t there	[bird]

Case

There were 13 instances (29% of all ambiguous regions) of case collapses which created ambiguity. These fell into two types.

Wrongly Assumed. The pronominal reference in question was referring to a different character as the previous nominal or pronominal reference, which is in the same case position ($n = 9$, 69% of gender instances). In Example 5 the last nominal subject reference was to the bird, as was the elliptical reference, but the following subject pronominal references were instead discussing the actions of the Pink Panther.

Example 5

and <u>the bird</u> went like this	
and \emptyset started sinking	[the bird]
and then he went	[?]
he ran all the way to the bridge	[Pink Panther]

Case to Case. The character previously talked about as the subject consecutively became the object with no nominal reintroduction, or from the object to the subject with no nominal reintroduction ($n = 4$, 31% of gender instances). Example 6 highlights a subject to object issue. The first and second “he” refer to the same character, however the first and second “him” do not refer to the same character. The region falls apart due to obscurity of reference, culminating in an unclear final reference.

Example 6

he puts him inside the clock	[Pink Panther; bird]
and then he puts the cork back in	[Pink Panther]
and then you see him walking	[Pink Panther]
and then he's at the golden bridge	[Pink Panther]
and then he throws him off the edge	[Pink Panther; bird]
so then when he goes back	[?]

Gender and Case

There were 4 instances (9% of all ambiguous regions) of gender and case collapses which created ambiguity. The ambiguous passage required at least one gender and one case criterion. In

Example 7 the passage begins with the Pink Panther as the subject, introduces the bird as the subject without nominally reintroducing it, and ends with switching the Pink Panther to the object position. This exemplifies both a “same pronoun” and “case to case” issue.

Example 7

and <u>the Pink Panther</u> went into his house robe	
and he opened the door	[Pink Panther]
and he had this big instrument	[bird]
and he was playing it really loudly	[bird]
trying to wake him up	[Pink Panther]

Number

There were 5 instances (11% of all ambiguous regions) of gender collapses which created ambiguity. A plural pronoun was switched to a singular pronoun without nominally reintroducing the particular character in question. In Example 8 the child said “he they”¹ before switching to “they he”. As the previous referent was both characters, there is a lack of clarity concerning a sudden singular character mention.

Example 8

but then he felt bad for <u>the bird</u>	[Pink Panther]
and then so he got back to his house	[Pink Panther]
and then when he walked in	[Pink Panther]
he got back in his bed	[Pink Panther]
and then he heard the cuckoo	[Pink Panther]
and then they made friends	[PP and cuckoo bird]
at the very end of the first one he they were both	[PP and cuckoo bird]
they he got in bed	[?]

Other

There were 7 instances (16% of all ambiguous regions) of other collapses which created ambiguity; abandoning a sentence, using elliptical reference, unclear reference due to emphasis, and one instance in which the type of collapse was undetermined (see Appendix C for example).

¹ Noted in Methods - Coding as being coded only as the second utterance

Strategies to Minimize Ambiguity

While children created ambiguity, they also repaired the instances of ambiguity, so the story could continue unhindered. Children used strategies to avoid ambiguity such as implementing pronominal structures and clarifying which character was which via redundancy.

Repair

First, children mainly repaired their narrative through reintroduction of a noun. Of the 45 ambiguous regions within this data set, 41 were resolved through nominal reintroduction, 3 were not repaired due to the conclusion of the narrative, and 1 was repaired through a change in number.

Reintroduction of character entails nominally referring to one or both of the characters in question, in order to clarify which character is doing what in the scene. Example 9 denotes an ambiguous region due to a gender collapse. It also shows how the noun “the bird” aided resolution of ambiguity and allowed the story to move forward.

Example 9

and then when and he kept on cuckooing out	[bird]
and then eventually he pulled the lever	[Pink Panther]
and he went inside of the a little hole	[bird]
then he plugged the hole	[Pink Panther]
from then he tied	[Pink Panther]
then he plugged the hole	[Pink Panther]
so <u>the bird</u> couldn't get out	

Second, there were 3 instances of children ending their stories on an ambiguous note because they were not able to regain clarity before the narrative ended. Example 10 is an instance where a child ended the story without reintroducing a noun to clarify the character they were referring to. The “he” in this example is unclear, and no reintroduction existed after it in order to clarify the reference.

Example 10

and then **they** were sleeping together
 and then when the alarm clock went on next
he got like a crowbar
 and smashed it
 and that was the end

[Pink Panther and bird]

[?]

Third, there was a singular instance in a narrative where the repair of an ambiguous region occurred through a change in number. The child introduced a plural pronoun (“they”) for both characters. While this did not clarify past ambiguity, the narrative made explicitly clear that the characters were acting together from that point forward.

Pronominal Structure

A qualitative analysis determined that children used systems to differentiate between the two characters (the Pink Panther and the cuckoo bird), though only 10% of children in this study only use pronominal structure to create cohesion. Systems provided an indication of how children routinely differentiated between characters. There were two primary systems found throughout the children's narratives; case and gender. Most children used one or both primary systems.

Case System. When a child used case as a system to avoid ambiguity, they consistently referred to one character in the subject case while referring to the other in the object case. Example 11 is a narrative told by one child who used case fairly consistently to differentiate between characters. In this example the Pink Panther was always in the subject position (the one doing the action), and the bird was always in the object position (being a recipient of the action). When the bird, who was usually the object, was the focus (and therefore the subject) it was reintroduced nominally, as discussed in the earlier repair section.

Example 11

and then he kicked all the stuff	[Pink Panther]
and it took <u>the bird</u>	[Pink Panther]
and Q walked across this bridge	[Pink Panther]
and Q threw him into the water off the bridge	[Pink Panther; bird]
and then he went back to sleep	[Pink Panther]
and then he woke up	[Pink Panther]
and he was like all upset	[Pink Panther]
because he threw <u>this poor helpless bird</u> into this big river	[Pink Panther]
and so he went out looking for him	[Pink Panther; bird]
and he jumped off the bridge to go looking for him	[Pink Panther; bird]
but <u>the bird</u> was already out of the water into the house	

Gender System. When a child used gender as a system to avoid ambiguity, one character was referred to as “he” (often the Pink Panther) while the other character was “it” (often the cuckoo bird). Example 12 is a narrative told by one child who used gender fairly consistently to differentiate between characters. In this example the Pink Panther was most frequently given the masculine pronoun “he” while the bird was most frequently given the neutral pronoun “it”. When the bird became the subject it was reintroduced nominally, as discussed in the earlier repair section.

Example 12

so <u>the Pink Panther</u> went to sleep	
and then there was <u>a bird</u> in a cuckoo clock	
that Q kept waking him up	[Pink Panther]
and then he smashed his cupboard	[Pink Panther]
and then he used scissors on on thin air	[Pink Panther]
and then he flipped a lever	[Pink Panther]
that opened a trap door	
that did nothing	
and then <u>the bird</u> came out again	
and he grabbed it	[Pink Panther; bird]
And Q tied its beak together	[Pink Panther]
and then <u>the bird</u> came out	
and Q tied him to his safe	[bird; Pink Panther]
and <u>the bird</u> put the safe on the trapdoor	
that started making sounds again	
then the safe fell down the trapdoor	
and it pulled <u>the Pink Panther</u> down	
and then he blocked off the cuckoo clock	[Pink Panther]

Redundancy

There were 13 instances within 11 stories where children preemptively disambiguated the following text. This avoided ambiguity due to the prior clarification. Example 13 highlights an instance where the child used a pronoun immediately paired with a noun to refer to the bird, in order to disambiguate who was the character whacking the clock.

Example 13

And then he hugged <u>the bird</u>	[Pink Panther]
Because he wasn't really mad anymore	[Pink Panther]
Then he put it back on the wall	[Pink Panther; bird]
Then they both fell asleep	[PP & bird]
Then they bought a clock	[PP & bird]
That was a timer	
And he <u>the bird</u> whacked it	[bird]

Child's Gender Differences

Males and females had similar rates of case and gender collapses, $\chi^2(1) = 0.9, p = 0.3$. A chi-squared test of independence indicated a non-significant difference between male and female collapse.

A Mann-Whitney U test indicated a non-significant difference between percentage of ambiguous regions for females ($Mdn = 5.0$) and percentage of ambiguous regions for males ($Mdn = 4.0$), $U = 99.5, p = .9$. A Mann-Whitney test was used because the male population failed the Shapiro-Wilk test of normalcy.

The count of ambiguous regions by gender in the format of a box and whisker plot also highlighted a non-significant difference between males' and females' regions of ambiguity.

Discussion

This study examined the prevalence of ambiguity within the fictional narratives of children aged 8 to 11 years and found that pronoun use was cohesive 81% of the time by child

and 79% of the time by pronoun. The average pronouns by child indicates that some children did not have ambiguity. Children aged 8 to 11 years do not have ambiguity sorted yet, but they are developing systems and strategies through which they are learning to disambiguate characters. Previous literature determined children should be adept at cohesive storytelling by this age, which aligns with the high rate of cohesion found among the children in this story (Shapiro & Hudson, 1991; Karmiloff-Smith; 1985; Beliavsky, 2003). Narrative ambiguity did not differ according to children's gender. The lack of gender difference may indicate why few articles discussed it as a factor in the diversity of children's narratives (Finestack et al., 2006).

Though children create cohesion within their narratives the majority of the time, the following section highlights the issues of this age group.

Ambiguous Pronouns

The frequency with which ambiguous pronouns occurred gave insight into how well children are able to discuss multiple characters within a narrative. In this study the regions of ambiguity always occurred where there were multiple characters, highlighting that the hurdle for children is not in understanding how to pronouns work, but being able to use them to cohesively refer to multiple characters in a scene.

Table 2 highlights the hierarchy of ambiguous pronominals, with elliptical references at the bottom. Such a low frequency of ambiguous ellipticals was not an expected result because elliptical reference does not provide any character information. Some previous literature notes the use of elliptical reference, however it is not distinguished from pronominal reference, as the studies look at larger categories of narrative structure (Hickmann & Hendriks, 1999; Bamberg, 1986). Other studies that focus on narratives using a language that frequently use ellipticals (pro-

drop languages) such as Italian or Chinese find much different frequencies of elliptical reference (Orsilini et al., 1994; Chen & Lei, 2012).

An earlier study noted ambiguous reference occurred 11.3% of the time in children ages 5 to 10 years (Beliavsky, 2003) which is a lower frequency than the 20-21% indicated by this study even with a younger population. However, the study did note an upward trend in ambiguous reference from grade 3 children to grade 4 children, so it may potentially incline with age until an undetermined time before adulthood where it ceases entirely (Beliavsky, 2003).

Systems

As children are moving away from ambiguity at this age, it is expected that they have strategies in place to help them create cohesive narratives.

Through qualitative means, patterns showed up in children's data, which led to exploration of systems and recurring ways children structure their narratives and work to avoid ambiguity. Children most frequently used nominal reintroduction to repair ambiguity that had already occurred in a narrative, given that it was an explicit character reference. Overall pronominal structure and redundancy were two strategies children used to avoid ambiguity altogether. The various strategies children use to minimize ambiguity may indicate that while their narratives may not be entirely ambiguity-free, by this age children understand multiple ways to manage ambiguity. The data from this study indicate that only 10% of children were so adept at using a system of pronominal structure that their narrative was fully cohesive.

Intentionality

Though it is not possible from this data set to determine children's intentionality with their grammatical choices, some cautious inferences may be made due to high frequency across the narratives.

None of the children's stories began with ambiguity and continued it for the rest of the narrative. Therefore, children must be aware, on some level, when their stories became ambiguous. Redundancy may be a particular indicator that children are aware of ambiguous moments and work to avoid them, as they over-explain which character is the focus, as to make clear what is occurring.

Of the narratives that had ambiguity due to pronoun gender, nearly three-quarters of the ambiguous regions involved using the same pronoun for both characters. This indicates that while the child followed the narrative they were creating, they appeared unaware that the listener could not follow along as easily. Previous research highlights difficulties surrounding listener comprehension of children's narratives due to lack of cohesive linkages between references (Beliavsky, 2003).

Though some ambiguous regions went on for longer than others, children found a way to disambiguate their narratives. The few instances of "no repair" only occurred at the end of narratives, and had the story continued, the ambiguous region likely would have been resolved. The existence of very few instances of non-repair indicate how frequently children of this age range minimized ambiguity. The number of utterances in a region are telling of whether a child has a grasp of ambiguity within their narratives. The longer the region, the less aware children appear about their own incomprehensibility, and the more they struggle to disambiguate the narrative. On the whole, children had short regions

Future Work

The exploratory nature of this study meant the methods and analyses of the data set were not firmly established before I began working with the data. Through qualitative examination, patterns began to emerge from the children's narratives regarding ambiguity and strategies for

disambiguation, that were then more appropriately coded. The coding scheme used in this study can be utilized for future research concerning the ambiguity in connection to pronominal usage in children's narratives.

Children may be able to use case or gender frameworks to discuss a story, however the fact only 10% of children in this study were able to do so consistently means that children do not yet have a consistent way of using pronouns unambiguously in their narratives. However, it should also be noted that the literature I have compiled rarely spoke to how ambiguous adult narratives are, with only one study noting no ambiguity in adult narratives (Belavsky, 2003). The lack of comprehensive adult comparison may in part be due to the fascination with the development of language in children and the assumptions that adults must have fixed the issues from childhood as we are able to aptly communicate with one another without confusion. Future work with comparable narratives is necessary to understand how effective these children are at pronominal cohesion.

Future studies may pursue animacy of character in relation to ambiguity. Animacy favors one character over another, due to more human-like qualities (Bamberg, 1986; Colozzo & Whitely, 2015). The current study can only speculate a link between a struggle with the bird-clock distinction and ambiguity. I chose not to include the clock as a character at all, for the sake of clarity and consistency in my research. Others may choose differently, and future research could look into finding a clearer distinction between the two, or highlight common instances of where animacy was an issue within the narrative.

Lastly, children at times appeared unaware of listener comprehension, as noted by frequent instances where children used the same pronoun ("he") to refer to multiple characters. Future research could have people who had never watched the cartoon listen to the audio

transcripts, in order to determine what was truly ambiguous to a listener. Further, one type of case breakdown (“wrongly assumed”) was only evident because I coded the narratives after watching the cartoon, therefore I knew what was “supposed” to happen. First-time listeners may understand these references, thereby providing a different framework for understanding ambiguity in children’s narratives.

Limitations

The data set for this study contained 29 narratives which was too small of a sample size to indicate normal data. The dataset of this study was negatively skewed, with most stories being quite complex, therefore no meaningful connection could be made between ambiguity and story complexity. The exploratory nature of this study did not allow for predictive hypotheses prior to data analyses.

Conclusion

This study illustrated the interplay between cohesion, ambiguity, and multiple character narratives of children aged 8 to 11 years. Children create cohesion the majority of the time, but ambiguity, found specifically in the interactions of multiple characters, emphasizes that pronouns are a main factor of narrative cohesion. This means that, for children between the ages of 8- to 11-years-old, narrative development centers around learning how to use pronouns cohesively for multiple characters.

References

- Bamberg, M. (1986). A functional approach to the acquisition of anaphoric relationships. *Linguistics*, 24(1), 227-284. <https://doi.org/10.1515/ling.1986.24.1.227>
- Beliavsky, N. (2003). The sequential acquisition of pronominal reference in narrative discourse. *WORD*, 52(2), 167-189. <https://doi.org/10.1080/00437956.2003.12068831>
- Chen, L., & Lei, J. (2012). The production of referring expressions in oral narratives of Chinese-English bilingual speakers and monolingual peers. *Child Language Teaching and Therapy*, 29(1), 41–55. <https://doi.org/10.1177/0265659012459527>
- Colozzo, P. & Whitely, C.. (2015). The interplay of referential function and character primacy on referring expressions in children's narratives. *First Language*, 35, 137-162. <https://doi.org/10.1177/0142723715577321>
- DePatie, D. H. (Creator), Freleng, F. (Creator), Mishkin, L. (Writer), & Davis, A (Director). (1969, May 18). In the Pink of the Night (Season 1, Episode 5) [TV series episode]. In D. H. DePatie, F. Freleng, J. Foss, B. Orcutt, & H. Love, (Executive Producers), *The Pink Panther Show*. Mirisch Films; DePatie-Freleng Enterprises (DFE Films); Metro-Goldwyn-Mayer (MGM).
- Finestack, L. H., Fey, M. E., & Catts, H. W. (2006). Pronominal reference skills of second and fourth grade children with language impairment. *Journal of Communication Disorders*, 39, 232-248. <https://doi.org/10.1016/j.jcomdis.2005.12.003>
- Halliday, M. A. K., & Hasan, R. (1976). *Cohesion in English*. Longman, London and New York.
- Hickmann, M., & Hendriks, H. (1999). Cohesion and anaphora in children's narratives: A comparison of English, French, German, and Mandarin Chinese. *Journal of Child Language*, 26(2), 419-452. <https://doi.org/10.1017/S0305000999003785>

- Hickmann, M., Hendriks, H., Roland, & F., Liang, J. (1996). The marking of new information in children's narratives: A comparison of English, French, German and Mandarin Chinese. *Journal of Child Language*, 23(3), 591-619. <https://doi.org/10.1017/S0305000900008965>
- Karmiloff-Smith, A. (1985). Language and cognitive processes from a developmental perspective, *Language and Cognitive Processes*, 1(1), 61-85.
<http://doi.org/10.1080/01690968508402071>
- Marentette, P., Furman, R., Suvanto, M. E., & Nicoladis, E. (2020). Pantomime (not silent gesture) in multimodal communication: Evidence from children's narratives. *Frontiers in Psychology*, 11(November), 575952. <https://doi.org/10.3389/fpsyg.2020.575952>
- Orsolini, M., Rossi, M., & Pontecorvo, C. (1994). Italian children's reintroduction of referents in narratives. *Journal of Child Language*, 23, 465-486.
<https://doi.org/10.1017/S0305000900008886>
- Shapiro, L. R., & Hudson, J. A. (1991). Tell me a make-believe story: Coherence and cohesion in young children's picture-elicited narratives. *Developmental Psychology*, 27(6), 960-974. <https://doi.org/10.1037/0012-1649.27.6.960>
- van Hell, J. G., Verhoeven, L., Tak, M., van Oosterhout, M. (2005). To take a stance: A developmental study of the use of pronouns and passives in spoken and written narrative and expository texts in Dutch. *Journal of Pragmatics*, 37(2), 239-273.
<https://doi.org/10.1016/j.pragma.2004.08.004>
- van Vliet, S. (2009). Reference points and dominions in narratives: A discourse level exploration of the reference point model of anaphora. In V. Evans & S. Pourcel (Eds.), *New directions in cognitive linguistics* (pp. 441-464). Amsterdam, Netherlands: John Benjamins Publishing Company, Netherlands. <https://doi.org/10.1075/hcp.24.27vli>

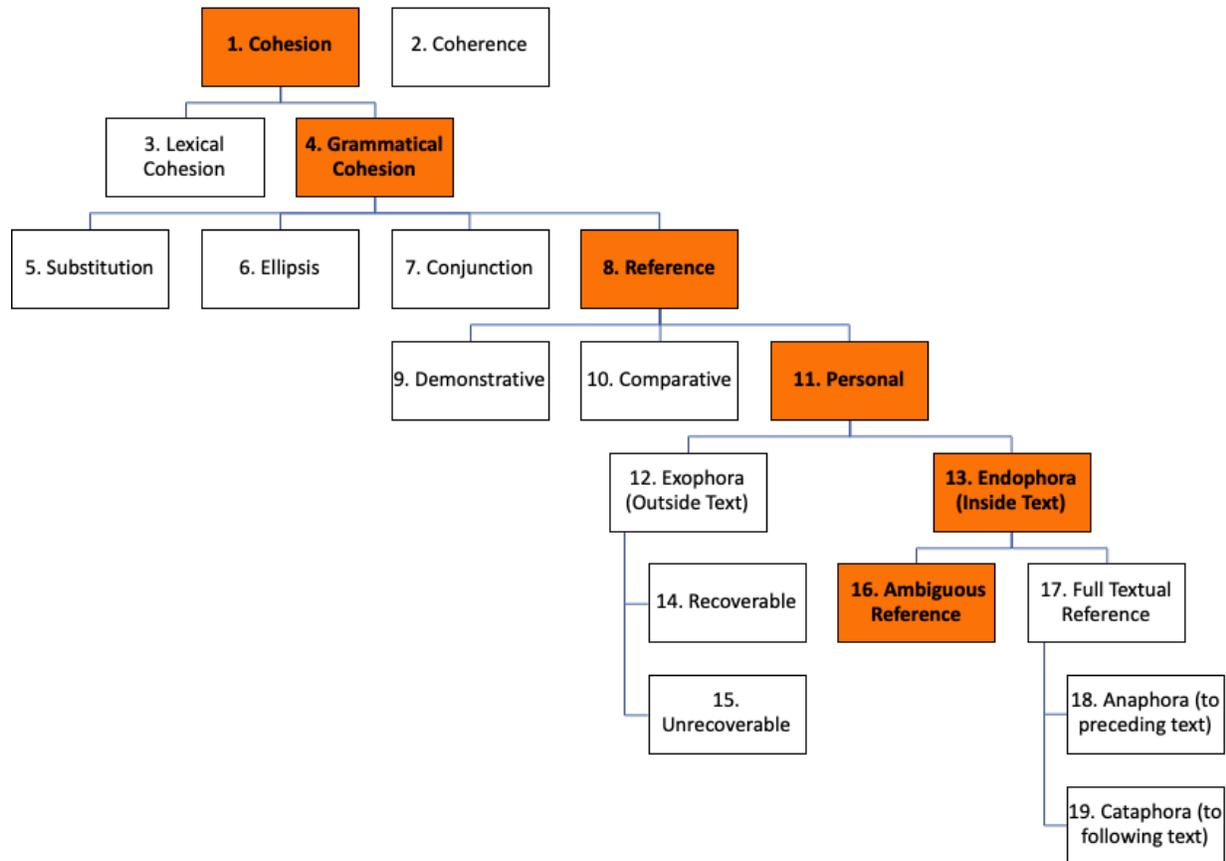
Table 1*Categories of Pronouns*

Person	Number	Gender	Case	
			Subjective	Objective
Third	Singular	Masculine	He	Him
		Neutral	It	It
	Plural		They	Them

Note. Simplified pronominal table containing all pronouns used in this study (Halliday & Hasan, 1976).

Table 2*Proportion of Ambiguous Pronouns*

Pronouns	Number of Ambiguous Pronouns	Number of Total Pronouns	Percentage of Ambiguous Pronouns
He	117	496	23.6%
Him	16	80	20.0%
Ø	17	111	15.3%
It	7	53	13.5%
They	1	19	5.3%
Them	0	4	0%
I	0	2	0%
Me	0	1	0%
Total	158	765	20.7%

Figure 1*Components of Narrative Formation*

Note. Each hierarchical level represents an increasingly specific linguistic category. Orange boxes highlight the relationship between cohesion and ambiguous reference (Beliavsky, 2003; Halliday & Hasan, 1976).

Figure 2

Visual Representation of Cartoon



Note. Only the most common scenes children discussed are depicted.

Figure 3

Visual Representation of a Child's Retelling



Note. Scenes shown are only those from one child's narrative, other children discussed different or more scenes.

Appendix A

Previous Coding

The exploratory nature of this study led to attempting multiple coding schemes in order to encapsulate ambiguity in narratives. Though these schemes were not relevant to this study, future studies may use them for a quantitative analysis of multiple-character narratives which discuss ambiguity.

Referential Function

Each narrative was coded with a focus on referential function, which was categorized as introduction, maintenance, or reintroduction following Colozzo and Whitely (2015).

Introduction. Introduction was categorized as the initial reference of a character within a given narrative. The initial reference of a character during introduction of the recording was generally nominal, however there were instances where the first mention of a character was a pronoun. For example, the video may include the researcher asking “are you ready to talk about the Pink Panther cartoon?” wherein the child agrees and begins their story. As both the child and the researcher have the shared understanding that they will be talking about the Pink Panther, the child may not introduce the character by name again, and just use “he”. If the researcher/student introduction was included within the video, it was transcribed and understood to be a recoverable exophoric reference. If this discussion was not included in the video, it was not transcribed and therefore coded as an unrecoverable exophoric reference.

However, a simpler introduction often occurs in regards to the second character (the cuckoo bird) who shows up later in the story. For example, “and then the bird drilled a hole through his wall.” Within this specific example narrative, “the bird” was the first instance the child had brought up this character within their story. Continual references of a character thereafter were contained within the category of maintenance.

Maintenance. Continual usage of pronouns with no stated noun in between is considered maintenance. The example “and then the bird came out again; and **he** grabbed **it**” has multiple characters, however both are considered maintenance, as the characters in the scene are fixed, “he” is the subject and “it” is the object.

Reintroduction. Reintroduction is a nominal mention of a character, occurring anywhere throughout the story. Nouns highlight one character clearly, and by default identify the other character in the scene as well. From reintroduction, children can go forward to maintenance with clarity. To differentiate between introduction and reintroduction, the character in question had to have been discussed at least one time prior (nominally or pronominally) in order to be classified as reintroduction. One such example is “and then **he** came back, the bird was dusting it’s thing.” In this instance “the bird” was a reintroduction, as it had been mentioned earlier in the narrative and was brought up as the focus again, specifically as a noun.

Referring Expression

Five types of referring expression were utilized within this study. The referring expressions defined below explained the entirety of the linguistic forms for character, which were found throughout the children’s narratives (Halliday & Hasan, 1976; Colozzo & Whitely, 2015).

Indefinite Pronouns. Indefinite Pronouns are either interrogative (who, what, which) or indefinite pronouns (everyone, someone, all, other).

Full Textual Reference. Full textual reference is a specific type of endophoric reference which directly links a pronoun to the context which explains it, either anaphorically or cataphorically. This type of reference is fully cohesive.

Anaphora. Anaphora is context initial where the pronoun succeeds the noun it references (“the bird was dusting its thing”).

Cataphora. Cataphora is pronoun initial, where the pronoun precedes the noun it references (“they went to sleep together in his bed; in the Pink Panther’s bed”).

Recoverable Exophoric Reference. Recoverable exophoric references are given meaning from the larger context of the story outside the child’s narrative, wherein the audience cannot immediately understand who the pronoun is referring to (“and then he realized that it wasn’t there; and then he felt really bad”).

Unrecoverable Exophoric Reference. Unrecoverable references are given meaning from context outside the narrative entirely, wherein the audience cannot understand who the pronoun is referring to, even with access to contextual clues (“Oh no it fell”). This type of reference is ambiguous as there is no clear, direct reference.

Ambiguous Endophoric Reference. Ambiguous endophoric reference occurs when pronoun refer to multiple subjects, therefore creating a lack of clarity about which referent is the correct one (“and then he₁ was so happy that he_{1 or 2} got it₃ that he_{1?} put him_{2 or 3?} in the bed”).

Appendix B

Detailing an Initial Ambiguous Utterance

The initial ambiguous utterance (highlighted here in yellow) may make sense on its own, however it is integral to understanding the ambiguous region which followed. Due to the necessary connection between the initial utterance and that which followed, it was included in the ambiguous region.

Example C1

He got an alarm clock with a <u>real bird</u> in it	[Pink Panther]
And it kept on annoying him to get up	[bird; Pink Panther]
So he made it stay in	[Pink Panther; bird]
So he cut a hole in the wall	[bird]
And then Q went outside	[bird]

Appendix C

“Other” Ambiguous Instances

This appendix details the 7 “other” instances in children’s narratives that occurred in 4 distinct ways; abandoning a sentence, using elliptical reference, unclear reference due to emphasis, and one instance in which the type of collapse was undetermined.

In the instance of a child mentioning a character but then abandoning the sentence to start another, ambiguity is not solved for the phrase at hand, but nonetheless the story continues without ambiguity. In Example B1 the child is trying to say something about the Pink Panther being in the bed, but then abandons that explanation of the story in order to start talking about the Pink Panther boarding up the clock.

Example B1

and then the screen fades black	
and he’s like	[?]
and then he goes again	[?]
where he’s in bed	[?]
and then <u>the bird</u>	
oh wait no	
where <u>the Pink Panther</u> does like	
he puts boards over the hole thing and stuff	[Pink Panther]

The use of an elliptical in place of a pronoun without prior nominal reference to the character can create ambiguity due to unclear connection to a prior noun. In Example B2 the child is talking about the character “he” but it is unclear whether the elliptical reference (as noted by the 0 for clarification purposes) is referring to the same character or another character that had been mentioned previously in the story.

Example B2

And he tried to find it	[Pink Panther]
But he couldn’t	[Pink Panther]
And that’s it	
And then he was	[Pink Panther]

Q accidentally built his clock after [?]
Where it was and that's all I could remember

There were also infrequent instances of the referent of ambiguous pronouns changing depending on how they were read and which character was emphasized. In Example B3 the pronouns in line 5 (he) and line 7 (him) could mean either character. One way of reading this example is though the cuckoo bird was sleeping and it was time for him to wake up. Another way of reading it is as though the Pink Panther was sleeping and the bird was brought into the context in order to wake the Pink Panther up.

Example B3

he bought this cuckoo clock and then	[Pink Panther]
so he put it up on his wall	[Pink Panther]
and then	
<u>the cuckoo bird</u>	
well he was sleeping	[?]
and then	
it was time for him to wake up	[?]

One instance of ambiguity throughout the collected narratives could either be classified as a case or gender collapse, but not both. Example B4 is ambiguity concerning the first instance of pronouns within a given narrative. The bird is the subject of the nouns prior while the Pink Panther is the object. However, moving into the ambiguous section, there is only one character (he) as the subject, with no object. Following the ambiguous section the bird becomes the subject again, as it was reintroduced nominally. This example could not fit into the categories of gender or case collapses, specifically because it is the first use of pronominals. It is unclear whether “he” refers to the Pink Panther or the bird, as there is no gender or case system in place yet for the characters.

Example B4

The bird inside of it is trying to get Pink Panther to get up
 And but Pink Panther won't get up

he tries

he like sometimes **he** tries to like nail down the birdhouse to the hole
 and to the hole to keep the hole out
 and **he** also takes the little hands
 and Ø pulls them out
 and Ø put a cork in that hole

[?]

[the PP]

[Pink Panther]

[Pink Panther]

[Pink Panther]