

LISTENING TO ALL OF THE WORDS:  
REASSESSING THE VERBAL ENVIRONMENTS  
OF YOUNG WORKING-CLASS AND POOR CHILDREN

BY

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## ABSTRACT

For many educators, scholars, and policy makers alike, one of the most commonly cited reasons that poor and working-class children fail at school is due to differences between the language within these children's homes and the language within the school. Unfortunately, these differences are often conceptualized as language deficits or language impoverishment in the homes of non-majority families rather than as differences between two distinct, but equally viable systems, one of which possesses political hegemony over the other. In particular, recent discussions of language deficit have centered around the notion of the *Word Gap*, a finding that Hart and Risley (1995) extrapolated from their research on 42 families from Midwestern communities suggesting that children from impoverished homes hear 30 million fewer words than children from professional homes by the time they reach four years of age.

Alongside these dire findings and predictions exists another tradition in scholarship on language development whose central premise is that most children grow up to be fully competent speakers within their cultural contexts. This tradition known as language socialization is an approach to language study that examines how language use among young children is socialized by caregivers, and how language is used by caregivers to inculcate into their children the beliefs, values, and norms of their culture and its practices. Questions of language deprivation are essentially moot within this tradition because language is always defined as emerging from within the contexts in which its speakers live, work, and play. In this way the mismatch between the language of the home and the language of the school is redefined as a problem of language contact

where the hegemony of one language becomes central to any difficulties experienced by competent language speakers within different contexts.

The present study looks at the Word Gap by situating its approach and findings within the tradition of language socialization. In this manner, it interrogates the work of Hart and Risley (1995) and other studies of language deprivation by an examination of the degree to which they considered the contexts and the practices of the participants whom they studied. Where traditional language development studies approach the process of learning language as an essentially dyadic enterprise, this research asks who is talking to the child on a regular basis.

This study examines data from five pre-existing language corpora, each of which was collected in the methodological tradition of language socialization. The participants in this study are 42 children and their families from five communities across the United States. Two communities were rural in geographic distribution and two were urban; one community within each geographic distribution was impoverished and one was working class. A fifth community was urban and relatively affluent, and provides a comparison group to which data from the other communities are compared. All participants were European American except those families living in the rural, impoverished community who were African American. Children were observed longitudinally according to different time schedules in the five communities. An average of over six samples per child exists ranging from approximately 18 to 48 months of age across the five communities. In all, verbatim transcripts of 157.5 hours of data were analyzed. Every word spoken to and around the child by family and friends was sorted according to categories reflecting the speaker and intended listener.

Several important findings emerged. First, although the talk of one primary caregiver addressed to the child was important in the everyday lives of all children in this study, most children enjoyed frequent exposure to the speech of multiple interlocutors—listening to, answering, and learning from all talk in their ambient verbal environment. In nearly every home, children were exposed to significant amounts of speech addressed specifically to them and spoken around them above and beyond the speech of their primary caregiver. Moreover, analyses of vocabulary diversity demonstrated that in every community the addition of this speech to the mix increased the quality of language the children heard, even considering that some of the speech was spoken by younger interlocutors such as the child's siblings. Qualitative analyses of the speech spoken both to and around children by other interlocutors than their primary caregiver were offered to demonstrate not only the types of situations in which this speech occurs, but also the everyday, normal nature of the speech.

Finally, this study concludes with an examination of the ideological issues surrounding the Word Gap, asking why this concept remains relatively impermeable to evidence that questions both its authenticity and its importance.

*To Linda*

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Countless numbers of people have helped to transcribe these data over the years, many of whom I do not even know. I beg the forgiveness of anyone whose name is forgotten. However, several people deserve mention as faithful recorders of the words on

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Peggy was a constant advocate for me. Her scholarship on language and the forces of socialization have informed this project from start to finish. Our discussions about social class and culture have enabled me to have a richer understanding of the processes through which these constructs intertwine through the lives of others infusing the daily practices of children and parents on the ground. Perhaps most importantly, Peggy's keen interest in the social welfare of all individuals is the ethical bedrock of her scholarship and her transactions with others face to face. Quite simply, Peggy is that rarest of individuals, a profoundly nice person.

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## CHAPTER 1

### INTRODUCTION

A persistent conundrum in the study of school outcomes concerns why children from different socioeconomic and cultural backgrounds fare differently in terms of overall achievement. Despite the complexity of this issue given the breadth and depth of differences that children present as they pursue their schooling, the answer to the question for many has been reduced to issues surrounding the language differences experienced by children in their everyday lives, especially in the early years of life. In particular, in early research, the language environments of working-class and poor children were often described as deprived in comparison to those of middle-class children (e.g., Bereiter & Engelmann, 1966; Deutsch, 1963; Hess & Shipman, 1965). The language used by caregivers was considered grammatically disorganized (Deutsch, 1963), or insufficient for adequate progress in language development (Bereiter & Engelmann, 1966; Hess & Shipman, 1965). By contrast, contemporary research has focused on vocabulary, describing inadequacies in the amount of vocabulary in caregiver speech addressed to poor and working-class children (Hart & Risley, 1995, 2003; Hoff-Ginsberg, 1991; Hoff, 2003).

The presumed effects of language inadequacies within the home on child language acquisition have been challenged persistently from numerous fronts. Studies described the comparable complexity of language used by young language learners acquiring their first language across different socioculturally defined groups. For example, Miller (1982) found that her three young participants learned the same syntactic/semantic categories in the same developmental sequence as had been described

previously for middle-class children (cf. Bloom, 1970). Furthermore, similar developmental assessments of the comparable complexity of language use across all social classes were extended in studies of larger discourse structures such as conversational narrative. In her landmark study of three communities in the Piedmont Carolinas, Heath (1983) described scenarios where young children competed frequently and successfully to tell stories and to play word games with older children and family members. Nevertheless, to date, little research has done much to dispel the essential belief that the amount of interaction provided by caregivers varies directly and positively with their incomes and education levels.

Despite efforts to dismiss the association between language deprivation and delay on the one hand, and social class and cultural difference on the other hand, the association continues to be perpetuated in current discussions of the everyday lives and language of working class and poor people, albeit cloaked in efforts to explain the persistent achievement gap in school performance experienced by these children with comparison to their middle-class peers. Explicit or implicit discussions of language deprivation run across disciplines and methodologies. Psychological research, both observational and quasi-experimental, has consistently demonstrated that middle-class caregivers talk more to their children than less economically privileged caregivers do (Hart & Risley, 1995; Hoff, 2003). For example, Hart and Risley reported that, on average, the impoverished children in their study heard only 616 words per hour whereas the children of professional parents heard 2,153 words per hour. They extrapolated these averages across the first four years of the children's lives to suggest that there is a 30 million word gap between the amount of vocabulary heard by the poorest and most

advantaged children in the United States (Hart & Risley, 1995; 2003). However, reports of social class differences in language use are not limited to the psychological literature. The sociologist Lareau (2003), in her ethnography of 12 families across 3 economic levels (middle class, working class, and poor), reported that children from middle-class homes were more likely to engage in frequent negotiations with their parents and to hear a steady stream of speech within their everyday lives. In addition, these children of privilege were allowed to interrupt authority figures in order to voice their opinions within a conversational transaction or to point out inconsistencies in the statements of adults. By contrast, children from working-class and poor families were more likely to hear express directives about their behavior that parents expected them to obey without question. Lareau reports that within these homes the amount of talking is less than in middle-class homes; sentences are shorter, words are simpler, and negotiations and word play seldom occur.

Indeed, the reported disadvantage of children living within low-income families has become one of the primary reasons cited for their inability to perform on a par with their peers. Lareau (2003) cites this inability to perform as the result of the "emerging sense of constraint" which develops as working-class and poor children learn to navigate their verbal environments. By contrast, middle-class children learn an "emerging sense of entitlement" which will set them at an advantage in their adult professional lives. One does not have to wait until the adult years, however, to witness the benefits conferred by a superior verbal environment. Hart and Risley (1995) reported significant relationships between measures of verbal quantity and quality in the preschool years and intelligence and verbal ability scores (as measured by the Peabody Picture Vocabulary Test-Revised)

in the early elementary years. Interestingly, these relationships did not translate to greater success in the children's third-grade scores in the academic skill areas of reading, writing, spelling, and arithmetic, or with scores on the Otis-Lennon School Ability Test (p. 161).

Surprisingly, these assessments of language inequality continue to run counter to many contemporary accounts of the language environments of children from different social classes, particularly when larger forms of connected discourse such as narrative are considered. Many studies have shown that minority children experience prodigious amounts of complex verbal stimulation in their homes and communities (e.g. Burger & Miller, 1999; Heath, 1983; Miller, Cho, & Bracey, 2005; L. L. Sperry & Sperry, 1996; Vernon-Feagans, 1996), experience which would seem to bode well for these children as they enter the world of schooling and literacy.

In sum, when language skills and language environments are defined narrowly, to include only measures of isolated language features such as the quantity and quality of vocabulary, these skills are found by many to be wanting in the achievement of working-class and poor children and the homes from which they come. Ironically, the outcomes of this definition of language skills and environments are often contradicted by an examination of children's discursive skills in the home environment, which are often found to be more abundant among working-class and poor children. Yet, since these findings of advantage appear not to extend for working-class and poor children into their classroom pursuits, it becomes evident that this definition of verbal achievement may be too narrow in its own manner, somehow missing the mark in terms of the overarching goal of erasing differences in school achievement. How might we resolve these

conflicting definitions and interpretations in a manner that benefits the classroom efforts of all children while simultaneously affirming the diversity inherent to different socioeconomically and culturally defined families? This question is important not only in its own right but also because these two images carry very different implications for educational policy (Genishi & Dyson, 2009).

Unfortunately, this issue is clouded by a wide disparity of descriptions and definitions of verbal environments. While some definitions remain narrowly focused on vocabulary, others turn their attention to equally circumscribed considerations of discourse structures alone. At the same time, running through many accounts of verbal environments are descriptions of language style, most of which assert considerable differences between the language use of members of different social classes, differences which are alternatively disparaged or celebrated. The goal of the remainder of this chapter is to attempt to sort out these definitions with an eye toward viewing them within the context of the various assumptions undergirding them. These assumptions will be examined in terms of their respective methodological foundations in order to determine what role, if any, these foundations play in the various assessments ensuing from these studies. First, this chapter will turn to a historical review of two lenses through which verbal skill has been studied, one focused more intensely on vocabulary growth and development, and one focused more intensely on everyday discourse (with an emphasis on early narrative development), in order to determine what each perspective offers to our understanding of language development across the preschool and early school years. It should be noted that an especially large amount of scholarship has been concerned with the cognitive psychological underpinnings of vocabulary. This literature focuses on how

words are recognized through sound categorization and word segmentation, and on how word meanings or reference are acquired through the abilities of the young language learner to categorize or to use skills such as syntactic bootstrapping. This important work is outside of the purview of this review. Instead, this chapter turns to a description of the achievements of vocabulary development as they are enabled and enhanced by social and cultural means within the relationships between caregivers and child. Both vocabulary and discourse development showcase not only critical aspects of language development in the early childhood years, but also present a particularly compelling approach to studying the conflicting opinions about language skills and environments across social class and cultural differences.

### **Early Studies of Vocabulary Development**

The type and amount of vocabulary used by young language learners has been of interest to students of child language development from the earliest diary studies of scientist/parents such as Darwin and Leopold. Large differences between young children in vocabulary production and in its timing of growth have always been reported. For example, Fenson et al. (1994) reported that while the median number of different words which 12 month olds produce is less than 10, children in the 90<sup>th</sup> percentile use between 20 to 40 different words. These differences do not disappear as children grow. By 30 months, while the median number of different words that young language learners know is 500 words, children in the 10<sup>th</sup> percentile use approximately 250 to 350 words and children in the 90<sup>th</sup> percentile use approximately 650 words.

Ironically, as child language studies began to emerge as a significant field of inquiry in the latter half of the twentieth century, the study of vocabulary for its own sake



receded in importance. With the advent of theoretical linguistic discussions of the potential for a Universal Grammar (Chomsky, 1957), scholarly attention turned to documenting the nature of child-directed speech versus adult-directed speech, and whether or not child-directed speech provided sufficient input to allow children to construct emerging grammars without an innate mechanism (cf. Newport, Gleitman, & Gleitman, 1977; Snow & Ferguson, 1977). Often this early work described the respective rates of acquisition of words according to grammatical category (nouns, verbs, modifiers, functors), on the premise that the development of vocabulary was only a necessary byproduct of the essential task of learning syntax (Bloom, 1970; R. Brown, 1973). For example, in his seminal study of Adam, Eve, and Sarah, Brown described the gradual acquisition of morphemic knowledge as his participants progressed from levels of grammatical competence he coined Stages I through V. Central to this analysis was the use of a measure of quantity of both free and bound morphemes, Mean Length of Utterance (MLU). Clearly, vocabulary growth was essential to the emerging structures these young language learners were acquiring inasmuch as it represents the growth of free morphemes. However, within the context of Brown's work and other similar reports, vocabulary was the helpmeet of syntax to the extent that Fernald and Weisleder (2011) have suggested that the study of Universal Grammar "killed" (p. 8) earlier interest in the study of significant language development correlates with intelligence, socioeconomic status, and school achievement.

One significant exception to this rule may be found in Nelson's study (1973) of 18 children between the ages of 1 and 2 years old. Nelson analyzed the first 50 words each of these children acquired, categorizing them by grammatical form, content, and

semantic structure. One of the most frequently cited findings from this work is that approximately 65 percent of the first words learned by young children are nominal, either specific or general names of people, animals, objects, or other abstractions such as letters and numbers. Equally importantly, Nelson's work foreshadowed future inquiry into essential attributes of vocabulary learning by children and vocabulary teaching by caregivers. First, children tend to be either referential learners with a largely object-oriented vocabulary, or expressive learners with a more self-oriented vocabulary. Significantly, children who are referential learners amass a larger vocabulary more quickly throughout the second year of life. A similar orientation to word learning, or strategy, was observed among the 18 children studied by Goldfield and Reznick (1990). These children were followed longitudinally from 14 to 22 months. Within this time frame, 13 of the children exhibited a sudden period of rapid word learning lasting approximately 3 months, while the remaining 5 children experienced more gradual learning of vocabulary. Importantly, the 13 children who experienced the language burst typically focused their attention to learning the names of things (similar to Nelson's referential learners), whereas the other 5 children who learned more gradually exhibited a broader range of new vocabulary categories. Although the vocabulary burst noted by Goldfield and Reznick may be more indicative of individual differences between language learners than of the affordance offered by the child's focus on particular category knowledge, it remains that similar findings with regard to attention to vocabulary categories were found by Smith and her colleagues (Smith, Jones, Landau, Gershkoff-Stowe, & Samuelson, 2002). In a nine-week longitudinal study of 17-month-old children, Smith and her colleagues exposed children to new words identifying

members of unfamiliar object categories organized by shape. The children appeared to form category knowledge about objects with similar shapes in addition to learning the new object labels. The children also demonstrated a dramatic increase in the learning of new object names outside of the laboratory during the time period. These results suggest the considerable variability that exists in the language learning styles of young children, a variability which will be discussed at greater length later. For the time being, it is important to note that this variability in Nelson's work existed between families who were all middle-class professionals, with fathers averaging 16 years of schooling and mothers averaging 15 years of schooling. Second, the children studied by Nelson differed in the degree to which their learning styles were supported by their caregivers. Parents who were less directive (made fewer commands, listened more) with regard to their children's verbal and nonverbal behavior seemed to foster their children's language development to a greater extent than parents who were more directive. As later studies would elucidate, parental interactional strategies emerged in this report as a significant correlate with vocabulary size and rate of acquisition.

At the same time, parallel arenas of inquiry pertinent to vocabulary were being followed. In particular, scholars working within the arena of school achievement had begun to identify vocabulary as a significant predictor of reading success within the early elementary years and beyond (National Institute of Child Health and Human Development Early Child Care Research Network, 2000; Snow, Barnes, Chandler, Goodman, & Hemphill, 1991; Snow, Burns, & Griffin, 1998; Whitehurst & Lonigan, 1998; Whitehurst & Lonigan, 2002). For example, Whitehurst and Lonigan (1998) proposed that reading success depends upon two complementary domains of information,

the “outside-in” domain including sources of information not directly related to the printed word (vocabulary, conceptual knowledge, and story schemas), and the “inside-out” domain including sources of information directly related to the printed word (phonemic awareness and letter knowledge). In a large-scale study of 367 children from low-income families from their entry into Head Start at age 4 through their exit from fifth grade at age 10, Whitehurst and Fischel (2000) examined the relative effects of these domains on emerging literacy skills. Using structural-equation modeling, Whitehurst and Fischel showed that oral vocabulary demonstrated the stronger developmental continuity with emerging reading skills, and that this relationship was of particular importance in the years preceding formal reading instruction.

In addition, other studies noted that a particular type of vocabulary learning environment, namely the activity of shared book reading between caregiver and child, was a rich source of vocabulary learning in the lives of some children. For example, Ninio and Bruner (1978) discussed the early participation of a single child, Richard, in spontaneous book reading sessions during free play between the ages of 8 and 18 months. They observed that the book reading context was a particularly well-suited format to the teaching of labeling, since it relied on few linguistic elements (“look,” “what’s that?”, and “it’s a [label]”) which followed strict sequencing and was highly repetitive. Moreover, the labels (i.e., the vocabulary to be learned) also occurred repeatedly, thereby facilitating ease of comprehension of what is to be learned on the part of the child. Ninio and Bruner emphasized the importance of the dialogic nature of these early interactions, stressing the fact that Richard’s mother interpreted the majority of his communicative actions (smiling, reaching, pointing, and babbling) as requests for a label. Of course, the

question remains whether mothers from different sociocultural or economic backgrounds would interpret the actions of their children in this manner.

Different attempts were made to answer this question. In one influential report, Pellegrini, Brody, and Sigel (1985) studied 120 four and five year olds, 60 of whom were demonstrating phonological production problems or language production delays, and their parents during book reading sessions. Pellegrini and his colleagues observed that parents of communicatively challenged children were more likely to use strategies described as more directive and cognitively less demanding, such as labeling and simple description of elements of the storybook than were parents of normally developing children. By contrast, parents of communicatively challenged children were less likely to use more cognitively demanding strategies such as evaluating the actions of characters, or making inferences about cause and effect between elements of the story than were parents of normally developing children. Most significantly, parents of older children with language delay used fewer directive and low-demand strategies than parents of younger children with language delay, suggesting that parents of older children may be modulating their input based on the maturity of their children. Parents within this study were matched on demographic variables such as amount of education; therefore, no conclusions were drawn within this report concerning the prevalence of different levels of cognitive strategy within the speech of parents from any particular socioeconomic standing. In fact, the authors' goal was to demonstrate the degree to which these parents could be shown to be modifying their verbal behaviors, in a Vygotskian manner, in accordance with the verbal abilities of their children. Nevertheless, this report is significant in its confirmation of the connection between low-demand strategies such as

labeling and low communicative skills in children, regardless of whether the children possessed low communicative skills due to being novice language learners or to having language delays.

Additional studies continued to confirm the importance of certain forms of mother-child discourse such as labeling routines in general, and of book reading in particular, as sources of rich potential for the child's acquisition of both vocabulary and school readiness skills. At the same time, some studies were beginning to explore an emerging notion that the relation between vocabulary development and school success does not exist in a vacuum apart from socially defined discursive practices learned by children at home. Wells (1985a, 1985b) described an extensive longitudinal investigation of 128 children over a ten-year period within which the language practices of 32 mother-child participant dyads were specifically observed to determine how home language practices related to eventual school readiness and success. No differences were reported in the rapid development of conversational ability or of length of utterance between children based on family income or educational attainment during the preschool years (Wells, 1979). A radically different picture emerged, however, once these children entered school. In a pattern which would become all too familiar in subsequent studies, children from low-income families with low educational achievement were consistently rated less "ready for school." In particular, children from different family backgrounds demonstrated significant differences in their ability to respond to teacher questions intended for the child's demonstration of knowledge already known by the teacher ("requests for display"). Wells was not the first scholar to note the importance of the child's familiarity with the type of language used in the classroom for her eventual school

success (Mehan, 1978; Philips, 1972), and the sociocultural significance of this form of classroom speech act will be discussed later in this chapter. In addition to utterance-level measures, Wells (1985a) observed that it was not the presence or absence of a particular amount or quality of vocabulary itself which was related to eventual school readiness. Wells (1985a) noted that 5 percent of daily speech heard by 24-month-old children occurred in the context of storytime, and that children who engaged in more storytime activities with their caregivers were more likely to be deemed “ready for school” than those who did not (Wells, 1985b). However, the aspect of storytime which was most closely associated with school readiness was the degree to which caregivers went beyond the strict labeling sequences used with younger children described by Ninio and Bruner (1978). As children approached school age, they benefitted more from book reading activities where their caregivers not only named and described the activities within the book, but also engaged the children in understanding the characters’ actions and feelings in terms of their own experiences. Thus, while labeling, with its reliance on breadth and depth of vocabulary, appears to be of critical importance in the early acquisition of vocabulary, it appears to decrease in importance for normally developing children as they approach school age in favor of other forms of discursive practices which may be more reliant on sociocultural norms and patterns than the labeling process itself.

As one considers the study of labeling practices, within and without the context of book reading, it must be recognized that these language practices involve conversational patterns of increasing sophistication. Therefore, it is reasonable to assume that book reading, like other sophisticated conversational patterns, is situated within contexts defined by sociocultural practice (Miller & Goodnow, 1995). On the one hand the

practices themselves, as well as the likelihood of their occurrence within a particular family unit, are defined by practices and norms about childrearing and the nature of conversational relationships between adults and children. On the other hand, the practices are constrained by socioeconomic forces dictating the availability of older caregivers, time, and materials in the world of the child language novice. Of course, this point is part and parcel of the argument made by language scholars, educators, and policy makers who suggest that differences in school achievement are predicted by differences in the number of words children hear, a relationship that itself is predicted by social class. However, these practices are not monolithic, characteristic of all people who share the same social address. Perhaps more importantly, the sheer fact that practices differ across social addresses suggests the possibility that the measurement and evaluation of one group using standards grounded in the practices of another group may be suspect. This insight was the primary responsibility of a large body of literature which emerged within the fields of anthropology, sociology, and linguistics contemporaneous to those studies already described. It is to this work that this review now turns.

### **The Role of Everyday Language in the Lives of Children**

The preceding section of this review has outlined studies of vocabulary growth which occurred, at least in part, within the shadow of the study of syntactic development. During this same period, however, another line of inquiry was investigating language use in everyday lives. It is the intent of this section of this brief review to examine the ways in which such studies of pragmatics progressed side by side with studies of syntax and vocabulary, and eventually were incorporated, at least in principle, into an emerging



discussion of differences of language growth across individuals from different social classes.

Two theoretical positions, both within the field of sociolinguistics, laid the groundwork for a reexamination of how people use language in their everyday transactions, and eventually provided impetus for a new look at the ways in which mothers talk to their young infants and potentially support these infants' language learning. The first position was defined by the work of sociolinguist Basil Bernstein (1962, 1971), who argued that two distinct ways of speaking, or linguistic codes, may be observed to define conversational situations in terms of interlocutor intimacy and the type and amount of information being shared. Furthermore, Bernstein suggested that the restricted code (characterized by fewer and shorter utterances and by more nonverbal communication) may be more associated with the language of the working class and poor, whereas the elaborated code (with its emphasis on specificity of communication and greater verbal language use) may be more associated with the language of the middle class. Unfortunately, this position was immediately (and erroneously) interpreted as the potential link between culturally defined socialization patterns on the one hand, and the lack of achievement in school learning that had been observed among children from lower-income households on the other hand. For example, contemporaneous reports stemming from educational psychology research suggested that the language used in the homes of working-class and poor children is grammatically disorganized or inaccurate (Deutsch, 1963) or merely insufficient to guarantee that these children are able to progress at the same rate of their middle-class peers (Bereiter & Engelmann, 1966). In a particularly influential study, Hess and Shipman (1965) reported on their study of 163

African American mothers and their four-year-old children. The mothers in this study were classified into four groups based on education, ranging from college-educated women to women with only an elementary school background. Interestingly, Hess and Shipman did not report income levels except for their least educated mothers, all of whom received public assistance. The authors found that the well-educated mothers were considerably more talkative, as measured in terms of characteristics such as mean sentence length, and also used a more elaborated style of speaking as measured by characteristics such as modifier range, and verb preference. Equally as importantly, this early research translated observational data measuring such variables as accuracy at a sorting task to impressions of participants' motivations. In so doing, Hess and Shipman painted lower income mothers as compliant in the face of authority, and unwilling or unable to encourage their children to analyze situations and choose a course of action based on that analysis. Although one can cite many flaws in the conclusions Hess and Shipman drew from their results, perhaps the most important point for this review is made in their concluding remarks: "The picture that is beginning to emerge is that the meaning of deprivation is a deprivation of meaning" (p. 885). This work foreshadowed later, albeit more nuanced, accounts of vocabulary growth such as that of Snow and her colleagues: "It is now clear that, though poor and uneducated families provide much the same array of language experiences as middle-class educated families, the quantity of verbal interaction they tend to provide is much less" (Snow et al., 1998, p. 122). In addition, the account of Hess and Shipman provided one possible rationale for the frequently cited achievement gap in school between children from different economic backgrounds, and laid the groundwork for compensatory education programs such as

Operation Head Start which provided for specific remediation of language deficiencies (Valencia, 1997).

Contemporary to the work based on Bernstein's theory of linguistic code was another line of inquiry which would eventually yield strikingly different interpretations of the language use of individuals from all socioeconomically and culturally defined backgrounds. This line of inquiry was largely the creation of the sociolinguist Dell Hymes, who suggested that the emergence of the ability to use language in everyday life exists in a sort of counterpoint with the emergence of a Universal Grammar. Hymes (1974) described communicative competence as adjoining an individual speaker's linguistic competence (Chomsky, 1968), allowing the speaker to use aspects of phonology, semantics, and syntax in pragmatically appropriate ways given the communicative context. The fundamental assumption upon which all work in this tradition is grounded is the notion that all speakers develop the ability to use language in appropriate ways given the intersection of their cultural background and the diverse communicative situations in which they find themselves on a daily basis (cf. Labov, 1970). Inherent to this assumption is the belief that different speakers will systematically choose different approaches to communication within a given situation, consistent with their own interpretations of the situation and their place within it, and that these interpretations will necessarily vary across speakers of different sociocultural heritage. These assumptions of how language works in everyday life led to a different approach to language study, one that was more sympathetic to traditional methodologies within the field of anthropology than to the observational and experimental approaches which had been employed in studies of syntactic development and vocabulary within the field of

psychology. Where studies of syntax and vocabulary interrogated the relationship between mind and language, studies of communicative competence interrogated the relationship between speaker and context. Within psychological studies of language, the development of structures and words was of paramount importance, and given that focus, the determination of the frequency and complexity of words as decontextualized units of analysis was the appropriate methodological approach. However, when the focus of study shifted to the development of knowledge about language in context, the focus of inquiry necessarily shifted to a desire to understand the myriad contexts within which individuals find themselves needing to communicate. To that end, researchers began their analyses with an attempt to reach a “deep” understanding (to paraphrase Geertz, 1973) of the language lives of their participants through intense participation in their community preceding and during the time of study. Words were no longer considered objects which described the environment and relationships within the environment. Rather words were tools used not only for reference to the environment but also for indices of the speaker’s and listener’s place within that environment.

Interestingly, one of the most penetrating critiques of lines of inquiry stemming from the misunderstanding of Bernstein’s theory of linguistic code came from a sociolinguist working within the emerging theory of communicative competence. Labov (1970) addressed the notion of linguistic deprivation and, by extension, the presumed relationship between socioeconomic status and linguistic code through examination of the asymmetrical power and participant structures of language use across different contexts. In his landmark study, Labov demonstrated that Leon, a young African American boy, used language which varied systematically, both in terms of quality and quantity, across

neighborhood and school contexts, suggesting that speakers recognize differently ordered language contexts and situations and regulate their language accordingly. In this manner, Labov suggested that speakers often have at their availability resources which transcend a particular linguistic code, and that they employ these resources differentially depending upon their perception of the context in which they find themselves. In 1972, Labov then addressed the systematic nature and complexity of so-called non-standard Englishes, in particular Black English, with regard to both phonetic and syntactic frames of analysis. This work was pivotal in laying the groundwork for future accounts of the regularity of any dialectal variation within a particular language group (e.g., Adger, Wolfram, & Christian, 2007; Smitherman, 1977, 1998).

Investigations of communicative competence soon extended to the classroom setting adjoining investigations of syntactic and vocabulary acquisition such as those mentioned earlier in this chapter concerning labeling routines and book reading. The school environment and its intersection with the home and community provided a fertile source of investigation for early accounts of the ways young children adapt their language to new situations and interlocutors. Early ethnographic accounts of the classroom often suggested ways in which the language children hear within the school context does not mesh with language they hear at home and in their neighborhoods (Cazden, John, & Hymes, 1972). Mehan (1982) described the ways mainstream teachers frequently segment classroom interaction into patterns when discussing new material, identifying the IRE (Initiation-Reply-Evaluation sequence) as one of the most frequently used (and misused) of such sequences. These interaction patterns, and their predominance in mainstream classrooms, are not inconsequential. Students often quickly

learn how to work within (and around) them. Students must learn how to respond during interactions and how to behave between interactional sequences by learning to address such conversational necessities as knowing how to get the floor and how to introduce new material.

These conversational attributes, and the ability to learn them and to use them, are culturally constrained, however. Philips (1972) demonstrated how students in the Warm Springs Indian Reservation in Oregon were not culturally prepared to acclimate themselves to the norms for classroom conversations held by their mainstream teachers. The observations of Philips centered largely on issues framing a conversational interaction (cf. Goffman, 1974) such as the roles of teacher and students, the nature of participant structures within the classroom, and the perception of different types of speech acts (such as word play) within the classroom. Heath (1982), however, reached similar conclusions concerning the mismatch between home or community norms of interaction and classroom norms in her study of a single syntactic device, the interrogative. Considerable variation existed across the three communities she studied with regard to the forms of questions commonly heard by children, and, more importantly, to the pragmatic use of the questions within children's everyday lives. Whereas didactic questions of the sort commonly heard in classrooms were a frequent part of the everyday conversations of European American middle-class children, they were seldom heard in the homes of either European American or African American poor children. In addition, educators often found that when the language of the home and the community was acknowledged in the classroom, significant gains were made in reading achievement. For example, an early successful language intervention project, based on

extensive study of home and community language use among Hawaiian children and the families, consisted of modifying storytelling practices in the classroom to resemble the co-narration styles common in the children's homes (Au & Jordan, 1981; Watson-Gegeo & Boggs, 1977).

### **An Intersection Between Two Pathways**

Two groundbreaking studies, both building on the notion of communicative competence, addressed caregivers' and children's abilities to structure their language differently in ways that reflect their understanding of context (Heath, 1983; Ochs & Schieffelin, 1984). These contexts include the initial acquisition of language in the home environment, its continued acquisition in the school environment, and its use in the child's community which often serves as an intersection for the home and school. With regard to language acquisition within the home environment, Ochs and Schieffelin offered a seminal account of young language learners within three culturally (and economically) distinct communities: middle-class children growing up in the industrialized United States, and children growing up in more traditional societies in Western Samoa and Papua New Guinea (the Kaluli). While parents within these communities varied dramatically in terms of the degree to which they engaged in face-to-face interaction or in specialized adult language (motherese) with their children, all children grew to be sophisticated language users fully capable of mature communication within their societies. With regard to the intersection between home and school, Heath (1983) described three communities within the Piedmont Carolinas. Two communities, Roadville and Trackton, were working-class communities whose economic lives were closely connected to the textile mills. Both the European American residents of

Roadville and the African American residents of Trackton had strong literate traditions, yet both communities experienced problems in the schools of the mainstream townspeople. Heath, like Ochs and Schieffelin (1984), documented disparate pathways of language use around young language learners. Trackton parents, for example, discouraged repetition of what their children said, and believed that children should learn about things without the interference of excessive questioning by their caregivers. By contrast, Roadville parents often incorporated their children's new words in frequent statements and questions in their talk with their children.

The influence of these two studies has been considerable. The first principles outlined in these studies have continued to be employed for the study of the early and sophisticated acquisition by diverse learners of varied forms of everyday discourse in what has come to be known as the language socialization tradition (e.g., Duranti, Ochs, & Schieffelin, 2011; Garrett & Baquedano-Lopez, 2002; Kulick & Schieffelin, 2004; Ochs & Schieffelin, 1984). Research in this tradition combines longitudinal ethnography with micro-level analysis of everyday talk, focusing on context-driven, naturally occurring talk within the family (e.g., Blum-Kulka & Snow, 2002; Miller et al., 2005; Ochs & Capps, 2001), or in the classroom (e.g., Dyson, 1997, 2003; Lareau, 2000; Michaels, 1991). Three key insights have emerged within the language socialization tradition: (1) Children and adolescents participate routinely with their families, peers, and other community members in complex verbal practices that form systematic socializing pathways; (2) These practices not only differ from mainstream practices but they also vary *within and across* minority and low-income communities, depending on gender, ethnicity, and culture; and (3) Diverse pathways are comprised, in part, by different participant



structures (e.g., caregivers speak to the child as well as to other people in the child's presence).

The findings of research with the language socialization tradition have been addressed by scholars seeking to understand the influence of socioeconomic and cultural differences on language acquisition and achievement. Hoff-Ginsberg (1991) reported on an extensive investigation of the dual influences of class and language context, work grounded in an explicit attempt to study the intersection between socioculturally defined situations of language use and economic standing of families. Acknowledging the work of Schieffelin and Ochs (1986a, 1986b) and Heath (1983), Hoff-Ginsberg examined the language of 30 working- and 33 middle-class mothers to their two-year-old children in two types of contexts. The first set of contexts was designed to measure language use in situations that every caregiver faces, namely feeding and dressing their children. Hoff-Ginsberg's expectation was that these contexts would consist of "a more directive, less conversational style in both social classes" (p. 784). The second set of contexts was designed to measure language use in situations that had been shown to be optimal for school-relevant language development, book reading and toy play. The expectation was that these contexts would allow the "less directive, more conversational style of the upper-middle-class mothers to emerge" (p. 784). In this manner, Hoff-Ginsberg hoped to capture differences in child-directed speech across childrearing contexts while being sympathetic to the normative style of mother-child interaction across different socioeconomic groups. Hoff-Ginsburg videotaped her participants at times scheduled to coincide with the child's normal breakfast or lunch time. Feeding and dressing times were recorded in their entirety, while book reading and toy play sessions were recorded

for no more than 25 minutes each. She found that working-class mothers produced fewer utterances, shorter utterances, and a less diverse vocabulary than did middle-class mothers. These differences persisted across all contexts, although they were somewhat attenuated in the book reading and toy play contexts.

Perhaps the most influential examination of socioeconomic differences in language use of mothers to their preschoolers was conducted by Hart and Risley (1995). Hart and Risley followed 42 children and their mothers monthly from the ages of 9 to 36 months. They observed and video recorded each child for one hour at each observation, and prepared verbatim transcripts of every observation. Hart and Risley reported a relationship between socioeconomic status and size of the vocabulary that mothers spoke to their young children at home. In particular, while professional-class mothers (8% African American) spoke 2,153 words per hour (tokens), working-class mothers (54% African American) spoke 1,251 words per hour. The poorest mothers (100% African American), who each received public aid, spoke only 616 words per hour. It is the children of these mothers who were determined to be at the greatest risk of the “catastrophic” disadvantage for literacy development and academic achievement conferred by the limited number of words spoken to them (Hart & Risley, 2003). Although Hart and Risley found no evidence of differences between families based on minority status, it remains true that all six of the lowest income mothers in the sample were African American.

Despite the fact that work of Hart and Risley (1995) and Hoff-Ginsburg (1991) acknowledges the influence of scholarship in the anthropological tradition (e.g., Heath, 1983; Ochs & Schieffelin, 1984), their work and other similar more contemporary studies

of vocabulary development have departed in serious ways from the methodological underpinnings supporting the study of everyday language. For example, although the study by Hart and Risley was observational by method, they did not employ the more culturally sensitive approach afforded by extensive ethnographic work within the homes and communities of their participants as did Heath and Ochs and Schieffelin. In a similar manner, although the study by Hoff-Ginsburg aimed to compare the language of mothers from two different socioeconomic groups in everyday situations, she did not consider the potential effects that cultural beliefs and values might have on how caregivers use language in those situations. For example, the fact that tasks such as feeding and dressing may be faced by all caregivers does not necessarily mean that these tasks are defined in the same way across sociocultural groups.

Therefore, despite the fact that some common ground has been found between the approaches to the study of language development described to this point, one situated within the discipline of psychology and grounded in traditional observational and quasi-experimental research, and one situated within the discipline of anthropology and grounded in ethnographic research, serious differences still exist between the results gleaned from these studies, differences that are likely the result of methodological choices based on assumptions situated on vastly different disciplinary terrains. For example, Hart and Risley (1995), using traditional observational methodology, did not seem to consider whether or not their procedures for data collection would be received equally well across the sociocultural groups they studied, a hallmark of ethnographic methodology. Similarly, the report of Hoff-Ginsburg (1991) makes an implicit assumption that there are no contexts in which lower-class families enjoy a less directive,

more conversational style, an assumption which belies the insistence of Heath (1983) or Schieffelin and Ochs (Schieffelin & Ochs, 1986a) that participants themselves define relevant types of language use and contexts for conversation based on sociocultural norms. However, one inescapable fact remains which motivates research within either psychological or anthropological traditions. Children from low-income homes continue to underperform their middle-class peers (Lee, Grigg, & Donahue, 2007). Explanations of this fact center on children's default lack of experience with sophisticated vocabulary and complex syntactic structures, or communicative choices based upon prior experience with different contexts. In recent years, research within and across both traditions has turned to a reassessment of the language learning environment, asking questions geared toward understanding exactly what is happening in the homes of children from different backgrounds, and toward unpacking this information both in terms of traditional syntactic and semantic analyses and of a different conception of these analyses afforded by an understanding of communicative context. The goal of the remainder of this chapter is to discuss these recent findings.

## **Contemporary Approaches to Vocabulary Development**

### **Within a Sociocultural Framework**

It may be fairly said that the work of Hart and Risley (1995) solidified for many students of language development, education, and policy the notion that there are significant differences in the amount and type of language used between poor, working class, middle class, and professional parents. Moreover, the bulk of contemporary research seems to accept, with little criticism, the assertion of Hart and Risley that the differences they observed between parents from different socioeconomic classes are

meaningful, in that they translate directly into differences in children's achievement in school. Some scholars have recently begun to address the significance of this work in terms of issues concerning language ideology (Dudley-Marling & Lucas, 2009; Michaels, 2011; Miller & Sperry, 2012). These writers suggest that many other potentially critical variables contributing to the relationship between home and school language may be unexplored or ignored. For example, one potential reason consistent with an ideological failure of current scholarship to address these variables might be due to the easy fit between the results found by Hart and Risley and the educational climate of the United States which focuses on readily measurable achievement defined within a system based on middle-class European American language norms and values.

Research conducted since the publication of Hart and Risley's monograph (1995) has largely focused on explicating the potential causes for the failure of poor and low-income mothers to speak to their children in amounts comparable to middle-class mothers. Little research has specifically re-examined the amount of vocabulary used in children's homes, assuming the issue to be settled. Moreover, no research apart from that of Hart and Risley has been conducted on the amount of vocabulary used within the homes of African American children, and little research has been conducted on the amount of vocabulary used within the homes of other minority families (although see the work of Fernald and her colleagues discussed later in this chapter). Nevertheless, despite the position one adopts toward ideological issues attending the discussion of social class, language, and achievement, there remain several reasons to suspect that the relationship between caregiver speech to young children and these children's eventual school outcomes is not simply a matter of quantity of maternal vocabulary they hear during the

preschool years. These reasons often emerge in and across reports of explanations of vocabulary use, and have not necessarily been the subject of focused study themselves. While many common themes and diverse approaches to understanding the relationship between home and school language may undoubtedly be identified in research from the last two decades, this discussion will be organized around five potential sources of variation in child vocabulary (and language) outcomes: (1) variation in maternal talkativeness that is not attributable to social class, (2) the presence and roles of interlocutors in the children's environment other than their mothers, (3) the importance of other types of language use in everyday practice, (4) differences in beliefs about how language is learned, and (5) the importance of other cognitive factors attending language acquisition to eventual school success.

### **Variation in Maternal Talkativeness not Attributable to Social Class**

Although at issue in the discussion of the relationship between home and school language are the differences which obtain *between* families with different income levels, similar variation in the quantity and quality of maternal child-directed speech *within* families of all income levels has always been evident in various research reports (e.g., Fenson et al., 1994; Nelson, 1973), particularly within low-income families (DeTemple & Snow, 1996; Pan, Rowe, Singer, & Snow, 2005). In fact, several studies have shown great disparity within the homes of economically disadvantaged children in the amount and diversity of language spoken by their mothers (Hurtado, Marchman, & Fernald, 2008; Pan et al., 2005; M. L. Rowe, 2008). For example, Hurtado et al. documented wide variation in the amount of caregiver speech to young children within a low-income sample of Spanish-speaking mothers, variation not attributable to subtle differences of

SES within the sample. In their speech measured when their children were 18 months old, mothers classified as talkative spoke seven times more word tokens, five times more utterances, and three times more word types than did mothers classified as not talkative. In her study of 47 toddlers observed at 30 and 42 months, Rowe found that there was no relationship between two aspects of SES (education and income) and the amount of talk parents directed toward the researcher. In addition, Pan and her colleagues found evidence that maternal talkativeness varied widely across the low-income mothers in their study, and that only language diversity, and not maternal talkativeness, predicted child vocabulary growth.

In sum, these studies offer evidence that impoverished parents may provide divergent language environments for their children despite their similar economic condition, just as those middle-class parents described by Nelson (1973) did. Of course, within-group differences always exist in any sample of a population, and by themselves may not be offered as a reason to dismiss findings of between-group differences. Nevertheless two caveats are worth mentioning with respect to these findings of within-group differences. First, to the extent that within-group differences begin to overshadow between-group differences, they begin to suggest that the between-group differences may not exist as was heretofore suggested. In other words, the extensive within-group differences which recent studies have begun to find may in fact suggest the degree to which sampling error contaminated the original findings of Hart and Risley (1995). This observation leads to the second caveat suggested by the extensive within-group differences observed in recent studies. These studies have all taken as a point of departure the assumption, based on Hart and Risley, that the language of working-class

and poor families is limited in quantity and quality, an *a priori* determination of difference which causes these writers to report extensive within-group differences as a surprising result. Recent research has ceased to compare language use across socioeconomic groups in any specific manner, creating a tautological rather than a causal evaluation of these within-group differences. Without reconsideration of the assumption of social-class differences, current research is led to the potentially erroneous conclusion that there may or may not be large within-group differences, but they have no relationship to between-group differences.

Variables other than maternal language diversity or talkativeness have also been implicated in child language growth. Rowe (2008) demonstrated that mothers' knowledge of child development and child language acquisition norms (as defined by mainstream sources such as textbooks and health publications) mediated the relationship between SES and maternal child-directed speech. Mothers who had greater knowledge in these areas (as measured by the Knowledge of Infant Development Inventory) talked more with their children than mothers who did not share this knowledge, using longer utterances, a more diverse vocabulary, and fewer directives. Furthermore, maternal depression has been shown to be negatively associated with child vocabulary growth (Pan et al., 2005). Therefore, while these and similar studies still demonstrate a strong correlation between maternal vocabulary output and child vocabulary growth, they suggest that SES may not always be the only critical variable associated with maternal vocabulary output or child language growth.



## **The Presence and Roles of Different Interlocutors in the Child's Environment**

Although language infuses nearly every activity in a child's life, cultures and communities differ widely in their socializing practices and associated cultural models of language learning. This principal tenet of the language socialization perspective has led to the exploration of the nature of the language practices relevant to language learning as defined by the participants themselves. Work within the tradition of language socialization (e.g., Miller & Hoogstra, 1992; Ochs & Schieffelin, 1984) has consistently emphasized the importance of context, demonstrating ways in which language use varies given the number and status of the interlocutors present, their native theories of conversational style, and the degree to which the participants feel they are being assessed.

To accomplish this goal, a key methodological strategy has been to observe language learners under circumstances that approximate as closely as possible their ordinary lives, focusing on children's full ambient verbal environments. Use of this wider angle lens has revealed that while mothers routinely talk directly to their children, many other interlocutors within the children's homes and community also routinely talk directly to the children. These configurations have been described in many cross-cultural examples. Schieffelin (1990) noted that Kaluli children are routinely in the company of multiple caregivers and other children. In fact, the majority of the everyday activities of the lives of both mothers and fathers transpire within earshot of children, and the children are expected to attend to the speech around them, regardless of its source, to learn valuable social information. Among the Guatemalan Mayan, a common form of social interaction consists of a group of people, sitting in a circle, interacting with each other (Rogoff, 2003). In these situations, toddlers interact freely with all members of the

group, often attending simultaneously to the words and actions of multiple members of the group. Rogoff stressed the importance of acknowledging that these interactions are not a concatenation of dyadic engagements, but rather a “complex, multiway intertwining of the various conditions of the participants to the whole event” (p. 144). In sum, these studies demonstrated that children are routinely in the presence of multiple caregivers, not just their mothers, and that they interact freely and consistently with all conversational partners in their ambient environment.

Similar observations have been made concerning the interactional patterns of poor and working-class families with the United States. In many situations, multi-party interactions are characteristic of the social construction of parenting and caregiving within a community. For example, Stack (1974) described the shared responsibilities of various family members to each other’s children among the African American residents of the “Flats,” a community within the Chicago area. In her ethnography of “Rosepoint” (an African American rural community in Louisiana), Ward (1971) described the multifaceted nature of the many people who crossed each child’s linguistic frontier, from close to distant family members, and from well-known friends to little-known trades people. She further detailed the special teaching functions of the language used by older siblings and kin to younger children. In addition to serving social or teaching functions, multi-party talk has been shown simply to be a source of enjoyment for children and adults alike. Heath (1983) described a panoply of situations and contexts in which community members of both Roadville and Trackton frequently joined in multi-party talk. Roadville adults, for example, routinely shared in games such as “Peek-a-boo” with any infant in their midst. Older toddlers were frequently accompanied by both adults and

older children in their play with books and toys. In Trackton, adult caregivers did not believe that they should address conversation directly to infants; nevertheless, children were routinely in the presence of multiple caregivers. They listened intently to the caregivers' words, repeating at first whole chunks of what was said, and eventually asserting their places as conversationalists within the ongoing talk. As the children grew older, they were frequently in the company of their peers. Girls especially spent considerable time learning play songs and teaching them to younger children. However, one of the most artful speech styles Heath observed was "talkin' junk," creative fictionalizations of real events. Children learned early the social and communicative value of talkin' junk, since this verbal art was highly prized by adult members of the community. Young children in Trackton would attempt to break into these multi-party events, perhaps by expressing an emotional response to the story's actions.

Knowledge about the roles other interlocutors play in the ambient verbal environment is not limited to knowledge about familial or peer relationships, however. Frequently children as well as adults face situations where their interlocutors speak a different dialect. This situation confronts minority and low-income children most often in the classroom, and typically coincides with significant power differences between them and their teachers (Delpit, 1988). Considerable linguistic sophistication is often demonstrated by these children as they learn to code switch between their home dialect and the variation of Standard American English spoken in the classroom. This sophistication has been shown to extend to children's storytelling in a study by Hester (1996) of sixty, fourth-grade African American children. Hester describes that the participants in her study not only engaged in extensive code switching, but also

demonstrated what she termed flexibility by shifting frequently between features of narrative style that were alternatively more similar to oral or literate styles of storytelling.

Despite the importance of ethnographic accounts of beliefs concerning the roles of various interlocutors in the ambient verbal environment, similar values have been observed to play a role in adult discourse around children in quasi-experimental accounts of language development. For example, although Rowe (2008) observed highly significant relationships between child-directed speech and both parent education and income, she found no relationship between two aspects of SES (education and income) and the amount of talk parents directed toward the researcher. Rowe concluded that parents from all socioeconomic backgrounds may have different styles for communicating with adults than with their children.

In sum, the roles which various interlocutors play in the ambient verbal environment of children vary across cultures, social class, and even situation. Furthermore, there is evidence that these role differences play an important part in the child's acclimation to school and to her eventual academic success. For example, Norman-Jackson (1982) noted that low-income African American children who were successful readers were distinguished from their unsuccessful peers in the amount of access they had to sibling interaction, not to interaction with adult caregivers. A similar result was found by Snow and her colleagues (1991), who observed that when the participants in their longitudinal study were in second grade, higher word recognition was correlated to more extensive contact with extended family members. For children in these studies, reading achievement was not determined by vocabulary learned in a

unidirectional, mother to child, language environment; rather the access to multiple interlocutors engaging the children seemed to guarantee their eventual academic success.

### **The Importance of Other Types of Language Use Within Everyday Practice**

As might be inferred from the discussion about language play in Roadville and Trackton concerning the roles interlocutors occupy in the ambient verbal environments of children and their families, caregivers also place different values on the types of language and the forms of discourse that they use in everyday practice. These values extend to the types of discourse activities that surround direct or indirect language instruction between caregivers and children in speech routines such as labeling and book reading. As was discussed earlier in this chapter, research has examined the degree to which these types of speech acts engage children in learning new vocabulary.

However, research in the tradition of the language socialization paradigm has consistently identified alternative discursive pathways that caregivers follow in teaching their children important cultural values. For example, one form of didactic speech act which stands in stark contrast to book reading is teasing. Although little work has been done expressly detailing the acquisition of specific vocabulary, in terms of word types and word tokens, through these and similar forms of discourse, a large and varied literature exists concerning the importance this speech act has for the teaching of other culturally significant values and preferences (Eisenberg, 1986; Miller, 1986; Schieffelin, 1986). For example, Miller (1986) described the teasing routines that her three young participants engaged in on a routine and frequent basis with their mothers. Significantly, these teasing routines were similar to labeling book reading sequences in that they were highly structured and playful. Perhaps more importantly, their intent was pedagogical in

nature, purposed by the mothers to teach their children independence, pride, and the ability to deal with the strong emotions of anger and aggression (Miller & Sperry, 1987). Therefore, despite the considerable surface differences between these two speech acts, they nevertheless share an affinity in terms of their ability to convey important cognitive, social, and affective information from adult expert to child novice.

Another key finding of research from the language socialization tradition is that oral narrative, of various stripes, is a vital feature of social life in many minority and working-class communities, involving precocious participation by young children. In some communities, such as the working-class African-American community studied by Heath (1983), multiparty talk was prevalent, and young narrators had to compete with other family members to get the floor. In another community, young children were routinely cast as bystanders/overhearers to other family members' stories of personal experience; such stories occurred at an average rate of 8.5 per hour in 40 hours of observations (Miller, 1994). Caregivers regularly encouraged these same children to co-narrate their own past experiences (Miller & Sperry, 1987). Sperry and Sperry (1996) reported that the 8 African American toddlers they observed in rural Alabama co-narrated with their family members for approximately 25 percent of each hour of observation. Their co-constructed narratives were frequently situated within a multiplicity of genres, many of which were described infrequently if at all in the conversations of mainstream families. These 2- to 3 ½-year old children actively contributed important components of the narrative structure to each episode, and participated in narrative construction from the earliest ages of observation when the young storytellers were only 24 months old.

Differences in the complexity and frequency of storytelling practices across cultures have been implicated as potential resources from which young children draw important information about how to fit into their families and community. For example, the children described by Sperry and Sperry (1996) frequently heard and participated in stories about their preschools and daycares, and about their siblings' schools and school experiences. These 2 and 3 year olds were expected to be able to recite lengthy songs and nursery rhymes with aplomb at a moment's notice (Miller & Sperry, 2012).

Children also learn important goals and values held by their caregivers concerning relationships between self and other. In their extensive study of personal storytelling in Taipei and European American households, Miller and her colleagues describe the different socialization pathways followed by parents with these two groups talking to and around their 2- to 4-year-old children (Miller, Fung, Lin, Chen, & Boldt, 2012).

Taiwanese families regularly privileged telling stories about their children to adult interlocutors without the assistance of the children themselves. However, whereas Taiwanese children were expected only to listen attentively to their caregivers, children in the American sample were expected to contribute to the ongoing narrative. More importantly, Taiwanese parents told stories which made specific reference to their children's misdeeds, whereas American parents tended to downplay the faults of their children, even to the point of casting them in a humorous light. In sum, this work showcases how caregivers teach important socialization goals through storytelling while simultaneously enacting a stance concerning when and about what to talk.

Therefore, an important insight of research in this tradition is that different families, whether defined culturally or economically, pattern their use of various

discourse acts in ways that are salient within their particular community. To that end, not only the forms of discourse used, but the frequency of an individual form is a consequence of the socialization goals of a community. There is evidence that working class and poor families tell and encourage their children to tell stories of considerable complexity (Burger & Miller, 1999; Miller & Sperry, 1988; L. L. Sperry & Sperry, 1996), often with greater frequency than their middle class peers (Burger & Miller, 1999; Miller et al., 2005; Vernon-Feagans, 1996). For example, Burger and Miller (1999) found that working-class 2 1/2 and 3 year olds in Chicago engaged in two to three times more co-narrated stories of personal experience in the home context, compared with their middle-class counterparts. Vernon-Feagans (1996) found that African American kindergartners, especially boys, told more narratives, with larger vocabularies, in the course of their neighborhood play than did their European American peers. In sum, consistent with earlier work in the study of the language of non-mainstream families, this research has shown that although narrative may follow different patternings across groups defined by socioeconomic or cultural statuses, it nevertheless evinces the same types of representational demands made upon the child, often to a greater extent in working-class than in mainstream homes.

The strengths in the language environments of minority children extend beyond narrative to other discursive practices as well. Early studies of African American Vernacular English reported the emphasis on creative and transformative language in practices such as “doing the dozens” or “signifying” (Labov, 1972; Smitherman, 1977). Orellana and her colleagues (Dorner, Orellana, & Li-Grining, 2007) described Mexican American immigrant children who frequently engage in “language brokering,” becoming



translators for their parents. This practice contributed to their development of sophisticated meta-linguistic awareness, which correlated with higher school test scores. All in all, discourse studies suggest that minority children demonstrate a sophisticated facility with oral language skills facilitated by a rich home, community, and cultural environment supporting the development of these skills.

### **Differences in Beliefs About How Language is Learned**

In each of the ethnographic cases described heretofore, all members of the household and community talk to other people in the children's presence, often casting the children as bystanders, overhearers, or listeners. Children are not simply exposed to non-dyadic interaction, however. Cross-cultural studies have shown that in many world communities, observational learning is privileged over the joint-attention model in the acquisition of both everyday tasks as well as language. Gaskins and Paradise (2010) defined an alternative to joint attention, open attention, which they discussed as both *wide angled*, distributed across a wide field of objects and events, and *abiding*, capable of being sustained across a long period of time.

In their study of caregiver organization of children's learning and of child learning through both observation and direct participation, Rogoff and her colleagues (Rogoff, Mistry, Goncu, & Mosier, 1993) presented participants with novel objects such as an embroidery hoop or a clear plastic lidded jar with a doll in it. Both child and caregiver attention to these objects was monitored during the initial presentation of these objects and in the children's subsequent play with them as caregivers returned their attention to conversation with other adults. Differences were observed across the four cultures studied in the nature of the way both adults and children shared their attention

between activities. For example, both Guatemalan children and caregivers simultaneously monitored multiple events during adult conversation, while American children and caregivers focused on one or two actions at a time. In the American case, children often made protracted bids for attention from their caregivers as the adults conversed before the caregivers would divert their attention exclusively to the child, temporarily ignoring adult conversation. By contrast, Guatemalan children often made only simple gestures of attention seeking before their caregivers acted on their requests, without interrupting their conversations with other adults. The importance of overheard speech does not appear to be limited to the learning of everyday tasks, however. Its pedagogical importance has also been implicated in children's acquisition of more complex cognitive and linguistic abilities such as storytelling. Miller (1994) described the frequent and significant contributions made by children as young as 2 years to stories of personal experience being told around them as well as with them. Perhaps even more importantly, these contributions were made irrespective of whether or not the story was about the child, signaling the realization on the part of the child of the affective significance of not only the content of the stories themselves, but also the practice of storytelling as a conduit of information and as a source of affective pleasure.

Despite this cross-cultural evidence depicting the myriad ways in which children are normally both overhearing and participating in language, language acquisition scholarship in the psychological tradition has been historically grounded in the assumption that young language learners are well served by protracted periods of joint attention. Tomasello (1995) defined joint attention narrowly to include only those interactions where children alternated their gaze between the adult stating the label to be

learned and the entity being labeled. Accordingly, the optimal learning environment for the child has often been described in the psychological literature as consisting of dyadic, typically mother to child, talk (e.g., Hart & Risley, 1995; Hoff & Naigles, 2002; Huttenlocher, Haight, Bryk, Seltzer, & Lyons, 1991; M. L. Rowe, 2008).

The restrictions of this condition have been examined in multiple research programs in recent years. For example, Jaswal and Markman (2003) showed that young children also learn words from indirect grammatical cues lacking in the overt social-pragmatic cues (e.g., “Look”) typical within joint-attention sessions. The authors showed 3 year olds novel object pairs of one inanimate and one animate object, and labeled each object with a nonsense word which grammatically indexed either a count name (“a blicket”) or a proper name (“Blicket”). Children were shown these novel objects in one of two conditions. In the direct condition, objects were labeled by the researcher (“This is (a) B(b)licket”). In the indirect condition, children were asked, “Would you like to see (a) B(b)licket,” but were required to infer which object was being named by the presence or absence of the indefinite article. Word learning in both conditions was equally robust, and persisted after a two-day delay, even in subsequent trials where conflicting and inconsistent evidence was presented during testing.

Not only are children able to learn new words in the absence of the social-pragmatic cues typical of labeling utterances, but they are also adept at learning words even in the absence of the referent itself. Akhtar and Tomasello (1996) investigated the ability of 24 month olds to learn a novel word in a nonverbal finding game where the experimenter repeatedly sought four unusual objects in identical locations. One of the four objects was assigned a name during this game (“Now let’s find the toma”) while the

other three objects remained unidentified throughout the procedure. Children participated in one of two conditions, a Visual Referent condition where the target object was actually located and seen by the children, and an Absent Referent condition where the container of the target object (a toy barn) was locked and the target object was not seen by the children. Participants were equally adept at selecting the correct object at test regardless of whether they had learned its name through direct association with the visual referent or by a process of elimination.

Other research programs have attempted to unpack the possible contribution of third-party (or overheard) speech to young children's language development. Akhtar and Gernsbacher (2007) suggested that one of the key problems with the joint-attention model of word learning is that it relies too heavily on the process of overt attention. Akhtar (2005) examined the robustness of vocabulary learning through overhearing by testing 48 two year olds in contexts where a potentially distracting activity was present. Children watched while the experimenter and a confederate examined four novel objects, only one of which they named (“toma” or “modi”). During this procedure, children were either allowed to play with another interesting toy (the Distracter condition) or simply observed the experimenter’s interaction with the confederate (No-Distracter condition). The children were then asked to show or give the experimenter the novel object which had been named (a Comprehension trial), as well as to select the object which they liked the most (a Preference trial). In both the Distracter and No-Distracter conditions the participants were significantly more likely to choose the target, labeled object in the Comprehension trial than in the Preference trial (in fact, all participants accurately selected the target object in the Comprehension trial). Akhtar also measured the degree

to which children in the Distracter condition had attended to the interesting toy they had been given. The children in the No-Distracter condition did pay significantly more attention to the experimenter than those in the Distracter condition, suggesting that children can learn novel words despite having their attention diverted away from the person using the word. Interestingly, these results obtained when the novel word was imbedded in either a labeling statement (“I’m going to show you a toma”) or a directive statement (“Put the toma down here”), suggesting that children may attend to words indicating novel referents regardless of pragmatic context.

Shneidman, Sootsman Buresh, Shimpi, Knight-Schwarz, and Woodward (2009) also examined whether children would learn novel words in the absence of joint attention between infant and speaker, and also asked whether or not this ability is correlated with the amount of ambient speech their participants heard every day in their homes. They engaged 20 month olds in one of two tasks: a direct condition where infants were shown an object by the experimenter while she labeled it (“Look at the blicket”), and the overhearing condition where infants watched while one experimenter both showed and labeled an object to another experimenter without making eye contact with the infant. In subsequent testing, children were asked to select the labeled object; Children in both conditions succeeded at this task. Shneidman and her colleagues also measured the amount of time each child attended to the object and the experimenter(s) during the presentation of the novel object, and found that in the overhearing condition, more successful word learning was positively correlated with the amount of time spent looking at the experimenters and negatively correlated with the amount of time spent looking at the object. They further demonstrated, based on parental report, that word learning

through overhearing is positively associated with the amount of time parents reported that their young children typically spend in the company of other adults. The authors suggested that children may be searching for behavioral cues in the actions of others which might signal the focus of their conversation. This work provides an intriguing suggestion that the nature of attention may be influenced by the child's everyday social contexts. Although cross-cultural work has demonstrated community-wide preferences for particular learning styles that may privilege open attention, it may be equally likely that children who are routinely exposed to multiple interlocutors adapt their learning styles based on that exposure. Such adaptation would continue to confirm the enduring impact of cultural preference on learning styles, and the importance of considering the potential effects of different social configurations within the family on child learning outcomes.

Akhtar (2005; 2007) has suggested that joint focus of the child on an interlocutor's conversational referents may be all that is necessary for robust word acquisition. The evidence cited earlier that multi-party and bystander speech are robust features of the everyday verbal environments of youngsters in some minority and working-class communities thus dovetails with this revised understanding of children's learning environments. However, in vocabulary studies to date, the environment has been explicitly or implicitly defined as dyadic interaction between mother and child (e.g., Hart & Risley, 1995; Hoff, 2003; Huttenlocher et al., 1991; Pan et al., 2005; M. L. Rowe, 2008), ignoring the potential impact of other conversational participants in children's lives. For example, Hart and Risley (1995) reported that they discouraged talk between participants and observers and between other people present during data collection.

While this methodological choice may have had little impact on higher SES participants, it may have had a disruptive influence on less privileged participants. This choice effectively precluded multi-party talk—the very kind of talk that has been found to be normative in some working-class communities (Heath, 1983; Miller, 1994; Ward, 1971).

Although it is possible that a broader interpretation of participant structures in the lives of young language learners may reveal an important source for language input in these children's lives, to date there exists no comparative assessment of the relative amounts of dyadic versus multi-party speech in the everyday lives of young children. No work on vocabulary differences across social class has employed an ethnographic approach to record the everyday lives of young children, counting all of the language of all participants within the child's earshot. The majority of studies on vocabulary differences have employed observational procedures that were not responsive to local ecologies (e.g., Hart & Risley, 1995), or structured observations, using materials or observational situations that may have called forth different responses from participants than those expected by the researcher (e.g., Hoff-Ginsberg, 1991; Pan et al., 2005). This shortcoming is likely most problematic when the lives of working-class or poor families are considered, families whose cultural norms and language practices are most apt to be unfamiliar to middle-class students of language development.

### **The Importance of Other Cognitive Factors Attending Language Acquisition to Eventual School Success**

As mentioned earlier, many studies have examined the cognitive requirements for word recognition and reference, requirements that naturally demand input for the successful acquisition of new words. Recently, considerable attention has been paid to

the intersection between these cognitive requirements and the social foundations necessary for their actualization. For example, the importance of experience-dependent models of acquisition has been recently reaffirmed by research demonstrating that infants and young children engage in statistical learning (Saffran, Aslin, & Newport, 1996). Statistical learning models assume that both the amount and likelihood of the particular occurrence of any language feature will affect its acquisition, although to date, the application of these models to vocabulary acquisition *per se* has not been done.

Nevertheless, other cognitive factors may contribute to the relationship between home vocabulary input and later school achievement. Fernald and her colleagues have investigated the degree to which speed of spoken word recognition, one potential index of working memory, predicts later language outcomes (Fernald, Perfors, & Marchman, 2006; Hurtado, Marchman, & Fernald, 2007; Marchman & Fernald, 2008). Infants engaged in a “looking while listening” task, where they looked at pairs of familiar pictures while listening to the naming of one of the pictures. Reaction time to the naming of the picture, operationalized as eye gaze shift from distracter picture to target picture, was then measured. Using this paradigm, Fernald and her colleagues found that significant decreases (300 ms) in the latency to shift occurred between 15 and 24 months (Fernald, Pinto, Swingley, Weinberg, & McRoberts, 1998). Moreover, infants who were faster to orient to new word changes had more accelerated vocabulary growth (Fernald et al., 2006). Hurtado, Marchman, and Fernald (2008) extended these findings to Spanish learning children, observed at 18 and 24 months using the “looking while listening” procedure. In this study, maternal talkativeness was unrelated to social class but was significantly related to children’s lexical abilities at 24 months, even controlling for their



vocabulary at 18 months of age. More importantly, children with faster reaction times at 18 months demonstrated larger vocabulary gains over the ensuing six months. Hurtado and her colleagues interpreted this result as suggesting that children with talkative mothers hear more speech, and in turn, hearing more speech confers greater information processing abilities.

Finally, in a longitudinal study of the relationship between both vocabulary size and speed of word recognition at 25 months and childhood language abilities and intelligence at age 8 years, Marchman and Fernald (2008) examined the relationship between these two variables and working memory. Working memory at age 8 years was assessed by measuring the length of digit span the children could repeat, and by the accuracy with which the children could point to a series of pictures in the same order in which they were read by the experimenter. Both vocabulary size and speed of word recognition at 25 months predicted speed of working memory at age 8, with speed of word recognition emerging as the more powerful predictor (Marchman & Fernald, 2008). Significantly, this work increases our understanding of a potential mechanism through which the sheer amount of parental vocabulary input uniquely contributes to cognitive functioning apart from the contexts in which the vocabulary is heard, and thereby justifies a future consideration of how verbal environments of children may vary apart from differences attributed to social address.

### **Conclusions**

In sum, this review has considered various aspects of how very young children experience language at home with a particular focus on how one aspect of that language experience, maternal vocabulary addressed to them, contributes to eventual language

development. The questions that emerge from such a focus are not of purely theoretical interest. Scholars have repeatedly noted that children from some economically and culturally defined groups are consistently behind their middle-class, European American peers, as early as entry into preschool (Vernon-Feagans, 1996). Furthermore, considerable work has reached the conclusion that the amount of maternal language, measured by vocabulary quantity and quality that children from different social addresses hear, constitutes the major reason for these early deficits.

Yet, on the basis of this review, I contend that this conclusion warrants reconsideration, as a host of relevant questions have been prematurely “settled.” To return to where this review began, why do children from different social addresses fare so poorly in school when they appear so competent in their home language use? Not only has study after study shown that all normally developing children demonstrate complex linguistic competence within the contexts in which they are raised, but several studies have shown that children from working-class and ethnically diverse families actually demonstrate a precocious competence with regard to some types of language use such as verbal play routines and narrative.

One reason why the vocabulary and everyday discourse traditions have not informed one another is because they rest on different assumptions about the nature of children’s verbal environments, assumptions that they enact via different methodological choices. In the vocabulary studies, observations were made in the children’s homes, but the vocabulary environment was explicitly or implicitly defined as dyadic, mother to child, talk (Hart & Risley, 1995; Huttenlocher et al. 1991). Hart and Risley, for example, discouraged the mothers they were observing from talking to other people who were

present for the convenience of transcription of data. Furthermore, in many studies, observations are additionally constrained by researcher-imposed structures designed to assist experimental elegance or parsimony of design (e.g., interactions with specific artifacts—Pan et al., 2005; or interactions at specific points in the child's day—Hoff-Ginsburg, 1991). By contrast, in keeping with the goal of determining how children's verbal environments are culturally organized, a fundamental aspiration in the language socialization tradition, the studies of everyday discourse involved observation of children's entire ambient verbal environment, not just speech directed to the child. This more encompassing goal was approached via ethnographic fieldwork and systematic home observations undertaken with an eye to collecting ecologically and culturally valid samples of family speech with young children. With respect to narrative, the studies cited above revealed a variety of routine configurations of talk. Mothers talked directly to their children as well as to other people in the child's presence; mothers' talk in either context may be about topics pertaining or not pertaining directly to the child. This methodological approach also captured the talk of all participants, not just talk by the mother; many of the poor and working-class children routinely experienced multi-party talk involving extended family members.

This argument leads to two conclusions concerning the assessment of children's vocabulary environments. First, the most accurate measure for assessing vocabulary must necessarily include all speech occurring within earshot of the child. This conclusion is supported by recent research in the psycholinguistic tradition demonstrating that young children learn words introduced in talk by interlocutors that they overhear as well as in talk by interlocutors addressed to them (Akhtar, 2005; Akhtar & Gernsbacher, 2007;

Shneidman et al., 2009). Although joint-attention episodes may entail the most efficient means through which an infant learns words in the early stages of language acquisition, there is no reason to assume that these episodes are the only way infants learn words nor that the affordances they offer extend through the preschool years. Of course, there remains considerable evidence that joint book reading episodes between caregiver and child contribute greatly to preschoolers' learning of both vocabulary and the ways of schooling; however, even in the wealthiest of homes these episodes do not comprise more than a relatively small proportion of the total time young children hear language in their everyday lives.

Second, the assessment of vocabulary must be based on views of children's lives afforded through careful examination of how they actually lead those lives. Experimental methodology, in its attempt to exert control and eliminate bias in its examination of the amount of vocabulary children routinely hear, has inadvertently created bias against the very families its practitioners aim to help. It is reasonable to suggest that children from diverse backgrounds are not succeeding in school. It is also reasonable to suggest that research should examine how these children fare in the types of situations in which mainstream schools expect them to succeed. What is not reasonable is to assume that since these children do not fare well in situations defined by mainstream schools that they have heard too few words in any situation. A more profitable approach would seem to be discerning in what situations they do hear vocabulary in the hope that the definition and measurement of those situations will inform educational policy with respect to how to help children reorient the language of the home to the language of school. This more inclusive goal can only be realized through extensive fieldwork in an ethnographic

tradition that both begins to break down the barriers built by suspicion between participant and researcher and that subsequently allows the researcher to view and describe how language happens on the ground in young children's lives.

The goal of this study is to address these two conclusions using existing language data from five different corpora representing different economic and cultural swaths of the United States. The data in these corpora were collected in an ethnographic manner, capturing the talk of all interlocutors in each family unit as they participated in ongoing conversations. To that end, the vocabulary contributions of all family members may be identified and considered for its contribution to the vocabulary development of the child. There would appear to be neither reason to exclude the speech of all caregivers and everyday interlocutors of the child, nor to assign artificially the role of primary caregiver to the mother regardless of the family's socially and culturally determined patterns of childrearing. At the same time, vocabulary will be guaranteed to be situated within contexts that the families deem relevant, and those contexts themselves can be identified and described. Ethnographic inquiry is perhaps the best way to guarantee that observer effects are kept to a minimum. When all participants are allowed to talk freely, and when they have had sufficient exposure to a research situation to ensure their comfort and ease around the researcher, they are more likely to talk in a manner most consistent with their everyday speech around their children.

To that end, two complementary sets of hypotheses ground the analyses presented in this study. The first hypothesis addresses jointly the two conclusions presented in the preceding paragraphs. It is hypothesized that the ethnographic data collection procedures of the five corpora analyzed in this study will reveal a different picture of language in

impoverished homes than is painted by the traditional observational procedures of Hart and Risley (1995). In other words, it is expected that when data are collected in the more ecologically valid methods typical of language socialization research, estimates of vocabulary addressed to the child will be greater than those estimates derived from observational research which is not grounded in the principles of ethnography and participant observation. Specifically, it is expected that there is more primary caregiver talk in terms of both volume (word tokens) and diversity (word types) in the two impoverished communities in this study than in the impoverished Kansas homes. Nevertheless, it is expected that differences in the amount and diversity of primary caregiver talk will remain between communities despite the use of ethnographic procedures, but that these differences are grounded in local community norms informing talk to children and not in social class differences. This hypothesis and its expectations will be examined in Chapter 4.

The second set of hypotheses concerns the number of words children hear in the ambient environment. It is expected that children are exposed to more word tokens and types when the speech of all interlocutors speaking in the ambient environment are considered. Specifically, it is expected that children hear more word tokens and types in the speech addressed to them by all interlocutors than they hear in the speech addressed to them by primary caregivers alone. This hypothesis will be examined in Chapter 5. Additionally, it is hypothesized that children hear more word tokens and types spoken both to and around them by all interlocutors than they hear in the speech addressed to them either by primary caregivers alone or by all interlocutors speaking to them. This hypothesis will be examined in Chapter 6.

Careful identification of vocabulary use in an ethnographic setting may result in several outcomes. It may be true that vocabulary use is more limited among poor and working-class individuals, thereby supporting the findings in the current literature. However, it may be likely that measurement of primary caregiver vocabulary alone significantly underestimates the amount of vocabulary which children routinely hear from other caregivers, many of whom may be as significant in their lives as their primary caregivers. In addition, to date there exist no studies that measure the amount of vocabulary that children overhear from other members in their household, despite the fact that there is emerging psycholinguistic evidence demonstrating that joint attention between an adult and a child language learner is not necessary for language acquisition. Ethnographic inquiry is particularly well suited for such an inquiry. When no restrictions are placed on the activities of family members within the research context, accurate measurements may be recorded of vocabulary spoken by all members of the household to each other within the earshot of the child. Vocabulary types and tokens may be sorted with respect to who spoke them, and to whom they were spoken; in this manner vocabulary addressed to the child may be considered separately from vocabulary addressed to others but likely overheard by the child.

However, before turning to the analyses of these hypotheses, this study begins in Chapter 2 with a look at the five communities whose children and families participated in the studies from which this research is drawn. These portraits must necessarily be brief, but they will hopefully provide a sense of the lives lived by families in five distinctive regions in the United States—lives that are defined by local norms and socioeconomic exigencies. Chapter 3 presents the methods used in determining what constitutes the

lexicon of primary caregivers and other interlocutors both in speech addressed to the child and in speech overheard by the child. This chapter also addresses the difficulties in discussing diversity of vocabulary, both in general and in the context of these specific language corpora. As described in the above paragraphs, Chapters 4, 5, and 6 discuss the analyzes undertaken to examine in turn hypotheses of the study. The specific results of the study will be discussed in Chapter 7. Finally, this study concludes with an Epilogue that details recent events in both the scientific and political arenas concerning the "Word Gap" and describes both the findings of the present study and the attention paid to the Word Gap as elements of a linguistic ideology surrounding the language of the poor.



## CHAPTER 2

### PORTRAITS OF FIVE COMMUNITIES

Each child who participated in the five studies described in this research lived within the confines of a loving family who cared for, played with, and, most importantly, talked to the child every day. However, most of the similarity between these children ends there. Each child grew up in a community defined by geographic distinctions, historical roots, economic status, and social standing within the region in which it resided. As with all children, these attributes of everyday life, and their attendant cultural affordances, help to distinguish the routine practices of caregiving by families and to circumscribe the development of the children themselves.

The aim of this chapter is to provide snapshots of these five communities, situating each of them within a geographic, historical, economic, and social context. The communities will be presented in the order of their social class: South Baltimore, the Black Belt of Alabama, Jefferson (Indiana), Daly Park (Chicago), and Longwood (Chicago). Although the names of the large cities, states, and the regional identifier "Black Belt" have not been changed, all specific location names are pseudonyms as are the names of all participants and their families throughout the study. South Baltimore and the Black Belt are both impoverished communities; Jefferson and Daly Park are both working-class communities, and Longwood is a middle-class community. The communities also vary across geographic composition with South Baltimore and the two Chicago communities being urban and the Black Belt and Jefferson being rural.

The South Baltimore data were collected in the late 1970s. The Black Belt data were collected in the late 1980s. The data from the two Chicago communities was

collected in the late 1980s to early 1990s, and the Jefferson data were collected in the late 1990s. Three of the communities have been described at length elsewhere: South Baltimore by Miller (1982); Daly Park by Burger and Miller (1999), and Wiley, Rose, Burger, & Miller (1998); and Longwood by Miller, Fung, and Mintz (1996), Miller, Wiley, Fung & Liang (1997), and Wiley et al. (1998). Two of the communities (Alabama and Indiana) have not been described elsewhere extensively. To that end, this chapter aims to discuss geographic, historical, and demographic characteristics of each community, but will focus more intensively on the Alabama and Indiana communities. In addition, this chapter aims to present vignettes of the homes and family life of the various participants, necessarily painting broad swatches across the commonalities shared by the 42 families and children who participated in these five studies.

### **South Baltimore**

The setting for the first study was the impoverished inner-city region of South Baltimore. Although this region of Baltimore, Maryland, has recently become somewhat gentrified, when these data were collected (1975-1977), South Baltimore consisted of mainly of working class and poor European American families. Although the neighborhood was bounded by the affluent and historical Federal Hill community on the northeast, and by an African American community on the west, South Baltimore remained emblematic of its roots as the first home to poor German, Irish, Polish, and Italian immigrants in prior generations as well as the endpoint of migration for the impoverished of Appalachia seeking better opportunities in the city. No doubt similar to many highly urban, and profoundly poor communities crouched within the confines of larger, more affluent metropolitan areas, South Baltimore seemed forgotten and

abandoned until its proximity to the renaissance of the Baltimore Inner Harbor was realized. Within a short distance of these homes lay several industrial sites, including the Bethlehem Steel shipyards and several factories (Miller, 1982).

This area was the remnant of industrialization, a place where cities put the necessary ingredients of modernization that their wealthier citizens did not want to see. Train tracks provided actual and symbolic borders between workers and owners, poor and wealthy. Freeways provided easy access across the community for more affluent travelers to journey from suburban homes to inner-city employment. The storage tanks of the Baltimore Gas and Electric Company towered over the neighborhood to the west. In addition, the neighborhood contained numerous second-hand shops and corner stores, many of which occupied the lower levels of row homes in which their proprietors lived. Seven second-hand stores could be found within a two block stretch of Charles Street. The Cross Street Market sold fresh fish and produce to the public, while the many bars and the single pool hall provided entertainment opportunities

Nine percent of families within this community received some form of public assistance; all of the families who participated in this study received such aid. At a time when the median national family income was \$8,123, twenty-one percent of families living in this community subsisted on less than \$5,000 per annum. Within this study, only Amy's mother Marlene worked full time. She had worked continuously since she gave birth to Amy at 18 years of age. Working as a waitress, then a machine operator assembling cardboard boxes, and finally in a nearby factory that made air fresheners, Marlene believed that her work provided a significant example for Amy. She made

approximately \$5,000 per year. Only one of the mothers possessed a high school diploma; the other two mothers had only an eighth grade education.

Many urban areas in the United States have become associated over the years with a particular style of housing; in South Baltimore, the two- to three-story row home, encased in form stone, fills this niche. Unlike the more expansive row homes of other metropolitan areas, the row homes of South Baltimore are notably narrow, often allowing for only single rooms and possibly slim hallways arranged in gunshot fashion. There are no front yards, or even small patches of greenery separating the front stoop and the street. The three participants in this study, Amy, Wendy, and Beth, and their single mothers each lived in small apartments in one of these row homes. Wendy and her mother Liz shared a small apartment, situated above a corner variety store, owned by Liz' boyfriend Steve. Liz often had to leave Wendy for short periods of time to run down to the store when things got out of hand there. Beth and her mother Nora lived for a time with Nora's extended family, including her parents and several siblings. Later, after Nora's marriage and the birth of Beth's sister, they moved to a third floor apartment of a corner row house. They lived in one bedroom of this apartment, cooking their meals on a hotplate, because the apartment's living room and kitchen were too ill-repaired for occupancy. The girls' homes, although sparsely furnished, were filled with the accoutrements of childhood. Each girl had many stuffed animals, dolls, books, and other toys. In addition, toys were brought by the researcher to the taping sessions, and each child played avidly with these new items suggesting their familiarity and comfort with playthings.

Two of the children, Amy and Beth, lived with their mothers and various other relatives in an extended family arrangement; only Wendy lived alone with her mother,

although her grandmother was present in her life for significant amounts of time. Amy and Beth shared frequent interactions with their cousins; Wendy's mother was an only child. Interestingly, each girl had routine contact with a five-year-old girl, cousins in the case of Amy and Beth, and a neighbor in the case of Wendy. The mothers of Amy, Wendy, and Beth were all well integrated within the lives of their parents. Amy's grandmother cared for her daily while Marlene worked. Wendy and Beth were often guests at their grandparents' homes. Nora's father, in particular, was a character. He thoroughly enjoyed being the center of attention, and lived life in bright colors.

Perhaps most significantly, the mothers of South Baltimore were avid storytellers; frequently when reading these transcriptions, one feels that these mothers were hardly able to wait for the researcher's visit in order to tell her about the latest comings and goings in their lives and community. Stories abound throughout these times about boyfriends and husbands, jobs, visits to doctors, neighborhood encounters, a new pregnancy, and the recent accomplishments and activities of their daughters. Of course, none of this speech addressed to the researcher is considered in the present study of children in their everyday, ambient verbal environments. Yet one senses that these stories were told and retold to any willing ear. For example, when another family member or friend enters the scene, only the audience for the story is augmented; neither the fact of its telling nor the story itself is changed. These are households filled with talk; the researcher is just one more listener with whom one can share stories and the enjoyment of their telling.

## **The Black Belt of Alabama**

The setting of the second study consisted primarily of two small communities in the piney woods of the Black Belt of Alabama. The term Black Belt itself draws interesting and informative connotations with regard to this area. The first recorded use of this term was by the African American educator Booker T. Washington (1901) in his autobiography, and slightly later by the African American sociologist W. E. B. DuBois in his classic collection of essays, *The Souls of Black Folk* (1903). Initially the region was named, at least in part, due to the exceptionally rich black color of the fertile soil which supported ubiquitous cotton plantations before and after the Civil War. In this sense, the geographic boundaries of the crescent-shaped region stretched from central Mississippi in the West through Alabama to Georgia in the East. The exclusive farming of cotton has since stripped the soil of its nutrients and its characteristic color, and much of the region is now covered with federally owned forest land. However, the term has long since become a double entendre to reference the majority African American population that predominates within this region. In this sociopolitical sense, the Black Belt can be said to extend from Mississippi in the West across Alabama, curving northward through Georgia, the Carolinas, and into Virginia. The region has been disproportionately populated by African Americans since before the Civil War. During the Reconstruction Era, at least 65 percent of each Black Belt county in Alabama was African American (Hackney, 1969). Tombigbee County, the pseudonymous location of this study, was 69 percent African American when data collection began.

Tombigbee County had suffered from the general move of African Americans to the North to seek better employment and more equitable living conditions that has been

termed the Great Migration (Wilkerson, 2010). The population of this county reached a high of nearly 33,000 in 1900, but had declined steadily to slightly over 16,000 in 1990. When data collection began in 1988, unemployment in Tombigbee County stood at 12 percent, twice the state and national averages ("Jobless rate rises here," 1988, February). In 1980, only 46 percent of the adults in Tombigbee County who were 25 years and older possessed high school diplomas; however, this number only hints at the low level of education among African American adults, as fully 70 percent of them had not graduated from high school. Health care in this region was unstable. Doctors within this region were few and far between, and nearly every one of the participants in this study was a patient of a kindly, aging, and overworked female general practitioner located in a office constructed from two modular units situated between the two principal villages in the county. One of the hospitals in the county had been closed for 4 years awaiting a new buyer. The other county hospital remained open with limited patient care, care which did not include the delivery of babies. The county's infant mortality rate was high, standing at 15.2 deaths per 1,000 births.

The two communities whose residents participated in this study stretched along two state highways whose principal intersection lay in neither community. One community did not have a formal town center, but rather consisted of groups of loosely connected homes organized into small patchworks of neighborhoods. Two landmarks identified this site as a coherent community. The first, and most important from the standpoint of community identity, was the junior high school (the local name for schools which housed kindergarten through eighth grades) which served the entire northern half of the county in which the community resided. The school was situated along a side road

perpendicular to the main highway through the area, hidden from the awareness of anyone save those individuals who specifically sought its locale. An alternative road approached the school house from another direction. This road, partially gravel and partially blacktop, was home to large families of vultures seeking their meals along its path, and at times even barring passage to travelers. The elementary school consisted solely of African American students led by a predominantly African American faculty and an African American principal. The principal's wife was also a teacher at this school, and these two individuals held considerable sway over the comings and goings of the school's teachers, children, and their families, as well as over the happenings within the community at large. They also served as directors of the local community activities association, having secured grant funding for its operations.

The second landmark in this community was a small general store that was situated on the main highway, approximately a fifteen minute walk from the elementary school. The store itself resembled an old clapboard farmhouse that had been repurposed to sell incidental snacks as well as to house its owners. The owners and proprietors of this establishment were a European American couple in their late fifties or early sixties, and were the only European Americans the researchers ever saw in this portion of the county. Although it is probable that travelers with no business in this small community occasionally stopped at the store for a quick snack while traveling elsewhere, the most frequent customers of the store were the African American residents of the local area stopping to get the odd item. To the best of the researcher's knowledge, no one ever did their entire shopping at this store; it was far too expensive. In fact, the majority of its



business consisted of the youth of the area who had been given a small amount of money to go to the store to get a treat such as a candy bar, soda pop, or a bag of chips.

The second community in this study was situated near the geographic, political, and cultural center of the county in which the two communities resided. This community lay on the edge of a small town which housed not only the county courthouse, but also a small state university. The African American residents on this side of town had become separated culturally from the densest concentration of African American residents in this town by the situating of the local federally funded housing project near to the only public junior high school in the town (a third public junior high school, and the only public high school for the entire county were in yet another small town approximately eleven miles away). Although the fact that these residents were situated close to the school might seem advantageous on the surface, within this community it indexed the helplessness and plight of the African American residents in general, and the poor among them in particular. Historically, this school had been situated on the edge of this town that lay the furthest from the traditional African American community and closest to the European American community. Most African American residents had a story about a relative discussing the long walks through all sorts of weather to get to this school once it was integrated. Of course, after its integration, nearly all of the European American parents pulled their children out of the school, and created an academy for their education. Academies were prominent in this part of the Black Belt, and ironically were often poorly staffed by European American individuals with little or no formal training in education, many of whom did not even possess a college degree. By contrast, only licensed teachers

were employed at the public schools, some of whom had even accumulated masters' degrees in education as they pursued continuing education.

The refusal of European Americans to attend this school was not the only source of irritation surrounding its existence, however. The elementary school lay alongside a busy highway, separated by approximately three miles from the densest concentration of African American citizens in this town, yet no bus service had been provided to them through the 1970s. In addition, no sidewalk extended from the main part of the town to the school, forcing those children who had no rides to walk the three miles in blistering heat and inclement weather, walking through weeds and mud to avoid the risk of walking on the highway itself. In the early 1980s, a sidewalk was finally constructed for these children, but cement alone could not repair the damage done by years of inequality.

When my wife and I first moved to this community, we lived in an apartment on this side of town, near the local WalMart (a large, "big box" shopping store noted for both for its low prices and for its tendency to draw customers away from small, local business owners, eventually forcing them to close their doors). Our apartment was separated from the WalMart by an open field full of thistles and other weeds. One afternoon we chose to travel to WalMart on foot using this sidewalk. When we approached an elderly African American man, we instinctively narrowed our side-by-side walking to a single-file procession. There was no need; this gentleman stepped off the sidewalk into the waist-high thistles until we passed.

Although these two communities were separated by approximately 20 geographic miles, they were connected in many socially and culturally constituted ways. Of course, the most obvious connection these communities shared was their mutual separation from

significant European American institutions in their daily lives, a fact already noted in previous discussion of schooling. In addition, while all families ascribed to strong religious beliefs, no African American family attended a European American church. Rather, the county-wide area was dotted with small churches which were typically more visible from the meandering highways through the county than were the homes of the African American residents. Among the participants in this study, religious affiliation seemed to be dictated more by connections to family and friends than by adherence to one or another doctrine. To that end, churches frequently had few members, and the proportion of church buildings to county residents was high.

Another source of contiguity between these communities was centered on the availability of schooling to its members. While each community had its own junior high school, all youth attended a common high school when they reached that age. Furthermore, preschoolers were likely to attend one of the two Head Start programs in the region, and these programs drew their participants across catchment boundaries which did not coincide precisely with community boundaries. In addition to schooling connections, many parents of the participants in this study from both communities worked at one of the two major employers in the region, a chemical waste management facility and a state-supported university.

The chemical waste management facility held a significant economic and cultural sway over the region. Not only did this facility provide employment to numerous residents within the county in which it resided, but it also ingratiated its way into the hearts and minds of the residents by providing significant resources to fund a local daycare (whose services were available only to the children of employees) and by

sponsoring many community activities otherwise unheard of in this region such as the annual Christmas parade complete with a visit from Santa Claus. Located on a 300 acre tract of land in the geographic center of the region of data collection, this facility received approximately 40 percent of the toxic waste disposed of nationwide between 1984 and 1987, the years immediately preceding the study. The years of the study, from 1988 to 1991, preceded times of community activism concerning this employer; in fact, no family involved in the present study ever spoke of the facility in any but glowing terms. The arrival of this industry had signaled a major upswing in the local economy at a time when one-third of the county's residents lived below the federal poverty level. The county in which this study took place had a median yearly family income of \$12,811 at a point in time when the similar income level for the state of Alabama was \$27,357 and for the United States, \$34,076.

Participants in this study shared perhaps even more significant cultural ties, however. First and foremost, they were all African American in a region where between 50 and 80 percent of the population was African American. Yet, the community remained characterized by *de facto* segregation. As noted earlier, when schools in the county had been desegregated in the 1970s, all European American parents began to enroll their children in small private schools that the parents themselves staffed. At the time of data collection, all public schools contained approximately 95 percent African American students. Furthermore, unspoken "separation" rules dominated many local services such as laundromats and grocery stores. European American residents of the area were quick to inform newcomers where they should go to shop or to procure other everyday services. In addition, many African American residents had their own stories of

segregation to share. For example, one of the principal stakeholders in the study shared her experiences in attending the local state-supported university in the region in the 1970's when European American students used to place small warning flags attached to suction cups on the seats where African American students had sat as they left their classes.

Individual homes within the African American community were geographically dispersed across the county-wide area; by contrast, most European American residents of the county lived within its two larger towns. The families who participated in this study lived mostly in cinder block houses or in trailers resting on cinder block posts. Three families, Kendrick's, Sebrina's, and Shamekia's, lived in single-wide trailers sitting on property owned by the family. In each case, larger cinder block or frame homes sat nearby, housing senior members of the family. Sebrina actually lived with her grandmother, siblings, and cousins in the trailer, while her great-grandmother resided alone in the main house. The mothers of Quentin and Stillman resided in federally subsidized duplexes. These two families were unique to the study in the fact that they were geographically isolated from kin. Only Alicia and Daphne lived in comparatively large frame homes sitting on a single lot. However, Daphne's father worked in the house's garage as an auto mechanic, and the family lot was often overcome with cars and parts.

Many homes of participants did not have running water necessitating frequent trips outside to pump fresh water for drinking or to use the family outhouse. Three-fourths of the families had no regular access to fans or air conditioning, despite hot humid summers and autumns where 80 degree days often stretched to Thanksgiving or later.

Approximately one-fourth of the homes did not have regular telephone service. Access to radio service was sketchy in many households, with transmitter stations being situated between 35 and 40 miles from these homes. No participants had access to television service. Although cable television was available in the two larger towns, no participants who lived in these towns had sufficient financial resources to subscribe to the service; and cable services had not yet been extended to the rural areas of the county. Some participants in these rural areas had televisions and video cassette players; a couple of families routinely left their televisions on playing static.

Homes were sparsely, but adequately furnished. Children in Alabama did not have as many playthings as did the three girls in South Baltimore. In some cases, such as Quentin's, toys were always "put up" to save them; store-bought items were often considered precious, and not for everyday use. This practice mirrored that of the daycare, where children who touched books would receive a "fly tap" for their misbehavior. Adults did not view young children to be capable of handling these artifacts with the respect due them given their price and general scarcity. Most children were expected to engage themselves with everyday objects found in their homes. In stark contrast to the care that adults expected children to take with purchased toys, parents were relatively tolerant of a great deal of handling of household objects. If allowed, Shamekia would spend a great deal of time in every taping session wanting to comb her doll's, or sometimes Linda's, hair. Barrettes were allowed, but Shamekia's mother would draw the line at allowing her to have the hair grease. Many times these objects became the catalyst for symbolic play, such as when Stillman and his mother capitalized upon the popping noise made by squeezing and releasing a plastic yogurt cup to engage in a protracted

episode of gun play. Only Daphne and Kendrick had a large collection of toys. Although Alicia's family appeared to have more disposable income than did Kendrick's, Alicia's family seemed more in tune with the prevailing norm of preferring that she play with household objects such as remote controls, lipstick tubes, and video cassettes.

Concern for the external care of the homestead was dictated more by use than by appearance. Many homes were situated on relatively large stretches of land, but yards around homes were used hard by children, animals, and vehicles. Few homes had much of anything that could be called a lawn surrounding them; rather yards consisted of alternating dirt and weed patches, serving both as parking lot and playground. Houses such as Roland's with teenage boys around often had basketball hoops attached to a building or a post in the yard. In an area of few sanitation services, some homes such as that of Sebrina's used small to large areas sitting 100 feet or so from the house as trash dumps. A large cauldron used for outdoor cooking or the making of cracklins was not an infrequent sight sitting apart from the main house.

Family size and composition varied significantly across these 11 toddlers, but it was representative of the range of families who lived in this area. One of the children lived alone with his single mother in the federally funded housing projects. Although friends often visited their family, they remained relatively isolated from other members of their extended family. Four of the toddlers resided with their single mothers (or, in one case, grandmother), who lived in extended family homes consisting of various constellations of grandparents, aunts and uncles, and cousins. Finally, six of the toddlers lived in two-parent families with their siblings. Even in these cases, however, extended family members often lived nearby, and shared extensively in caregiving for these

children. The family members of these children engaged in numerous forms of outside activity and employment. Only three mothers were unemployed throughout the study and not pursuing alternative schooling outside of the home. Two children had parents who were pursuing additional education, one mother in hair styling and one father in auto mechanics. Three children had mothers who were cooks at a local school, prison, and cafeteria. Both the aunt and grandmother of one child were Head Start teachers, and the mother of one child was a state-licensed first-grade teacher. Both parents of one child worked in the chemical waste facility. Finally, two additional fathers held jobs, one as a farmer and one as an auto mechanic. In all, four families had little to no income throughout the tenure of this study. Six families had members who engaged in blue-collar jobs, but who still made little enough money to qualify for free- or reduced-lunch at school. Only one family had one parent with professional employment as a public school teacher.

In sum, the homes of nearly all of the child participants in this study were bustling centers of activity with frequent comings and goings. Older siblings, cousins, and adult relatives arrived and left the scene of videotaping as the requirements of their lives dictated. Children came home on the school bus; parents, aunts, and uncles arrived home from work; friends visited to play ball. Meanwhile, the mainstay of the home was often an older woman, usually the grandmother to the participant and any cousins of the participant under her care. Since many of these women also worked outside the home, most of the families anticipated their children's third birthdays when they would be eligible to attend Head Start. In all cases, children were surrounded by many family members and friends during much of their waking time, and consequently were



enveloped in frequent conversations about the give and take of the everyday lives of members of their community.

### **Jefferson, Indiana**

The setting of the third study was a small town situated within a rural farming community in southwest Indiana. Larger in size and more geographically defined than the community in Alabama, Jefferson was home to approximately 11,000 residents who were 95 percent European American at the time of data collection. Jefferson is home to families of diverse socioeconomic backgrounds, most of whom earn a living in some aspect of agricultural production or its support. Children from the homes of the residents of Jefferson would eventually attend one of four elementary schools in the community, although the majority of the children of the families in this study resided within the district of the least advantaged of these four schools. Data were collected in Jefferson, Indiana between 1997 and 2000.

Land is flat and open around Jefferson, Indiana. Although it is less than a half-day's drive to either the 200,000 acres of the Hoosier National Forest or to the rocky cliffs that produced so much of the Indiana limestone for Washington, DC, Jefferson is situated on the fertile till plains within the watershed of a major river. One cannot drive far in this region without spying the grain silos and heavy-duty farming implements which dot the expanse of the Midwestern United States. Homes in this region tend to be frame houses of various sizes. The homes of wealthier residents may have some amount of brick veneer on their sides. Many properties contain older two-story farm houses, many with additions tacked onto the back or side symbolizing the addition of more modern kitchens or bathrooms. This is front-porch country. Many homes have expanses of yards in front

or back, some tended elaborately with manicured grass, artificial wishing wells, and the occasional stone goose sporting seasonal outfits sold at local craft bazaars. However, it is not uncommon to see next door a yard full of more weeds than grass, seldom mown, with well-used toys and perhaps a broken-down swing set as its only adornments. The insides of most homes are not elaborate affairs, often consisting of a great room, an eat-in kitchen, a bathroom, and three bedrooms. Parents living in the newest homes may share the privilege of a private bathroom adjoining their bedroom. All homes have the omnipresent television, but are furnished sparsely with inexpensive sofas and chairs, often adorned with stained pine arm rests, and dinette sets made of chrome with Formica tops, or possibly engineered from red oak in a Colonial style with spindled legs on tables and backs on chairs.

Ties to the land are not the only characteristics that unite residents of Jefferson, Indiana, however. If asked, nearly every resident will acknowledge membership in one of many local churches. Unlike the Black Belt of Alabama, where church membership is dictated more by family connection than denominational affiliation, Jefferson residents will tell you they are Catholic, Methodist, or Baptist. This community is similar overall to statewide trends in terms of its religious affiliation: Although the largest single denomination is Roman Catholic, most community members belong to some denomination of Christian Protestantism. Perhaps more significantly, one seldom needs to ask about a resident's affiliation with any of the extremely popular sports teams. This is Hoosier country. College and high school basketball always reign supreme in the conversations of residents. Outstanding high school athletes are cherished sources of community conversation, and it is not uncommon for large swatches of the community to

turn out for Friday night games, and for significant regional and state tournaments, regardless of whether or not they have a child in their family involved in the sport. Professional athletics are also important in the lives of the members of this community. Car racing, and specifically NASCAR racing, dominates the attention of many for several months in the spring and summer, culminating in the Indy 500 in May and the Brickyard 400 in August. At the time of the study, the Colts, the state's professional football team, had recently hired Peyton Manning as quarterback. Soon thereafter, many families in the region and state began naming their sons Peyton or Colton.

Attitudes in the area can embrace progress while at the same time remaining strongly resistant to change, particularly when change comes at the expense of perceived notions of homogeneity and community. Both state and federal government entities have tried unsuccessfully to finalize plans for Interstate 69 through southwest Indiana since at least the early 1990s. Communities such as Delaware County (where Jefferson is located) have often been split in two along lines of opinion concerning environmental issues, community integrity and character, and trade policy. For example, while many residents welcome the possibility of attracting industry and jobs to their small communities, other residents fear the growth and change which may result.

The determination of social class for these participants is marked by the same difficulties that plague the analysis of social class for the Alabama case, and would appear consistent across many rural areas of the United States. For the year 1998, the United States Census Bureau reported that median family income for the entire Midwest was \$37,685; median family income for the subset for married couples with families was \$50,702 (United States Census Bureau, 1999). No metric was reported for extended

families. At that time, the median family income of Jefferson's residents was \$29,055. Median family income of Delaware County was \$41,818 and of the state of Indiana \$50,261 (United States Census Bureau, 2000). In addition, the United States Census Bureau (1999) reported income levels by quintiles, eschewing categories such as working class and middle class. The range of income for the bottom 20 percent of earners during this year was \$0 to \$16,115. The next lowest 20 percent of earners made between \$16,116 and \$30,407 during the same year. The lower limit for the middle, second highest, and highest quintiles were \$30,408, \$48,337, and \$75,000, respectively.

The participants in this study fell, for the most part, solidly in the middle quintile. Ten of the fifteen participating families had incomes within the range designated for the middle quintile, \$30,408 to \$48,337. The median family income for participants in this study was \$35,233, with a range from \$7,500 to \$50,000. This figure is consistent with the median income of the communities' residents, but slightly lower than the median income of both Delaware County and the state of Indiana as a whole. This representation is consistent with the status of Jefferson as a small community within a rural state that nevertheless contains several major metropolitan areas (Indianapolis, Fort Wayne, Evansville, and the Chicago suburbs). Only one family reported a yearly salary which fell in the second highest quintile; however, at \$50,000, the family's salary barely exceeded the lower limit for that quintile, \$48,337. Three of the remaining families reported salaries which fell into the second lowest quartile, and one family only reported receiving government assistance at a rate consistent with the lowest quintile of income.

Occupational status and years of education provided perhaps the most significant markers of this group's working class status. Nine of the 15 mothers reported their

current occupational status as homemaker. Two of the mothers served as part-time teacher's aides, a position that did not require education past high school in this community. Two mothers worked in offices, one as a secretary and another as a bookkeeper. Another mother worked as a restaurant manager. Only one mother worked in a professional position as a registered, non-baccalaureate nurse. All of the mothers possessed high school degrees. Eleven mothers had pursued post-secondary education; of these mothers, four possessed the baccalaureate degree.

None of the fathers in this study were employed in professional positions. Most of the fathers were operators of special machinery in the nearby coal mines, truck drivers, or worked in other manual trades. One father was a salesperson while another father was a police officer. One child's father was absent from the home, and another child's father was unemployed as the result of a disability. Of the 14 fathers who were actively present in their children's lives, all possessed a high school diploma. Four fathers had attended some post-secondary school, but only two fathers had completed baccalaureate degrees.

In sum, the situation in Jefferson with respect to the determination of social class resembled that of the Black Belt case. A considerable range obtained for both the annual household income of the participating families, and for the educational attainments of all parents. This fact alone makes the assignment of social class difficult, and this matter is only worsened by the presence of significant outliers in both the variables of household income and of educational attainment. In a manner analogous to that of the Black Belt, however, the rural nature of this community obfuscated the social class of its members. The various families in this study were not isolated geographically as they might have been in larger cities where urban forces shape neighborhoods in the direction of

homogeneous housing which indexes both economic standing and often ethnic segregation. Children within this community attended schools that reflected the economic diversity of the community as a whole, as well as its ethnic diversity to the degree that this characteristic existed. Families shopped at the same stores, ate at the same fast-food restaurants, and attended the same community events such as high school ball games. In effect, the absence of a large population in a rural area forces the consolidation of services to all its residents and becomes a mediating factor between the economic resources of the residents of the community and the ability of the residents to procure their everyday needs.

Family size and configuration in Jefferson did not vary as much in the homes of these participants as they did in the homes of the children of the Black Belt. Most families consisted of both parents living together with any siblings of the focal child. In some situations, when both parents worked, the child was taken care of during the day by a grandmother within the child's home. Each family lived in a single family dwelling of moderate size; none received subsidies for their housing. While all families qualified for free- or reduced price lunch at school (a requirement for participation), none of these children attended Head Start when they reached the appropriate age despite qualifying for attendance in terms of income. If they attended a day care or preschool at all, it was privately funded, situated in the home of another mother or in a local church. In Jefferson and its environs, attendance at Head Start indexed a level of poverty or ethnic difference that would not be admitted by the families who participated in this study.

In sum, children in these homes were surrounded by talk from their families and other caregivers, but the majority of this interaction was only available at nighttime when

both parents and older siblings had returned from work and school. Daytime hours for Jefferson children, especially if they were tended by other family members or neighbors, could be somewhat lonely, with the television providing a great deal of one-sided conversation.

### **Daly Park, Chicago**

The setting for this study was a small, urban community situated within the confines of Chicago, a major metropolitan area in the Midwestern United States (see Burger & Miller, 1999, and Wiley et al., 1998, for descriptions of this community). The residents of the community were predominantly Catholic and working class. The Daly Park study was undertaken alongside the Longwood study (that will be described later) as part of a cross-cultural investigation of narrative practices under the direction of Peggy Miller. Therefore, inclusion criteria for the Daly Park study were similar to those of the other four communities that initially comprised this research (including the community of Longwood). All of the children in the communities were living within two-parent families. Each family was required to have significant concurrent and intergenerational ties to the community. In addition, the parents of each child had ongoing connections with their families; in fact, many of the participating families in both Daly Park and Longwood were themselves members of large families living in close proximity to the participants' current residences. To that end, the children within these families were privileged to have extensive exposure to relatives and friends, including many children.

Daly Park reached its peak population in the 1920s, when stockyard and meat packing plants flourished in the area and provided good jobs to its residents (Chicago Historical Society, 2005). Despite the fluctuation of both the size and ethnic composition

of the community throughout the years, one of the most distinguishing features of Daly Park is that it has been, since its inception, a working-class neighborhood. Beginning in the 1830s, Irish immigrants began to flood the area seeking employment on the construction of the Illinois and Michigan canal. These workers soon took squatter's rights to small tracts of land within the area. However, the land was far from amenable to easy civilization. Low lying and marshy, the land upon which these settlers established their homes was plagued by mosquitoes and occasionally fetid swamps. In keeping with its connection to the Illinois and Michigan canal, the area was near both the Chicago River and one of its major tributaries. The elevation of the area was not conducive to gravitational flow of water and refuse, however, and as both residential and industrial purposes grew, so did the unsavory health and living conditions of the neighborhood. Over the years, low-lying areas were haphazardly drained and filled, with residents and industries being encouraged to dump ash into the swamps. Unfortunately, many people also saw the swamps as a solution for the disposal of other refuse. Eventually, as the packinghouses flourished in the end of the nineteenth century, they contributed substantially to the already fetid nature of the area by disposing of animal processing waste directly into the main tributary of the Chicago River, contributing to its eventual moniker, Bubbly Creek (Chicago Historical Society, 2005).

Completion of the Illinois and Michigan canal in 1848 spawned the growth of the many industries that took advantage of the waterway and the increase of railway building in the area. Steel production became a notable industry in the area as the railroads grew and the need for rails increased, particularly during the time of the American Civil War. At its height, one mill in the area produced 50 tons of rails per day. The Fire of 1871



only served to increase manufacturing prospects in this area, as many dislocated firms found their new home in Daly Park. By 1880, eleven iron and steel factories, 27 brickyards, and several meatpacking operations had opened their doors.

Workers were needed to populate this growing industry, and by the 1870s German, Swedish, and English immigrants joined the earliest Irish settlers and native-born Americans to propel this area into a period of unprecedented growth and prosperity. Polish immigrants joined this ethnic mix around the turn of the twentieth century as they came to service the growth of what became the United States' largest meat-packing enterprise. The confluence of several major railroads and the ease of access to the Great Lakes offered by the canal led nine railroad magnates to purchase 320 acres in the area, thus creating an industry that would become the "slaughterhouse to the world." Industries diversified further in the area with the twentieth-century additions of a soda bottling plant, a chewing gum manufacturer, and the publishing and distribution plant of a major Chicago newspaper.

Until the early 1980s, Daly Park was more ethnically homogeneous than when this data collection began. The community still consisted of a majority of descendents of Polish, German, and Irish immigrants, but in the years immediately preceding this study many Hispanic families had come to make Daly Park their home. In 1960, the area was 99.9 percent European American of non-Hispanic origin. By 1990, 39.5 percent of the area's residents identified themselves as being of Hispanic origin. In addition, the number of immigrants resurged through the 1980s. In 1980, only 9.7 percent of the community was foreign born; by 1990, that figure had risen to 18.9 percent (Paral, 2014). However, this trend did not change the affinity the residents of this community held to

the Catholic Church. Many residents remained faithful to their participation in activities centered within their local parishes and sent their children to the local parochial schools.

Notwithstanding these demographic changes, the community has seen a steady decline in population since its heyday in the 1920s, spurred on by factory closings and loss of employment opportunities and the concomitant rise of economic hardship. The traces of urban living are more apparent in Daly Park than in Longwood, the other Chicago community within this study. Corner stores and gas stations punctuate the ends of streets within the area. Several major Chicago arteries pass through this community, and the occasional traveler would not necessarily expect the extent to which residential neighborhoods lie between these major traffic thoroughfares. However, housing is never far away from these busy streets which are lined with retail shops and small businesses. Once away from these busy zones, housing areas remain nearly free of commercial enterprise, thereby helping each individual block to retain its character as a residential neighborhood.

Homes within this neighborhood were found in multi-story flats typical of many areas of Chicago as well as in larger apartment buildings. Interspersed in the area was the occasional two- and three-story single family house. Housing is mostly frame construction with the occasional brick exterior. Houses are mostly relatively plain, rectangular structures, with little architectural variety or adornment. Each building extends deep into a narrow lot with little walk space in between homes. Tidy but small front yards often represent some of the only green grass on the property. Much of the area behind each house is frequently occupied by a garage or other storage facility with access to the alleyway running behind the houses.

All of the families selected from this community were working class. Each father, except for Colleen's, was employed in a blue-collar job. The fathers within this study held jobs as truck drivers, grave diggers, and in construction. Five of the six mothers were homemakers at the time of the study. Only Helen's mother worked outside of the home as a secretary. Helen was cared for full time by her grandmother while her mother worked. Mothers of these children had worked as secretaries, cashiers, or bookkeepers before their children were born. Most of the children's parents had only a high school education or less. The mothers of David and Michael had attended college for one to two years. Only one child, Colleen, had two parents who had attended college and had received degrees. The fact that Colleen's parents had college educations indexed the acknowledged belief in this community in the power of higher education, even though the majority of adults had not achieved this goal. Several of the parents in these families had siblings who had attended college.

Only Michael's family owned their own home; the remainder of the families rented their apartments. Two families lived in upstairs apartments of two-flat buildings owned by one set of grandparents who occupied the lower flat. The children's parents had, for the most part, grown up in large families. Four of the six children had siblings; all of the children had many cousins with whom they interacted frequently. In addition, all of the children were routinely exposed to talk and play with other peers from the neighborhood. All had extended family who lived nearby.

### **Longwood, Chicago**

The setting for this study was also a small, predominantly Catholic community within the confines of Chicago (see Miller et al., 1996; Miller et al., 1997; and Wiley et

al., 1998, for descriptions of these communities). In contrast to Daly Park, however, residents of Longwood were typically middle class. Inclusion criteria for the Longwood study were similar to those of the Daly Park study. All of the children in both communities were living within two-parent families. Each family had significant concurrent and intergenerational ties to the community. In addition, the parents of each child had themselves been members of large families for the most part, and the children in the study enjoyed significant exposure to relatives, including many young cousins, and to other peers in the neighborhood. Most families were raising their children to be Catholic, with many of the children in both communities attending parochial schools. However, the similarities ended there. Longwood participants differed significantly from Daly Park participants in their income level, educational attainment, occupation, and home ownership. In many ways, these differences reflected the communities in which they lived.

Unlike Daly Park, Longwood has always enjoyed the privilege of being a community established first and foremost to provide residence to the elite of the city (Chicago Historical Society, 2005). To that end, one finds no manufacturing and little commerce within its confines. A high ridge runs through the center of the area, a geographic feature that provided early impetus for settlement. Nevertheless, Longwood was only sparsely settled throughout the nineteenth century until the completion in 1889 of the suburban line of the Rock Island Railroad. The early extension of this commuter rail conferred upon the area the status of a streetcar suburb where wealthy businessmen lived with their families in large homes on equally large lots. In the years surrounding 1900, some of Chicago's most prominent citizens built homes in the region, often

engaging such notable architects such as Frank Lloyd Wright and Walter Burley Griffin in their design. Many of these homes are on the National Register of Historic Places.

Despite the early interest in the neighborhood, the area remained mostly prairie until the years between the two World Wars. At that time, the neighborhood matured as spacious, single-family homes began to fill graciously curving, tree-lined streets. Most of these homes are two-story elaborate structures consisting of many ells and gabled roofs—much unlike the two-story, rectangular flats of Daly Park. Most homes contain the desirable amenities of American suburban life: four bedrooms, several bathrooms, and large recreational rooms in the basement. Homes sit back from the street, separated from it by large, manicured front yards containing many trees and shrubs. Most homes have driveways that extend from the main street to the garage. Backyards are equally large and well-landscaped, often sporting patios or in-ground pools. These are homes that seldom require listing on the open real-estate market when and if they are sold.

Residents of Longwood are very interested in guaranteeing that their neighborhood is not subjected to the hazards of urban encroachment. Civic organizations have consistently focused their efforts around maintaining the special character and small-town ambience of the neighborhood. For example, a shopping mall newly built before the onset of the study was decried as disturbing the small-town ambience of the neighborhood. Community pride extends to individual residents who may pay a visit to any neighbor who does not conform to local unspoken expectations surrounding home upkeep “to see if everything [is] alright.”

As might be expected given its history, the ethnic roots of Longwood were largely English and Protestant. However, when second and third generation Irish families

became more affluent, they gradually came to make Longwood their home. In the early years of the twentieth century, the staunchly Protestant residents of Longwood resisted this change, often taking extreme measures (such as having property condemned) to prevent the purchase of property by Catholic families. However, by the end of World War II, Catholicism had become the largest denomination in Longwood. By the time of the present study, many individuals actually moved to this area to take advantage of the four excellent Catholic Parish schools within its boundaries. The Irish Catholic heritage established during this time of demographic change is still reflected in the South Side Irish Parade held every year on the Sunday prior to St. Patrick's Day.

At the time of the original study, Longwood prided itself on being one of the most ethnically diverse neighborhoods in Chicago. In the 1970s, the civic leaders of Longwood made a concerted effort to resist "white flight" by embracing ethnic integration. In the 1980s, affluent African Americans began to move to Longwood; by 1990 the population was 74.9 percent European American of non-Hispanic origin, and 24.2 percent African American. The community is home to few first-generation Americans, however, undoubtedly due to its affluence. In 1980, only 3.2 percent of the area's residents were foreign-born; this figure actually decreased to 2.5 percent by 1990 (Paral, 2014).

Each of the families who participated in the Longwood study were of Irish heritage, and possessed strong intergenerational roots in the community including many extended family members residing nearby. At least one parent from each family had grown up in Longwood. All of the families were active in local churches, and eventually sent their children to nearby parochial schools. The fathers of each child were employed

in white-collar occupations with the exception of one child (Karen) whose father had chosen to become a police officer to avoid being transferred overseas with the company for which he had been previously employed. The fathers were variously employed as a lawyer, business owner, advertising executive, and sales executive. Although all of the mothers had been employed outside of the home before their children were born as social workers, administrative assistants, or teachers, each had chosen to stay at home with their children upon their birth. Most mothers planned to resume working in their chosen career when their youngest children entered school. All of the parents had college degrees from local universities or community colleges; each family owned its own home.

The parents in the Longwood sample had come themselves from large families; parents had an average of five siblings each, while some individual parents had eight and nine siblings. All of the participating children had at least one sibling at the time of data collection. Most of the families had three or four children. Mothers viewed the time they spent with their children to be a privilege—an opportunity they would miss if they were to continue their career while their children were young. In keeping with these stated values, mothers spent their time throughout the day balancing playing or reading to their children with time engaged in everyday chores accompanied by close monitoring of their children. Mothers believed that their children expressly needed a great deal of adult attention, a belief reflected by the fact that talk in these homes around children is deliberately “child-centered.” Homes were arranged in accordance with these childrearing goals. Basements contained large recreational rooms filled with developmentally appropriate toys. Although children were not denied access to the remainder of the house, this privileged space indexed the belief that children were equal

members of the family with their own individualized needs, including the need for separate space.

Despite the priority placed on mothers raising their own children, the children nevertheless spent considerable time outside of the home in organized activities with children from other families. For example, many families participated in babysitting co-operatives where home-based day care was traded among other community families. This arrangement reflected the values within these families surrounding the importance of children being cared for exclusively (or nearly so) by their mothers within the confines of their own home while at the same time acknowledging the needs of mothers to have alone time for adult activities such as shopping or socializing. Mothers also organized play-dates for their children, opportunities for highly controlled interaction between children from different, yet well-known families. Eventually, most of the children in the study attended preschool within the community.

### **Conclusion**

These community portraits aim to situate the results of this corpora study against the background of the geographical, historical, economic, and social parameters that defined each respective group of children and their families. As stated earlier, for the purposes of this study, South Baltimore and the Black Belt of Alabama will be considered poor communities, while Jefferson (Indiana) and Daly Park (Chicago) will be considered as working-class communities. Longwood (Chicago), by contrast, is a decidedly middle-class community that is being employed in this study for a comparison basis. It should be noted that these designations are not intended to describe any essentialist notions about what it means to be poor, working class, or middle class except



with respect to the socioeconomic standings of the majority of members of these five communities. For example, it should not be inferred that economic poverty translates to social or cultural poverty. All of the participants within the four lower-income communities were from stable homes as defined from the perspective of the community itself. Outsiders may only see the desperate straits of poverty within communities such as South Baltimore and the Black Belt, and indeed these difficulties exist. If one person in a household lost a job, the results were devastating for the family. Money was not available for services that members of the middle class and even working class took for granted. Phone service was turned off when bills were not paid (and when families have phones to begin with). Some households had televisions, but at least in the Black Belt there was never enough reception to get a picture. Houses were often decrepit, many surrounded by litter and even garbage. In South Baltimore, a bathtub fell through the floor with Aunt Sharon in it. Nevertheless, within the communities in which they resided the participant families in each of these studies were little different from many other families. Each family existed within a broad network of extended family and friends. The support of extended family members provided critical assistance in stemming off the effects of sometimes onerous economic circumstances.

In addition to the poverty that attended the communities of South Baltimore and the Black Belt of Alabama, one particular feature of each community set it apart as distinctive and identifiable to outsiders. In each case, the dialect used by the participants was more markedly different from mainstream English than were the dialects used by Jefferson, Daly Park, or Longwood residents. In the South Baltimore case, the researcher was often exhorted by outsiders to teach those people to "talk right." In the Black Belt

case, residents spoke a variant of African American Vernacular English (AAVE) that bore resemblance to, but was distinct from the Alabama variant of Southern American English spoken by European American residents in the area. This dialect was particularly impermeable to the researchers at first, and all transcripts of interactions in this community were either checked or initially transcribed by a native speaker of AAVE who lived in the area. Despite the observation that the Jefferson dialect was more similar to mainstream English than were the dialects of South Baltimore and the Black Belt, it still contained unusual regional anomalies characteristic of what linguists call the Hoosier Apex, a variation of South Midland English.

In conclusion, none of the communities was perfectly homogeneous. The members of the Black Belt of Alabama, Jefferson (Indiana), and Daly Park (Chicago) communities exhibited greater variation in social address within their respective communities than did the members of the South Baltimore and Longwood (Chicago) communities. To that extent, it is somewhat problematic to classify any of the communities, defined geographically, as entirely poor or working class. The classification of communities by social class for the five studies was made based on the average situation for the participants within each study. Exceptions to each commonly accepted criterion of social class—income level, educational achievements, occupation—existed within each geographic community as a whole and within the selected participants in particular. This result is perhaps to be expected, given that these participants were not only chosen due to their precise social address or economic status but also according to the broad geographic confines of their residence. In the cases of the two rural communities, considerable variation in social class often existed between next

door neighbors, a situation less seldom encountered in large urban areas where the social class of a community is sometimes determined by its proximity to industry or suburbia and defined by historical factors such as the earlier establishment of an immigrant community or the development of a particular style of housing. However, even in the urban studies, economic variation between participants existed alongside commonalities conferred by community membership. In sum, participants were chosen precisely because they belonged to the community in which they resided. They are each exemplars of a group defined by a set of generalized beliefs, values, and norms characteristic of cultural similarity.

## CHAPTER 3

### METHOD

The present study is a consideration of extant language data from investigations conducted in five American communities from five different time periods extending from the late 1970s through the late 1990s. It employs what Erickson has termed *multiple methods* (Moss et al., 2009). In this study, multiple methods is to be understood as distinct from the more common use of mixed methods. The term *mixed methods* has come to imply a dialectical give-and-take between quantitative and qualitative approaches existing within the same study. In that sense, the present study, although it relies on both quantitative and qualitative data, is not consistent with mixed methods as the present study neither addresses the intents of the five original studies, nor attempts to modify the original qualitative work based on subsequent quantitative analyses or reiterative qualitative investigation. As a corpora study it is limited to the data at hand. Nevertheless, the present study is also not simply a corpora study of any random set of language data. The selection of the particular corpora examined is theoretically motivated by the intent of the original studies to capture language in use situated within specific cultural groupings and the belief and value systems held by their members. It represents what Johnson and Onwuegbuzie (2004) called a pragmatic solution to any disagreements or tensions between explicitly quantitative or qualitative ideologies.

#### **The Original Studies**

The data for this project consist of five longitudinal corpora from different communities within the United States. The communities are summarized briefly in Table 3.1 and in greater detail elsewhere (Miller, 1982; Miller et al., 1997; L. L. Sperry &

Sperry, 1996). In each case, the study began with fieldwork in the local scene, recruitment of families through local networks, and extensive rapport-building with the participating families. In keeping with ethnographic practice (Erickson, 1986; Wolcott, 1995), the ethnographer tried to fit in with local ways, navigating differences of social class and ethnicity and negotiating a role that was comfortable and culturally appropriate. In the Jefferson case, the researcher was herself a member of the community studied. In the other cases, the researcher participated actively in other contexts within the community and the lives of its members, such as by driving individuals to doctor's appointments, teaching child development classes at local community education centers, and tutoring children with schoolwork.

## **Participants**

**Selection of participants.** The five studies whose data are analyzed in the present work were all undertaken with the goals of describing normal development, and specifically language development, within non-mainstream communities across the United States. The one exception was the Longwood study whose goal was specifically to provide a mainstream comparison group against which to contrast the results from the other communities based on data collected in identical manners (ethnographic inquiry) and across identical time frames (approximately the third and fourth years of the focal child's life). In each case, families were selected for the studies based on their willingness to participate in a longitudinal, in-home, observational study, and on evidence of their children exhibiting a normal developmental trajectory. Consistent with the goals of ethnographic inquiry, participants were not selected on a random basis, however. In each case, footing was secured within the community through prolonged engagement on

Table 3.1

*Description of communities*

Site	Principal Researcher	Family Ethnicity	SES	Family Constellation	Extended Family Contact	Nature of Home
South Baltimore <ul style="list-style-type: none"> <li>• Urban</li> <li>• Inner city</li> <li>• Semi-industrial</li> </ul>	<ul style="list-style-type: none"> <li>• Female</li> <li>• European American</li> <li>• Middle Class</li> </ul>	European American	Poor	Single mother	Extensive	<ul style="list-style-type: none"> <li>• Baltimore-style “row home”</li> <li>• All renting</li> </ul>
Black Belt of Alabama <ul style="list-style-type: none"> <li>• Rural</li> <li>• Piney woods</li> </ul>	<ul style="list-style-type: none"> <li>• Female</li> <li>• European American</li> <li>• Middle Class</li> </ul>	African American	Poor to Working Class	<ul style="list-style-type: none"> <li>• Two parent (n=5)</li> <li>• Single mother (n=7)</li> </ul>	Extensive	<ul style="list-style-type: none"> <li>• Federal housing duplex (n=2)</li> <li>• Trailer (n=2)</li> <li>• Single family home (n=8)</li> </ul>
Jefferson, Indiana <ul style="list-style-type: none"> <li>• Rural</li> <li>• Agrarian</li> </ul>	<ul style="list-style-type: none"> <li>• Female</li> <li>• European American</li> <li>• Working Class</li> </ul>	European American	Working Class	Two parent	Moderate	<ul style="list-style-type: none"> <li>• Single family dwellings</li> <li>• Mixed ownership</li> </ul>
Daly Park (Chicago) <ul style="list-style-type: none"> <li>• Urban</li> <li>• Inner city</li> <li>• Residential</li> </ul>	<ul style="list-style-type: none"> <li>• Female</li> <li>• European American</li> <li>• Middle Class</li> </ul>	European American	Working Class	Two parent	Moderate	<ul style="list-style-type: none"> <li>• Two-flat apartment building with grandparents</li> <li>• All renting</li> </ul>
Longwood (Chicago) <ul style="list-style-type: none"> <li>• Urban</li> <li>• Suburban</li> <li>• Residential</li> </ul>	<ul style="list-style-type: none"> <li>• Female</li> <li>• European American</li> <li>• Middle Class</li> </ul>	European American	Middle Class	Two parent	Limited	<ul style="list-style-type: none"> <li>• Single family home</li> <li>• All own home</li> </ul>

the part of the researcher with important social institutions within the community such as daycares or health clinics. In some cases, the insights and assistance of significant stakeholders within the community were secured. In each study, several participants were secured through word of mouth, often based on the testimony of other participating families in a manner akin to what has been described as the snowball method. Regardless of the nature of the initial acquaintance between family and research, ultimately selection was deliberate and focused based on several overriding criteria loosely centered on characteristics of the families of the children and of the children themselves.

First, the families included in each study were selected as being representative of the community in which they lived in that they shared the majority ethnicity of the typical family within that community. This factor was key to the selection of participants for each study since it was assumed based on past work within the language socialization tradition that ethnic differences may drive differences between verbal input presented to language-learning children and the conversational configurations in which that input is offered. In many cases, this similarity of ethnic status, given the geographic contiguity of the families within each community, necessarily extended to similarities of socioeconomic status and educational background between participating families and other families within their respective communities. This situation was considered desirable, given the assumption of each study that ethnic and cultural differences are often critically implicated in socioeconomic status and educational achievement, particularly within the United States. However, it was not the case that all families within each study were identical in socioeconomic status and educational background. In each case, ethnic similarity and community identity trumped socioeconomic and

educational similarities in the selection of participating families and children (see Chapter 2 for a more thorough discussion of how these differences were constituted within each individual community). In these situations, the families chosen were all viable participants of shared social networks, and possessed significant social ties to the community or region which were both concurrent and intergenerational.

As previously stated, the primary consideration for the selection of children participants within each study was that they demonstrated a normal developmental trajectory. Given the fact that observations of the focal child typically began when children were between 18 and 24 months of age, evidence of a normal trajectory included several key markers. First, all children were walking independently when observations began. Second, each child had begun to utter first words, and in some cases children were in the two-word stage at the onset of data collection. All children demonstrated normal social interactions with parents, siblings, and other family members. Each child engaged with the researcher from time to time freely, and without apprehension after the initial stages of gaining familiarity with a new person. In each case, parents reported in preliminary interviews that they considered their child to be healthy and well adjusted. Consistent with the goal of studying normal language development within the everyday contexts of participants' lives, children were only excluded if they appeared, based on a global assessment of the researcher informed by parental report, to exhibit language delay or difference due to an organic cause such as severe hearing impairment. However, children in each study were not chosen because of being precocious in their language development.



**The communities.** The present study includes data collected from five communities across the United States at different time intervals ranging from 1977 to 2000. The geographic, historical, demographic, and social characteristics of these communities are described in greater detail in Chapter 2. The goal of the following synopses is to provide information concerning the gender and age of the child participants and the total duration of observations for each participating family. The first four communities, South Baltimore, the Black Belt of Alabama, Jefferson (Indiana), and Daly Park (Chicago, Illinois), were specifically chosen due to the inhabitants of these areas being economically poor or working class. The last community, Longwood (Chicago, Illinois), was chosen as a middle-class comparison group for the other four communities.

***South Baltimore.*** The setting for the first study was the impoverished inner-city region of South Baltimore. Participants for this study included three European American female toddlers and their caregivers. Two of the children lived with their mothers and various other relatives in an extended family arrangement; one child lived alone with her mother, although her grandmother and other relatives were present in her life for significant amounts of time. Data collection began for these three girls when they were between 18 and 25 months old, and continued for approximately nine months. Each child was videotaped for one hour every three weeks; in all, 12 sessions were collected for each child.

***The Black Belt of Alabama.*** The setting for the second study was a rural region of Alabama known as the Black Belt. The participants in this study included 11 African American children and their families, five boys and six girls. The children were between

24 and 28 months when their individual data collection process was begun. Each child was videotaped for 2 hours at 2 month intervals until she turned 42 months of age.

Between 7 and 10 observations were collected for each child. The families of five children lived in public housing or received other public assistance. The families of five children had at least one parent holding an unskilled job. The parent of one child was a teacher in one of the local junior high schools.

***Jefferson, Indiana.*** The setting for the third study was a rural region of Indiana pseudonymously named Jefferson. The participants in this study included 15 European American children and their families, eight boys and seven girls. The children were between 18 and 24 months old at the outset of the data collection process. Each child was videotaped for 2 hours at 2-month intervals until she turned 42 months old. Between 10 and 13 observations were collected for each child. All families of the children were working class, with one or both parents holding unskilled jobs. All families qualified for free or reduced-price lunch for older siblings attending school.

***Daly Park.*** The first community located in Chicago, Illinois is the working-class area pseudonymously called Daly Park. The participants in this study included seven European American children and their families, four boys and three girls. The children were 30 months old at the outset of the data collection process. Each child was observed for 4 hours at 6-month intervals, until she was 48 months old. A total of 4 observations were collected for each child. All of the families were working class. Although each father was employed in a blue-collar job, only one mother worked outside of the home. Only one child had two parents who had attended college and had received degrees. The mothers of two of the children had attended college for one to two years; the remainder of

the parents had a high school education or less. Only one family owned their own home; the remainder of the families rented their apartments.

***Longwood.*** The second Chicago, Illinois community was the middle-class area called pseudonymously Longwood. The participants in this study also included six European American children and their families, three boys and three girls. These children were also 30 months old at the outset of data collection, and were observed four times, at 6-month intervals, until they turned 48 months old. The fathers of each child were employed in white-collar occupations with the exception of one child whose father had chosen to become a police officer to avoid being transferred overseas by the company with which he had been previously employed. Although all of the mothers had been employed outside of the home before their children were born, each had chosen to stay at home with their children upon their birth. All of the parents had college degrees; each family owned its own home.

**The role of the researcher as participant.** In the spirit of ethnographic inquiry, the role of all investigators involved in the collection of these data varied across the continuum from participant to observer, depending on the circumstances surrounding a particular interaction in the community. Since the focal participants of these studies were the preschoolers themselves, the adoption of a stance of passivity towards them would have compromised the naturalistic intentions of the inquiry. To that end, all investigators interacted with the children according to the direction suggested by the children themselves. Due to the longitudinal nature of each study, parents, caregivers, and the children themselves naturally grew comfortable with the researcher as time progressed. Many times, caregivers temporarily left the taping situation to get drinks or snacks, to go

to the bathroom, to take care of other children, and occasionally to do household tasks. This level of comfort perceived by all participants in the data collection process was interpreted as symbolic of the success of the researcher in each case not only to acclimate herself to the culturally defined norms of each situation, but also to become a valid, albeit non-familial, participant in the child's and the family's everyday lives. Of course, the many parents and caregivers were proud of their children, and, knowing the researcher's stated interest in their child's life, were especially eager to tell the researcher of the child's many exploits, both naughty and nice, since the last meeting. In sum, families seemed to anticipate eagerly the arrival of the researcher, frequently sharing elaborate conversations about what everyone had done since the last meeting—interactions such as one would expect to occur among friends who had not seen each other for a period of time.

However, many situations involved in these elaborate data collection projects called for a more straightforward observational role, such as during fieldwork at local daycares or at points in time when family interaction did not warrant intrusive behavior on the part of a visitor to the home. It must be noted, however, that community members interacted with the researcher because they perceived her to possess a knowledge base they desired to share. As with other conditions of observation, this situation varied across communities and contexts. For example, in the Black Belt case, community members expressly solicited the help of the researchers for piano instruction and literacy tutoring prior to the onset of formal observations; these interactions occurred exclusively outside of the in-home data collection process. By contrast in the South Baltimore case, much of the assistance requested of the researcher occurred in the form of advice concerning child

rearing, health care, or information about receiving outside financial assistance sought during formal observation times. Usually these requests were embedded within conversational narrative about an occurrence in the recent past, and as such did not constitute separate speech events distinguished from the give and take of normal family interaction. Similar situations obtained in the Jefferson and Daly Park studies. To a certain extent, these interactions went beyond the participant/observer continuum, since at those times the researcher was viewed as an expert rather than as a novice with respect to the cultural beliefs of the community.

***South Baltimore.*** These data were collected originally as part of the dissertation study conducted by Peggy Miller. The researcher's initial contact in the community was through a community health clinic whose director was highly respected and trusted by community members. The director allowed Miller to visit the waiting room as a way to meet potential participants, thereby vouching for Miller and for her study. In this way, Miller met the mothers of two year olds who allowed her to visit them in their home, and received names of other mothers of two year olds from women in the clinic whom she might visit. She also walked the neighborhoods of this community and inquired of mothers she met in these travels.

After three participants were secured for this study, parents and children were visited in their homes prior to the beginning of videotaping in order for all parties to get to know one another. From the outset of videotaping, both mother and daughter participants seemed to perceive the investigator as a friendly acquaintance who had dropped by for a visit. Invariably, mothers asked the researcher if she would like a cup of tea or coffee, signaling their expectations for a good time for conversation and story

sharing. As the families got to know the researcher better, she was included in social gatherings, such as surprise baby showers, Tupperware parties, and birthday parties. The researcher sometimes provided rides to and from doctor's appointments, helped mothers to fill out applications for welfare benefits, or assisted with other bureaucratic problems, at their request. In this manner, the mothers appeared to consider the researcher not only to be a friend, but also to be a valuable source of assistance who was willing to share her knowledge and resources as well as to commiserate with the difficulties of everyday life.

*Black Belt of Alabama.* These data were collected originally as part of the dissertation study conducted by Linda Sperry. The study community was chosen by happenstance. After a national job search for a college faculty position in piano, Douglas Sperry was hired by the state college in the area. Both researchers subsequently gained access to this particular community through several points of entry. Each point, in its own way, served as a symbol of the manners through which the lives of these children were intertwined with each other and with the language and learning practices of their families and friends. As Linda began her fieldwork for her dissertation, her initial efforts to establish ties with the community began with visits to the local county physician, who in turn, referred her to a social worker who served the county. This latter contact introduced Linda to several of her clients, some of whose children became participants in the study. However, this social worker was well known and respected across the entire area, and served as a source of validation for the project when other contacts were made through additional means.

At the same time, Douglas had been approached by Mrs. Johnson, the director of the community education program housed in one of the junior high schools, who was

seeking a private piano teacher to work with students after school. This woman served as perhaps the primary gatekeeper for the study, for she was both a teacher in the junior high school and a well-recognized community leader along with her husband, the principal of the junior high school. Linda accompanied Douglas to the school, and soon became acquainted herself with Mrs. Johnson. Mrs. Johnson enlisted Linda's services as an instructor of parenting and childcare in the community education program, and as a tutor of children who were having difficulty learning to read. Some of the younger siblings of Douglas' piano students did participate in the study, but none of the children whom Linda tutored had siblings who were an appropriate age.

This volunteer work helped to introduce Linda to various mothers and grandmothers. In addition, Mrs. Johnson introduced Linda to the director of the local daycare funded by one of the large corporate employers in the region. Finally, Mrs. Johnson accompanied Linda to the homes of several families during the initial stages of requesting their participation. These critical contacts, along with the recommendation of the social worker mentioned earlier, helped to ease the anxiety many of these mothers had concerning the purpose of the study and the researcher. Without these contacts, it is difficult to imagine that the relatively fraught boundaries between European American researcher and African American families, due to de facto segregation in the region, would have been negotiated successfully enough to permit Linda to gain access to the homes of these children.

In the end, these various sources of contact between Linda and the community contributed to parental perceptions of her as a teacher. Parents occasionally asked Linda if their child was developing normally and frequently encouraged their very young

children to "read" for Linda. After the first couple of visits, parents often felt free to leave Linda alone with their children, and they would go about their daily business cooking and caring for other children, coming and going as activities permitted into the ongoing interactions between Linda and the focal child. In this manner, Linda became a sort of extended caregiver for these young children, often being treated as a family friend or relative who was visiting and who temporarily had responsibility for the care of the focal child.

*Jefferson, Indiana.* Entry into the community of Jefferson followed an entirely different course than entry into the Black Belt community. Jefferson was selected as a community of study for two interdependent reasons. One goal of selecting a community for the Indiana data consisted of finding a community similar in many aspects to that of the Black Belt community; in particular, communities were screened for their relative isolation from large urban areas, and their proportional composition of homes of certain socioeconomic statuses. However, the choice of Jefferson was made when serendipity intervened. Linda Sperry, by then professor at Indiana State University, became the adviser of a doctoral student from the community who had numerous, well-established contacts in the area and was willing to collect the data.

Therefore, the research assistant who actually did all of the data collection was a member of the community. She knew a few of the families somewhat, and was familiar with a few other families. In no case was she a close friend or relative of any of the participants in the study. Finally, the assistant was not acquainted with some of the families at all, having been introduced to them through other contacts. Linda met with



each family once, but did not have any contact with them otherwise. Douglas Sperry organized data collection but did not meet any of the families personally.

The research assistant for this study did not interact with the participants as much as did the researchers for the South Baltimore or Black Belt studies. Perhaps because she herself was a member of the community under study, parents may have seen her as more of an everyday acquaintance than as a special visitor. Although both the focal children and their parents did have normal conversational interactions with the researcher, these conversations did not tend to be as extended as those between researcher and mother in the South Baltimore case or as child-focused as in the Black Belt case. However, despite the more limited conversational interaction within these observations, it must be noted that the Jefferson caregivers appeared as comfortable with the researcher as caregivers in the other communities. Caregivers in Jefferson also frequently went about other daily business while the researcher was present, cooking, cleaning house, or doing other child care. In addition, children anticipated the arrival of the researcher, often peering out through screen doors as she came up to the front door to begin a visit.

***Daly Park and Longwood, Chicago.*** Both of these studies were undertaken as part of a large-scale project under the direction of Peggy Miller. The goal of the entire project was to examine the development of narrative in the talk of preschoolers, and the ways through which this development is organized culturally within the lives of these children and their families. In keeping with that goal, the larger project was cross-cultural from the outset, with four sites in Chicago and one site in Taipei, Taiwan. Sites were chosen to be representative of sociocultural contrasts grounded in both ethnic terms (European American versus African American versus Chinese) and social class terms

(middle class versus working class). Project investigators included graduate students of the principal investigator who self-identified as being representative of, or at least familiar with, the sociocultural contrasts. In addition, the focus of this project on narrative development determined the beginning of data collection to be somewhat later than the other three studies, beginning at 30 months.

Each investigator had her or his unique way of interacting with the participants in the study, as one might expect given the goals of naturalistic participant observation, and individual personalities. Nevertheless, as with all of the studies described heretofore, each investigator spent a significant amount of time within the community and with individual participants before systematic, videotaped observations began. In the Longwood middle-class case and the Daly Park working-class case (those two studies of interest here), the investigators interacted freely with both the parents and the children in their homes, often seeming to be treated as a friend of the mother participants.

In both the Longwood and the Daly Park cases, mothers were informed not only of the project's overarching goals, but also of the individual goals of the respective research assistants, namely that they were graduate students who were collecting data which would serve as the basis for their own dissertation projects on child development. To a greater extent than found in South Baltimore, the Black Belt, or Jefferson, the prestige associated with the acquisition of a doctoral degree from the well-known University of Chicago played a role in the interactions between mothers and researchers. Nevertheless, in both cases, the researchers and the mothers interacted in a friendly manner, sharing stories about husbands, boyfriends, families, holidays, and other special events.

## **Data Collection Procedures**

As mentioned earlier, each study commenced with a prolonged period of systematic observation in the community. Researchers sought interaction with members of the community through visits to medical clinics, preschools, and public schools and through conversations with significant stakeholders in each community. At various points throughout this period of researcher acclimation to the norms and values of the community, the researcher met individual parents who were told about the studies and who could express interest in participating. In each case, home visits were arranged before the onset of data collection with individual children. The videotaped observational phase of the study did not begin until families felt comfortable with the researcher. Once a suitable level of ease had been established between researcher, parent(s), and focal child, data collection procedures were carefully explained, and consent was secured.

At that point, longitudinal videotaped observations, each lasting between 1 and 4 hours, were made of the focal child in the home environment. All videotaped observations were collected with the utmost concern for ecological validity, without efforts to constrain the daily activity of any family member. To that end, observations were characterized by the frequent comings and goings of other adults and children, conversations about school and work days, and everyday speech surrounding customary quotidian acts such as meal preparation and homework. However, parents had been assured that the primary focus of each observation was the child and her talk and play activities. In keeping with this goal, parents were told that, to the greatest extent possible, the camera would remain focused on the child and her immediate interlocutors and

playmates. In each case, the researcher explained to the families that data collection would proceed only in a common room (such as a family room, living room, or den) of the family's choosing, in which the child customarily spent a great deal of time. The researcher never left the room chosen by the family without the express permission of the family. Of course, two and three year olds are likely to run about, and no effort was made on the part of the researcher to constrain this freedom. Children and their parents were never followed into more private areas of the home such as bedrooms or bathrooms; if children ventured into these areas, videotaping was temporarily suspended. Particularly in the case of the Black Belt, where days were often extremely hot and humid, many families chose to spend their time outside in the yard or on a front porch. In this case, parents were asked to try to keep the child from running too far away.

Of course, variations on the above scenario developed across the five communities. For example, in Daly Park, observations were sometimes moved to a neighborhood park where the focal children would play with both siblings and friends. In both the Longwood and Jefferson cases, many of the homes had basements with recreational areas. At times, children moved with their parents to or from these areas as they went about their daily lives. Although no attempt was made on the part of the researcher to intervene in the time of day that each parent scheduled the videotaping session, it did occur that parents would sometimes schedule their sessions around a mealtime. For example, several Jefferson sessions were scheduled at 9:00 in the morning, and often late-rising children would be eating their breakfast at the beginning of their observations. In those instances, videotaping might begin in an eat-in kitchen area and progress later to a family room or other play room. In a couple of homes in

Jefferson, children had the majority of their toys in their bedrooms. In those homes, the researcher was encouraged by the parents to follow the children into their bedrooms to allow the children to play freely.

Despite all of these variations, two principles remained true. First, in each case of movement, the researcher received permission from the parent to follow the child. This movement usually occurred quite naturally, as the children's interests dictated where they chose to go. In some instances, parents would get tired of their children moving back and forth, often referencing the child's need to "stay put" for the researcher. At all times, however, these requests were parent-driven, and not undertaken at the request of the researcher. Interestingly, such movement was often not possible in the poorest homes in South Baltimore and the Black Belt; there was simply no place else to go. In addition, in the South Baltimore case the technology available for videotaping in the 1970s was considerably more cumbersome than that available even one decade later when the Black Belt project began. In the South Baltimore data collection project, movement would have been difficult and was therefore discouraged. That fact does not alter the observation that the places in the home suitable for videotaping were limited, however.

The second principle implied by the above discussion, and central to the assumptions of qualitative methodology, is that in all cases, to the greatest extent possible, children and their families were encouraged to go about their daily lives as freely as they were able to do so, given the unusual situation of a camera recording their actions and talk. It would be naïve to assert that families came to forget the presence of the observer and the fact that their lives were being recorded. However, there were no attempts made to proscribe the activities of the children or their parents. There were no

standardized play or book reading sessions established by the researcher; there were no requests to observe routine caregiving practices. What happened, happened. It is equally naïve to believe that parents were not, in most cases, trying to please the researcher, even to the point of potentially engaging in an activity (like book reading) that they believed to be the sort of activity that the researcher would like to see. Nevertheless, these choices reflected the beliefs and attitudes of the parents themselves, and therefore indexed the values they held about what constitutes good parenting, even if these values are not implemented in their everyday lives to the extent that they might choose.

### **The Present Study**

The present study is grounded in the two complementary sets of hypotheses presented in Chapter 1. The first hypothesis considers whether or not the collection of data by ethnographic means may provide a more accurate estimate of the vocabulary heard by children than is afforded by standard observational methods. This hypothesis asks in effect whether the primary caregivers in two other impoverished communities and two other working-class communities within the United States spoke the same number of words to their children as did the primary caregivers in the Kansas impoverished and working-class samples from the study of Hart and Risley (1995). Of course, this analysis can only be suggestive in the absence of controlled data collection by both methods at the same time in the same community.

The next set of hypotheses concerns whether or not children hear a significantly greater number of words in any of these communities from other interlocutors talking to them or from other interlocutors talking to and around them. These hypotheses also

reflect the ethnographic goal of measuring speech to and around young children in ways that they are accustomed to hearing it in their everyday lives.

## **Data**

**Selection.** Data for the project at hand consist of a subset of all videotaped observations for which verbatim transcripts of the speech and actions of the child participant and her co-participants were made. This subset of observations was selected in a consistent manner across the corpora to be representative of development across time. A total of 250 observations, comprising 158.5 hours of family interaction across 42 children, will be examined for the present study (please see Table 3.2). The number of transcribed observations available for each child varies, consistent with psycholinguistic corpora studies (cf. Goodman, Dale, & Li, 2008; Mintz, 2003). However, each corpus except South Baltimore contains many more hours of videotaped interaction which may be used to validate unusual or conflicting claims that may emerge in this analysis. Four corpora—the Black Belt (Alabama), Daly Park (Chicago), Jefferson (Indiana), and South Baltimore—comprise observations of working-class and poor families. One corpus—Longwood (Chicago)—comprises observations of middle-class families and will be employed as a comparison group for the other corpora as a means of assessing comparability of these data, collected through participant observation, to extant data in the literature collected experimentally or through direct observation.

Except in the South Baltimore case, observations were not transcribed in their entirety for use in the current project. It was decided that breadth of coverage across all participants and age ranges was to be valued over depth of coverage at any particular age point. This decision had implications both for the particular observations chosen for

Table 3.2

*Description of Transcribed, Longitudinal Data Corpora<sup>1</sup>*

Site	Number and Gender of Participants	Age Range of Observations (in months)	Total Number of Transcribed Samples	Length of Transcribed Samples (in minutes)	Total Transcribed Data (in hours)
South Baltimore	3 girls	18-32	35	60	35
Black Belt of Alabama	5 boys	24-42	64	30	32
Jefferson (Indiana)	6 girls 8 boys 7 girls	18-42	135	30	67.5
Daly Park (Chicago)	4 boys 3 girls	30-48	26	30	13
Longwood (Chicago)	3 boys 3 girls	30-48	20	30	10
Total	20 boys 22 girls	18-48	280	30-60	157.5

<sup>1</sup>With the exception of the South Baltimore, each corpus contains many more hours of videotaped interaction which may be used to validate unusual or conflicting claims which may emerge in this analysis. A total of 670 hours of videotaped interaction exists across the five corpora.



transcription and for the portion of each observation that was transcribed. In the Black Belt and Jefferson cases, the observations chosen for transcription were determined according to the following principles. First, all first and last observations were chosen. Second, data points at 18 months (when available), 24 months, 30 months, 36 months, and 42 months were privileged in the selection process. However, not all tapes at those ages were viable, typically due to excessive amounts of noise in the environment when the tapings were made outside. In those cases, observations made immediately before or after the desired age point were transcribed. Following this initial selection of observations, additional age points were chosen across participants to favor times earlier in child's development. In the cases of Daly Park and Longwood, there were occasionally other observations available than those that were transcribed. In all cases, the observation made nearest to the day the child turned 30, 36, 42, or 48 months of age was chosen. In no case was any tape from any community ever chosen after listening to the tape or determining that the data to be gained from the tape would be particularly advantageous for the study.

With the exception of South Baltimore, where all observations were transcribed in their entirety, only the second half hour of the selected observations in the other four communities were transcribed. The second half hour was chosen for two reasons. First, the children were often very excited at the arrival of the researcher; it was decided that talk recorded after an initial period of "setting in" would be more typical of everyday comings and goings. Second, the children often became progressively fatigued as observations extended in the second, third, and fourth hours.

**Transcription.** In each case, considerable care was taken in the transcription process. Many scholars have noted the extreme amount of time which careful transcription takes (e.g., Schieffelin, 1990); indeed, transcription is underpinned by theoretical grounding specific to the goals of the researcher and to the assumptions within the paradigm in which she works (Ochs, 1979). It is often impractical, if not impossible, to transcribe every verbal and nonverbal behavior which occurs within normal conversational contexts between interlocutors. In the case of transcribing the comings and goings of small children in their everyday play, frequent movements, overlapping conversations, and the occasional mishap may render a particular segment of a recording unintelligible.

These studies were all conducted from the perspective of the language socialization paradigm, a theoretical orientation which values the everyday talk of caregivers and children as they enact the socialization process (Sperry, Sperry, & Miller, in press). Language both shapes and is shaped by the cultural values and beliefs of a given group of interlocutors. Language socialization adopts the stance that one can gain a privileged view of these cultural values and beliefs as caregivers convey rules and attitudes to their children through talk.

To that end, in each case described here, the complete record of talk of each and every interlocutor present in the child's environment received the greatest attention during the transcription process. In the South Baltimore case, the study was undertaken with the aim of studying potential differences in the acquisition of semantic/syntactic categories between the impoverished participants and the standards described in the literature at that point (none was found; see Miller, 1982). In the Black Belt and Jefferson cases, data

collection was begun with a focus on the acquisition and socialization of narrative competence in preschoolers. Finally, in the Daly Park and Longwood cases, the projects were undertaken to study the potential uses of personal storytelling to both index cultural values and inculcate those values in young children. Therefore, in each case, the use of verbal language by both children and adults was privileged as transcribed documents were compiled of each recording session. In keeping with this focus, significant nonverbal behaviors and contextual cues were recorded, and basic intonation patterns of speakers were noted, particularly to the extent that they supported and clarified the interpretation of verbal language. By contrast, the goals of transcription in these studies were inconsistent with the goals of other types of theoretical orientations, such as conversation analysis (Schegloff, 2007) or movement and action analysis (Farnell, 1995).

In each study, all transcripts underwent a minimum of two revisions. Transcripts vary enormously across the studies in terms of the numbers of participants present, the speed of conversation of the interlocutors, and the presence of distracting noises (such as television or highway noise). Not surprisingly, the number of revisions and the amount of time spent per transcript also varied enormously depending on these factors. In the Black Belt case, the regional dialectal variation of African American Vernacular English required special attention. The majority of the transcripts in this corpus were initially made by a college student who was herself a member of the community and had grown up speaking this dialect. In addition, the composition of the families in the Black Belt tended to ensure that several interlocutors were present, and conversing simultaneously. Many revisions of such transcripts were necessary to be able to follow the threads of multiple conversations; these transcripts routinely took approximately 30 minutes of

work per each minute of completed transcription. All transcripts were subsequently entered into available word processing programs.

## **Procedures**

**Sorting utterances by speaker and addressee.** This study proposed to analyze the ambient vocabulary of the child's mother and other customary interlocutors, addressed both separately to the child and to other interlocutors within the child's earshot, within all verbal contexts using data collected in an ethnographic manner. To that end, it was necessary to begin with a measure of the amount of vocabulary used by all participants in the observation session. Extant transcripts recorded the speech of each individual participant in the observation. The first step in analysis was to sort all utterances spoken by each individual into individual files. The complete transcripts were used for sorting, since nonverbal behaviors and contextual cues often provided useful information in the determination of the addressee of a particular comment. As the words in each transcript were sorted, these notations of nonverbal behaviors and contextual cues were omitted.

All utterances were sorted along two dimensions: speaker and addressee. Speaker categories included Child Participant, Primary Caregiver (usually the mother), Youth, Other Adult, and Researcher. Addressee categories included Child Participant, Other, and Researcher. Category selection across these two dimensions varied according to the theoretical assumptions underpinning the study. In terms of speaker categories, Primary Caregiver speech was isolated from other interlocutors due to the emphasis placed in the literature on the privileged role of maternal speech in the child's acquisition of language. In addition, maternal speech is the only speech that was analyzed in Hart

and Risley (1995); therefore, this category needed to be isolated to provide comparison between data collected by standard observational procedure (Hart & Risley, 1995) and by ethnographic procedures. Youth were defined as any child under the age of eighteen who did not have primary responsibility for the child's well-being, at least in the context of the observations. This category included the speech of children and teenagers even when the primary caregiver was absent from the present scene, but within earshot on the premises. The Youth speaker category was kept separate from the Other speaker category because of a desire to compare the size and diversity of the speech of ostensibly linguistically immature speakers (youth) with that of linguistically mature speakers. This comparison is not carried out in the present study and awaits further analysis; for the present study, Youth speech is combined with Other Adult speech in all analyses of speech directed expressly to the child and of ambient speech.

In terms of addressee categories, the choice of two principal categories, Child and Other, was determined theoretically by the goal of seeking the extent to which children may hear speech in their environment which is not expressly directed to them. As discussed in Chapter 1, to date no research records the total amount of ambient speech in the child's environment occurring in naturalistic settings. Within the present study, the goals included a querying of this focus on maternal speech to the exclusion of other speech around the child based on recent results suggesting that very young children do learn vocabulary by overhearing others' speech around them (Akhtar, 2005; Akhtar & Gernsbacher, 2007). In addition, considering the advancing ages of the children in these studies, it seems unlikely that their language learning would be impeded any longer by

any absence of joint attention between mother and child in the same manner that it might be for children in the first-words stage.

Finally, all speech by the Researcher and to the Researcher was separated from other adult speech. In the spirit of ethnographic inquiry, the researcher sought to engage in participant-observation, and avoided the “fly-on-the-wall” approach often adopted in experimental designs (cf. Hart & Risley, 1995, where research assistants were instructed not to speak to participants to the greatest extent feasible because it created more talk than then had to be transcribed). To that end, there was often a considerable amount of speech engendered by the mere presence of an additional person who was not normally in the child’s environment. Although this speech was considered desirable from the point of view of the assumptions undergirding ethnographic inquiry, it was considered undesirable from the point of view of the quantification of the amount and diversity of speech that would commonly be spoken to and around the child in everyday situations. To that end, this speech was isolated and excluded from additional analysis.

Despite the seeming simplicity of these speaker and addressee categories, certain situations arose which demanded interpretive decisions. These situations could typically be identified as one speaker addressing a “generalized other.” For example, during play among three or more children, the speech of a particular child was often not addressed specifically to another child or to a toy. Another frequently occurring situation involved a parent addressing two or more children simultaneously, either suggesting collective action (e.g., “Let’s play”) or providing generalized restrictions on joint behavior (e.g., “Stop fighting.”) In both of these scenarios, the speech was counted as addressed to the child. No speech was ever counted twice by doubly counting speech addressed to

multiple individuals simultaneously in different addressee categories. Another difficulty in determining addressee categories arose in a situation where adult interlocutors addressed other adults about the child. A distinction was made between conversations where it seemed that the adult speaker's intention was to converse only with another person despite the participant child being in the vicinity, and conversations where it seemed that the adult speaker's intention was to converse with another person precisely because the participant child was in the vicinity. Parents often used these so-called "third-person" narratives precisely due to the potential they possess for socializing young children by relating the deeds or misdeeds of the children to others (Miller et al., 2012). In the former scenario, the addressee was coded as Other; in the latter scenario, the addressee was coded as Child. Finally, although speech of any interlocutor that was specifically addressed to the researcher was discarded from further analysis, any speech that was addressed to a "generalized other" that happened to include the researcher was coded as addressed to Other, and not discarded.

In sum, for each transcript for each child in the study each utterance was initially sorted into five speaker files: all utterances spoken by the child, all utterances spoken by the primary caregiver (again, usually the mother), all utterances spoken by youth, all utterances spoken by other adults, and all utterances spoken by the researcher. For the present study, utterances spoken by the child were not analyzed, and utterances spoken by the researcher were discarded. Each of those five files were in turn subdivided into three addressee files: talk to the focal child, talk to another person than the researcher, and talk to the researcher. Again, talk to the researcher was discarded. So, for example, all of the utterances of the primary caregiver were further sorted into three final files:

primary caregiver speech to the focal child, primary caregiver speech to other people than the researcher, and primary caregiver speech to the researcher.

**Determination of the lexicon.** The second step was to count the number of words and sort them into types (new instances which measure the diversity of vocabulary) and tokens (repeated instances which measure the volume of vocabulary). In order to accomplish this task, the first set of decisions revolved around determining what constituted a word, and whether or not variations of the word would be reduced to a root form of that word. This task is particularly thorny when dealing with speech addressed to children and with speech spoken by younger children since many situations arise where extreme variation in words exists such as in the cases when sound play, excessive diminution, and familial phonetic variants occur.

Decision rules for what constitutes a new word or lexeme were developed in close consultation with published rules for counting vocabulary in mother-child talk (Hart & Risley, 1995; Hoff, 2003; Huttenlocher et al., 1991), and with landmark studies in child language acquisition (e.g., R. Brown, 1973). Several conventions are usually observed for assessing the speech of the young language learner. In general, inflectional morphemes are reduced to their base lexeme, while a combination of derivational morphemes forms a new lexeme. For example, inflectional differences in tense, aspect, and number in verbs are always considered one word unless there is a sound change. In this manner, 'go' (root form), 'goed' (change in tense), 'going' (change in aspect), and "goes" (change in number) were all reduced to the same word (GO). Furthermore, phonetic variations such as 'goin' (in European American dialects) and 'gon' (in AAVE) were reduced to their non-variant form (in this case, GO). However, irregular verbs such



as ‘went’ and ‘gone’ were considered to be two different words, both distinct from ‘go,’ despite their variation in tense and aspect, respectfully. Some words regularly employ sound change in all of the dialects studied here. For example, ‘says’ is always pronounced with a different vowel sound than its relatives ‘say’ or ‘saying’. In this case, ‘says’ was kept in the lexicon as a separate word due to the sound change. By contrast, ‘saying’ was counted as the same word as ‘say’, due to its status as an aspectual change of the root form, SAY. Finally, in no case were semantic equivalencies considered when making a decision concerning whether or not to include a word in the lexicon. For example, the African American Vernacular English (AAVE) variation of the immediate future marker ‘going’ is ‘fixing’ (and its phonological variants). No translation of words was ever done in an attempt to standardize the lexicon across dialects. To that end, ‘fixing’ remains in the AAVE lexicon in its reduced form, FIX, just as ‘going’ remains in the lexicon of other speakers in its reduced form, GO. In an analogous situation with reference to dialectal differences, unspoken words were never added to the corpus despite their strong syntactic inference, such as the deleted copula in AAVE.

Nouns composed of bound morphemes expressing number were reduced to a root form in the same manner as were verbs. Therefore ‘horse’ and ‘horses’ were treated as the same word, HORSE. Diminutives occur frequently in speech addressed to children, and were also treated as the same word as their root form (e.g., ‘horsie,’ and ‘horsies’ were counted as the same word, HORSE). Irregular plurals (e.g., ‘children’ or ‘mice’) were not reduced to their root form.

As noted earlier, derivational morphemes such as ‘-ness’ added to a root word such as ‘happy’ (‘happiness’) create a new lexeme. Therefore HAPPINESS was counted

in this study as a different word than HAPPY. Similarly, words formed by the combination of multiple roots (HOT plus DOG equals 'hotdog') create new lexemes and were counted in the present study as distinct words from either of their root components. Compound names presented a unique case, and they were treated individually within each transcript and for each occurrence. For example, the compound name "Freddie Krueger" appears numerous times across the transcripts of several of the Black Belt transcripts. If, within a particular transcript, the word 'Freddie' never occurred without the word 'Krueger', the compound FREDDIEKRUEGER was counted as one lexeme. If the word 'Freddie' occurred both with and without the additional component, 'Krueger', the two components were counted as different lexemes. The decision was made on a child by child and transcript by transcript basis to account for individual variation in familial usage both across families and developmental time within a family. Although the use of "Freddie Krueger" was unique to the Black Belt transcripts, a similar situation obtained with the name "Santa Claus" in every community. It is worth noting that this decision is inconsistent with Brown's (1973) determination that proper names constitute one morpheme. However, given the focus of this study on lexical development as opposed to Brown's focus on syntactic development, the decision seemed warranted.

Clitics presented unique issues in the creation of the lexicon. Clitics are morphemes that can function in isolation as independent words, but in certain situations depend phonetically on the word around them in combination (for example, 'he' plus 'will' becomes 'he'll). Clitics tend to function across grammatical categories. For example 'he'll' functions as PRONOUN plus AUXILIARY; 'I'm' functions as PRONOUN plus COPULA; and 'Mary's' functions as NOUN plus POSSESSIVE

MARKER. Decisions concerning how to count clitics demonstrate particularly well some of the more difficult issues in constructing a lexicon of natural, spoken speech. In the first place, clitics are frequently not represented orthographically in a manner that matches their phonetic form. This problem did not obtain in the present study since transcribers were trained to be aware of all phonetic contractions and to record them as closely as possible to how they sounded. The problems do not end there, however. A clitic cannot be reduced to a root form because it contains morphemes that cross syntactic categories. Separating the clitic into its distinct syntactic components would most often inflate the number of words present in the transcript (tokens) while remaining conservative in terms of the number of different words present in the transcript (types). This problem obtains due to the fact that each distinct syntactic component is usually a high-frequency word that is likely already present in the transcript. By contrast, counting the clitic as a distinct word results in a situation where the number of distinct words (types) appears to be inflated, following the same logic that grounds the problems of separating clitics into component parts, namely that both component parts typically exist in the lexicon already due to their high frequency in everyday speech. Furthermore, the decision to count clitics as distinct words results in counting words that are not normally considered to exist as lexemes in standard dictionary usage. In the present case, the decision was made that what was being created was a verbal, and not a written dictionary; to that end, clitics were not parsed into their component parts, and were rather counted as separate, individual words. In addition, catenatives are special examples of clitics, and consist of verb forms which can join, or chain, directly with the infinitive form of the verb following them. In most cases, the catenative is a modal verb joined phonetically

with the infinitive marker ‘to’, such as in the case of ‘want’ plus ‘to’ reducing to WANNA, ‘have’ plus ‘to’ reducing to HAFTA, or ‘got’ plus ‘to’ reducing to GOTTA. However, other combinations exist, such as ‘going’ plus ‘to’ reducing to ‘gonna’. In each case, the catenative was counted as a new lexeme, separate from its component parts.

Reduplications were counted as one word, regardless of whether they were ritualized or not. This decision is consistent with Brown (1973). For example, ‘bye-bye’ and ‘choo-choo’ are ritualized reduplications which existed in the present study across all communities. Each reduplication was counted as a single word. Other reduplications occurred however, that were often individual to a particular family or community group. For example, in play speech, Alicia’s brother was pretending to swim with the repeated words, ‘whoosh, whoosh.’ These play words were treated as reduplications and reduced to a single word. The number of reduplications reduced to a word was determined by prosodic contour. Other words that occur frequently in speech addressed to children include onomatopoeic sounds such as ‘moo’, ‘meow’, and ‘oink.’ Spelling variants of these words were reduced to a single word, despite the fact that occasional phonological variants may have been lost. In this case, it was determined that the overall function of the word in context mitigated against the separation of any phonological variant into a different word. Onomatopoeic sounds were counted as words, however, following Rowe (2008).

Homographs (words that are the same across syntactic class, i.e., ‘drink’) were counted as two types. This decision is in line with Malvern, Richards, Chipere, and Duran (2004). Furthermore, Lany and Saffran (2010) recently demonstrated that children

conduct distributional analysis of word forms, even independent of knowledge of the word. Furthermore, children alternate between analysis of phonological and distributional analysis as they learn new words, with phonological analysis occurring more frequently in young children with smaller vocabularies, and distributional analysis increasing across developmental time as vocabulary size increases (Lany & Saffran, 2011).

Finally, dysfluencies were not counted separately. If the dysfluency was not completed by the speaker, it was eliminated from additional analysis. If the dysfluency was completed, all repetitions of dysfluency were reduced to one root word (e.g.: ‘m- m-m-mine’ was counted as one word, MINE). Self-corrections frequently occur in spoken speech. Phonologically complete words that were then self-corrected were counted as separate words.

**Reduction of words for analysis.** Concurrent with the construction of the lexicon, all <individual speaker-to-addressee> files were run through available computer software reiteratively to reduce lexical variants according to the rules described above, and to locate and correct any misspellings that occurred across the transcripts. The software program WordSorter 4.0 was used for this initial sorting. At this point, <individual speaker-to-addressee> files were also combined into <all speech> files in order to provide the estimates of total ambient speech around the focal child according to the needs of the present study. Before analysis, all speaker files were checked one final time by running them through the *FREQ* command of CLAN (Computerized Language Analysis), a program designed to analyze language data that forms part of the Child Language Data Exchange System (CHILDES) developed at Carnegie Mellon University

(MacWhinney, 2000). This final check confirmed that the data were in a format recognizable by the computer software and provided the ability to guarantee that all reductions to lexemes had been made correctly and that any remaining misspellings or other inaccuracies were corrected.

Each <individual speaker-to-addressee> file as well as each <all speech> file was then run through the *VOCD* program available on CLAN. *VOCD* provides a summary of all types and tokens that occur in an individual file, and provides a type-to-token ratio for that file. More importantly, it provides an estimate of the parameter,  $\mathcal{D}$ , a measure of lexical diversity. The type-to-token Ratio (TTR), a more common measure of lexical diversity, was initially described by Templin in 1957, and consists simply of the number of different words (types) in a speech sample divided by the number of total words (tokens) in the same sample (see Malvern et al., 2004, for a monograph-length discussion of the following summary). Since 1957, the TTR has become a standard unit of measurement in child language acquisition research, despite two significant problems with its use. The first problem was identified by Miller (1981, as cited in Malvern et al., 2004) in his analysis of Templin's data that found, for normally developing children, the TTR remained relatively consistent across the age range from 3 years to 8 years of age. Although this information proved enormously useful for clinicians in their attempts to determine deviations from normal language development, it provided only a dim view of the exact nature of the increase of lexical diversity across the early childhood years. Of course, lexical diversity must increase across these years, but this development is masked in the TTR computation by the concomitant increase in lexical quantity occurring simultaneously throughout these years. It is most likely due to this inadequacy that the

vocabulary size of preschoolers and early elementary school aged children is recorded typically as an absolute number of known words rather than as a ratio of known words to overall speech output (cf. Hart & Risley, 1995, for an example of this approach).

A second problem with the TTR proved more difficult to solve, however. In any sample of speech, high frequency words, by definition, occur in greater numbers than low frequency words. This fact creates the scenario where, as speech samples increase in size, the TTR automatically decreases. Successive calculations of the TTR on a single sample across increasingly larger portions of that sample will fall on a negative gradient curve approaching zero. In other words, as any given speech sample increases in size, the ratio between word types and word tokens will fall because each repetition of a high frequency word will contribute one instance to the number of tokens, but will contribute no instance to the number of types. This problem extends to samples of differing sizes across speakers or across developmental time. In smaller speech samples of young children, this problematic situation has not typically posed a threat to the validity of the research due to two frequently used controls in child language research: Either speech samples were often controlled in length of absolute time, or speech samples were limited to analysis of an absolute number of words occurring within a sample. Additionally, the TTR is often used to analyze speech samples of very young children whose verbal output is limited both in quantity and quality; in these cases, the TTR is more than sufficient to capture differences between children. However, in naturalistic samples of varying length, and of older children, the problems associated with the TTR become acute.

To remedy this issue, Malvern and Richards (1997) created a new model of lexical diversity,  $\mathcal{D}$ , that is not a function of the number of words in a sample.  $\mathcal{D}$  is

based on the work of Sichel (1986, as cited by Malvern and Richards, 1997), and is a theoretical family of curves that best characterize the relationship between word types and word tokens across various sample sizes. In practice,  $\mathcal{D}$ , the estimate of the parameter, is calculated by a bootstrapping approach, where different numbers of word tokens are extracted randomly from a language sample and subjected to a type/token analysis. A particular number of word tokens, beginning with 35 word tokens and proceeding incrementally to word 50 tokens, is sampled (with replacement) 100 times. The average TTR for each set of 100 samples is fit to a curve, and the entire process is repeated an additional two times. After all 16 sets of 100 tokens are calculated three times, the estimate of  $\mathcal{D}$  is obtained by securing the best fit between the 48 approximations and the actual family of curves represented by the mathematical model. Despite the fact that  $\mathcal{D}$  is not strictly a function of the number of words in a sample, it remains to be seen if the parameter adequately captures the diversity inherent to samples as large as those analyzed in the present study, or provides an adequate model for the vocabulary used by interlocutors around children in the preschool years.

To that end, the present study remains agnostic with respect to the respective analytical values of TTR and  $\mathcal{D}$ , and will present both estimates of diversity for analysis. It is known that the TTR cannot be used across all samples from these five corpora, because only the South Baltimore corpus contains hour-long samples comparable to the Kansas City communities. Nevertheless, the TTR may prove instructive for that comparison. By contrast,  $\mathcal{D}$  provides the only reasonable means by which to compare the half-hour samples from Alabama, Indiana, Daly Park, and Longwood to the hour samples from South Baltimore. It is therefore possible that the South Baltimore data may provide



an analytical link between analyses of vocabulary diversity for the hour-long samples using the TTR and the analyses of vocabulary diversity for the half-hour-long samples using  $\mathcal{D}$ .

Upon completion of the preparation and computer analysis of all <All Speech> and <Individual Speaker-to-Addressee> files was complete, the results were compiled into tables constructed by child and by community in preparation for analysis. In keeping with the first two hypotheses of the study, results for speech addressed by participants to the child were isolated from the data in the following manner: speech addressed by Primary Caregivers to the Focal Child, and speech addressed by All Interlocutors to the Focal Child (which includes the speech of the primary caregiver). For the third hypothesis of the study, results for All Speech to and Around the Focal Child were compiled from the data; this last category therefore included the speech of the primary caregiver, youth, and other adults to the child as well as the speech of all other interlocutors to each other. These results included the number of word types and word tokens within each of the speaker-to-addressee categories, along with both the TTR and  $\mathcal{D}$  estimates of diversity. In the following chapters, these results are presented with comparisons to the data from the Kansas City samples of Hart and Risley (1995), where appropriate. Chapter 4 considers the results based on speech addressed by primary caregivers to their children; Chapter 5 considers the results based on speech addressed by all interlocutors to the focal child; finally, Chapter 6 turns to an analysis of total speech within the child's earshot.

The results presented in the following chapters will be analyzed using statistical procedures. Of course, the studies presented here were ethnographic in nature, and the

use of statistical analysis is often not considered the purview of ethnographic inquiry. However, there is no reason that such data cannot be analyzed quantitatively; such analysis neither diminishes nor invalidates the original intent of the data collection procedures. Ethnographic data are frequently not analyzed statistically because the goals of the researcher are often inconsistent with such analysis. For example, much ethnographic work is undertaken to elucidate and interpret the values and beliefs of the participants in the study. In those cases, quantification is unnecessary and at times antithetical to the desire to hear the participant's voice. However, Hymes (in Sankoff, 1980, p. ix) expressed concern that more ethnographies of language did not utilize quantification as an analytic tool, a concern recently echoed by Brown and Gaskins (2014).

In the present study, data abound. Given the large numbers of samples across the five communities surveyed in the present work, coupled with the large numbers of samples available for consideration from the work of Hart and Risley (1995), it seems appropriate to consider these results quantitatively. However, several caveats must be mentioned. There is no reason to assume that the observations made for any single participant were not independent from those of other participants. However, in every case, multiple observations were made of each child. In order to simplify data analysis (and to concomitantly treat the data in manners more conducive to guaranteeing homogeneity of variance), all individual participant samples will be reduced to individual means for each participant. In other words, even though one child may have twelve sampling points across time and another child have four sampling points across time, each child will contribute only one score to any given analysis based on the mean across

all samples available for the child. Although this approach eliminates the problems for homogeneity of variances associated with repeated-measures design, it does not eliminate any problems for homogeneity of variances associated with different numbers of participants per group. There are no reasons to assume that the data from these five communities are not normally distributed within each community. Nevertheless, perhaps the largest difficulty for statistical interpretation in the present work is the relatively large range of number of participants that exist across the nine communities, from a low of three participants in the South Baltimore case to a high of 15 participants in the Indiana case.

It is hoped that the employ of robust statistical techniques will help to overcome this problem to a certain extent. Correlations in the present analysis will be conducted across communities, and therefore should remain unaffected by differences in participants across the communities. The Tukey-Kramer Test for Planned Comparisons will also be employed. All Tukey procedures use the mean-square within approach to calculating error that is common to univariate ANOVA. The Kramer approach to the Tukey procedure has the merit of using harmonized means to estimate error, and therefore reduces some of the issues surrounding unequal numbers of participants across groups. Furthermore, the ANOVA-related approach has been shown to be comparatively immune to violations of normality (Schmider, Ziegler, Danay, Beyer, & Buhner, 2010).

However, it is not the intention of the present study to use these statistical techniques for inferential purposes. Instead, statistical techniques are used in the present research largely to make descriptive comparisons across the communities and to determine which, if any, of those comparisons might be worth additional investigation.

Although the Tukey-Kramer Test for Planned Comparisons is not typically used for descriptive analysis, it is used in that manner in this study principally to avoid the inflation of error. Given the number of hypotheses in the present study, the total amount of Type I error is already unacceptably high. It is hoped that the use of the Tukey procedure will help to reduce the level of error to some degree by eliminating multiple, individual comparisons of means.

### **Summary**

Many years ago now, Erickson noted that "what is essential to qualitative or naturalistic research is not that it avoids the use of frequency data, but that its primary concern is with deciding what makes sense to count—with definitions of the quality of the things of social life" (1977, p. 58). The purpose of the study at hand is to determine what makes sense in terms of counting words spoken in the child's ambient environment. Although ethnographic investigation has been pivotal in the discovery of the wide range of variability of speech practices both within and across cultures, and within and across individuals, establishing variability or practices across cultures should never supplant establishing constancy of practices within cultures. It would be naïve to believe that there is no regularity of speech practices across speakers, times, and cultures. After all, culture depends upon regularity to no greater or lesser extent than do the cognitive processes of its individual members. Further, if there were no regularity, socialization as it is commonly understood as the transference of cultural beliefs, values, and practices from expert to novice would be rendered meaningless. Recurrence of any behavior is essential if novices to the practice are to learn it (Kulick & Schieffelin, 2004). The establishment of recurrence cannot be achieved by simple description of behaviors that

the observer finds unique or unusual; in fact, there is no guarantee whatsoever that these descriptions represent the commonplace in a particular group's everyday actions unless those behaviors can be quantified as existing in a relatively permanent, persistent manner. In conclusion, this study aims to demonstrate the pervasiveness of vocabulary spoken to and around the child and the conditions attending its use by "counting in context" (Hymes, in Sankoff, 1980, p. ix).

CHAPTER 4

RESULTS FOR SPEECH SPOKEN TO CHILDREN

BY PRIMARY CAREGIVERS

This chapter addresses the first hypothesis of this study, namely, are there differences between primary caregivers from five communities within the United States in terms of the quality and quantity of speech they address to their children? Attendant to in the social class and economic standing of the communities themselves. To address this question, two complementary analyses are presented. First, the number of word tokens of different words spoken by the primary caregiver to the focal child is examined to address the quantity of primary caregiver speech. Second, the number of types of all words spoken by the primary caregiver to the focal child is examined to address the quality of primary caregiver speech. To prepare for these analyses, descriptive observations of each of the five communities that form the core constituents of this study will be presented first. Finally, comparisons among five communities and their counterparts (based on social address) from the data collected by Hart and Risley (1995) will be undertaken.

Before embarking upon these analyses, a few observations must be made pertinent to the choice of analyses performed. First, this chapter addresses the hypothesis that the speech of a single individual, typically the mother of the focal child, will potentially vary in systematic ways across speakers based on their ethnic, cultural, social, and economic attributes. A fundamental assumption underlying this hypothesis in research on language learning among very young children is that children learn language best in the context of joint-attention episodes. As mentioned earlier, recent research has challenged this assumption, at least to the point that the joint-attention hypothesis

precludes the possibility that very young children can learn language in bystander situations (cf. Akhtar, 2005; Akhtar & Gernsbacher, 2007). Nevertheless, the research remains relatively agnostic about the importance of joint-attention episodes in the language learning of older children. In addition, there must be a point at which children in the preschool years become highly capable of learning language within the context of multiple interlocutors; if this statement were not true, children's vocabulary would not benefit from preschool and early elementary education. To that end, the only remaining reason to consider only the speech of primary caregiver to child must be ideological, based on the tacit assumption that dyadic interaction with young children is somehow superior to other ways of interacting. This point of logic will be addressed later in the discussion; suffice it to say at the present time that the hypothesis of differences between primary caregivers across communities is addressed here to allow for the most direct comparison between these communities and the results reported by Hart and Risley (1995).

Second, an important caveat should be noted with respect to these comparisons. It is impossible to determine exactly how Hart and Risley (1995) define parents' speech. The text is ambiguous and inconsistent on this point. Sometimes they refer to mother's speech, sometimes to parent's speech, and sometimes to caregiver's speech. At no point, however, do they clarify their definition. They do not, for example, assert that they evaluated *only* the speech of mothers to their children, to the exclusion of fathers or other caregivers; nor do they expressly say that they defined parent's speech to include the speech of fathers or other caregivers when it was directed to the child when the mother was present.

Close examination of the reported procedures and results does not clarify the situation. For example, in nine extended families, observations were made when only the father or grandfather was present (Hart & Risley, 1995, p. 31). Hart and Risley (1995) referred to the difficulties of transcribing data, and of "picking out the child and parent from all the other conversations going on at the same time" (p. 41). To that end, one must conclude that the families observed by Hart and Risley were much the same as those families observed in the five communities represented in this study—busy, engaged families with many speakers vying for participation in the daily activities of the home. In addition, Hart and Risley set out to “discover relationships between family interaction patterns and vocabulary growth rates” (p. 43) with no apparent inclination to restrict the definition of family to mother alone. Indeed, there is at times a confusion between their use of the words “parent” and “family” as the source of interaction (compare for example the discussion “Examining the Consistency of Differences Among Families” on pages 63 through 70). Finally, Hart and Risley referred to their assigning all speech into one of six speaker categories (Child, Parent to Child, Parent to Other, Other Adult to Child, Other Child to Child, and Other Adult to Other Adult). It remains unclear whether or not they included one or both parents in their final analyses.

Given these issues, it was decided for the purpose of the present investigation that two different hypotheses would be addressed, neither of which may accurately present a true and valid comparison to the work of Hart and Risley (1995). The first hypothesis, the subject of this chapter, examines the talk of one caregiver to the child. In most cases, this caregiver was the mother who, if present at the observation, was considered to be the most representative teaching force in the child’s life and also the parent most frequently



evaluated in the literature on language acquisition (for example, compare Hoff-Ginsberg, 1991; Huttenlocher et al., 1991; Hurtado et al., 2008; Pan et al., 2005). However, in several families in the Black Belt of Alabama and Jefferson, Indiana, the children were routinely kept throughout the daytime hours by grandmothers. The speech of the grandmother was used in the present analyses in those cases where she was present at the observation and the mother was not present. In a few cases, however, both the child's mother and grandmother were present. In those situations, the Primary Caregiver to Child category includes only the mother's speech; the grandmother's speech to the child is counted as Other to Child and analyzed at a different point. The next chapter in this dissertation will examine a second hypothesis addressing the amount of total speech addressed to the child. At that analytical juncture, speech of fathers, siblings, grandparents, and visitors (but not the researcher) will be added to the mix. In fact, this analysis may also be similar to the Parent to Child analyses presented by Hart and Risley given the possibility that they included both parents or even grandparents in their analyses.

### **Outline of the Present Chapter**

This chapter begins with a description of the data from the five communities. The descriptive statistics for the amount of speech spoken by the primary caregiver to the focal child are presented first. Communities are ordered broadly by social class and economic standing. Therefore in the descriptions that follow and in all figures presented later in the chapter, the two impoverished communities of South Baltimore and the Black Belt of Alabama are presented first; followed by the two working-class communities of

Jefferson, Indiana and Daly Park, Chicago; and concluding with the middle-class comparison community of Longwood, Chicago.

Descriptive statistics presented include the mean numbers of word tokens spoken by primary caregivers to the child, the mean numbers of word types, the mean type-to-token ratios, and the mean  $\mathcal{D}$  estimates for each child in the respective communities.

Analysis then proceeds to a consideration of the mean numbers of word tokens spoken by primary caregivers to the focal child. Data will be presented first for the five communities in the present study, and then for all communities including the Kansas samples. Data will be analyzed in two sets of comparisons. The first set of comparisons will examine differences between all communities as a whole. These comparisons are consistent with the assumption that there are no differences in the amount of vocabulary in the ambient environment of children regardless of their social address. The second set of comparisons will examine any differences located in the first analysis to tease apart possible social class differences that may be found.

This chapter then turns to an examination of the mean numbers of word types across the five communities in the present study accompanied by a distributional analysis of these data. Comparisons of numbers of word types will be also be made to the Kansas samples sorted by social class. Finally, analysis turns to a consideration of the best way to estimate vocabulary diversity by comparing procedures employing the type-to-token ratio and the  $\mathcal{D}$  parameter by using the  $\mathcal{D}$  estimate to characterize comparisons across communities. After an initial comparison of diversity across the five communities in the present study, these estimates will be compared with the Kansas samples in groups determined by the social class of the community.

## **Descriptive Analyses**

### **South Baltimore**

Table 4.1 presents the descriptive data for all primary caregiver speech addressed to the three girls in the South Baltimore study (the descriptive statistics for individual observations are provided in Appendix A for word tokens and Appendix B for word types). Twelve hour-long observations were made of each child beginning on average when the child turned 19 months of age and continuing until the child was approximately 31 months of age.

Within these samples, the mean number of total words spoken per hour (tokens) was 1,062, with a range from 8 to 2,642 words per hour. There was one unusual sample from Wendy when her mother was needed shortly after the observation began in the store her boyfriend owned in a building adjacent to where Wendy and her mother lived. Wendy's aunt was present throughout the observation and she tended to Wendy. If this low sample of maternal speech from Wendy is disregarded, the next lowest number of word tokens per hour in this corpus was 214, making a truer estimate of the range of tokens to be 214 to 2,642 words per hour. The mean number of new words (types) spoken per hour was 247, with a range from 8 to 417 words per hour. It should be noted that if the extreme case of Wendy's sample is omitted, the next lowest number of types in Wendy's observations was 144, making a truer estimate of the range of types to be 124 to 417 words per hour.

Table 4.1

*Primary Caregiver to Child Speech in South Baltimore by Family (One-Hour Samples)*

Child	Number of Samples (Age Range in Months)	Mean Word Tokens (Range)	Mean Word Types (Range)	Mean Type/Token Ratio (Range)	Mean $\mathcal{D}$ (Range)
Amy	12 (17-30)	830 (214-1472)	224 (124-301)	.31 (.17-.58)	75.64 (54.38-98.30)
Wendy	11 (22-31)	726 (8-1723)	190 (8-328)	.34 (.19-1.0)	64.16 (39.13-79.55)
Beth	12 (18-32)	1628 (766-2642)	326 (227-417)	.22 (.15-.30)	77.20 (66.91-96.22)
Community		1062 (8-2642)	247 (8-417)	.29 (.15-1.0)	72.33 (39.13-98.30)

The mean type-to-token ratio for these samples was .29, with a range from .15 to 1.0. If the unusual sample from Wendy is disregarded, the next highest TTR in the corpus is .58, making a truer estimate of the range of TTRs to be .15 to .58. Since  $\mathcal{D}$  is not calculable on small samples of fewer than 50 tokens, the statistics provided represent the best estimates of this parameter, with a mean of 72.33 across all samples and a range of 39.13 to 98.30.

**The Black Belt of Alabama**

Table 4.2 presents the descriptive data for all primary caregiver speech addressed to the six girls and five boys in the Alabama study (the descriptive statistics for individual observations are provided in Appendix A for word tokens and Appendix B for word types). Six half-hour-long observations were made of each child except for Keisha who was sent to live with another relative in a different state after her fourth observation. The observations began when the child turned either 24 ( $n = 8$ ) or 28 ( $n = 3$ ) months of age and continued until the child turned 42 months of age.

Table 4.2

*Primary Caregiver to Child Speech in the Black Belt of Alabama by Family (Half Hour Samples)*

Child	Number of Samples (Age Range in Months)	Mean Word Tokens (Range)	Mean Word Types (Range)	Mean Type/Token Ratio (Range)	Mean $\mathcal{D}$ (Range)
Alicia	6 (24-42)	827 (501-1347)	191 (131-256)	.24 (.19-.28)	62.70 (47.93-73.82)
Daphne	6 (28-42)	1220 (422-2074)	266 (153-391)	.25 (.18-.36)	68.35 (52.06-92.47)
Keisha	4 (24-30)	1678 (1275-2121)	283 (241-323)	.17 (.15-.20)	73.26 (66.23-79.44)
Kendrick	6 (28-42)	1010 (220-2061)	213 (86-276)	.26 (.13-.39)	57.03 (33.41-67.78)
Lamont	6 (24-39)	1151 (474-2190)	214 (145-326)	.21 (.14-.31)	55.28 (46.37-75.50)
Markus	6 (24-42)	890 (491-1349)	197 (131-248)	.23 (.16-.27)	53.10 (43.26-69.85)
Roland	6 (24-42)	353 (48-876)	102 (24-212)	.43 (.24-.75)	48.23 (39.97-58.76)
Sebrina	6 (24-42)	535 (25-1285)	140 (20-289)	.39 (.22-.80)	54.88 (37.87-75.77)
Shamekia	6 (28-42)	509 (191-749)	158 (84-207)	.33 (.25-.44)	65.16 (61.68-68.96)
Stillman	6 (24-42)	1499 (636-2343)	269 (204-339)	.20 (.14-.32)	71.26 (62.71-80.60)
Tahleah	6 (24-38)	436 (47-747)	130 (33-211)	.37 (.24-.70)	51.79 (31.48-67.31)
Community		919 (25-2343) $SD = 420$	197 (20-391) $SD = 57$	.28 (.13-.80)	60.10 (31.48-92.47)

Within these samples, the mean number of total words spoken per half hour (tokens) was 919, with a range from 25 to 2,343 words per half hour. Roland, Sebrina, and Tahleah each had an observation where the number of tokens spoken by their primary caregivers to them was more than 2 standard deviations below the community mean. The mean number of new words (types) spoken per hour was 197, with a range from 20 to 391 words per half hour. Unlike in the case of Wendy in the South Baltimore

community, the low points in the ranges of both types and tokens may not represent unusual cases in the lives of these children, but rather an ordinary state of affairs when many siblings or other relatives were present during the observation and primary caregivers relinquished the floor to other interlocutors. To that end, three children (Roland, Sebrina, and Tahleah) also had observations where the number of word types spoken by their primary caregivers to them was more than 2 standard deviations below the community mean. Given the theoretical importance assigned by the current study to the consideration of all speech addressed to children as a separate condition, no other interpretation of these low statistics is warranted until they can be assessed in the context of the total amount of speech addressed to the child by all interlocutors. The mean type-to-token ratio for these samples was .28, with a range from .13 to .80. The mean estimate of  $\mathcal{D}$  was 60.10, with a range of 31.48 to 92.47.

For the purposes of exploratory analysis, point biserial correlations were conducted to determine if there were any relationship between the gender of the child and the number of word tokens or word types spoken by the primary caregiver to the child. No significant relationship was identified between the gender of the child and the number of tokens spoken by primary caregivers,  $r_{pb}(9) = -.13, p = .69$ . No significant relationship was identified between the gender of the child and the number of types spoken by primary caregivers,  $r_{pb}(9) = -.04, p = .91$ .

### **Jefferson, Indiana**

Table 4.3 presents the descriptive data for all primary caregiver speech addressed to the seven girls and eight boys in the Indiana study (the descriptive statistics for

Table 4.3

*Primary Caregiver to Child Speech in Jefferson, Indiana by Family (Half Hour Samples)*

Child	Number of Samples (Age Range in Months)	Mean Word Tokens (Range)	Mean Word Types (Range)	Mean Type/Token Ratio (Range)	Mean $\mathcal{D}$ (Range)
Brittany	9	681	180	.36	68.26
	(20-40)	(8-1039)	(8-268)	(.21-1.0)	(48.47-106.29)
Brian	9	539	178	.39	76.39
	(22-40)	(76-1139)	(50-276)	(.24-.66)	(45.21-101.81)
Caitlyn	9	747	218	.31	82.86
	(22-42)	(359-1176)	(147-268)	(.23-.41)	(60.02-112.53)
Cherie	9	192	91	.55	67.42
	(24-42)	(6-388)	(5-170)	(.39-.83)	(41.93-108.06)
Dalton	9	759	227	.30	78.78
	(18-42)	(564-902)	(187-290)	(.23-.35)	(57.15-114.41)
Drew	9	256	109	.46	63.27
	(20-40)	(96-408)	(56-147)	(.32-.67)	(39.66-105.58)
Evan	9	240	109	.51	66.34
	(20-42)	(86-551)	(57-178)	(.28-.66)	(44.13-99.11)
Jason	9	1009	288	.31	103.51
	(24-42)	(353-1651)	(169-379)	(.22-.48)	(79.47-133.17)
Jaymie	9	1428	315	.24	89.77
	(19-42)	(655-2829)	(228-475)	(.17-.35)	(74.97-110.38)
Kayleigh	9	181	85	.57	71.18
	(20-40)	(19-360)	(16-144)	(.40-.84)	(49.73-99.63)
Morgan	9	398	122	.49	62.36
	(18-42)	(16-1408)	(13-233)	(.17-.81)	(33.12-86.22)
Robbie	9	279	120	.50	75.22
	(20-42)	(35-560)	(25-203)	(.34-.71)	(56.71-99.94)
Sarah	9	494	176	.46	80.54
	(24-42)	(16-1206)	(16-404)	(.28-1.0)	(55.91-116.08)
Shane	9	422	138	.43	60.71
	(22-42)	(52-1000)	(37-274)	(.25-.71)	(33.62-89.97)
Wesley	9	234	106	.51	64.79
	(22-42)	(55-411)	(38-166)	(.40-.69)	(38.9-82.97)
Community		524	164	.43	74.09
		(6-2829)	(5-475)	(.17-1.0)	(33.12-133.17)
		$SD = 340$	$SD = 69$		

individual observations are provided in Appendix A for word tokens and Appendix B for word types). Nine half-hour-long observations were made of each child beginning on

average when the child turned 21 months of age and continuing until the child was approximately 42 months of age (range = 18 to 42 months).

Within these samples, the mean number of total words spoken per half hour (tokens) was 524, with a range from 6 to 2,829 words per half hour. No children had observations where the number of word tokens spoken by their primary caregivers was more than 2 standard deviations below the community mean. The mean number of new words (types) spoken per hour was 164, with a range from 5 to 475 words per half hour. In an analogous manner to the Black Belt of Alabama, the low points in the ranges of both word tokens and word types may not represent unusual cases in the lives of these children, but rather an ordinary state of affairs when many siblings or other relatives were present during the observation and primary caregivers relinquished the floor to other interlocutors. To that end, six children (Brittany, Cherie, Kayleigh, Morgan, Robbie, and Sarah) had observations where the numbers of types spoken by their primary caregivers to them were more than 2 standard deviations below the community mean. Again, given the theoretical importance assigned by the current study to the consideration of all speech addressed to children as a separate condition, no other interpretation of these low statistics is warranted until they can be assessed in the context of the total amount of speech addressed to the child by all interlocutors.

The mean type-to-token ratio for these samples was .43, with a range from .17 to 1.0. Two samples, one from Brittany and Sarah, represent unusual cases where a limited amount of speech from their primary caregivers to them resulted in type-to-token ratios of 1.0. If those samples are discounted, the next highest type-to-token ratio in this corpus



is .84, making a truer estimate of the range of the type-to-token ratio .17 to .84. The mean estimate of  $\mathcal{D}$  was 74.09, with a range of 33.12 to 133.17.

For the purposes of exploratory analysis, point biserial correlations were conducted to determine if there were any relationship between the gender of the child and the number of word tokens or word types spoken by the primary caregiver to the child. No significant relationship was identified between the gender of the child and the number of word tokens spoken by primary caregivers,  $r_{pb}(13) = .18, p = .53$ . No significant relationship was identified between the gender of the child and the number of word types spoken by primary caregivers,  $r_{pb}(13) = .07, p = .79$ .

### **Daly Park, Chicago**

Table 4.4 presents the descriptive data for all primary caregiver speech addressed to the three girls and four boys in the Daly Park, Chicago study (the descriptive statistics for individual observations are provided in Appendix A for word tokens and Appendix B for word types). Three ( $n = 2$ ) or four ( $n = 5$ ) half- hour-long observations were made of each child. Observations began on average when the child turned 31 months of age and continued until the child was approximately 47 months of age (range = 30 to 52 months).

Within these samples, the mean number of total words spoken per half hour (tokens) was 675, with a range from 55 to 1,441 words per half hour. No children had an observation where the number of word tokens spoken by their primary caregiver to them was more than 2 standard deviations below the community mean. The mean number of new words (types) spoken per hour was 203, with a range from 38 to 334 words per half hour. Again, the low points in the ranges of both word tokens and word types in Daly Park may not represent unusual cases in the lives of these children, but rather an ordinary

Table 4.4

*Primary Caregiver to Child Speech in Daly Park, Chicago by Family (Half Hour Samples)*

Child	Number of Samples (Age Range in Months)	Mean Word Tokens (Range)	Mean Word Types (Range)	Mean Type/Token Ratio (Range)	Mean $\mathcal{D}$ (Range)
Colleen	3 (32-39)	1053 (767-1259)	306 (274-334)	.30 (.27-.36)	103.47 (93.63-110.76)
Helen	4 (31-44)	1104 (845-1428)	276 (237-304)	.26 (.21-.28)	80.85 (64.72-100.70)
Mary	3 (32-43)	239 (55-451)	108 (38-156)	.55 (.35-.69)	69.05 (42.78-103.02)
David	4 (30-50)	543 (118-814)	189 (69-261)	.40 (.29-.58)	81.89 (50.78-109.07)
Devon	4 (32-50)	180 (72-369)	81 (50-134)	.52 (.36-.69)	52.38 (46.12-60.07)
Michael	4 (31-48)	585 (279-1091)	201 (144-248)	.41 (.23-.52)	59.73 (11.71-92.52)
William	4 (31-52)	1023 (547-1441)	259 (204-314)	.27 (.20-.37)	82.01 (56.12-110.15)
Community		675 (55-1441) $SD = 360$	203 (38-334) $SD = 79$	.39 (.20-.69)	75.62 (11.71-110.76)

state of affairs when many siblings or other relatives were present during the observation and primary caregivers relinquished the floor to other interlocutors. However, in Daly Park, only one child (Mary) had an observation where the number of types spoken by her primary caregiver to her was more than 2 standard deviations below the community mean. Again, given the theoretical importance assigned by the current study to the consideration of all speech addressed to children as a separate condition, no other interpretation of these low statistics is warranted until they can be assessed in the context of the total amount of speech addressed to the child by all interlocutors. The mean type-to-token ratio for these samples was .39, with a range from .20 to .69. The mean estimate of  $\mathcal{D}$  was 75.62, with a range of 11.71 to 110.76.

For the purposes of exploratory analysis, point biserial correlations were conducted to determine if there were any relationship between the gender of the child and the number of word tokens or word types spoken by the primary caregiver to the child. No significant relationship was identified between the gender of the child and the number of word tokens spoken by primary caregivers,  $r_{pb}(5) = .30, p = .52$ . No significant relationship was identified between the gender of the child and the number of word types spoken by primary caregivers,  $r_{pb}(5) = .30, p = .52$ .

### **Longwood, Chicago**

Table 4.5 presents the descriptive data for all primary caregiver speech addressed to the three girls and three boys in the Longwood, Chicago study (the descriptive statistics for individual observations are provided in Appendix A for word tokens and Appendix B for word types). Three ( $n = 2$ ) or four ( $n = 3$ ) half- hour-long observations were made of each child; one child, Tommy, withdrew from the study after two observations. Observations began when the child turned 30 months of age and continued until the child was approximately 45 months of age (range = 30 to 48 months).

Within these samples, the mean number of total words spoken per half hour (tokens) was 745, with a range from 80 to 2,689 words per half hour. The mean number of new words (types) spoken per hour was 209, with a range from 50 to 530 words per half hour. Again, the low points in the ranges of both word tokens and word types in Longwood may not represent unusual cases in the lives of these children, but rather an ordinary state of affairs when many siblings or other relatives were present during the observation and primary caregivers relinquished the floor to other interlocutors. However, in the Longwood community, no child had observations where the number of

Table 4.5

*Primary Caregiver to Child Speech in Longwood, Chicago by Family (Half Hour Samples)*

Child	Number of Samples (Age Range in Months)	Mean Word Tokens (Range)	Mean Word Types (Range)	Mean Type/Token Ratio (Range)	Mean $\mathcal{D}$ (Range)
Amy	3 (30-42)	881 (452-1180)	266 (182-340)	.32 (.27-.40)	89.16 (80.67-97.77)
Karen	4 (30-48)	499 (80-1295)	137 (50-288)	.48 (.22-.63)	65.71 (41.41-90.65)
Megan	3 (30-48)	1603 (496-2689)	346 (177-530)	.25 (.20-.36)	94.66 (71.09-123.70)
Patrick	4 (30-48)	235 (102-429)	111 (65-172)	.52 (.40-.64)	72.34 (56.52-81.47)
Steve	4 (30-48)	324 (127-467)	118 (72-155)	.43 (.33-.57)	64.85 (53.13-83.19)
Tommy	2 (30-36)	931 (387-1475)	277 (169-385)	.35 (.26-.44)	96.57 (94.76-98.38)
Community		745 (80-2689) $SD = 463$	209 (50-530) $SD = 91$	.39 (.20-.64)	80.55 (41.41-123.70)

word tokens or word types spoken by their primary caregivers to them was more than 2 standard deviations below the community means. The mean type-to-token ratio for these samples was .39, with a range from .20 to .64. The mean estimate of  $\mathcal{D}$  was 80.55, with a range of 41.41 to 123.70.

For the purposes of exploratory analysis, point-biserial correlations were conducted to determine if there were any relationship between the gender of the child and the number of word tokens or word types spoken by the primary caregiver to the child. No significant relationship was identified between the gender of the child and the number of word tokens spoken by primary caregivers,  $r_{pb}(4) = .54, p = .27$ . No significant relationship was identified between the gender of the child and the number of word types spoken by primary caregivers,  $r_{pb}(4) = .44, p = .38$ .

### **Analysis of Word Tokens Across Communities**

Every instance of every different word spoken in a language sample constitutes a token; therefore, the number of word tokens in a language sample represents a measure of quantity of speech spoken by or addressed to any given interlocutor. Despite the amount and diversity of analyses undertaken by Hart and Risley (1995) in their oft-cited monograph, perhaps the statistic that has garnered the most attention is the differences between the numbers of word tokens spoken by the parents in their samples to the focal children. Indeed, it is the extrapolation Hart and Risley made from the data collected in 25 hours of observation time to 20,800 waking hours across the first four years of the child's life that resulted in the purported 30,000,000 word gap between the number of words spoken by their impoverished and professional parents to their children. While it is true that Hart and Risley extrapolated these data across their samples in identical fashions, there remains reason to doubt the whole process given that they made no adjustments for differing amounts of speech addressed to newborns versus to four year olds, or for differing amounts of speech addressed to children at different points during the day or during different activities, or for any other of the multitude of differences that might be present in the lives of young children. To that end, while their estimates may be consistent in comparison with each other, they certainly greatly overestimate the total numbers of words all children likely hear and thereby overstate any potential differences between social classes as well.

The descriptive results provided in the tables at the beginning of this chapter demonstrate a frequent observation in studies of vocabulary input, namely that there is wide variation across primary caregivers and across time in the number of words they

Speak to their children. Perhaps this variation alone should give pause to the extrapolation of data made by Hart and Risley (1995) across the span of developmental time in the life of the child. Nevertheless, the scientific significance of their work relies on the differences they observed during the observation times even if the cultural significance of the work has eclipsed its scientific evaluation.

One persistent problem that plagues the analysis of the data from the five corpora analyzed in the current study is the differences between the hour-long transcripts of the South Baltimore observations and the data from hour-long observations in the Kansas samples of Hart and Risley (1995), and the half-hour-long transcripts of the Black Belt, Jefferson, Daly Park, and Longwood corpora. This problem will be discussed in greater detail in the following analysis of word types. However, the problem is more easily resolved in the current analysis of word tokens than it is in the analysis of word types. In the analyses that follow this introduction, all observed word tokens for the half-hour samples presented in the tables at the beginning of the chapter are doubled for easy comparison across the nine communities. Obviously this practice also uses an extrapolation of data from known to unknown quantities; however, there were few if any reasons ever to suspect in the transcribed observations that the amount of talk either increased or decreased precipitously in the immediate minutes surrounding the transcribed samples.

In the analysis of the hypothesis presented in this chapter, as well as of the hypotheses to be presented in subsequent chapters, a comparison of word tokens will be made along two dimensions. First, the number of word tokens recorded in the homes of the communities represented in the present study will be analyzed. In addition, the

comparison of word tokens observed in all nine communities (the five communities described in the present study and the four communities in Kansas presented by Hart and Risley, 1995), will be made. This comparison is undertaken to provide a benchmark against which to evaluate the language samples made in the communities represented in this study. In addition, this comparison will facilitate the evaluation of any differences that may exist across the two sets of communities (the five communities in the present study and four communities in Kansas) due to differences in data collection procedures.

To recapitulate the discussion in Chapter 2, the everyday lives of the children in the five communities represented in the present study were documented using ethnographic methods. Videotaping of each community was only begun after extensive periods of time spent by the researcher in the community growing familiar with cultural patterns, learning about the daily lives of typical community members, and, in general, trying to “fit in.” In addition, individual language samples were recorded in the spirit of participant observation, where the individual researchers tried to act as friendly visitors rather than as detached observers. In that manner, the researchers talked freely with both adults and children as the situation demanded and interacted with the focal children in playful, child-centered manners. Although there is considerable evidence that Hart and Risley and their research team had accrued significant benefits from their long-term involvement with the low-income, African American Turner House Preschool, there is little evidence that they spent much if any time in the respective communities at large from which their data came. Even apart from the potential consequences of that issue, there remains specific evidence that they did not value the merits of participant observation. In fact, as mentioned earlier, they specifically discouraged participant to

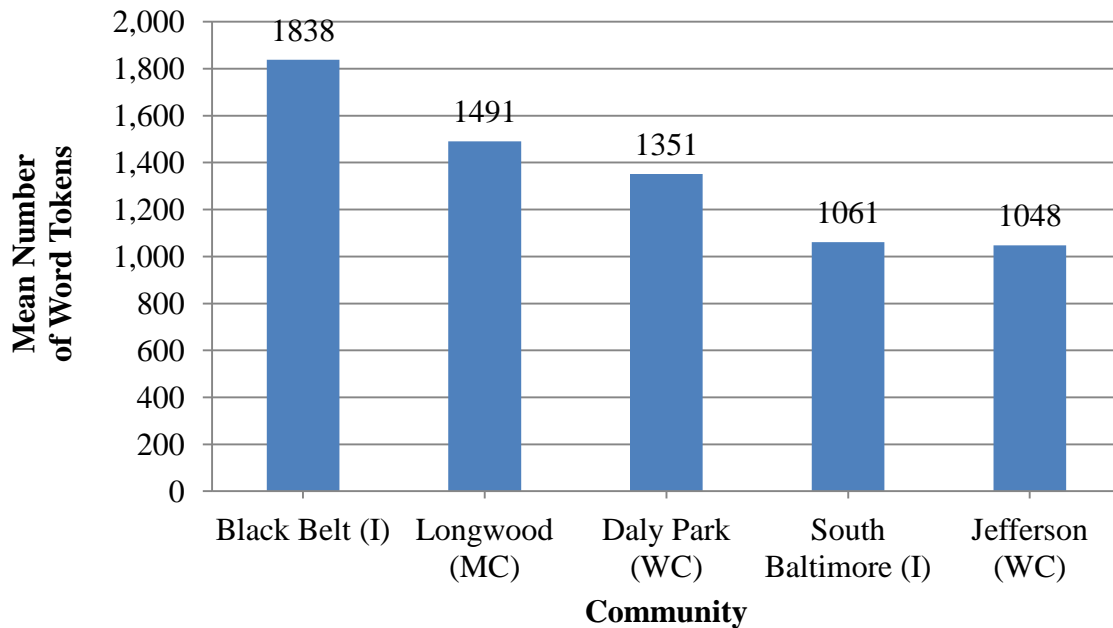
researcher talk, answering only specific questions when asked. Furthermore, researchers were specifically instructed as a condition of the observation not to address talk to the focal child or her family during the time of observation.

Although the separation of these analyses (i.e., the analysis of the five communities both as a separate group and as part of the analysis of all nine communities) is dubious for statistical purposes, it has merit for the sake of completeness. The comparison of all nine communities is warranted due to the overarching interest in this study surrounding the comparison of the total number of words heard by children under three distinctly different conditions (Primary Caregiver to the Child, All Speech to the Child, and All Speech to and Around the Child), two of which have not been considered quantitatively in the literature to date. The possibility that the Primary Caregiver to Child condition may underestimate the number of words children actually hear in their everyday lives undergirds all three of the hypotheses of the present study, whether this situation obtains due to a sheer increase in the number of interlocutors considered in the counting of words or due to differences in beliefs about who talks to children, and when—differences that are grounded in social class or cultural norms.

### **Analysis of Five Communities**

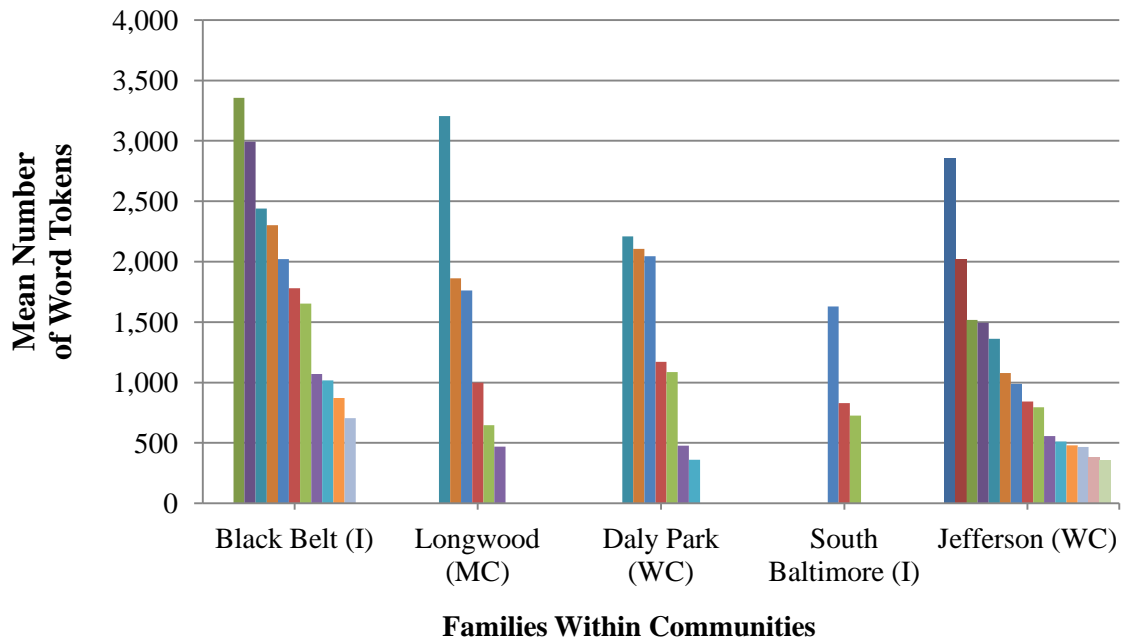
The total number of words (tokens) spoken by primary caregivers to their children in the five communities are presented in Figure 4.1 (please note that in this and all subsequent figures, the social class of the community will be denoted with the letter "I" for impoverished, the letters "WC" for working class, or the letters "MC" for middle class). The means of the five communities were compared using the Tukey-Kramer Test of Paired Comparisons. No comparison reached statistical significance. In order to





*Figure 4.1.* The mean number of word tokens addressed per hour by primary caregivers to their children in the Black Belt of Alabama, Longwood (Chicago), Daly Park (Chicago), South Baltimore, and Jefferson (Indiana). Tokens in the communities of the Black Belt, Jefferson, Daly Park, and Longwood are twice the number actually recorded to adjust for the half-hour samples.

examine the potential reasons behind the failure of these relatively large apparent differences to reach statistical significance, a presentation of the distribution of individual averages within each community is offered in Figure 4.2. As is typical of naturally occurring language samples, the variation between individual primary caregivers is quite large (cf. Hurtado et al., 2008). However, it is apparent that the distributions do overlap to a great extent, with very few differences at the upper range and almost no difference at the lower range. In conclusion, there remains no reason to assume within these data that there are differences in the number of words spoken by primary caregivers to their children based on either social class or cultural differences.

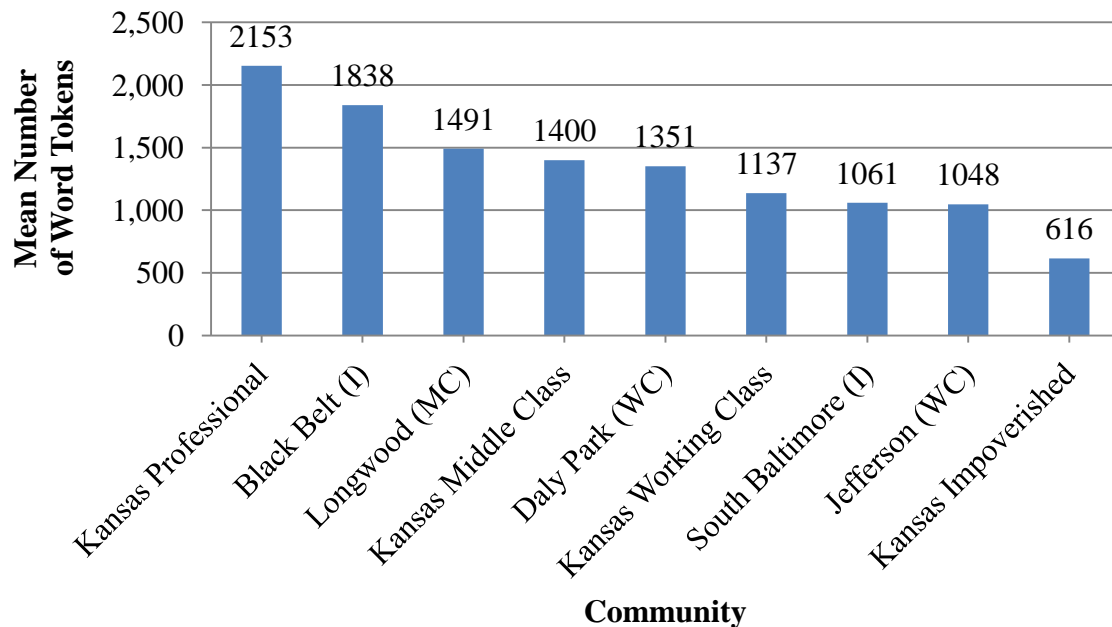


*Figure 4.2.* Distribution by family of the mean number of word tokens addressed per hour by primary caregivers to their children in the Black Belt of Alabama, Longwood (Chicago), Jefferson (Indiana), Daly Park (Chicago), and South Baltimore. Tokens in the communities of the Black Belt, Jefferson, Daly Park, and Longwood are twice the number actually recorded to adjust for the half-hour samples.

### Analysis of Nine Communities

In order to situate these data within the context of the Kansas data, the total numbers of words (tokens) spoken by primary caregivers to their children in all nine communities are presented in Figure 4.3 (please see Appendix C for a complete presentation of the data and descriptive statistics reported by Hart and Risley). The means of the nine communities were compared using the Tukey-Kramer Test of Paired Comparisons. Only the Kansas Impoverished ( $\bar{X} = 616$ ) to Kansas Professional ( $\bar{X} = 2,153$ ) comparison reached statistical significance,  $HSD_{.01(9, 75)} = 1,505.35, p < .01$ . In other words, there is reason to assume that the Kansas Impoverished primary caregivers spoke less to their children than did the Kansas Professional primary caregivers. There is no reason to assume that there are differences between any other communities based on

this metric. Only the Kansas children living in professional families, many of which families had university ties, heard significantly more words per hour than did children in any of the other communities.



*Figure 4.3.* The mean number of word tokens addressed per hour by primary caregivers to their children in the Black Belt of Alabama, Longwood (Chicago), Daly Park (Chicago), South Baltimore, and Jefferson (Indiana), and the four Kansas communities described in the study by Hart and Risley (1995). Tokens in the communities of the Black Belt of Alabama, Jefferson, Daly Park, and Longwood are twice the number actually recorded to adjust for the half-hour samples.

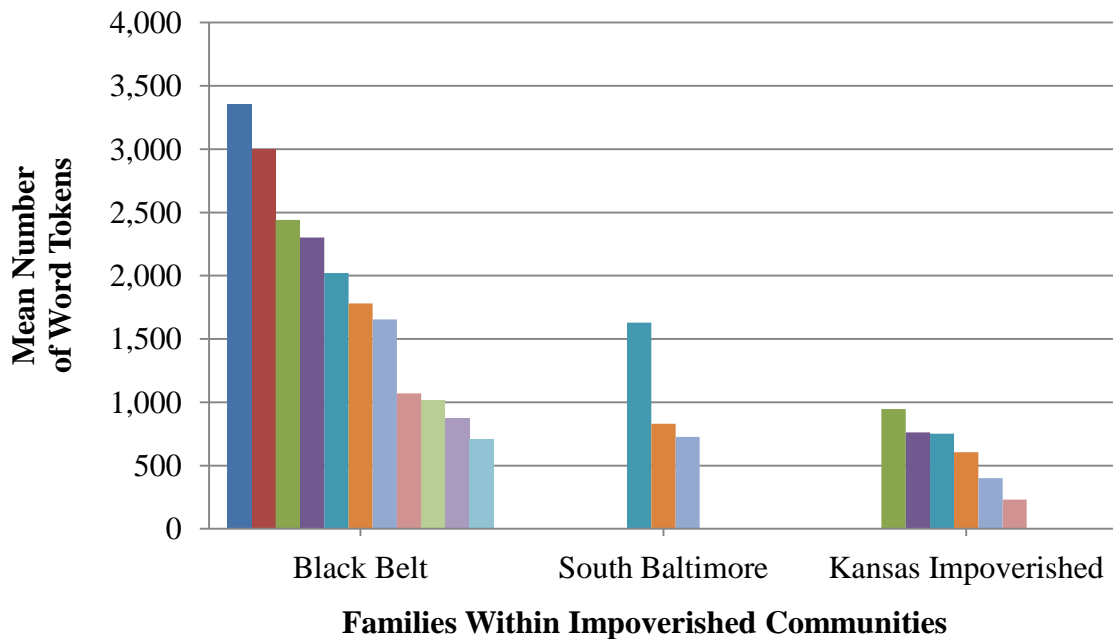
### Analysis of Communities by Social Class

One goal of the present study is to tease apart any potential differences between groups that may have existed due to differences in data collection procedures, namely the traditional observational procedures employed by Hart and Risley (1995) versus the ethnographic procedures employed by each of the researchers in the five communities described in the present study. One potential way to examine these differences is to compare communities of the same social address. In this manner, the language children

hear in the two impoverished communities represented in the present study may be compared with the impoverished Kansas community. Similarly, the language children hear in the two working-class communities represented in the present study may be compared with the working-class Kansas community. Finally, for purposes of this analysis, the middle-class communities of Longwood and Kansas will be grouped with the professional community in the Kansas study.

**Comparison of impoverished communities.** Figure 4.4 shows the distribution of means of word tokens spoken by primary caregivers to children across the three impoverished communities. Initial inspection of the figure suggests that the Black Belt primary caregivers spoke to their children more on average than did the South Baltimore or impoverished Kansas primary caregivers. A Tukey-Kramer Test of Paired Comparisons confirmed this suspicion for the Black Belt to impoverished Kansas comparison only. Black Belt primary caregivers spoke more to their children (1,838 words per hour) than did impoverished Kansas primary caregivers (616 words per hour),  $HSD_{.05(2,17)} = 1,146, p < .05$ . In sum, a difference between these two impoverished communities was shown to exist when the comparison group was limited to communities sharing the same social address despite the fact that no differences between these three communities are found within the larger context of comparison across all nine communities. This fact is of particular importance in this case since the two communities that were shown to be different not only share the same social address, but also are comprised of African American families. This result may suggest that the observational data collection methods employed in the Kansas sample placed those families at a disadvantage; by contrast, the ethnographic methods used in the Black Belt sample may

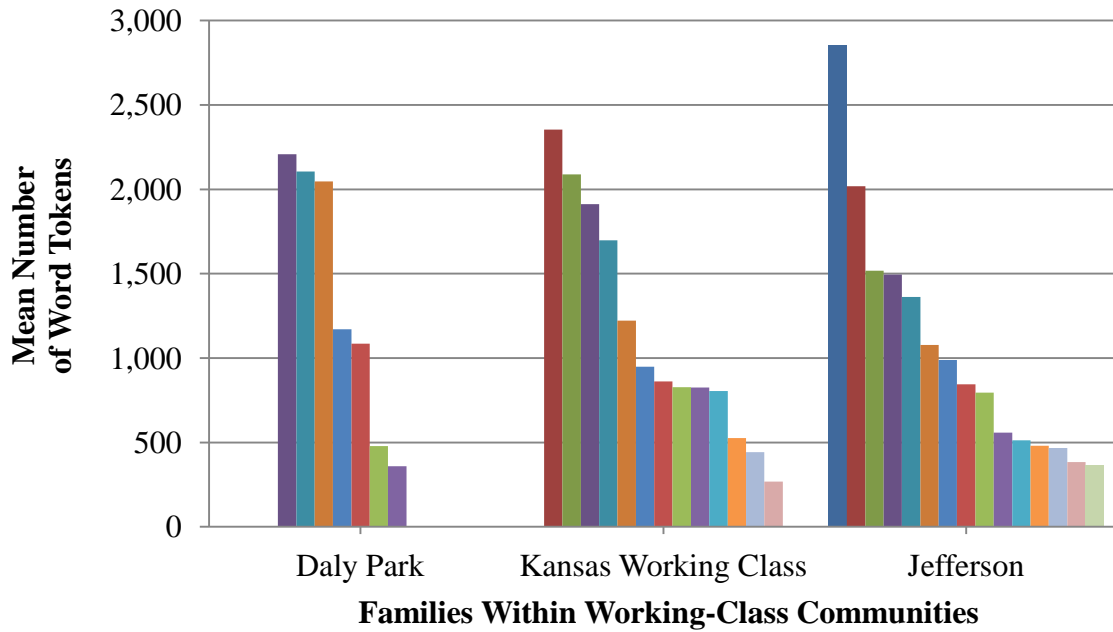
have contributed to these primary caregivers feeling more comfortable with both the data collection procedures and the researcher despite the fact that she was European American.



*Figure 4.4.* Distribution by family of the mean number of word tokens addressed per hour by primary caregivers to their children in the impoverished communities of the Black Belt of Alabama, South Baltimore, and the Kansas Impoverished community described by Hart and Risley (1995). Tokens in the communities of the Black Belt are twice the number actually recorded to adjust for the half-hour samples.

**Comparison of working-class communities.** Figure 4.5 shows the distribution of means of word tokens spoken by primary caregivers to children across the three working-class communities. Initial inspection of the figure reveals a significant overlap between the three communities, with agreement at both the upper and lower extremes of the distributions. A Tukey-Kramer Test of Paired Comparisons confirmed this suspicion: No significant differences were found between the mean numbers of words spoken by primary caregivers to their children across these three communities. Based on this result, it seems likely that the working-class participants across these three communities were

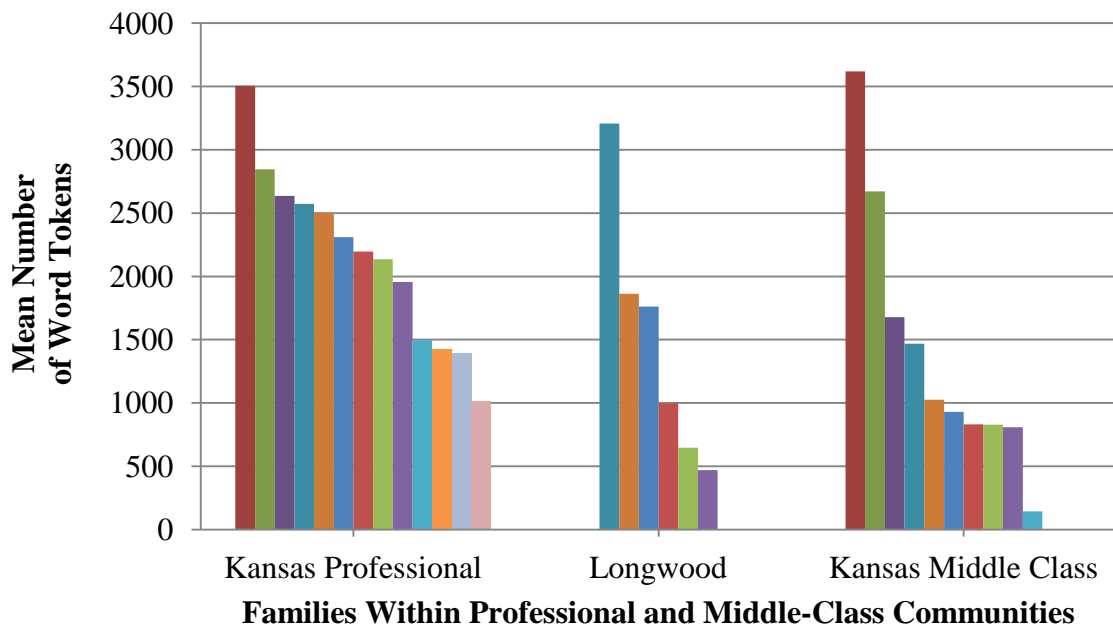
not impacted as greatly by the observational conditions surrounding data collection procedures as were the impoverished communities, if in fact it were those conditions that contributed to differences between the communities.



*Figure 4.5.* Distribution by family of the mean number of word tokens addressed per hour by primary caregivers to their children in the working-class communities of Daly Park (Chicago), Jefferson (Indiana), and in the working-class Kansas community described by Hart and Risley (1995). Tokens in the communities of Daly Park and Jefferson are twice the number actually recorded to adjust for the half-hour samples distributions.

**Comparison of middle-class and professional communities.** Figure 4.6 shows the distribution of means word tokens spoken by primary caregivers to children across the two middle-class communities of Longwood and Kansas and the professional community of Kansas. Initial inspection of the figure reveals a significant overlap between the two middle-class communities, with agreement at both the upper and lower extremes of the two middle-class communities, however. Fully nine of the professional primary caregivers spoke more words to their children than did all but one Longwood

primary caregiver and all but two Kansas middle-class primary caregivers. Nevertheless a Tukey-Kramer Test of Paired Comparisons found no significant differences between these three communities, perhaps again owing to the large amount of variation in the natural language samples.



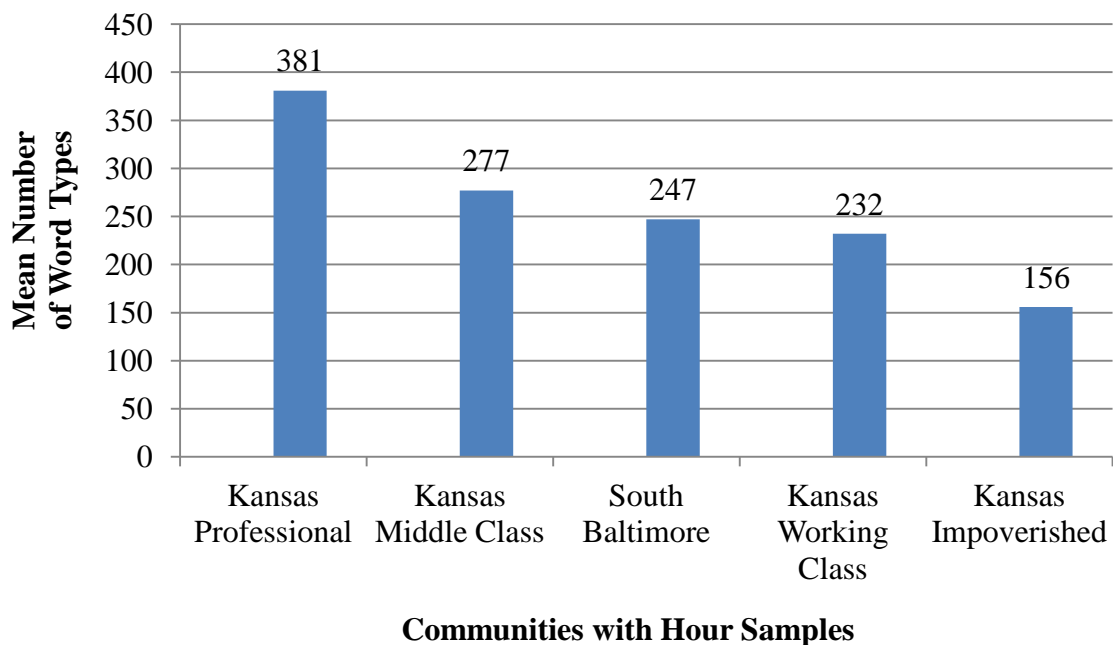
*Figure 4.6.* Distribution by family of the mean number of word tokens addressed per hour by primary caregivers to their children in the middle-class community of Longwood (Chicago), and in the middle-class and professional Kansas communities described by Hart and Risley (1995). Tokens in the community of Longwood are twice the number actually recorded to adjust for the half-hour samples.

### Analysis of Word Types Across Communities

The number of types, or different words, present in a language sample is one measure of the diversity or quality of vocabulary present in the sample. Unfortunately, the analysis of word types across communities is hindered in this study by the difference between the hour-long observations in the South Baltimore and the Kansas communities (Hart & Risley, 1995) and the half-hour-long observations in the Black Belt, Jefferson, Daly Park, and Longwood communities. For that reason, analysis will proceed in several

stages. First, a direct comparison between the impoverished community of South Baltimore and the four communities of various social classes from Kansas will be presented. Second, a comparison of the four communities whose observations are a half hour in length will be presented. Finally, two estimates of vocabulary diversity, the type-to-token ratio and the  $\mathcal{D}$  statistic, will be discussed with respect to their validity for assessing quality of verbal input in these samples.

The numbers of word types spoken by primary caregivers to their children in South Baltimore and the four Kansas communities (Hart & Risley, 1995) are presented in Figure 4.7. As shown in the figure, the primary caregivers in South Baltimore spoke more word types per hour to their children than did the primary caregivers in the Kansas Working Class or Impoverished communities, and fewer word types per hour to their children than did the primary caregivers in the Kansas Middle Class or Professional

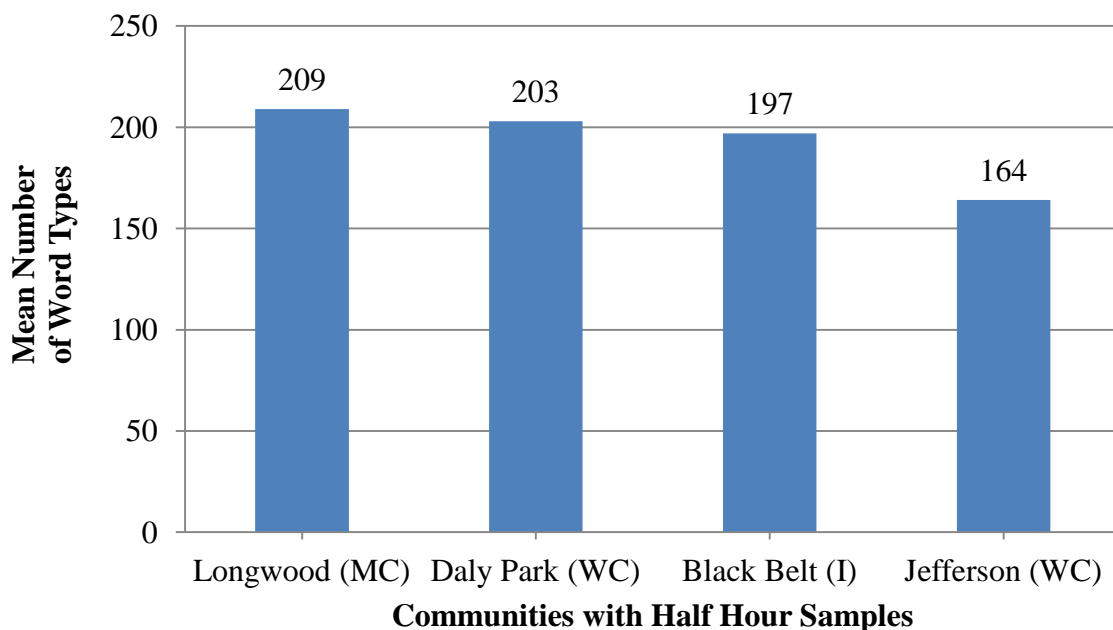


*Figure 4.7.* The mean number of word types addressed by primary caregivers to their children in South Baltimore and the four Kansas communities described by Hart and Risley (1995). All samples are one hour in length.



communities. These differences did not reach statistical significance, however. A Tukey-Kramer Test of Paired Comparisons revealed an Honestly Significant Difference (HSD) value of 141.88 ( $p < .05$ ); only the Kansas Working Class and Impoverished communities differed significantly from the Kansas Professional community.

The number of types spoken by primary caregivers to their children in the four communities for which there are half-hour samples (Black Belt, Jefferson, Daly Park, and Longwood) are presented in Figure 4.8. As shown in the figure, primary caregivers in the working-class community of Jefferson, Indiana spoke the fewest tokens per half hour (164) to their children within these four communities, whereas the primary caregivers in the middle-class community of Longwood, Chicago spoke the most tokens per half hour (209) to their children. The impoverished primary caregivers in the Black Belt of Alabama spoke 197 tokens per half hour to their children, and the working-class primary



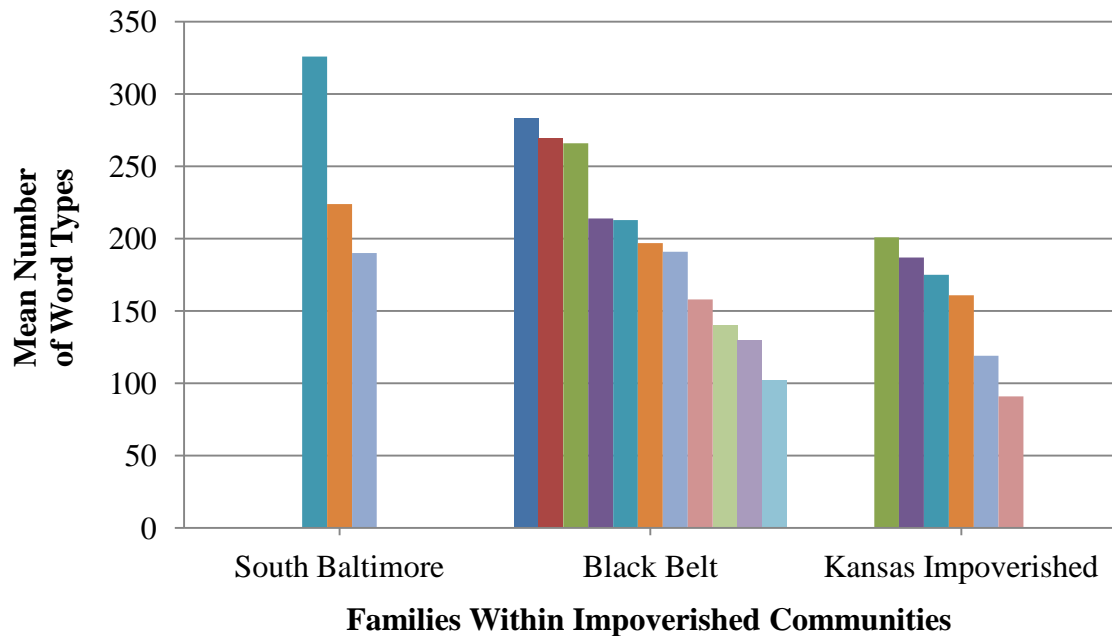
*Figure 4.8.* The mean number of word types addressed by primary caregivers to their children in the Daly Park (Chicago), Black Belt of Alabama, Jefferson (Indiana), and Longwood (Chicago). All samples are one-half hour in length.

caregivers in Daly Park, Chicago spoke 203 tokens per half hour to their children. A Tukey-Kramer Test of Paired Comparisons revealed no significant differences between these communities, however.

### **Analysis of Communities by Social Class**

Despite the fact that conclusive comparisons across all communities (the five communities represented in the present study and the four Kansas communities) of the number of word types spoken by primary caregivers to their children cannot be made due to sampling differences, the distributions of participant means across communities defined by social address was examined.

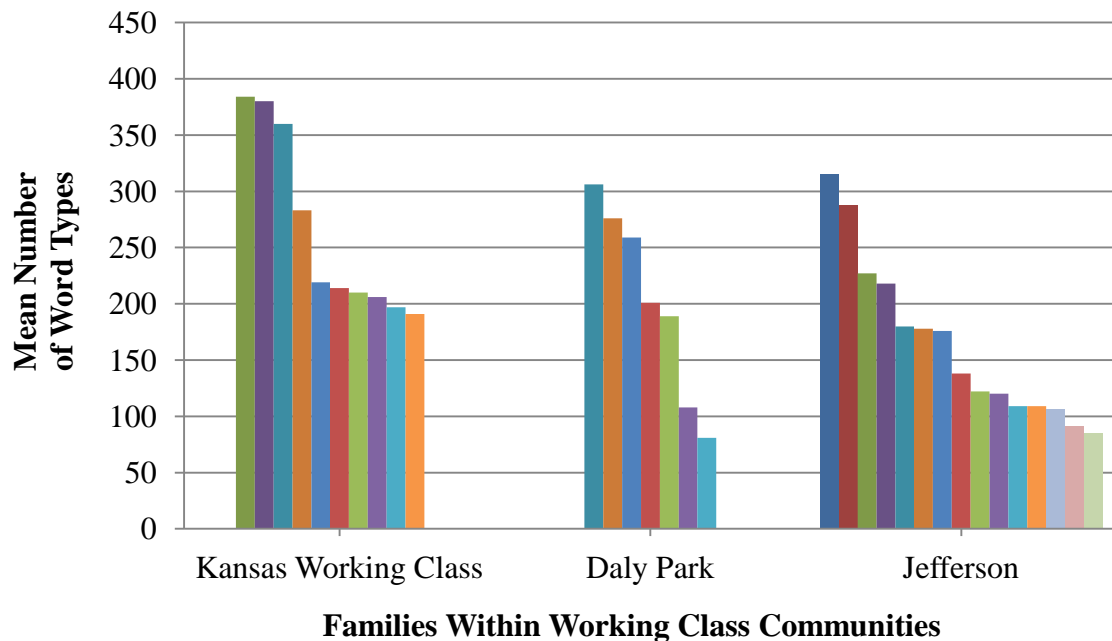
**Comparison of impoverished communities.** Figure 4.9 presents the distributions of participant means across the two impoverished communities of South Baltimore and the Black Belt of Alabama described in the present study, and the impoverished group of participants in the Kansas study of Hart and Risley (1995). Inspection of the distributions reveals that there is a remarkable similarity across the communities, despite the fact that the samples available for analysis in the Black Belt corpus are half the length of the samples from the other communities. In fact, over one-third of the Black Belt participants heard more word types spoken by their primary caregivers on average per half hour than each of the Kansas participants heard in an hour. The South Baltimore distribution reveals that each of the three girls in this community heard nearly as many or more new words spoken by their mother on average per hour than did each of the Kansas participants. A Tukey-Kramer Test of Paired Comparisons confirmed that there were no significant differences between these three groups that are defined by similar social addresses.



*Figure 4.9.* The mean number of word types addressed by primary caregivers to their children in the impoverished communities of South Baltimore, the Black Belt of Alabama, and in the impoverished Kansas community described by Hart and Risley (1995). The observations in South Baltimore and Kansas were all one hour in length, but the observations in the Black Belt were all one-half hour in length.

**Comparison of working-class communities.** A similar analysis of the distributions of participant mean numbers of types is presented in Figure 4.10 for the working-class communities of Jefferson (Indiana), Daly Park (Chicago), and the working-class participants from Kansas observed by Hart and Risley (1995). In this comparison, there is considerable overlap between the distributions. There is little difference at the low end of the range, with almost complete overlap between the two groups. At the upper end of the range shows that 25 percent of the Kansas primary caregivers spoke more new words to their children than did any of the Indiana and Daly Park primary caregivers. However, it remains important to note that the Kansas samples are one hour in length and the Jefferson and Daly Park samples are just one-half hour in length; one can speculate the distributions would overlap to an even greater extent if the

samples were equal in length. A Tukey-Kramer Test of Paired Comparisons confirmed that there were no significant differences between these three groups that are defined by similar social addresses.

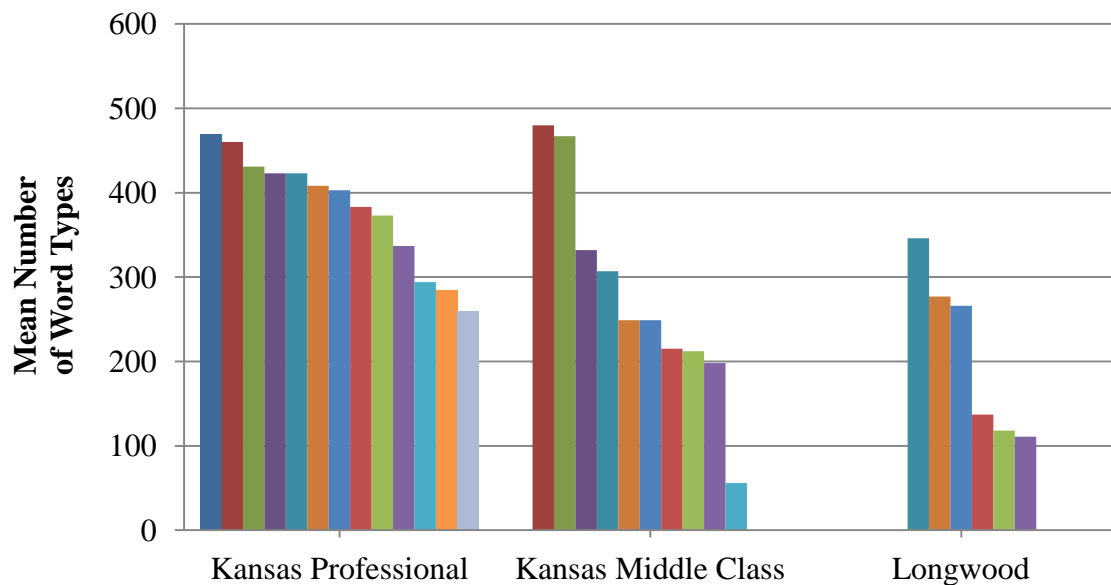


*Figure 4.10.* The mean number of word types addressed by primary caregivers to their children in the working-class communities of Jefferson (Indiana) and Daly Park (Chicago) and in the working-class Kansas community described by Hart and Risley (1995). The observations in Kansas were all one hour in length, but the observations in Jefferson and Daly Park were all one-half hour in length.

#### **Comparison of middle-class and professional communities.** Figure 4.11

presents the distributions of mean number of primary caregiver words addressed to children for the two middle-class communities of Longwood (Chicago) and Kansas, and for the professional community of Kansas. Although there is reasonable overlap between the Longwood and Kansas Middle Class distributions, there seems to be reason to suspect that both of the Kansas samples come from different distributions. This result is not particularly surprising given that it is in the direction one might expect given the fact that

the Kansas samples were all twice as long as the Longwood samples. To that end, no further analysis is warranted.



**Families Within Middle-Class and Professional Communities**

*Figure 4.11.* The mean number of word types addressed by primary caregivers to their children in the middle-class community of Longwood (Chicago) and in the Kansas middle-class and professional communities described by Hart and Risley (1995). The observations in Kansas were all one hour in length, but the observations in Longwood were all one-half hour in length.

### Analysis of Vocabulary Diversity Across Communities

#### Type-to-Token Ratios

The ratios of word types to word tokens were calculated for each sample. In Chapter 2, a discussion was presented concerning the difficulty of using the type-to-token ratio to analyze samples of extreme differences in size. To summarize that discussion, as the number of word tokens increases in any sample of speech, the type-to-token ratio necessarily decreases in a curvilinear function. In the present study, however, four communities have samples that are each one-half hour in length. Therefore, it seemed possible that the type-to-token ratio might provide a reasonable estimate of diversity for

these communities. However, as the descriptive statistics presented earlier in this chapter demonstrate, there still remain large differences in sample sizes across primary caregivers and across communities. To test the validity of the type-to-token ratio for assessment of the diversity of primary caregivers' speech to their children in these four communities, a Pearson product-moment correlation was conducted to test for a possible relationship between the type-to-token ratio and the number of types of different words spoken by primary caregivers. It was reasoned that if the type-to-token ratio is a valid measure of vocabulary diversity, primary caregivers who spoke a greater number of different words to their children should have higher type-to-token ratios than primary caregivers who spoke a lower number of different words. In addition, it was reasoned that should a negative relationship exist between the type-to-token ratio and the number of different words spoken by primary caregivers to their children, that scenario would represent strong evidence that primary caregivers who spoke more overall words were being penalized by the total number of words spoken even though they actually used a more diverse vocabulary. In fact, this scenario was confirmed by the analysis. The correlation between the type-to-token ratio and the number of different words (types) spoken by primary caregivers to their children was  $-.91, p < .0001$ . The correlation between the type-to-token ratio and the total number of words (tokens) spoken by primary caregivers to their children was  $-.84, p < .0001$ . In other words, there is considerable evidence to suggest that the type-to-token ratio is an invalid measure of vocabulary diversity even for samples of equivalent length in terms of time when the variability in terms of number of words spoken is as great as the variability of these observations. It should be noted that the hypothesis analyzed in this chapter represents a condition that involves the analysis of

the fewest numbers of words since it analyzes only the speech of a single interlocutor; therefore, the numbers of words to be analyzed under each of the other hypotheses can only be greater, rendering the type-to-token ratio even more inadequate for their analyses of those conditions. To that end, descriptive statistics for the type-to-token ratios will be provided in subsequent chapters analyzing the other two conditions of this study (All Speech to the Child, and All Speech to and Around the Child), but further analysis will not be undertaken.

### **The $\mathcal{D}$ Estimate**

Next, the  $\mathcal{D}$  estimate of vocabulary diversity was examined for its validity in measuring differences between these five communities in terms of the quality of vocabulary spoken by primary caregivers to their children. A Pearson product-moment correlation was conducted to test for a relationship between the  $\mathcal{D}$  estimate and the number of word tokens spoken by primary caregivers to their children. Here it was reasoned that if a negative relationship were found, such that the  $\mathcal{D}$  estimate decreased when the numbers of word tokens spoken by primary caregivers to their children increased, the  $\mathcal{D}$  estimate would be responding to the extreme differences in vocabulary production across the five communities in a manner similar to the type-to-token ratio. In other words, this analysis was conducted to guarantee that the  $\mathcal{D}$  estimate was not sensitive to the sheer differences in volume of speech spoken by primary caregivers across these five communities. In this analysis, a significant relationship was found between the quantity of words spoken by primary caregivers and the  $\mathcal{D}$  estimate of vocabulary diversity,  $r = .44, p = .01$ . This result was in an unexpected direction,

however, since the  $\mathcal{D}$  estimate was demonstrated to increase as the number of word tokens increased. No explanation is offered for this unexpected result awaiting similar analyses of the relationship between the  $\mathcal{D}$  estimate and the total number of words spoken by other interlocutors to be undertaken in subsequent chapters.

A Pearson product-moment correlation was also conducted to test for a relationship between the  $\mathcal{D}$  estimate and the number of word types spoken by primary caregivers to their children. It was reasoned that if the  $\mathcal{D}$  estimate is measuring vocabulary diversity, a positive relationship should exist between the estimate itself and the number of different types spoken by primary caregivers to their children. In other words, primary caregivers who produced higher numbers of different word types in their speech should not be penalized by any estimate of diversity simply due to the fact that these same primary caregivers also tended to talk more. The analysis demonstrated that this situation obtained. The correlation between the  $\mathcal{D}$  estimate and the number of new word types spoken by primary caregivers to their children was  $.67, p < .0001$ . The  $\mathcal{D}$  estimate increased as the number of new word types spoken by primary caregivers increased.

Given the strong, positive association between the  $\mathcal{D}$  estimate and the number of new word types spoken by primary caregivers to their children, a tentative conclusion was drawn that  $\mathcal{D}$  does represent a valid estimate of diversity for the communities analyzed here. An analysis of the  $\mathcal{D}$  estimate of vocabulary diversity across these five communities was conducted using the Tukey-Kramer Test of Paired Comparisons. Only one comparison reached significance. The diversity of primary caregiver speech in the



impoverished community of the Black Belt ( $\mathcal{D} = 60.10$ ) was significantly less than the diversity of primary caregiver speech in the middle-class community of Longwood ( $\mathcal{D} = 80.55$ ),  $HSD_{.05(5, 37)} = 19.88$ ,  $p < .05$ . There was no reason to assume that the diversity of speech spoken by primary caregivers to their children between any other pair of communities was different. Figure 4.12 displays the mean  $\mathcal{D}$  estimates across the five communities for the speech of primary caregivers to their children.

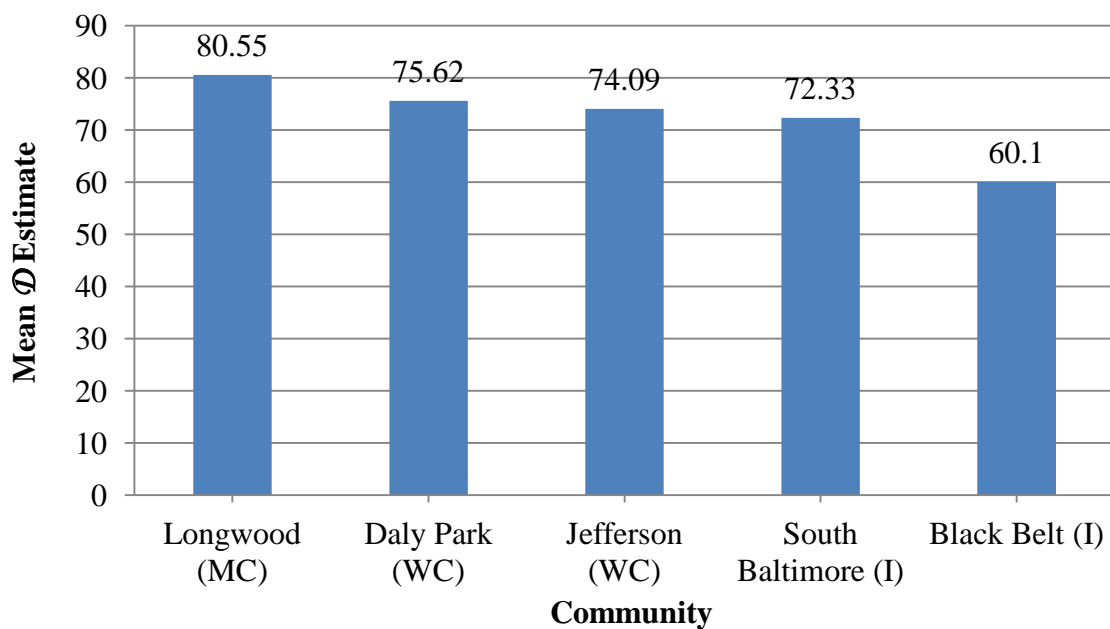


Figure 4.12. The  $\mathcal{D}$  estimate of diversity within vocabulary spoken by primary caregivers to their children in the communities of Longwood (Chicago), Daly Park (Chicago), Jefferson (Indiana), South Baltimore, and the Black Belt of Alabama.

### Summary

In this chapter several comparisons have been drawn both across the five communities studied ethnographically and across those five communities and the four communities studied by Hart and Risley (1995). The number of word tokens spoken by primary caregivers to their children was considered first. In the analysis of the five communities in the present study, no significant differences were found despite relatively

extreme differences in means with Black Belt primary caregivers speaking over 70 percent more tokens per hour to their children than either South Baltimore or Jefferson primary caregivers. One possible reason for this result is the extreme variability in individual family sample sizes within communities. However, another possible reason for this result was suggested by an examination of means for the amount of speech spoken by primary caregivers to their children across all nine communities. Only one difference emerged in this analysis, namely that the Kansas professional community primary caregivers spoke more to their children than did the Kansas impoverished community primary caregivers. There was no reason to suspect differences between any of the other community comparisons.

Communities were then grouped around social class. Among the three impoverished communities, only the Black Belt primary caregivers were shown to talk more to their children than did the Kansas impoverished primary caregivers. The South Baltimore mothers did talk more to their children than did caregivers in Kansas, but the difference did not reach significance. In the working-class group, no significant differences were found between the Jefferson, Daly Park, and Kansas communities, confirming that the means for these communities did fall within a fairly limited range. Perhaps more surprising, no differences were shown to exist between the two middle-class communities of Longwood and Kansas and the Kansas professional community, despite the fact that the professional primary caregivers in Kansas spoke more than 40 percent more words to their children than did primary caregivers in the other communities. This result seems easily attributable to the wide range in word production between individuals that is often found in many studies.

Comparisons of word types proceeded in a step-by-step manner due to the difficulties associated with studying word types in speech samples of different lengths. Although the South Baltimore community primary caregivers spoke more word types per hour to their children than did either the Kansas working-class or impoverished primary caregivers, the only significant difference found in this analysis was between the Kansas communities themselves. In other words, there was no reason to assume that the South Baltimore children heard more or fewer new word types per hour than any of the Kansas communities. Analysis of the four communities in the present study for which there were only half-hour samples also led to the conclusion that there was no reason to suspect a difference between the number of new word types these children heard spoken by their primary caregivers. Word types were examined across communities arrayed by social class. Any findings in this analysis would only have been important if they were shown to favor communities with shorter samples since such a result would have been unexpected. No significant differences were found; however, in the Alabama case, the number of types spoken by primary caregivers in half-hour samples was greater than the number of types spoken by Kansas impoverished caregivers in hour samples.

The examination of the type-to-token ratios across these communities confirmed previous statements in the literature that this measure of diversity is invalid for large sample sizes. Inspection of the  $\mathcal{D}$  estimates across the five communities in the present study, however, revealed reason to believe that these estimates do reflect overall differences in vocabulary differences in the directions one would expect. To that end, it was concluded that further analysis of type-to-token ratios would be eliminated in favor of the  $\mathcal{D}$  parameter. The analysis of the  $\mathcal{D}$  estimates for the five communities

demonstrated that vocabulary diversity was less in the impoverished community of the Black Belt than in the middle-class comparison community of Longwood, but that no other differences between communities obtained.

In sum, analysis of word types in primary caregiver to child speech must remain inconclusive due to the sampling issues across these communities; however, there is some reason to assume that overall vocabulary diversity in primary caregiver to child speech is lower in the Black Belt than in the other communities. To an extent, this finding is mitigated by the much greater amount of talk overall spoken by the Black Belt caregivers. Although  $\mathcal{D}$  is not as sensitive to sample sizes as the type-to-token ratio, there is no assurance that it is not reflecting sample size at all. In the end, only Kansas professional primary caregivers talked more to their children than did Black Belt caregivers. Unfortunately this study must remain agnostic as to the relative vocabulary diversity between these two communities and hence to the sensitivity of  $\mathcal{D}$  since  $\mathcal{D}$  cannot be calculated for the Kansas samples in the absence of the raw data for these communities. However, it is most likely that the comparison would favor the Kansas professional community. If one uses the South Baltimore data as an intermediary reference point, one finds that the South Baltimore mothers spoke fewer word tokens to their children than did the Kansas professional primary caregivers; at the same time, the South Baltimore mothers' speech was more diverse than that of the primary caregivers in Alabama as estimated by  $\mathcal{D}$ . Notwithstanding measures of vocabulary diversity, there remains considerable evidence that the range of the number of words spoken by primary caregivers to children is much more varied and considerably larger than the Kansas data predict. There also appears to be confirmation of the fact that the two Kansas

communities situated at the extremes represented unusual cases and not simply the upper and lower limits of normally distributed data. Whether the differences exist due to the lack of comfort the Kansas impoverished primary caregivers felt with the data collection process or due to the overrepresentation of highly educated academic professionals, the differences observed between these communities have likely created an overestimation of the gap in the number of words heard by children from varying social classes.

CHAPTER 5  
RESULTS FOR SPEECH SPOKEN TO CHILDREN  
BY ALL INTERLOCUTORS

This chapter addresses the second hypothesis of this study, namely, are there differences in the amount of speech addressed to language-learning children by other speakers in the child's environment across the five communities under study? Furthermore, how does the amount and quality of this speech compare to the amount and quality of speech spoken by the child's primary caregiver? These analyses represent a point of departure from previous studies of vocabulary input that have limited the data to words spoken by the child's mother alone, or by the child's primary caregiver. In each of the five communities analyzed in the present study, however, other children and adults in the focal child's environment had significant and protracted interaction with the focal child, experiences that would logically seem to contribute to the child's vocabulary acquisition.

The central concern of this study remains deciding what words in the child's environment are counted in terms of contributing to the child's acquisition of language. The difficulty of this task has already been referenced in the description of the methods of the study in Chapter 3, and in the discussion at the beginning of Chapter 4 concerning the determination of what vocabulary Hart and Risley (1995) counted in their assessment of words addressed to the child. However, at no point in this study does this difficulty come more to the fore than in the decisions surrounding the talk of other individuals in the child's proximity addressed to the child. This decision involves assessment of both

familial norms and cultural values, an assessment that can only be made after considerable involvement in the lives of the participants.

The first question that must be addressed concerns the degree to which a father is present in the home at all, and if he is, should he be considered as a significant other in the child's life equal in importance to the child's mother? It appears from Hart and Risley's analysis (1995) that in fact they did follow this approach, particularly when the father was the only speaker present at an observation. This situation never obtained in the five corpora analyzed in the present study; however, several observations were made where the father was the producer of the greatest number of words throughout the observation, all in the Jefferson corpus. Nevertheless, no father in this study was a "stay-at-home-dad." When fathers talked to their children extensively in these corpora (again, particularly in Jefferson), they were at home after a long day's work. Mothers were often in the kitchen preparing or cleaning up after the evening meal, and fathers were enjoying their limited time with their children while mother was perhaps enjoying a bit of time to herself. In these situations, fathers were often around their children no more or less time than other significant individuals in the child's life such as grandmothers, grandfathers, and especially siblings. To that end, should the father's speech be considered as a privileged role in the child's life due to his status and the perhaps special nature of his interactions, or should his speech be considered no more or less significant in the child's life than that of a grandmother, grandfather, aunt, or other relative with whom the child has frequent contact?

Unfortunately little research to date helps to offer a resolution to this problem. The absence to date of such data in the descriptions of vocabulary input is most likely due

to the focus and methodology of many studies of early vocabulary acquisition. First, most observational studies of vocabulary acquisition do not follow children much past their second birthday (cf. Hoff-Ginsberg, 1991; Hurtado et al., 2008; Huttenlocher et al., 1991). Furthermore, observational studies of older preschoolers have only considered the vocabulary input of a single, primary caregiver (and sometimes specifically only mothers), likely due to a desire to obtain experimental control (cf. Pan et al., 2005; M. L. Rowe, 2008). Of course, the use of the descriptor “primary caregiver” infers, but does not confirm, that at some points in time this caregiver was not the mother. Nevertheless, even if this inference is incorrect, it remains true that research to date has privileged the talk of one caregiver at a time, agreeing implicitly with an assumption that children persist in their preference for joint-attention episodes well into the preschool years. As stated in Chapter 4, although there is no reason to assume that joint-attention episodes are an important means by which children learn language as they progress out of the one- and two-word stages, analyses of language acquisition persist as if they are. A more complete discussion of this situation will be addressed in the concluding chapter of this study, but suffice it to say at the present that the persistence of this assumption must be based in relative measures not only on the desire for experimental control, but also to some extent on cultural assumptions concerning who takes care of small children on a routine basis.

The second question of concern revolves around the special case of the speech of youth, and particularly the speech of siblings. Little research to date has focused on the amount or diversity of sibling or youth speech to children, and what research has been done has typically supported the notion that youth speech to children is not as detrimental as was previously thought (Bornstein, Leach, & Haynes, 2004; Pine, 1995). These



studies have not assessed, however, the actual amount of speech addressed by siblings or youth to language-learning children. To that end, the research literature offers little to no information concerning the relative amount of sibling and youth speech in children's lives in comparison to the speech of mothers, fathers, or other adults present in the child's environment.

With these considerations in mind, the present study divided speech addressed to children into two complementary categories, Primary Caregiver to Child and Other to Child. As discussed in Chapter 4 where the Primary Caregiver to Child category was analyzed, this solution represented a middle ground taken in an attempt to make the present study comparable to other extant studies in the literature while simultaneously analyzing the ethnographic data in meaningful ways given the origin and amount of others' talk around small children within these communities. The speech of a single, primary caregiver was considered in Chapter 4. While this speech was occasionally that of a grandmother, it was never the speech of a father or other relative. In no case in the present corpora did a situation obtain where it seemed as if the father was the primary caregiver. However, there were four observations in the Jefferson corpus (Dalton, 24 months; Evan, 36 months; Robbie, 26 months; and Shane, 28 months) where only the father was present watching over the child; interestingly, each of these observations are fathers alone with their sons. Two observations occurred, one in the Black Belt corpus (Sebrina, 28 months), and one in the Jefferson corpus (Caitlyn, 30 months), where only older youth were present in the immediate environment of the videotaping (in each case, grandmothers were present attending to the play, but were outside of the range of conversation).

Therefore, all father speech in this study was coded as Other to Child. This decision was based primarily on the relatively minimal amount of father speech across the five corpora when compared to mother or grandmother speech, combined with the fact that when fathers were present at the time of observation, in all of the samples except the four described in the previous paragraph, the mother was present at the same time. In order to keep one category in the present analysis for only the presentation of the speech of one significant other (and therefore to meet the criterion of making the present study comparable to other extant studies), father speech was not included in the analysis presented in Chapter 4 of Primary Caregiver to Child. Youth to Child speech was also categorized separately. Despite the two observations where youth speakers were the child's only interlocutors, it was never the situation that a youth could have been considered the child's primary caregiver.

Finally, as has been stated at various points in this study, one of the goals of the present research has been to situate the results from these five corpora in this investigation within the context of the Hart and Risley (1995) study. However, when analysis turns to consideration of all interlocutor speech to the child (and ultimately in Chapter 6 to all speech to and around the focal child), the comparisons between Hart and Risley's work and the present study must be carefully interpreted. There is no evidence that Hart and Risley ever counted the speech of more than one interlocutor to the child (although as mentioned earlier, there are occasional references in their 1995 monograph that they may have done so on occasion). There is by contrast decided reason to conclude that they never included the speech of other interlocutors around the child in their analyses. To that end, comparisons between results under the two conditions

described in Chapters 5 and 6, the speech of all interlocutors to the child and the speech of all interlocutors to and around the child, are for descriptive purposes only. The goal of these comparisons is to determine whether children routinely hear more vocabulary addressed to and around them in the course of any given day. Given that this scenario is shown to be true, that result in no way changes those results described in Chapter 4 concerning primary caregivers' speech to their children. However, if it can be shown that children do routinely hear more words spoken either to or around them in their ambient verbal environment, such a result may help to recontextualize the stark differences reported by Hart and Risley between the number of words children from different social classes hear (i.e., the so-called thirty million word gap).

### **Outline of the Present Chapter**

This chapter, like Chapter 4, also begins with a description of the data from the five communities. The descriptive statistics for the amount of speech spoken by all interlocutors to the focal child are presented first. Communities are ordered broadly by social class and economic standing. Therefore in the descriptions that follow the two impoverished communities of South Baltimore and the Black Belt of Alabama are presented first; followed by the two working-class communities of Jefferson, Indiana and Daly Park, Chicago; and concluding with the middle-class comparison community of Longwood, Chicago.

Descriptive statistics presented include the mean numbers of word tokens spoken by all interlocutors to the child, the mean numbers of word types, the mean type-to-token ratios, and the mean  $\mathcal{D}$  estimates for each child in the respective communities. Analysis proceeds to a consideration of the mean numbers of word tokens spoken by all

interlocutors to the focal child. In a similar manner to the presentation in Chapters 4, data will be presented first for the five communities in the present study, and then for all communities including the Kansas samples. Data will be analyzed in two sets of comparisons. The first set of comparisons will examine differences between all communities as a whole. These comparisons are consistent with the assumption that there are no differences in the amount of vocabulary in the ambient environment of children regardless of their social address. The second set of comparisons will examine any differences located in the first analysis to tease apart possible social class differences that may be found.

At that point, analysis then turns to an examination of the mean numbers of word types across the five communities in the present study accompanied by a distributional analysis of these data and to comparisons with Kansas communities of similar social class. The focus on types must again proceed in a step-by-step manner due to varying lengths of sample sizes. Kansas data will still be considered in this analysis in order to provide a glimpse at the amount of difference in vocabulary estimates that might exist if the total amount of speech addressed to the child is considered. It must be remembered that all comparisons among the five communities of this study and the four communities described by Hart and Risley (1995) are only to show potential differences between the amount of speech available for children to hear from all interlocutors in contrast to the amount of speech they may typically hear from their mothers. No conclusive comparisons across these nine communities may be made because Hart and Risley did not collect data on the speech of all interlocutors to the child.

This chapter will also consider the vocabulary diversity of all speech in the child's ambient environment by using the  $\mathcal{D}$  estimate to characterize comparisons across communities. After an initial comparison of diversity across the five communities in the present study, these estimates will be compared with the estimates of vocabulary diversity in the speech of the primary caregiver to the child.

Finally, this chapter examines the amount and character of other speech addressed to the child as seen through the prism of youth speech. Although other interlocutors were present in the observations and frequently talked to the focal child, the speech of siblings and other youth visitors offers a special look into the sort of speech that is not considered when only speech of primary caregivers is measured.

### **Descriptive Analyses**

#### **South Baltimore**

Table 5.1 presents the descriptive data for all speech addressed to the three girls in the South Baltimore study (the descriptive statistics for individual observations are provided in Appendix A for word tokens and Appendix B for word types). Twelve hour-long observations were made of each child beginning on average when the child turned 19 months of age and continuing until the child was approximately 31 months of age. Within these samples, the mean number of total words spoken per hour (tokens) was 1,261, with a range from 193 to 2,689 words per hour.

The mean number of new words (types) spoken per hour by all interlocutors to the child was 272, with a range from 82 to 417 words per hour. The comparison of the lowest number of types within these observations (82) to that found within the Primary Caregiver to Child condition (8) is instructive. In both conditions (Primary Caregiver to

Table 5.1

*All Speech to Child in South Baltimore by Family (One-Hour Samples)*

Child	Number of Samples (Age Range in Months)	Mean Word Tokens (Range)	Mean Word Types (Range)	Mean Type/Token Ratio (Range)	Mean <i>D</i> (Range)
Amy	12 (17-30)	1094 (529-1849)	257 (192-323)	.25 (.17-.36)	73.90 (54.95-101.53)
Wendy	11 (22-31)	850 (193-1723)	212 (82-328)	.27 (.19-.42)	65.78 (44.14-82.52)
Beth	12 (18-32)	1840 (897-2689)	346 (253-417)	.20 (.15-.28)	77.16 (64.97-96.22)
Community		1261 (193-2689)	272 (82-417)	.24 (.15-.42)	72.28 (44.14-101.53)

Child speech versus All Speech to Child) the fewest number of words spoken occurred in the same observation when Wendy's mother was called away unexpectedly to attend to an emergency in the corner store owned by her boyfriend. In this case, Wendy's aunt remained in her care, and her speech to Wendy was not counted in the Primary Caregiver to Child condition. One might argue that the observation should have been suspended and rescheduled when the mother was present; by contrast, one might argue that the speech of Wendy's aunt should have been counted in the other condition, Primary Caregiver to Child. It remains unclear which choice Hart and Risley (1995) might have made, for at times they did record the speech of only a father or grandfather when no mother was present at the observation. The choice is moot, however, if one chooses to measure the actual everyday lives of children in the broad diversity of families in which they live. The fact remains that parents do have to leave suddenly at times, and if another reasonable caregiver is present, that caregiver will immediately step in to watch over the child. Considerable variation exists in the actual home life of any child, and that variation must be considered in any analysis of the everyday influences on development.

The mean type-to-token ratio for these samples was .24, with a range from .15 to .42.

The mean estimate of  $\mathcal{D}$  was 72.28, with a range of 44.14 to 101.53.

### **The Black Belt of Alabama**

Table 5.2 presents the descriptive data for all speech addressed to the six girls and five boys in the Black Belt study (the descriptive statistics for individual observations are provided in Appendix A for word tokens and Appendix B for word types). Six half-hour-long observations were made of each child except for Keisha who was sent to live with another relative in a different state after her fourth observation. The observations began when the child turned either 24 ( $n = 8$ ) or 28 ( $n = 3$ ) months of age and continued until the child turned 42 months of age. Within these samples, the mean number of total words spoken by all interlocutors per half hour (tokens) was 1,303, with a range from 186 to 2,824 words per half hour. In this analysis, however, all children except for Alicia, Keisha, and Lamont had at least one observation where the number of word tokens spoken to them was more than 2 standard deviations below the community mean. Given the variation among families mentioned in the word type analysis in terms of which children heard fewer word types across the two conditions, and the evidence in the word token analysis that eight of eleven children each had at least one observation where the number of word tokens spoken to them was especially low, it seems that this occurrence may just represent random variation across families at different points in time.

The mean number of new words (types) spoken per half hour by all interlocutors was 250, with a range from 83 to 433 words per half hour. In an analogous situation to that discussed in Chapter 4, three children had observations where the number of word types spoken by all interlocutors to them was more than 2 standard deviations below the

Table 5.2

*All Speech to Child in the Black Belt of Alabama by Family (Half Hour Samples)*

Child	Number of Samples (Age Range in Months)	Mean Word Tokens (Range)	Mean Word Types (Range)	Mean Type/Token Ratio (Range)	Mean $\mathcal{D}$ (Range)
Alicia	6 (24-42)	2046 (1203-2736)	316 (237-433)	.16 (.11-.21)	70.35 (46.56-99.00)
Daphne	6 (28-42)	1481 (651-2074)	310 (183-391)	.22 (.18-.28)	77.55 (59.80-92.47)
Keisha	4 (24-30)	1777 (1275-2121)	297 (249-323)	.17 (.15-.20)	75.00 (69.76-79.44)
Kendrick	6 (28-42)	1068 (315-2061)	224 (112-276)	.25 (.13-.36)	59.56 (46.32-67.78)
Lamont	6 (24-39)	1446 (981-2190)	253 (182-326)	.18 (.13-.23)	62.16 (47.69-77.70)
Markus	6 (24-42)	1190 (947-1620)	231 (181-341)	.20 (.16-.24)	54.23 (43.26-74.28)
Roland	6 (24-42)	702 (186-1015)	177 (91-232)	.29 (.22-.49)	56.89 (45.70-72.78)
Sebrina	6 (24-42)	1723 (839-2824)	304 (235-412)	.20 (.11-.31)	73.62 (45.58-108.73)
Shamekia	6 (28-42)	516 (191-749)	159 (84-207)	.33 (.25-.44)	65.21 (61.95-68.96)
Stillman	6 (24-42)	1687 (636-2343)	286 (204-339)	.19 (.13-.32)	71.65 (67.59-77.11)
Tahleah	6 (24-38)	700 (195-1079)	191 (83-254)	.30 (.22-.43)	61.35 (31.79-97.11)
Community		1303 (186-2824) $SD = 483$	250 (83-433) $SD = 54$	.23 (.11-.49)	66.14 (31.79-108.73)

community mean. However, only two of the three children (Roland and Tahleah) in this condition (All Speech to Child) were among the children with low observations in the Primary Caregiver to Child condition. In the Primary Caregiver to Child condition, Sebrina had a low observation where her primary caregiver did not speak very much to her. In the All Speech to Child condition, it is clear that other caregivers were talking to her. By contrast, Shamekia was not among the children with a low observation in the



Primary Caregiver to Child condition but is among the children with a low observation in the All Speech to Child condition due to the fact that only her mother was present in her observations. This analysis affords an opportunity to examine the relative importance of configuration of familial interlocutors. Finally, the mean type-to-token ratio for these samples was .23 with a range from .11 to .49. The mean estimate of  $\mathcal{D}$  was 66.14, with a range of 31.79 to 108.73.

For the purposes of exploratory analysis, point biserial correlations were conducted to determine if there were any relationship between the gender of the child and the number of word tokens or word types spoken by all interlocutors to the child. No significant relationship was identified between the gender of the child and the number of tokens spoken by all interlocutors,  $r_{pb}(9) = .16, p = .64$ . No significant relationship was identified between the gender of the child and the number of word types spoken by all interlocutors,  $r_{pb}(9) = .26, p = .43$ .

### **Jefferson, Indiana**

Table 5.3 presents the descriptive data for all speech addressed to the seven girls and eight boys in the Jefferson, Indiana study (the descriptive statistics for individual observations are provided in Appendix A for word tokens and Appendix B for word types). Nine half-hour-long observations were made of each child beginning on average when the child turned 21 months of age and continuing until the child was approximately 42 months of age (range = 18 to 42 months). Within these samples, the mean number of total words spoken per half hour (tokens) was 695, with a range from 9 to 2,829 words per half hour. In Jefferson, all but one of the participants had at least one observation where the number of word tokens spoken per half hour by all interlocutors to them was

Table 5.3

*All Speech to Child in Jefferson, Indiana by Family (Half Hour Samples)*

Child	Number of Samples (Age Range in Months)	Mean Word Tokens (Range)	Mean Word Types (Range)	Mean Type/Token Ratio (Range)	Mean $\mathcal{D}$ (Range)
Brittany	9 (20-40)	946 (9-1151)	217 (9-273)	.32 (.20-.29)	71.59 (54.24-106.29)
Brian	9 (22-42)	625 (87-1139)	188 (54-276)	.36 (.23-.62)	73.57 (45.21-101.81)
Caitlyn	9 (22-42)	891 (454-1532)	243 (173-323)	.29 (.21-.38)	85.55 (68.55-112.60)
Cherie	9 (24-42)	376 (118-830)	146 (63-262)	.42 (.32-.53)	73.78 (38.08-121.78)
Dalton	9 (18-42)	769 (564-902)	229 (187-290)	.30 (.23-.35)	78.63 (57.15-114.41)
Drew	9 (20-40)	473 (50-1313)	150 (35-315)	.39 (.24-.70)	63.70 (40.58-99.91)
Evan	9 (20-42)	343 (39-634)	133 (11-234)	.41 (.28-.58)	70.44 (44.13-107.97)
Jason	9 (24-42)	1055 (525-1651)	295 (187-379)	.29 (.22-.36)	102.25 (78.07-133.17)
Jaymie	9 (19-42)	1622 (853-2829)	339 (261-475)	.23 (.16-.34)	92.90 (85.08-110.38)
Kaleigh	9 (20-40)	395 (88-616)	158 (63-233)	.44 (.34-.72)	83.70 (67.75-97.81)
Morgan	9 (18-42)	735 (81-1704)	200 (52-292)	.35 (.17-.64)	76.42 (53.08-104.82)
Robbie	9 (20-42)	593 (333-838)	193 (124-236)	.33 (.22-.47)	85.24 (58.47-114.26)
Sarah	9 (24-42)	551 (54-1256)	193 (43-414)	.41 (.28-.80)	82.05 (60.80-119.06)
Shane	9 (22-42)	554 (101-1204)	170 (47-300)	.39 (.25-.65)	71.77 (29.50-102.65)
Wesley	9 (22-42)	497 (198-854)	174 (98-256)	.36 (.30-.49)	74.61 (52.67-97.44)
Community		695 (9-2829) $SD = 322$	202 (9-475) $SD = 55$	.35 (.16-.80)	79.08 (29.50-133.17)

more than 2 standard deviations below the community mean. In addition, 10 of 15

participants had at least one observation where the number of word types spoken per half

hour by all interlocutors to them was more than 2 standard deviations below the community mean. These results seem to confirm the observation made in the discussion of the Black Belt of Alabama community, namely that the observations with very few vocabulary tokens and types spoken to the child represent random occurrences across families, and are not due to any systematic variation within families. The mean number of new words (types) spoken per hour was 202, with a range from 9 to 475 words per half hour. The mean type-to-token ratio for these samples was .35, with a range from .16 to .80. The mean estimate of  $\mathcal{D}$  was 79.08, with a range of 29.50 to 133.17.

For the purposes of exploratory analysis, point biserial correlations were conducted to determine if there were any relationship between the gender of the child and the number of word tokens or word types spoken by all interlocutors to the child. No significant relationship was identified between the gender of the child and the number of word tokens spoken by all interlocutors,  $r_{pb}(13) = .27$  ( $p = .33$ ). No significant relationship was identified between the gender of the child and the number of word types spoken by all interlocutors,  $r_{pb}(13) = .20$  ( $p = .47$ ).

### **Daly Park, Chicago**

Table 5.4 presents the descriptive data for all speech addressed to the three girls and four boys in the Daly Park, Chicago study (the descriptive statistics for individual observations are provided in Appendix A for word tokens and Appendix B for word types). Three ( $n = 2$ ) or four ( $n = 5$ ) half- hour-long observations were made of each child. Observations began on average when the child turned 31 months of age and continued until the child was approximately 47 months of age (range = 30 to 52 months). Within these samples, the mean number of total words spoken per half hour (tokens) was

Table 5.4

*All Speech to Child in Daly Park, Chicago by Family (Half Hour Samples)*

Child	Number of Samples (Age Range in Months)	Mean Word Tokens (Range)	Mean Word Types (Range)	Mean Type/Token Ratio (Range)	Mean $\mathcal{D}$ (Range)
Colleen	3 (32-39)	1056 (767-1268)	307 (274-338)	.30 (.27-.36)	103.27 (93.63-110.76)
Helen	4 (31-44)	1105 (848-1428)	276 (237-304)	.26 (.21-.28)	81.10 (64.72-100.70)
Mary	3 (32-43)	291 (121-523)	122 (62-167)	.48 (.32-.60)	73.02 (43.77-113.43)
David	4 (30-50)	543 (118-814)	189 (69-261)	.40 (.29-.58)	81.89 (50.78-109.07)
Devon	4 (32-50)	324 (72-724)	106 (50-183)	.46 (.25-.69)	55.00 (49.88-62.44)
Michael	4 (31-48)	625 (347-1091)	212 (166-248)	.39 (.23-.49)	86.33 (43.16-116.72)
William	4 (31-52)	1101 (554-1441)	267 (209-314)	.27 (.18-.38)	84.10 (61.98-110.15)
Community		721 (72-1441) <i>SD</i> = 35	211 (50-338) <i>SD</i> = 72	.36 (.18-.69)	80.67 (43.16-116.72)

721, with a range from 72 to 1,441 words per half hour. In the Daly Park community, none of the participants had an observation where the number of word tokens spoken per half hour by all interlocutors to them was more than 2 standard deviations below the community mean. This result provides additional support for the observation made in the discussion of the Black Belt of Alabama and Jefferson, Indiana communities, namely that the observations with very few vocabulary tokens spoken to the child represent random occurrences across families, and do not seem to be due to any systematic variation within families.

The mean number of new words (types) spoken by all interlocutors to the child per half hour was 211, with a range from 50 to 338 words per half hour. In this

community, two children (Devon and Mary) had at least one observation where the number of types spoken by all interlocutors to them was more than 2 standard deviations below the community mean. Given that Devon's and Mary's overall mean numbers of word types spoken to them were also the two lowest means in the community, this result may suggest an overall lack of verbal quality in their homes. The mean type-to-token ratio for these samples was .36, with a range from .18 to .69. The mean estimate of  $\mathcal{D}$  was 80.67, with a range of 43.16 to 116.72.

For the purposes of exploratory analysis, point biserial correlations were conducted to determine if there were any relationship between the gender of the child and the number of word tokens or word types spoken by all interlocutors to the child. No significant relationship was identified between the gender of the child and the number of word tokens spoken by all interlocutors to the child,  $r_{pb}(5) = .25, p = .59$ . No significant relationship was identified between the gender of the child and the number of word types spoken by all interlocutors to the child,  $r_{pb}(5) = .29, p = .53$ .

### **Longwood, Chicago**

Table 5.5 presents the descriptive data for all speech addressed to the three girls and three boys in the Longwood, Chicago study (the descriptive statistics for individual observations are provided in Appendix A for word tokens and Appendix B for word types). Three ( $n = 2$ ) or four ( $n = 3$ ) half- hour-long observations were made of each child; one child, Tommy, withdrew from the study after two observations. Observations began when the child turned 30 months of age and continued until the child was approximately 45 months of age (range = 30 to 48 months). Within these samples, the mean number of total words (tokens) spoken by all interlocutors to the child per half hour

Table 5.5

*All Speech to Child in Longwood, Chicago by Family (Half Hour Samples)*

Child	Number of Samples (Age Range in Months)	Mean Word Tokens (Range)	Mean Word Types (Range)	Mean Type/Token Ratio (Range)	Mean $\mathcal{D}$ (Range)
Amy	3 (30-42)	1102 (592-1657)	301 (209-412)	.29 (.25-.35)	93.93 (83.36-110.20)
Karen	4 (30-48)	706 (289-1295)	221 (124-316)	.36 (.22-.45)	87.73 (66.47-106.63)
Megan	3 (30-48)	1655 (652-2689)	357 (211-530)	.24 (.20-.32)	95.78 (74.45-123.70)
Patrick	4 (30-48)	383 (312-459)	157 (131-172)	.41 (.37-.49)	81.68 (65.53-96.78)
Steven	4 (30-48)	429 (172-592)	146 (89-180)	.37 (.30-.52)	65.13 (58.14-76.50)
Tommy	2 (30-36)	1057 (471-1643)	306 (197-414)	.34 (.25-.42)	105.52 (105.47-105.56)
Community		889 (172-2689)	248 (89-530)	.34 (.20-.52)	88.29 (58.14-123.70)

was 889, with a range from 172 to 2,689 words per half hour. In the Longwood community as in the Daly Park community, none of the participants had an observation where the number of word tokens spoken per half hour by all interlocutors to them was more than 2 standard deviations below the community mean. This result provides additional support for the observation made in the discussion of the Black Belt and Jefferson communities, namely that the observations with very few vocabulary tokens and types spoken to the child represent random occurrences across families, and are not due to any systematic variation within families.

The mean number of new words (types) spoken per hour was 248, with a range from 89 to 530 words per half hour. In the Longwood community, only one child (Steven) had a single observation where the number of word tokens or word types spoken by all interlocutors to him was more than 2 standard deviations below the community

mean (and that by a single word). In sum, there is little evidence to support a claim that there is systematic variance in the occurrence of low verbal quality in these homes. The mean type-to-token ratio for these samples was .34, with a range from .20 to .52. The mean estimate of  $\mathcal{D}$  was 88.29, with a range of 58.14 to 123.70.

For the purposes of exploratory analysis, point biserial correlations were conducted to determine if there were any relationship between the gender of the child and the number of word tokens or word types spoken by all interlocutors to the child. No significant relationship was identified between the gender of the child and the number of word tokens spoken by all interlocutors to the child, although there seemed to be some indication that girls heard more total words addressed to them than did boys in Longwood,  $r_{pb}(4) = .60, p = .20$ . No significant relationship was identified between the gender of the child and the number of word types spoken by all interlocutors to the child, although there again seemed to be some indication that girls heard more different words addressed to them than did boys in Longwood,  $r_{pb}(4) = .57, p = .27$ .

### **Analysis of Word Tokens Across Communities**

An analysis of the total number of words (tokens) spoken by all interlocutors to the focal child is now presented in order to capture any potential differences between the communities in terms of the quantity of speech heard by children. This analysis is based on the assumption, discussed earlier, that children learn vocabulary from all people who address them in the contexts of their everyday lives. To summarize that discussion here, it is proposed that there is no “mom filter,” through which words addressed to children must pass before the child will listen to them and learn them. Of course, there is no evidence that Hart and Risley (1995) assessed this hypothesis in their research. Although

they stated in their monograph that the speaker whose language to the child was being measured was not always the mother, it seems relatively certain that they only counted the words of a single interlocutor. To that end, comparisons made in these analyses to the Kansas data are only to be considered in light of the contrast between what language children routinely heard addressed to them by their primary caregivers as demonstrated from the samples from all nine communities, and what language they routinely heard addressed to them by all interlocutors as demonstrated by the five corpora in the present study.

As noted in Chapter 4, a persistent problem that plagues the analysis of the data from the five corpora analyzed in the current study is the differences between the hour-long transcripts of the South Baltimore observations and the data from hour-long observations in the Kansas samples of Hart and Risley (1995), and the half-hour-long transcripts of the Black Belt, Jefferson, Daly Park, and Longwood corpora. However, the problem is more easily resolved in the current analysis of tokens than it is in the analysis of types. In the analyses that follow this brief introduction, all observed word tokens for the half-hour samples presented in the tables at the beginning of the chapter are doubled for easy comparison across the nine communities. Obviously this practice also represents an extrapolation of data from known to unknown quantities; however, there were few if any reasons ever to suspect in the transcribed observations that the amount of talk either increased or decreased precipitously in the immediate minutes surrounding the transcribed samples.

In the analysis of the hypothesis presented in this chapter, similar to those analyses in Chapters 4 and 6, a comparison of word tokens will be made along two



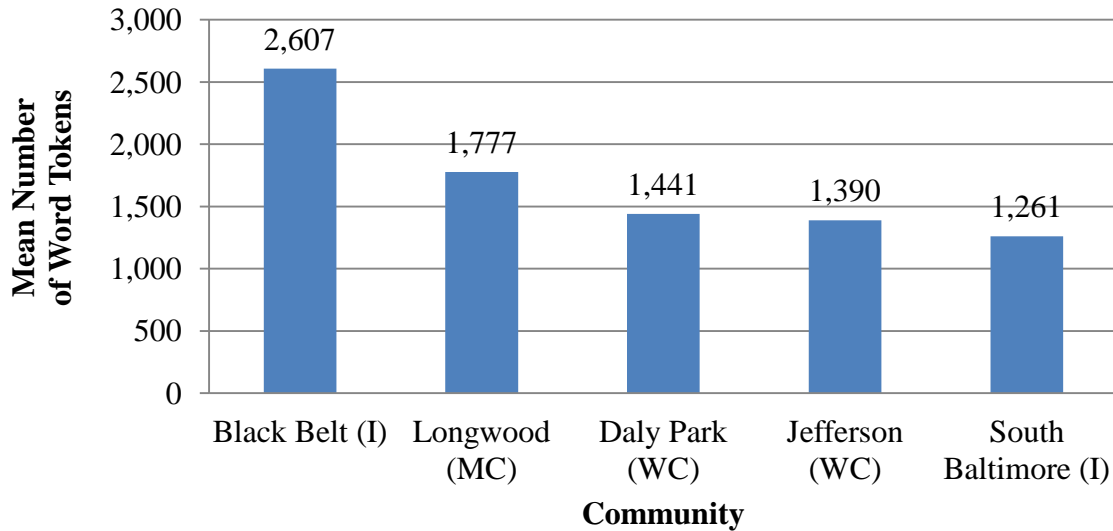
dimensions. First, the number of word tokens recorded in the homes of the communities represented in the present study will be analyzed. In addition, the comparison of word tokens observed in all nine communities (the five communities described in the present study and the four communities in Kansas presented by Hart and Risley, 1995) will be made. This comparison was undertaken to provide a benchmark against which to evaluate the language samples made in the communities represented in this study. In addition, this comparison will facilitate the evaluation of any differences that may exist across the two sets of communities (the five communities in the present study and four communities in Kansas City) due to differences in data collection procedures, namely the differences between the ethnographic observational methods employed in the five communities described in this study and the traditional observational methods employed by Hart and Risley in the Kansas communities (please refer to Chapter 2 or Chapter 4 for a more complete description of these differences).

To restate the discussion of the separation of these analyses from Chapter 4, it is noted that handling the data from the five communities in this study both alone and as part of the larger analysis of nine communities is questionable in terms of statistical principles. The analysis is pursued here with awareness of that fact, but in consideration of the importance of analyzing the five communities apart from the Kansas communities due to the fact that these data were collected ethnographically. By contrast, the comparison of all nine communities is warranted due to the overarching interest in this study surrounding the comparison of the total number of words heard by children under three distinctly different conditions (Primary Caregiver to the Child, All Speech to the Child, and All Speech to and Around the Child), two of which have not been considered

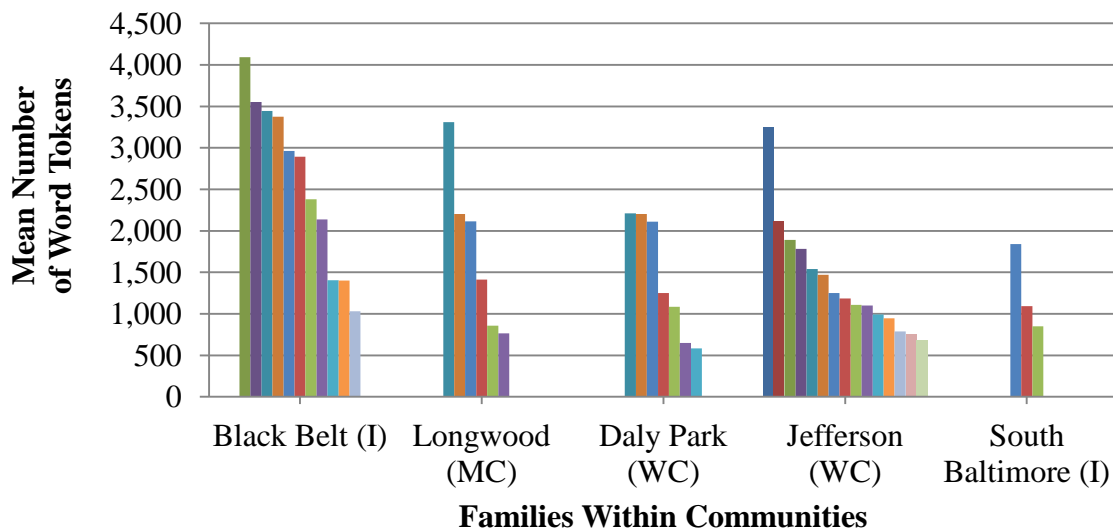
quantitatively in the literature to date. It was reasoned that a comparison of these new conditions with extant findings concerning the disparity between the numbers of words spoken by primary caregivers to children was necessary to evaluate the merits of those approaches. In sum, the analysis of all nine communities provides the only access available to pursue questions concerning whether or not the three hypotheses distinguish differences in the amount of words children hear. By contrast, the analysis of the five communities studied ethnographically provides the only access available to pursue questions concerning whether or not vocabulary differences between communities exist due to difference in beliefs about who talks to children and when.

### **Analysis of Five Communities**

The total numbers of word tokens spoken by all interlocutors to their children in the five communities are presented in Figure 5.1. The means of the five communities were compared using the Tukey-Kramer Test of Paired Comparisons. A significant difference was observed between the number of word tokens spoken by all interlocutors to the focal children in the Black Belt (2,607 words per hour) and South Baltimore (1,261 words per hour),  $HSD_{(4,37)} = 1,332, p < .05$ . There is reason to believe that the children in the Black Belt heard more words spoken to them per hour by all interlocutors than did the children in South Baltimore. No other comparison between communities was significantly different. A presentation of the distribution of individual averages within each community is offered in Figure 5.2. As is typical of naturally occurring language samples, the variation between individual mothers is quite large. However, it is apparent that the distributions do overlap to a great extent. In particular, the low limits of each distribution are relatively equivalent. The main difference does exist in the Black Belt



*Figure 5.1.* The mean number of word tokens addressed per hour by all interlocutors to the focal child in the Black Belt of Alabama, Longwood (Chicago), Daly Park (Chicago), Jefferson (Indiana), and South Baltimore. Tokens in the communities of the Black Belt, Longwood, Daly Park, and Jefferson are twice the number actually recorded to adjust for the half-hour samples.

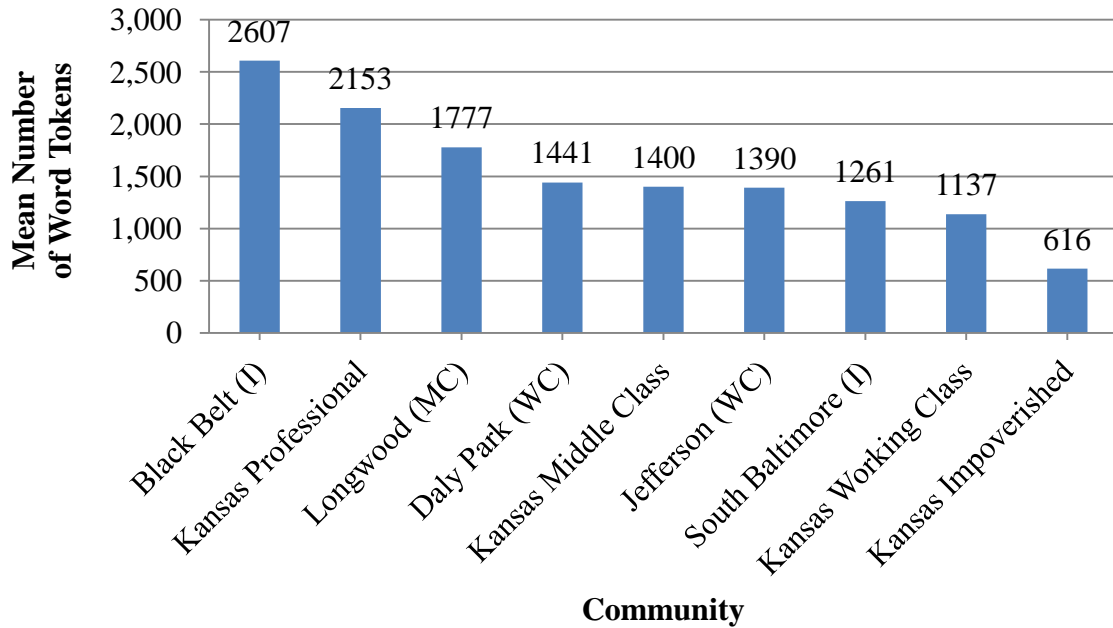


*Figure 5.2.* Distribution by family of the mean number of word tokens addressed per hour by primary caregivers to their children in the Black Belt of Alabama, Longwood (Chicago), Daly Park (Chicago), Jefferson (Indiana), and South Baltimore. Tokens in the communities of the Black Belt, Longwood, Daly Park, and Jefferson are twice the number actually recorded to adjust for the half-hour samples.

community, where seven of 11 families spoke more to their children than all but two extreme cases in the other four communities combined. Nevertheless, these distributions appear to provide ample evidence that the samples are normally distributed, and lend support to the finding that there is no reason to assume any of the communities are different from one another with the single exception of the South Baltimore to Black Belt comparison.

### **Analysis of Nine Communities**

In order to situate these data within the context of the Kansas data, the total numbers of words (tokens) spoken by all interlocutors to the focal children in all nine communities are presented in Figure 5.3. The means of the nine communities were compared using the Tukey-Kramer Test of Paired Comparisons. In this analysis, several comparisons reached statistical significance. The Kansas Impoverished ( $\bar{X} = 616$ ) to Kansas Professional ( $\bar{X} = 2,153$ ) comparison reached statistical significance,  $HSD_{.01(9, 75)} = 1,519.30, p < .01$ . This comparison merely replicates the finding discussed in Chapter 4, namely that there is reason to assume that the Kansas children from impoverished homes heard significantly fewer words spoken to them by the interlocutors whose speech was reported by Hart and Risley (1995) than did children from the Kansas professional homes. In addition, the Black Belt ( $\bar{X} = 2,607$ ) to Kansas Working Class ( $\bar{X} = 1,137$ ) comparison also reached statistical significance,  $HSD_{.05(9, 75)} = 1,306.37, p < .05$ . In this and subsequent cases, caution must be made in interpreting the result, since the comparison is most likely being made between the speech of one interlocutor in the Kansas samples and between multiple interlocutors in the five communities in the present study. Given this caveat, there is reason to assume that the Kansas children from



*Figure 5.3.* The mean number of word tokens addressed per hour by all interlocutors to the focal child in the communities of the Black Belt of Alabama, Kansas Professional, Longwood (Chicago), Daly Park (Chicago), Kansas Middle Class, Jefferson (Indiana), South Baltimore, Kansas Working Class, and Kansas Impoverished. The Kansas data are taken from Hart and Risley (1995). Tokens in the communities of the Black Belt of Alabama, Longwood, Daly Park, and Jefferson are twice the number actually recorded to adjust for the half-hour samples.

working-class homes heard significantly fewer recorded words spoken to them than the

Black Belt children heard spoken to them by all interlocutors. The Black Belt of

Alabama ( $\bar{X} = 2,607$ ) to Kansas Impoverished ( $\bar{X} = 616$ ) comparison reached statistical significance,  $HSD_{.01(9, 75)} = 1,519.30, p < .01$ . Again, caution in interpreting the result is

warranted for the above reason, but there is reason to assume that the Kansas children

from impoverished homes heard fewer recorded words spoken to them than the Black

Belt children heard spoken to them by all interlocutors. Finally, the Black Belt ( $\bar{X} =$

2,607) to South Baltimore ( $\bar{X} = 1,261$ ) comparison remained statistically significant in

the nine-community analysis as it was in the five-community analysis,  $HSD_{.05(9, 75)} =$

1,306.37,  $p < .05$ . Here no caution is necessary in interpreting the results because in both

cases all speech that occurred during the observations was recorded and coded. There is reason to assume that the South Baltimore children heard fewer words spoken to them by all interlocutors than did the Black Belt children. These results are summarized graphically in Figure 5.4 where community comparisons that are underscored are not significantly different from each other while comparisons that are not underscored are significantly different from each other.

Community	Black Belt (I)	Kansas Professional	Longwood (MC)	Daly Park (WC)	Kansas Middle Class	Jefferson (WC)	South Baltimore (I)	Kansas Working Class	Kansas Impoverished
Mean Tokens	2,607	2,153	1,777	1,441	1,400	1,390	1,261	1,137	616
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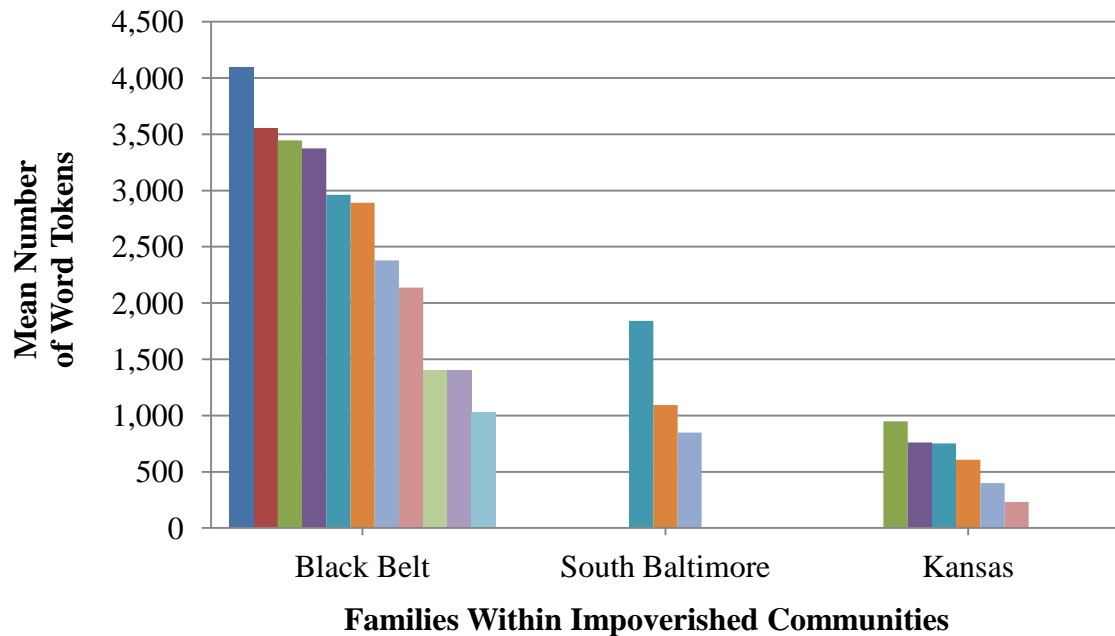
*Figure 5.4.* Homogeneous groups of communities based on the number of word tokens addressed by all interlocutors to the child in the communities of the Black Belt of Alabama, Kansas Professional, Longwood (Chicago), Daly Park (Chicago), Kansas Middle Class, Jefferson (Indiana), South Baltimore, Kansas Working Class, and Kansas Impoverished. The Kansas data are taken from Hart and Risley (1995). Underscored mean numbers of tokens are not statistically different from each other. Tokens in the communities of the Black Belt of Alabama, Longwood, Daly Park, and Jefferson are twice the number actually recorded to adjust for the half-hour samples.

### **Analysis by Communities by Social Class**

One goal of the present study is to tease apart any potential differences between groups that may have existed due to differences in data collection procedures, namely the traditional observational procedures employed by Hart and Risley (1995) versus the ethnographic procedures employed by each of the researchers in the five communities described in the present study. One potential way to examine these differences is to

compare communities of the same social address. In this manner, the language children hear in the two impoverished communities represented in the present study may be compared with the impoverished Kansas community. Similarly, the language children hear in the two working-class communities represented in the present study may be compared with the working-class Kansas community. Finally, for purposes of this analysis, the middle-class communities of Longwood and Kansas will be grouped with the professional community in the Kansas study.

**Comparison of impoverished communities.** Figure 5.5 shows the distribution of means of word tokens spoken by all interlocutors to the child across the two impoverished communities of South Baltimore and the Black Belt compared to the word tokens spoken by a primary caregiver to the child in the impoverished Kansas sample. Initial inspection of the figure reveals that the means appear normally distributed and that there is little overlap across the three distributions. There was more speech addressed by interlocutors to focal children in every Black Belt household than was addressed by the most talkative primary caregiver to the child in the impoverished Kansas sample. Moreover, fully eight Black Belt families spoke more to their children than did all of the South Baltimore families. The differences between the South Baltimore samples and the impoverished Kansas samples are less striking, but still two of the three South Baltimore fall outside the range of the Kansas data. In sum, there is no reason offered by the distributional analysis to question the results from the analysis of means, namely that the Black Belt families spoke significantly greater numbers of word tokens to their children than did the South Baltimore families or the impoverished Kansas primary caregivers. Although it is not possible to draw firm conclusions from these results about the

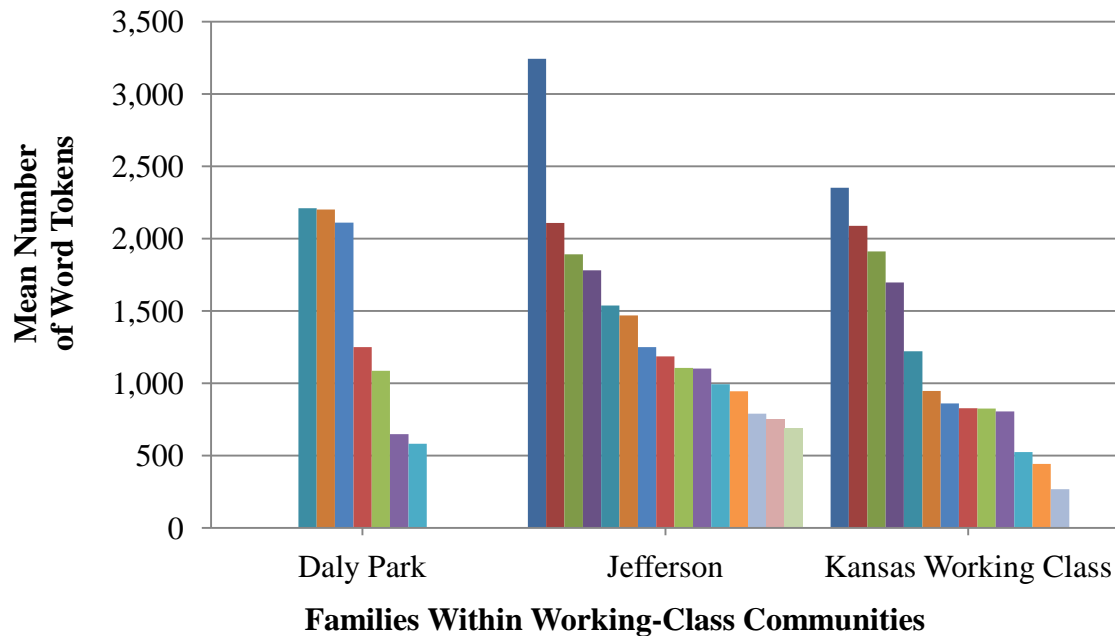


*Figure 5.5.* Distribution by family of the mean number of word tokens addressed per hour by all interlocutors to the focal child in the impoverished communities of the Black Belt of Alabama, South Baltimore, the by primary caregivers to the focal child in the Kansas Impoverished community described by Hart and Risley (1995). Tokens in the communities of the Black Belt are twice the number actually recorded to adjust for the half-hour samples.

impoverished, African American Kansas community since there is no record of how much speech may or may not have occurred in their observations apart from the speech of a primary caregiver, there is solid evidence to suggest that many interlocutors in addition to primary caregivers routinely spoke to the focal child in the impoverished, African American homes in the Black Belt of Alabama, and that this speech contributed greatly to the amount of vocabulary these children heard when compared to both the South Baltimore and impoverished Kansas children.

**Comparison of working-class communities.** Figure 5.6 shows the distribution of means of word tokens spoken by all interlocutors to the child across the two working-class communities of Jefferson and Daly Park compared to the word tokens spoken by a



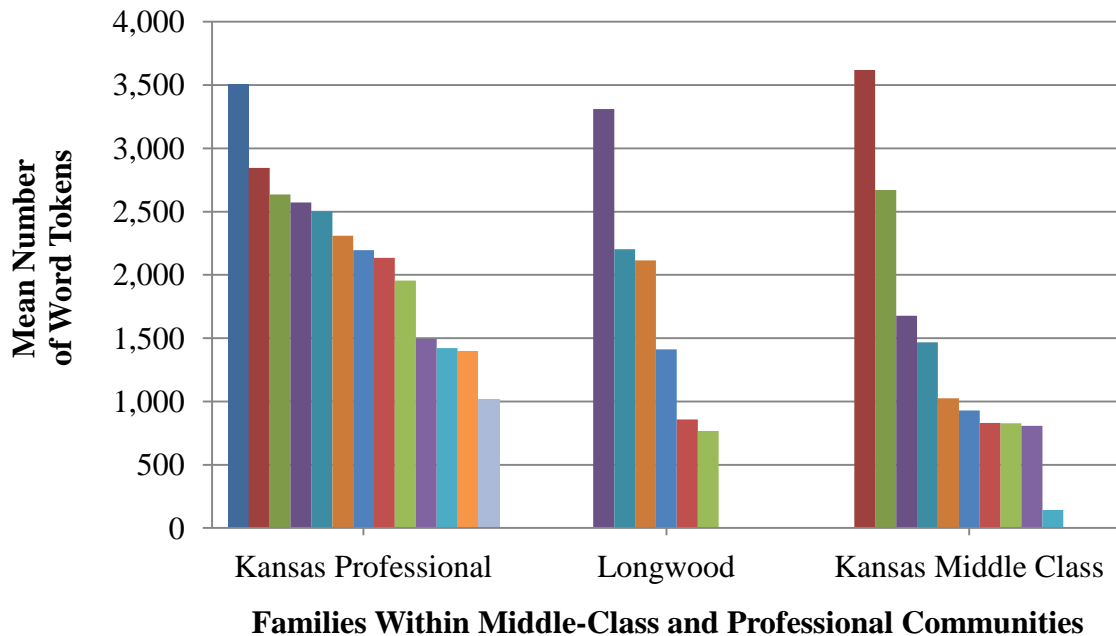


*Figure 5.6.* Distribution by family of the mean number of word tokens addressed per hour by all interlocutors to the focal child in the working-class communities of Daly Park (Chicago), Jefferson (Indiana), and by primary caregivers to the focal child in the Kansas Working Class community described by Hart and Risley (1995). Tokens in the communities of Daly Park and Jefferson are twice the number actually recorded to adjust for the half-hour samples.

primary caregiver to the child in the working-class Kansas sample. Initial inspection of the figure reveals that the means appeared to be normally distributed and that there was little overlap across the three distributions. The figure shows a significant overlap across the three communities, with agreement at both the upper and lower extremes of the distributions. In sum, there is no reason offered by the distributional analysis to question the results from the analysis of means. In particular, there is no reason to believe that differences exist between the number of word tokens addressed by all interlocutors to the focal children in Jefferson and Daly Park, or between the number of words addressed by all interlocutors to the focal children in those two communities and the number of words addressed by primary caregivers to focal children in Kansas working-class homes. At

least three potential explanations may be offered for this finding of no difference. First, it is important to remember that the comparison offered here is not equal at its foundation. There is no way to assess the amount of speech that might have been addressed to the focal children by other interlocutors in the Kansas sample, a fact that automatically reduces the estimate of potential vocabulary these children may have heard compared to the children in the working-class communities in the present study. However, the fact that there are no differences in the amount of vocabulary heard across these two communities as well suggests that alternative explanations may have merit. To that end, it is also possible that working-class families were not as affected by an observer in their everyday routines as were impoverished families, thereby making the differences between the traditional observational methods employed in Kansas and the ethnographic methods employed in Jefferson and Daly Park less salient. Third, perhaps the most likely explanation is that children in working-class homes in these communities were not routinely surrounded by varying numbers of interlocutors who added more vocabulary to the ambient environment. For example, as noted in the earlier discussion, when fathers were active participants in the Jefferson observations, mothers were most likely either gone from the home or busy in another part of the home with other tasks. Although youth were routinely present, they were never as numerous as in the Black Belt homes, for example. In sum, there may be reasons to suspect that the lack of differences between these communities represents real similarities between the family lives in these homes in terms of caregiver time spent with children and number of children routinely present in the environment.

**Comparison of middle-class and professional communities.** Figure 5.7 shows the distribution of means of word tokens addressed by all interlocutors to the focal children in the middle-class community of Longwood, and by the primary caregivers to the focal children in the middle-class community and professional community in Kansas. There appears to be no reason to assume that the means are not normally distributed. Initial inspection of the figure reveals a significant overlap between the two middle-class communities, with agreement at both the upper and lower extremes of the distributions. This result is surprising given that the Longwood means include speech addressed to the children by not only the primary caregiver but also by other interlocutors in the child's environment. No such overlap exists between the professional community in Kansas and the two middle-class communities, however. Six of the professional mothers spoke more words to their children than did all but one of the Longwood families, despite the additional interlocutors represented in the means given here. However, there is no reason offered by the distributional analysis to question the results from the analysis of means, namely that there is no reason to believe that differences existed between the number of words addressed by all interlocutors to the focal children in Longwood and the number of words addressed by all primary caregivers to the focal children in Kansas middle-class and professional homes. In sum, the consistently high number of word tokens that the children in the Kansas professional homes heard on average may index the educational capital conferred by being a member of an academic community and not necessarily the economic capital conferred by being a member of the middle class.



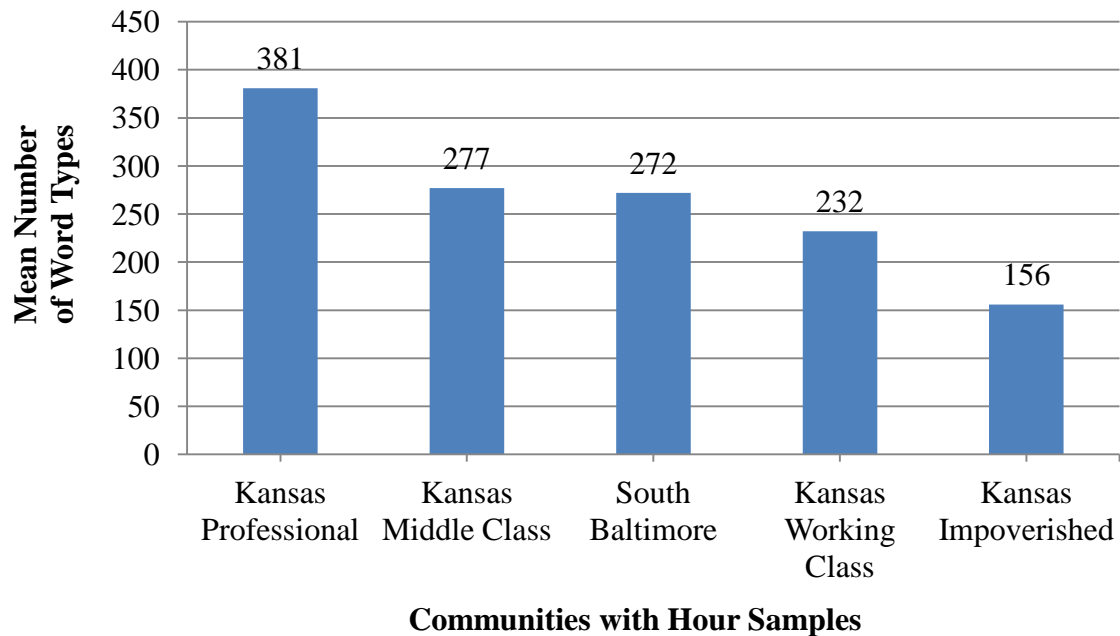
*Figure 5.7.* Distribution by family of the mean number of word tokens addressed per hour by all interlocutors to the focal child in the middle-class community of Longwood (Chicago), and by primary caregivers to the focal child in the Kansas Professional and Kansas Middle Class communities described by Hart and Risley (1995). Tokens in the community of Longwood are twice the number actually recorded to adjust for the half-hour samples.

### Analyses of Word Types Across Communities

The number of types, or different words, present in a language sample is one measure of the diversity or quality of vocabulary present in the sample. Unfortunately, as discussed in Chapter 4, the analysis of word types across communities is hindered in this study by the difference between the hour-long observations in the South Baltimore and the Kansas communities (Hart & Risley, 1995) and the half-hour-long observations in the Black Belt, Jefferson, Daly Park, and Longwood communities. For that reason, analysis will proceed in several stages. First, a direct comparison between the impoverished community of South Baltimore and the four communities of various social classes from Kansas will be presented. Second, a comparison of the four communities whose

observations are one-half hour in length will be presented. Finally, the  $\mathcal{D}$  estimate of vocabulary diversity will be discussed with respect to its validity for assessing quality of verbal input in these samples.

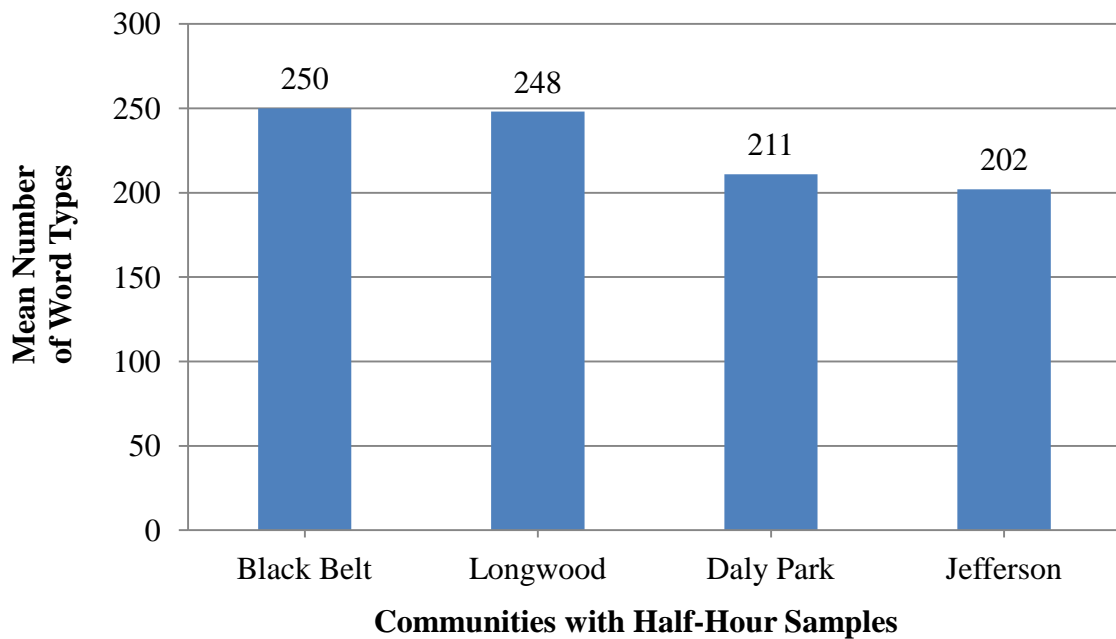
The numbers of word types spoken by all interlocutors to the focal child in South Baltimore and the four Kansas communities (Hart & Risley, 1995) are presented in Figure 5.8 (please see Appendix C for a complete presentation of the data and descriptive statistics reported by Hart and Risley). As shown in the figure, all interlocutors in South Baltimore spoke more word types per hour to their children than did the primary caregivers alone in the Kansas working-class or impoverished communities, the same word types per hour as the Kansas primary caregivers alone in the middle-class families, and fewer word types per hour to their children than did the primary caregivers alone in the Kansas professional communities. These results are similar to those found in the comparisons made under the first condition: primary caregivers' speech to their children. Although there was some additional interlocutor talk addressed to the focal children in the South Baltimore case, it was not great. Furthermore, the differences noted here did not reach statistical significance. A Tukey-Kramer Test of Paired Comparisons revealed an Honestly Significant Difference (HSD) value of 141.72 ( $p < .05$ ); only the Kansas working-class and impoverished communities differed significantly from the Kansas professional community.



*Figure 5.8.* The mean number of word types addressed by all interlocutors to the focal child in South Baltimore and by primary caregivers to the focal child in the four Kansas communities described by Hart and Risley (1995). All samples are one hour in length.

The number of word types spoken by all interlocutors to the focal children in the four communities for which there are half-hour samples (Black Belt, Jefferson, Daly Park, and Longwood) are presented in Figure 5.9. As shown in the figure, the number of new word types spoken by all interlocutors to focal children per half hour was again the smallest in the working-class community of Jefferson (202), analogous to the result from Chapter 4 for the number of word types spoken by primary caregivers to their children. However, interlocutors in the middle-class community of Longwood did not speak the most word types per half hour (248) to the focal children among these four communities as did the primary caregivers alone in Longwood. Interlocutors in the impoverished community in the Black Belt spoke 250 word types per half hour to their children. Finally, all interlocutors in the working-class community of Daly Park spoke 211 word

types per half hour to their children. A Tukey-Kramer Test of Paired Comparisons revealed no significant differences between these communities, however.



*Figure 5.9.* The mean number of word types addressed by all interlocutors to the focal child in the Black Belt of Alabama, Longwood (Chicago), Daly Park (Chicago), and Jefferson (Indiana). All samples are one half-hour in length.

The observed differences, although not statistically significant, are easily attributable to the greater number of siblings, cousins, and other extended family members living in the homes and immediate surroundings of the Black Belt, Jefferson, and Longwood children. Some additional comparisons between the condition of Primary Caregiver Speech to Child and All Speech to Child are instructive. For example, children in the Daly Park community had an average of 1.3 siblings, whereas children in the Longwood community each had 2 siblings. The difference between the two conditions represented only a 4 percent increase in the number of word types addressed to children in Daly Park (from 203 words per half hour in the Primary Caregiver to Child condition to 211 words per half hour in the All Speech to Child condition), and a 19 percent

increase in the number of word types addressed to children in Longwood (from 209 word types per half hour to 248 word types per half hour). By contrast, in the communities with the higher numbers of older siblings and extended families, the percentage increases were even greater. In Jefferson, a 23 percent increase was found between these two conditions (from 164 to 202 word types per half hour), and in the Black Belt a 27 percent increase was observed (from 197 to 250 word types per half hour).

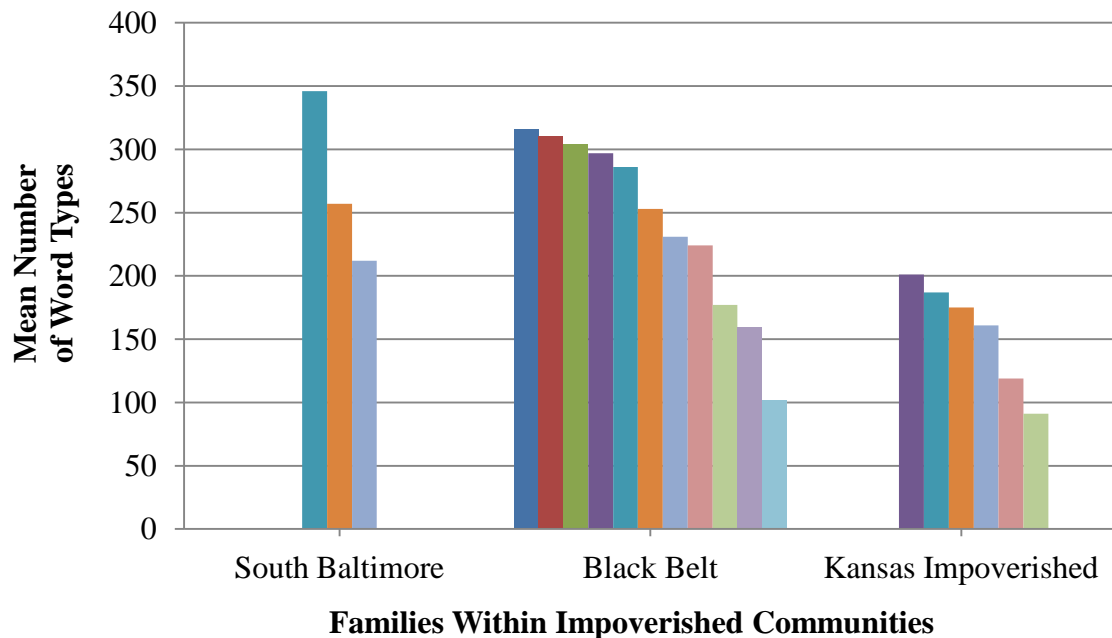
### **Analysis of Communities by Social Class**

Despite the fact that conclusive comparisons across all communities (the five communities represented in the present study and the four Kansas communities) of the number of word types spoken by all interlocutors to the focal children cannot be made due to sampling differences, the distributions of participant means across communities defined by social address were examined.

**Comparison of impoverished communities.** Figure 5.10 presents the distributions of participant means across the two impoverished communities of South Baltimore and the Black Belt described in the present study, and the impoverished group of participants in the Kansas study of Hart and Risley (1995). Inspection of the distributions revealed that any similarity across the communities that existed in the Primary Caregiver to Child condition disappeared, despite the fact that the samples available for analysis in the Black Belt corpus are half the length of the samples from the other communities. Eight of 11 Black Belt participants heard more word types spoken by all interlocutors to them on average per half hour than the Kansas Impoverished participants heard spoken by their primary caregivers alone in an hour. The South Baltimore distribution revealed that each of the three girls in this community heard more

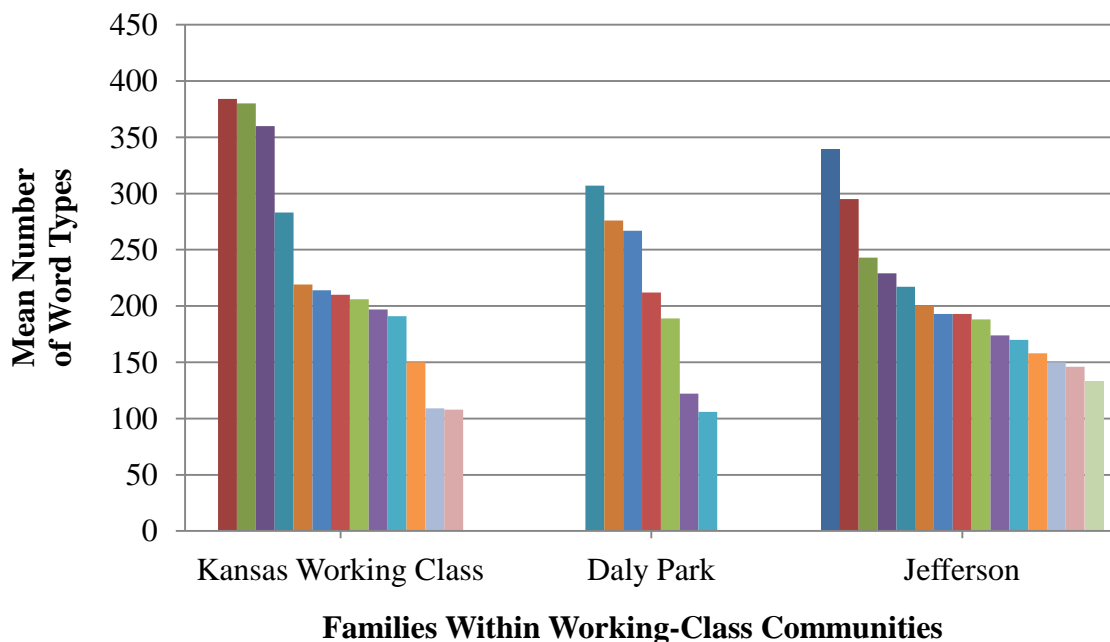


new word types spoken to them by all interlocutors on average per hour than did any of the Kansas Impoverished participants. A Tukey-Kramer Test for Paired Comparisons confirmed this inspection, demonstrating that South Baltimore children heard a greater number of word types spoken to them by all interlocutors than the Kansas Impoverished children heard spoken to them by their primary caregivers alone,  $HSD_{(2,17)} = 115.12, p < .01$ . The Black Belt children heard a greater number of word types spoken to them by all interlocutors than the Kansas Impoverished children heard spoken to them by the primary caregivers alone,  $HSD_{(2,17)} = 88.00, p < .05$ . There were no significant differences between South Baltimore and the Black Belt in terms of the number of word types spoken by all interlocutors to focal children.



*Figure 5.10.* Distribution by family of the mean number of word types addressed by all interlocutors to the focal child in the impoverished communities of South Baltimore, the Black Belt of Alabama, and by primary caregivers to the focal child in the impoverished Kansas community described by Hart and Risley (1995). The observations in South Baltimore and Kansas were all one hour in length, but the observations in Black Belt were all one-half hour in length.

**Comparison of working-class communities.** A similar analysis of the distributions of participant mean numbers of word types is presented in Figure 5.11 for the working-class communities of Jefferson (Indiana), Daly Park (Chicago), and the working-class participants from Kansas observed by Hart and Risley (1995). In this comparison, there was considerable overlap between the distributions, similar to the distributions of primary caregiver speech addressed to focal children for these two communities. There was little difference at the low end of the range, with almost complete overlap between the two groups. The upper end of the range showed that 25 percent of the Kansas primary caregivers spoke more new word types to their children than did all interlocutors in all but one of the Jefferson and in all of the Daly Park

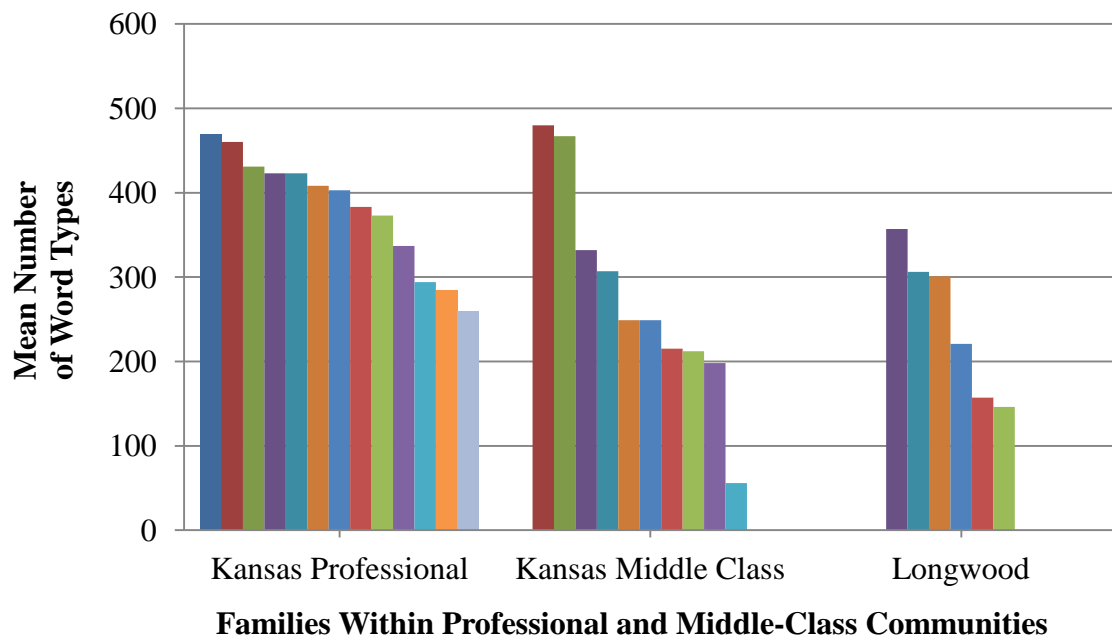


*Figure 5.11.* Distribution by family of the mean number of word types addressed by primary caregivers to the focal child in the working-class Kansas community described by Hart and Risley (1995) and by all interlocutors to the focal child in the working-class communities of Daly Park (Chicago) and Jefferson (Indiana). The observations in Kansas were all one hour in length, but the observations in Daly Park and Jefferson were all one half-hour in length.

families. However, it remains important to note that the Kansas samples are one hour in length and the Jefferson samples are one-half hour in length; one can speculate the distributions would overlap to an even greater extent if the samples were equal in length. Apart from any speculation, however, a Tukey-Kramer Test of Planned Comparisons confirmed the inspection of these distributions; there is no reason to suspect that they are different.

**Comparison of middle-class and professional communities.** An analysis of the distributions of participant mean numbers of word types is presented in Figure 5.12 for the middle-class community of Longwood, Chicago, and the middle-class and professional communities from Kansas observed by Hart and Risley (1995). There is considerable overlap between the two middle-class communities as one might expect. The Longwood means are situated squarely within the means of the Kansas Middle Class community. However, the distribution for the professional community in Kansas seems to be relatively more skewed toward the upper limits of the three distributions combined, despite the presence of two higher means in the middle-class Kansas community. A Tukey-Kramer Test of Planned Comparison was performed to examine these differences, despite the uneven sampling times across communities. The Kansas Professional primary caregivers did speak significantly more new word types to their children per hour than all Longwood interlocutors spoke to the focal children per half hour,  $HSD_{(2,26)} = 114.12, p < .05$ . Of course, this result is not easily interpretable due not only to the unequal sampling times but also to the difference in hypothesis conditions; however, it does lend credence to the suspicion that the Kansas Professional community represented a unique case in

terms of the amount of speech spoken to children conferred by its connection to an academic university community.



*Figure 5.12.* Distribution by family of the mean number of word types addressed by primary caregivers to the focal child in the Kansas Professional and Middle Class communities described by Hart and Risley (1995) and by all interlocutors to the focal child in the middle-class community of Longwood (Chicago). The observations in Kansas were all one hour in length, but the observations in Longwood were all one half-hour in length.

### Analyses of Vocabulary Diversity Across Communities

The  $\mathcal{D}$  estimate of vocabulary diversity was examined for its validity in measuring differences between these five communities in terms of the quality of vocabulary spoken by all interlocutors to the focal child. A Pearson product-moment correlation was conducted to test for a relationship between the  $\mathcal{D}$  estimate and the number of word types spoken by all interlocutors to the focal child. It was reasoned that if the  $\mathcal{D}$  estimate is measuring vocabulary diversity, a positive relationship should exist between the estimate itself and the number of different word types spoken by all

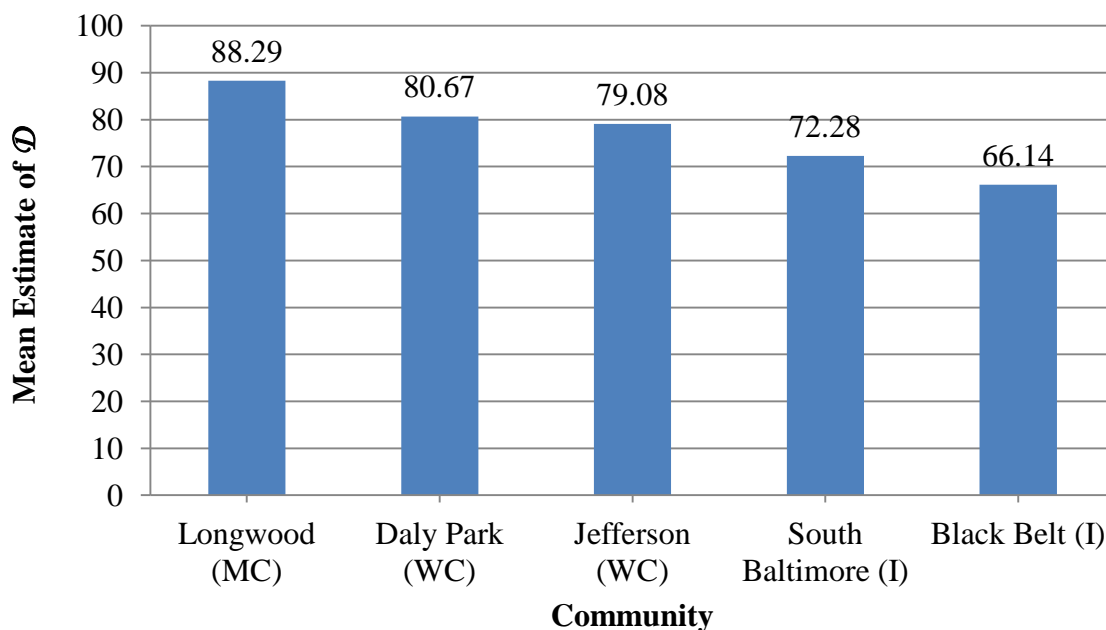
interlocutors to the children. In other words, households that produce higher numbers of different words in their speech should not be penalized by any estimate of diversity simply due to the fact that these same households also tended to be characterized by more talk. The analysis demonstrated that this situation obtained. The correlation between the  $\mathcal{D}$  estimate and the number of new word types spoken by all interlocutors to the focal child was .51,  $p < .001$ . The  $\mathcal{D}$  estimate increased as the number of new words spoken by interlocutors increased.

A Pearson product-moment correlation was also conducted to test for a relationship between the  $\mathcal{D}$  estimate and the number of word tokens spoken by all interlocutors to the focal child. Here it was reasoned that if a negative relationship were found, such that the  $\mathcal{D}$  estimate decreased when the numbers of word tokens spoken to their children increased, the  $\mathcal{D}$  estimate would be responding to the extreme differences in vocabulary production across the five communities in a manner similar to the type-to-token ratio. In other words, this analysis was conducted to guarantee that the  $\mathcal{D}$  estimate was not sensitive to the sheer differences in volume of speech spoken by interlocutors to children across these five communities. In this analysis, no significant relationship was found between the quantity of words spoken by all interlocutors and the  $\mathcal{D}$  estimate of vocabulary diversity,  $r = .19$ , not significant. In other words,  $\mathcal{D}$  was not sensitive to the number of word tokens spoken by all interlocutors to the focal children. This situation stands in contrast to the analysis undertaken of primary caregivers' speech to their children in Chapter 4. In that analysis, there was a significant relationship between the  $\mathcal{D}$  estimate and the total number of word tokens spoken by the primary caregivers. That

result was in an unexpected direction however, since the  $\mathcal{D}$  estimate was demonstrated to increase as the number of word tokens increased; consequently, that result was difficult to interpret. Given the result found in the present analysis that there was no reason to assume that the  $\mathcal{D}$  estimate was sensitive to the number of word tokens spoken by all interlocutors to the focal children, the result found in Chapter 4 appears to be more anomalous. A subsequent analysis of the  $\mathcal{D}$  estimate with respect to the total speech in and around children will be undertaken in Chapter 6, and these results will be reinterpreted in light of that analysis.

Given the strong, negative association between the  $\mathcal{D}$  estimate and the number of new word tokens spoken by all interlocutors to the focal children, it seems more likely that  $\mathcal{D}$  does represent a valid estimate of diversity for the communities analyzed here. An analysis of the  $\mathcal{D}$  estimate of vocabulary diversity across these five communities was conducted using the Tukey-Kramer Test of Paired Comparisons. Only one comparison reached significance. The diversity of speech spoken by all interlocutors to the focal children in the Black Belt ( $\mathcal{D} = 66.14$ ) was significantly less than the diversity of speech spoken by all interlocutors to the focal children in the middle-class community of Longwood ( $\mathcal{D} = 88.29$ ),  $HSD_{.01(4, 37)} = 21.38, p < .01$ . Figure 5.13 displays the mean  $\mathcal{D}$  estimates across the five communities for the speech of all interlocutors to their children.

The question arises concerning whether there was more or less vocabulary diversity across these five communities under the two hypotheses analyzed to this point, namely primary caregivers' speech to their children and the speech of all interlocutors to the focal children. Difference scores were calculated between the  $\mathcal{D}$  estimates for each of



*Figure 5.13.* The  $\mathcal{D}$  estimate of diversity within vocabulary spoken by all interlocutors to the focal child in the communities of Longwood (Chicago), Daly Park (Chicago), Jefferson (Indiana), South Baltimore, and the Black Belt of Alabama.

these two conditions, and the resulting differences analyzed using a matched-pair  $t$  test.

The  $\mathcal{D}$  estimates for the All Speech to Child condition were significantly higher than were the  $\mathcal{D}$  estimates for the Primary Caregivers' Speech to Child condition,  $t_{41} = 3.81$ ,  $p < .001$ . In other words, the speech of all interlocutors to the focal children is more complex than the speech of primary caregivers alone to their children. This situation is no doubt due to the counting of father speech apart from mother speech in these two conditions as discussed earlier in this chapter. In addition, grandparents and adult friends were often present during observation times, and their speech was counted in the other interlocutor category unless the grandmother was the primary caregiver during the observation times. However, the role of the speech of siblings and other young children requires additional analysis. Although other adults were present during observations, the amount of their speech to children was far less in general than that of other children's

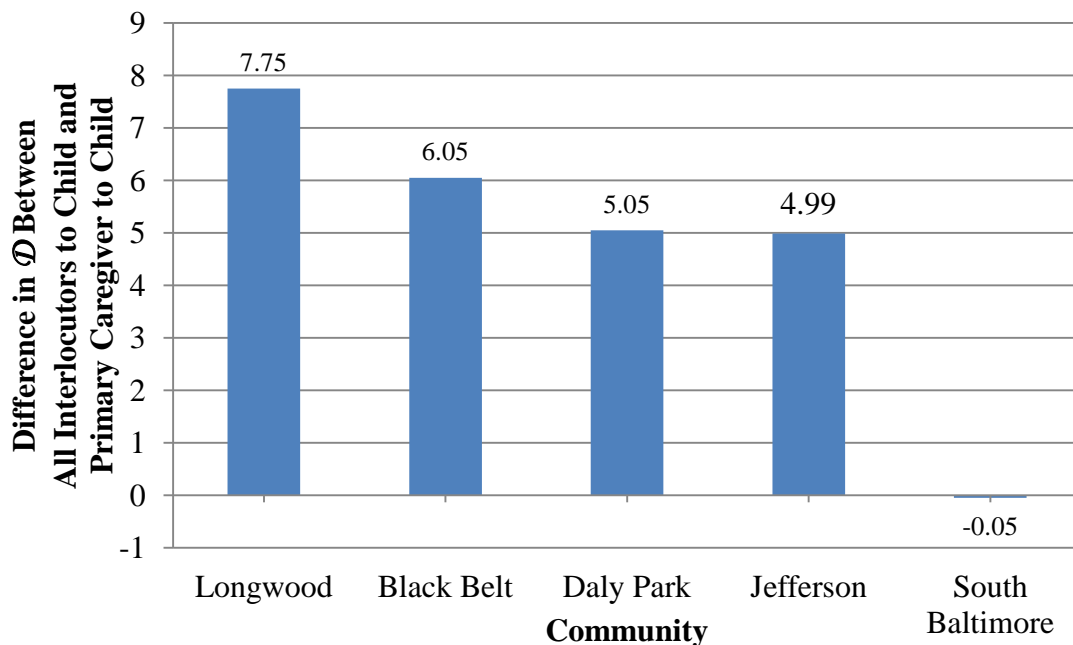
speech. It is often assumed, however, that the speech of children is less diverse than that of adults. If that scenario were true for the present data, one might expect that the overall  $\mathcal{D}$  estimate for these communities would be higher in the Primary Caregiver to Child condition than in the All Speech to Child condition. Given the result that the diversity of speech of all interlocutors to the child was greater than that of primary caregivers alone to the child, this result needs further explication, a discussion that follows later in this chapter.

Given the fact that the diversity of speech within the All Speech to Child condition was significantly greater than the diversity of speech within the Primary Caregiver to Child condition, the question remains whether or not the increase in the  $\mathcal{D}$  estimate of diversity was stable across the five communities. In other words, was there reason to suspect that the role of other interlocutors was of greater or lesser importance in the lives of the focal children in any particular community? To examine this question the mean differences between the  $\mathcal{D}$  estimates for vocabulary diversity for the Primary Caregiver to Child and for the All Speech to Child conditions are presented in Figure 5.14. No significant differences between communities were found using the Tukey-Kramer Test of Paired Comparisons, and the conclusion was made that there was no reason to assume that the magnitude of change between the All Speech to Child and the Primary Caregiver to Child conditions varied across the five communities.

Despite the lack of significant differences in this analysis, visual inspection of the data suggests that a closer look at the South Baltimore case may be instructive. The speech of primary caregivers alone to their children was more diverse only in the South Baltimore community. This observation may be the result of the fact that in general, the



children who visited these three girls tended on the whole to be younger than the siblings commonly present during the time of the observations in the other four communities. Furthermore, there were typically fewer other adults talking to children during the observations in South Baltimore than in the other four communities.



*Figure 5.14.* Mean differences of the  $\mathcal{D}$  estimate of vocabulary diversity between the speech of all interlocutors and the speech of the primary caregivers to the focal child in Longwood (Chicago), the Black Belt of Alabama, Daly Park (Chicago), Jefferson (Indiana), and South Baltimore.

### **Who Else Is Talking to the Child? The Case of Youth Speech**

Siblings, cousins, and neighborhood friends were a sustaining force in the verbal environments of most of the children from the five communities. The variables surrounding when they were present for observations, what their respective ages were, and how parents conceived of their role in a situation where another child was the appointed center of attention all provide interesting snapshots into the types of cultural and social variation missed when only primary caregiver speech to the child is considered

as a source for vocabulary learning. Participants were coded as youth if they did not have the primary responsibility for the focal child in the present scene. In other words, teenagers who may have been responsible for the child in other babysitting arrangements, for example, but were not responsible for the child during the observation were counted as youth. Very few of these situations occurred; the majority of children coded as youth were elementary-school-aged or younger.

Of course, youth participation was often a factor of when observations of the children were made. Younger siblings were always present at the time of videotaping but seldom contributed any intelligible utterances to the conversation due to their age. Older siblings and other youth were often not present during observations because of their attendance at school. Observations were also made at a time of each family's choosing. Some mothers scheduled observations when they were at home during the day with only their children; other mothers scheduled observations in the evening when entire families were at home. Therefore, youth speech cannot be considered an enduring influence throughout a child's waking hours. However, its influence should not be underestimated; when siblings or friends are around, regardless of their ages, conversations between them and the focal child were frequently prolonged and intense.

Youth were present and talked to the focal child in 163 of the 280, or 59 percent of the observations analyzed in this study (youth were present in two other observations but did not talk to the focal child at those times). The proportion of observations in which youth participated varied across communities from a low of 31 percent (11 out of 35 observations) in South Baltimore to a high of 75 percent (15 out of 20 observations) in Longwood. These proportions are summarized in Table 5.6. The low proportion of

Table 5.6  
*Prevalence of Youth Speech Addressed to Child by Community*

	Number of Observations with Youth to Child Participation (Total Observations)	Proportion of Observations with Youth to Child Participation	Mean Number of Tokens Contributed by Youth to Child per Sample	Youth to Child Tokens as a Proportion of All Speech to Child Tokens
South Baltimore	11 (35)	31 %	129	10 %
The Black Belt of Alabama	38 (64)	59 %	538	21 %
Jefferson, Indiana	90 (135)	67 %	276	20 %
Daly Park, Chicago	9 (26)	35 %	92	6 %
Longwood, Chicago	15 (20)	75 %	206	12 %

youth talk addressed to the child in South Baltimore is most likely explained by the fact that only the South Baltimore study had a requirement that all focal children be first-born. However, it is particularly noteworthy that young children were present and participating in the observations in South Baltimore, especially given that none of the children was a sibling of the focal child (one child, Beth, had a sibling born during her observational time but the newborn was preverbal throughout the conclusion of sampling). These children were mostly cousins who were frequent visitors to the homes of the focal children and whose routine presence suggests the error of considering only primary caregiver speech as a source of input for language-learning toddlers and preschoolers. The high proportion of youth to child speech in Longwood is likely explained by the fact

that the Longwood families were well established and financially secure during the period of observation. Children were often home with their mothers throughout the day for protracted periods of time. In sum, it is instructive to note the degree to which other children are incorporated into the families' lives when they are around. No family seemed to place a high priority on having the observer witness their everyday lives when they were alone.

Despite the fact that youth were present and talking to children in the greatest percentage of the Longwood observations, they were also similarly present and talking to the focal children in a large proportion of the observations in the Black Belt and Jefferson. Furthermore, in these two cases the number of word tokens they contributed to the overall speech to the child was exceptionally high compared to the other three communities. Both Black Belt and Jefferson youth contributed similar proportions of the speech addressed to the focal child, 21 percent and 20 percent, respectively. These proportions are approximately double the amount of youth speech addressed to the child in Longwood (12 percent) and South Baltimore (10 percent) and triple the amount of youth speech addressed to the child in Daly Park. Although a more precise consideration of factors contributing to this situation is beyond the scope of the present investigation, possible influences may be noted. First, the Black Belt families were extended in composition to a far greater extent than any of the other communities. This fact, combined with geographical ease of moving from home to home on family acreages, contributed to other youth being more likely to be present during observation times. Second, in both the Black Belt and Jefferson cases, the rural environment may have contributed to parents feeling a sense of safety in allowing children to move about more

freely. In contrast with an urban environment, the homes in these communities were often situated in a manner such that as long as older children did not approach major highways (and there was generally little reason to do so), they could walk around yards and from house to house in relative safety.

Two examples from the transcripts, each from different communities, may serve as portraits of different styles of interaction between the triad of parent, focal child, and sibling. In each case, the role of the focal child as lead performer in the scene is well known by all three members of the triad. However, how the parents handle the situation varies considerably, variation that informs us to a great extent how families in these two different, socioculturally defined groups often handled sibling relationships.

The first example comes from the Black Belt of Alabama. In the moments preceding this scene, Daphne (the focal child) has been darting in and out of the open kitchen area of the home, engaged in back and forth conversation with her mother about wanting a piece of fruit. There is some confusion, shared by Daphne's older sister, Deirdre, concerning the ripeness of a banana and its fitness for eating. Daphne settles upon an apple that her mother offers her. As her mother begins to peel the apple, she uses the temporary break in Daphne's meandering around to try to get her back into the living room where the videocamera is set up.

*Example 5.1.* Daphne, 30 months.

Mother: You gonna sing "Miss Sue" for her? (peeling apple)

Daphne: uh huh/

Mother: Let me hear you sing "Miss Sue."

Deirdre: "Miss Sue, from Alabamy."

Mother: Okay, here (offering Daphne the apple)  
 Get your banana, I mean, your apple (giving peeled apple to Daphne)  
 And go (spoken after a short pause, and with a “shoo” intonation)

Daphne: (walks into living room contentedly with her apple)

Mother: Go back in there with her, Dee Dee  
 She'll stay  
 And then y'all sing "Miss Sue", or talk "Miss Sue" or whatever.

Daphne: "Miss Sue from Alabama"/ (looks at Linda, and begins to run in a circle around a child's chair that is sitting in the middle of the room)

Linda: I don't know this song (trying to encourage Daphne to sing)  
 Huh?

Mother: (to Deidre) Go with her.

Linda: Miss Sue what?  
 Miss Sue what?/

Deirdre: (enters living room)

Daphne: "Miss Sue from Alabama"/ (circling while holding the child's chair)

Deirdre: "Miss Sue from Blee Blop" (clapping)

*(End of example)*

In this episode, Daphne's mother conspires with her older sister to accomplish at least two feats. First, she wants Daphne to stay in one place, preferably in the living room. Second, she wants Daphne to perform for the camera and Miss Linda, a frequent desire of caregivers in the Black Belt (Miller & Sperry, 2012). Adults in this community valued highly the prodigious abilities of their very young children to recite and sing nursery rhymes, prayers, and songs. However, her subtle employment of Deirdre to secure Daphne's compliance is the focus of this discussion. For the most part, caregivers

in the Black Belt valued harmony and equal treatment for all children, and took great steps to socialize a balance of responsibility for the maintenance of that harmony between children of various ages. An evocative example of the importance assigned by caregivers to the equal treatment of children was noted outside of the realm of these transcripts at an end-of-the-year piano recital sponsored by Douglas at the Community Center. One of his then eight-year-old students had a four-year-old brother who was not taking piano lessons. Nevertheless, both boys were dressed to the nines in rented tuxedos for the performance and reception after the recital. In the present example, Deirdre readily agreed to her mother's request. Deirdre was as high-spirited as her younger sister, and this analysis is not meant to suggest that they never had their sisterly spats. However, on this occasion and many others, Deirdre readily accepted her supporting role in the scene while at the same time adding her own sense of pluck to the script by changing the words to the song into nonsense syllables and by clapping to warm-up Daphne's enthusiasm to stay in one place.

Mothers heavily scaffolded the participation of older children in the lives of their siblings. Alicia's brother, Robert, was decidedly her favorite companion in each of the observations made of her. In fact, it is likely that her mother made certain that Robert was going to be present for the observation, because she once observed that he had to stay inside with Alicia, telling him, "Nope, no outside. Robert. Come back here. 'Cause you know you better actin' with her than anybody. Come on back. Come back here with Alicia." (Alicia, 24 months) Robert was eight and nine years old throughout these observations, but even given his age, he and Alicia got along exceptionally well. They pretended to swim, "diving" off of the fireplace hearth onto the carpet "pool"; they read

and talked about Robert's hot rod magazines; they engaged in many protracted conversations about various photographs of family and friends placed around the living room. However, their mother did guarantee that Robert never stole the show, helping him to modulate his increasingly adult-like caregiving behaviors in a manner that encouraged Alicia's development of conversational skills. In the moments preceding the following brief scene, Alicia and Robert were describing the community Christmas parade that had been sponsored by their mother's employer. As was often the case, the scene developed into an opportunity for Alicia to entertain the others with a song in service of her mother guaranteeing that she would have the whole song learned in time for her daycare's upcoming Christmas pageant.

*Example 5.2.* Alicia, 32 months.

Mother: Did you sing, did you tell her [Linda] what you gonna do Wednesday?

Alicia: I sing -/ (pausing expectantly, Alicia jumps off of the chair on which she was sitting, and glances directly at the camera as if to anticipate her upcoming performance)

Robert: Yeah, sing, sing, sing, sing, sing, "Old Santa Claus is going to, to town."  
(Robert also gazes at the camera)

Mother: Tell her what you gonna sing.

Alicia: (singing) "Santa Claus"/ (spoken)

sing, "Santa Claus is coming to town"/ (still gazing at the camera, Alicia gets up and lays across the chair with her head on the chair's arm)

"Santa Claus is coming to town"/ (chanting, rhythmically)

"Santa Claus-"/ (interrupted by R)

Robert: Uh uh.

No.

Lookit.



No.

No, look at the camera and s-sing it.

Alicia: (turns toward camera, and places her foot on Robert's back; begins chanting rhythmically) "Santa Claus is coming to town"/

Robert: (joins in Alicia's singing, mid-sentence) "- Claus is coming to -." (interrupted by Mother)

Mother: Nuh uh, let her sing it.

Alicia: (gazes directly at camera) "He make a list/

"He check it twice/

"Gon' find out who naughty or nice/

"Santa Claus is coming to town"/ (at this point, Alicia stands on the chair, and turns her back to the camera)

"He make a list/

"He gonna find out who naughty or nice"/

[In the middle of this last utterance, both Mother and Robert exhort Alicia to face the camera.]

Mother: Turn around.

Robert: No.

Uh uh. (pulls Alicia around on the chair)

See, look at the camera.

"Bad or good.

"Good or bad" (encouraging Alicia to continue)

Alicia: "Santa Claus is coming to town/"

*(End of example)*

In this episode, Mother deftly uses Robert's participation both to secure Alicia's memory and to allow her to have center stage. She does not interrupt his contributions when he is exhorting Alicia to sing or when he is turning her to face the camera in order

to be seen from the best possible advantage. However, when he starts to sing with her, Mother is apparently concerned that his participation has overstepped its mark and may in fact derail the performance. At this point, she tells him, “Nuh uh, let her sing it.” However, when Alicia’s performance falters due to her waning attention, Robert quickly steps in, apparently to his mother’s approval. In this manner, Mother seems to accomplish many corollary socialization tasks. First, she supports the emerging abilities of Alicia to remember complicated songs and to envision past and future events. Second, she scaffolds Robert’s own support of his sister, carefully monitoring when she believes his participation is in danger of stealing the show. Finally, and perhaps most significantly, she arranges the situation so that both children seem to benefit equally from the experience, each in their own way, despite the six years' age difference between them.

An example from the Jefferson, Indiana home of Morgan provides an interesting counterpoint to this scene from the Black Belt, and demonstrates how parents in Indiana were often more willing to allow their children to interact with each other without direct intervention. Overall, parents in Indiana seemed to have a higher tolerance for sibling conflict of the kind demonstrated in the example. In this episode, 30-month-old Morgan, her four-year-old sister Krissie, and her eight-year-old brother Nick have just finished their supper and have moved into the family room. Their parents remained at the table in the eat-in area adjacent to the family room, well within earshot of the goings on in the rest of the house. Nick is trying to begin his homework and is worried that his sisters will attempt to confiscate his new school crayons. Krissie, always a bit peeved during observations at the notion that the researcher is there to visit Morgan, is apparently giving Nick a run for his money about the crayons. Morgan, by contrast, does not seem very

interested in coloring at first and is running back and forth between kitchen, family room, and bedroom before she settles in to sitting down on the bunk bed in Nick's room.

*Example 5.3.* Morgan, 30 months.

Nick: Wanna color in my Buzz book? (to Morgan, trying to get her to settle down)

The star book?

Morgan: yeah/ (gets off the bed and picks up a book off the floor)

Nick: But you can't use my crayons.

Morgan: ( walks over to where Nick sitting at a desk)

Nick: Here, I'll get you some crayons.

Here, come with me. (Nick takes Morgan's arm and walks to a tall shelf in the corner of the room; Morgan readily accompanies him, holding the book.)

Up here. (reaches to the top of the shelf)

In this box.

In here's crayons, 'kay? (gives Morgan a large pencil box full of crayons)

Morgan sits down on the floor with the box of crayons and begins to fuss with the box trying to open it. Nick walks off camera, presumably back to his desk. Off camera, Krissie begins a scuffle with Nick about his school crayons. Morgan finally gets the box open and proceeds to stand up and swing it around herself. She finally settles down and begins to color when Krissie begins to complain loudly off camera.

Krissie: I don't know where the other coloring book is.

Nick: Well Morgan got some with her in that red box.

Krissie: No, I want you to give me one.

Nick: Okay--in this red box. (getting frustrated)

Krissie enters into the living room holding a coloring book with Nick rather forcefully leading her over to where Morgan is on the floor coloring.

Krissie: Can I please have one of those? (to Morgan)

Nick: Gimme my new crayons (walks away off camera)

Morgan: no/ (to Krissie; holds the box of crayons away from her)

Krissie: Can I please have one of the crayons? (tries to take box from Morgan)

Morgan: no, no, no, no!/ (screaming and crying, holding onto the box)

Krissie continues to try to take the box from Morgan, but Morgan holds onto the box and screams. She keeps screaming “no,” until Krissie lets go and leaves the room, crying.

Krissie: Dad, Morgan won’t let me have any crayons.

Krissie whines off camera to her father about her plight. Most of the conversation is inaudible. Notably, however, her father does not attempt to intervene.

Meanwhile Morgan sits back down on the floor with her coloring book. Krissie continues to whine to their father in the kitchen. Morgan takes out a few more crayons and then closes the box and sets it down. She opens her book and begins to color. Nick is heard periodically talking to himself about his homework and how he needs to color it. Soon, Morgan begins to color on the carpet

Nick: I’ve got one more that I gotta color green. (from his bedroom)

Morgan: color eyes/ (starts to color on the carpet; she opens the box of crayons again)

Nick: Okay done (excited, to himself, off camera)

Now to color in the wolf.

Morgan chooses another crayon and returns to coloring in the book. Meanwhile Krissie, now appeased with a bowl full of crackers, enters the family room followed by her father and watches Morgan. All of a sudden, their father notices Morgan’s artwork on the carpet.

Dad: Morgan!

No!

(Krissie gasps and runs off camera.)

Dad: She’s got crayons and I can see her coloring on the carpet. (shouting to his wife in the kitchen)

Mom comes into the family room and kneels beside Morgan to inspect the damage.

*(End of example)*

In this episode, Morgan, Krissie, and Nick engage in a fascinating triadic interchange with each child alternating between provocateur and victim. Nick draws a

line in the sand about his crayons, causing him to search about for alternative activities for his sisters that will protect his claim to his crayons. Krissie goes along with Nick but when Morgan refuses to share her own box of crayons, Krissie, ever aggrieved, resorts to an appeal to her father's authority in order to get her way. Apparently her plea is to no avail since Dad does not intervene. Although we cannot hear Dad in this conversation, in similar exchanges on other observations he was noted to take Morgan's side against Krissie, emphasizing in different ways that Morgan was being videotaped, not Krissie. Nevertheless, in this exchange as in many others, he does not choose to intervene in the sisters' conflict, but rather chooses to appease Krissie with a bowl of crackers. It is not that he is indifferent to all of Morgan's misdeeds, however. As soon as he notices her choice of canvas for her artwork, he immediately takes action with an appeal of authority of his own to his wife.

It is not the intention of this discussion to make claims that one community privileges cooperative speech while another community privileges competitive speech. The point to be made here is that primary caregivers structure the conversations of their children at times through direct intervention and at times through benign inattention. Whether parents are intervening in sibling rivalry or letting children play by themselves, they instantiate beliefs concerning who should talk and who should listen. Parents allow children to converse between themselves, or not, and in the process they reveal their values about a host of issues, from their beliefs about kids' relationships with each other to the relative value of food or household property to their desires to please the visiting researcher. Parents make similar, deliberate decisions about talking, or not talking, to their children in the course of everyday activity, decisions that are equally revealing of

culturally instantiated beliefs concerning the nature of talking, its purpose, and its timing. They make these choices not because they do not have or do not want to exercise other options. They make these choices based on other attendant circumstances in their everyday lives that must be taken into account when the amount of vocabulary spoken to young children is considered. Given the fact that sibling speech is such an important venue for socialization, indicated at least in part by the manners by which adult caregivers monitor and scaffold sibling interaction, the failure to acknowledge its positive contribution to the child's overall language development seems an unwarranted segregation of input.

It must be noted that youth speech was of varying quality. The  $\mathcal{D}$  estimates of vocabulary diversity were invariably lower than those of adult speech. However an interesting result obtained when youth and adult speech were combined, as was evident in the descriptive results presented at the beginning of this chapter. Despite the fact that the youth speech considered alone was always less diverse than the adult speech, its combination with the speech of others in the All Speech to Child condition resulted in an overall higher vocabulary diversity. This finding awaits additional examination in future research; however some preliminary observations are offered here. It would be easy to explain this result if the presence of fathers in the observations was equal across the communities, for one can imagine that their speech would create the increase in diversity. However, fathers were seldom present in any observations on a regular basis except in Jefferson, and yet all communities experienced a rise in vocabulary diversity between the Primary Caregiver Speech to Child and All Speech to Child conditions. Another intriguing possibility is that children's speech considered alone is less diverse, but

children simply contribute on the whole different words to the conversation than parents do. This possibility also awaits future investigation, but simple perusal of the transcripts suggests that youth are much more likely to contribute certain types of words in play (“whoosh,” “whoa,” “vroom”) than are adults. These words and others like them play an important role in children’s lives, a role that will be extended to early book reading in the elementary school years; their importance should not be overlooked.

### **Summary**

This chapter presented results on the quantity and quality of vocabulary addressed by all interlocutors to the focal child. Although comparisons were made to the Kansas corpora for informative purposes, it was noted that conclusive statements about any comparisons may not be made since the Kansas data likely include the speech of only one interlocutor. Nevertheless, comparisons between the data corpora are important to the extent that they elucidate the degree to which counting only the words of one interlocutor may underestimate the amount of vocabulary that children hear addressed to them on a daily basis.

The number of word tokens spoken by all interlocutors to the focal child in the Black Belt was significantly greater than the number of word tokens spoken under this condition in any of the other four communities in the present study, although only the Black Belt to South Baltimore comparison reached statistical significance. Nevertheless, the number of word tokens spoken by Black Belt interlocutors was 47 percent higher than in the middle-class community of Longwood, the next most talkative community. In the context of all nine communities, interlocutors in the Black Belt spoke significantly more words to focal children than did primary caregivers in the Kansas Impoverished and

Working-Class homes as well as in the South Baltimore homes. When these community results are grouped by social class it is shown that the Black Belt children hear more word tokens addressed to them than do the children in the other two impoverished communities of South Baltimore and Kansas. No differences exist across communities in the working-class group or the middle-class and professional group.

The only significant differences in the number of word types in any comparison described in this chapter were found in the Kansas data between the professional families and both the poor and working-class families. This result is interesting for a number of reasons. First, the result demonstrated that the mean number of word types spoken by all interlocutors to the child in South Baltimore, an impoverished community, was not significantly different than the number of word types spoken by primary caregivers alone in any of the three Kansas communities with higher socioeconomic standing. In fact, the number of word types recorded in South Baltimore under this condition was nearly equal to those recorded in the Kansas Middle-Class sample and fully 74 percent higher than the number recorded in the Kansas Impoverished sample. Second, these results demonstrated that the Black Belt of Alabama impoverished community was situated at a higher ordinal level in terms of number of word types spoken by all interlocutors than was the Kansas working-class community, despite the fact that the samples for the Kansas communities were twice as long. In addition to the ordinal placement of the Black Belt community in terms of number of word types, support for the notion that the Black Belt interlocutors spoke a relatively diverse vocabulary to their children is found in the fact that the rate of word tokens per half hour in the Black Belt samples was 60 percent higher than the rate of word tokens spoken per hour by the Kansas Impoverished.



The extreme talkativeness in the Black Belt may have resulted in seemingly low diversity estimates if the number of tokens adversely affected the calculation of  $\mathcal{D}$ . Therefore, the ordinal placement of the Black Belt mean and the difference in the length of samples, together coupled with the fact that the Kansas working-class and professional communities were significantly different from each other, strongly suggests that there is probably no reason to assume that the Black Belt children heard fewer new words spoken to them by all interlocutors than did the Kansas Middle Class or Professional children heard spoken to them by primary caregivers alone.

When the mean numbers of word types were compared by social class, both the South Baltimore and Black Belt interlocutors were shown to address greater numbers of new words to their children than did primary caregivers in the Kansas community. There was no reason to suspect differences among the working-class communities based on means or distributions alone, but given the similarity of these two statistics across communities, it is likely that the Jefferson and Daly Park samples would exceed the Kansas samples if the observation lengths were constant. Finally, the Kansas Professional primary caregivers did speak more word types per hour to the focal child than the Longwood middle-class interlocutors spoke to the child in one half-hour; however, this result would likely disappear if sample sizes were equal across the two communities.

The analysis of vocabulary diversity revealed only one significant difference: The speech of all Black Belt interlocutors to the focal child was less diverse than that of all Longwood interlocutors to the child, a fact that is not surprising given the extreme differences between these communities in terms of education and socioeconomic status.

What is perhaps more surprising is that no other comparison across communities revealed significant differences in terms of the vocabulary diversity of all interlocutors to the child. When the amount of vocabulary diversity in the speech of all interlocutors to the child was compared to the diversity in the speech of the primary caregivers alone, it was shown that the addition of other interlocutors to the speech environment greatly increased the overall diversity. Furthermore, this difference was consistent across all communities except for South Baltimore. The most likely reason for this result is the age of the average additional speaker on the scene in South Baltimore as compared to speakers on the scene in the other communities, although confirmation of this result awaits additional analyses. Initial inspection of the data suggests that a larger proportion of new words added to the conversational mix in the Black Belt, Jefferson, Daly Park, and Longwood were spoken by adults as opposed to young children in South Baltimore.

Finally, this chapter presented a case study of the speech that young interlocutors spoke to the focal child. This speech was consistently present and plentiful in all communities, but exceeded 20 percent of all speech addressed to the child in both the Black Belt and Jefferson. Examples from transcripts from the Black Belt and Jefferson were presented to afford a glimpse at what youth talk looks like on the ground. Adult monitoring of this talk, and adult conversational contributions around this talk varied in the examples in ways that may be demonstrative of community norms surrounding the who, what, when, where, and why rules governing speech in these communities. Definitive analysis concerning these norms needs to be pursued, but for the present time it is safe to say that adults appear to make deliberate, situated choices about talking to and

around their children based on their values, and that these decisions likely influence vocabulary amount and diversity in various conversational configurations.

## CHAPTER 6

### RESULTS FOR SPEECH SPOKEN TO AND AROUND CHILDREN

This chapter addresses the third hypothesis of this study, namely, are there differences among homes from five communities within the United States in terms of the quantity and quality of speech spoken to and around children? Attendant to this question is the related issue of whether or not any observed differences are grounded in the social class and economic standing of the communities themselves. To address this question, two complementary analyses are presented. First, the numbers of tokens of all words spoken by all interlocutors to and around the focal child are examined to address the quantity of all speech. Second, the numbers of types of different words spoken by all interlocutors to and around the focal child are examined to address the quality of all speech. To prepare for these analyses, descriptive observations of each of the five communities that form the core constituents of this study will be presented first. Finally, comparisons among five communities and their counterparts (based on social address) from the data collected by Hart and Risley (1995) will be undertaken.

It should be noted that an analysis of this kind has never been undertaken before. Although researchers in the language socialization tradition have been documenting diverse language learning environments, including speech to and around the child since the 1980s, only recently have scholars of vocabulary begun to consider the impact of all speech spoken around the very young child in addition to speech spoken directly to the child. This fact may obtain for at least two reasons. First, although there is a substantial literature both within developmental psychology and within the pedagogy of language

surrounding older children's vocabulary acquisition in other contexts such as preschool or the Head Start classroom, there has been little focus on the socialization forces within the home that continue to support vocabulary acquisition. Much attention has been paid to the amount and style of input, where input is defined as speech to the child, in the early language learning years, resulting in discussions similar to those described in the preceding two chapters concerning the relative merits of joint-attention episodes, but few studies have examined the amount of even maternal vocabulary to the child past the point when the child turns 36 months of age (cf. Hart & Risley, 1995; Pan et al., 2005; see Weizman & Snow, 2001 for a notable example of a study of maternal vocabulary input to children aged 5 years). Second, as discussed in earlier chapters, psychological evidence has only recently emerged that suggests that very young children can and do learn vocabulary from overheard speech (Akhtar, 2005; Akhtar & Gernsbacher, 2007; Shneidman et al., 2009). More germane to the hypothesis considered in this chapter, however, is the fact that most studies of early language learning assume the sociological patterning of middle-class, European American families to exist in all homes, a point made by Ochs and Schieffelin (1984) in their classic paper. Due to this critical assumption, the language input of relatives in extended families living within a single dwelling, of extended family members who live in close proximity to the child, or of community members who visit families frequently (often coming and going with little fanfare and with no express invitation) has never been measured in studies of children's emerging vocabularies. The combination, perhaps inadvertent, of the dual assumptions that one caregiver's language is privileged and that typically only one caregiver alone is present in the child's environment has resulted in a construal of the language

environment of some children as impoverished, lacking in both quantity and quality. In conclusion, the fact remains that the analyses presented in this chapter have no true comparison studies within which to situate themselves.

### **Outline of the Present Chapter**

This chapter begins with a description of the data from the five communities. The descriptive statistics for the amount of speech spoken by all interlocutors to and around the focal child are presented first. Communities are ordered broadly by social class and economic standing. Therefore in the descriptions that follow, the two impoverished communities of South Baltimore and the Black Belt of Alabama are presented first, followed by the two working-class communities of Jefferson (Indiana) and Daly Park (Chicago), and concluding with the middle-class comparison community of Longwood (Chicago).

Descriptive statistics presented include the mean numbers of word tokens spoken by all interlocutors to and around the child, the mean numbers of word types, the mean type-to-token ratios, and the mean  $\mathcal{D}$  estimates for each child in the respective communities. Analysis then proceeds to a consideration of the mean numbers of word tokens spoken by all interlocutors to and around the focal child. In a similar manner to the presentation in Chapters 4 and 5, data will be presented first for the five communities in the present study, and then for all communities including the Kansas samples. Data will be analyzed in two sets of comparisons. The first set of comparisons will examine differences among all communities as a whole. These comparisons are consistent with the assumption that there are no differences in the amount of vocabulary in the ambient environment of children regardless of their social address. The second set of

comparisons will examine any differences located in the first analysis to tease apart possible social class differences that may be found.

The next analysis turns to an examination of the mean numbers of word types across the five communities in the present study accompanied by a distributional analysis of these data. No data from the Kansas samples are presented in the analysis of types in this chapter for two corollary reasons. First, there are no data that were collected under the condition of all speech to and around the child. Second, the Kansas data for word types were already compared to data collated under the second condition of the present study—speech addressed by all interlocutors to the child—that is a more fitting contrast for the amount of speech addressed to children by a single, primary caregiver versus all interlocutors since it involves input directed expressly to the child. This chapter will also consider the vocabulary diversity of all speech in the child’s ambient environment by using the  $\mathcal{D}$  estimate to characterize comparisons across communities. After an initial comparison of diversity across the five communities in the present study, these estimates will be compared with the estimates made from the amount of speech of all interlocutors to the child.

Finally, this chapter will conclude with an anecdotal analysis of the nature of speech to and around the child. In the abstract, the consideration of speech to and around the child presents a distinct alternative to traditional analyses of vocabulary that concern themselves only with the speech of one caregiver presented in joint-attention episodes. It is hoped that the short vignettes presented in this section of the chapter hint at the type of talk that is missed in these analyses through the demonstration of how ordinary this talk looks.

## Descriptive Analyses

### South Baltimore

Table 6.1 presents the descriptive data for all speech spoken to and around the three girls in the South Baltimore study (the descriptive statistics for individual observations are provided in Appendix A for word tokens and Appendix B for word types). Twelve hour-long observations were made of each child beginning on average when the child turned 19 months of age and continuing until the child was approximately 31 months of age. Within these samples, the mean number of total words spoken per hour (tokens) was 1,619, with a range from 193 to 4,732 words per hour. The mean number of new words (types) spoken per hour was 325, with a range from 82 to 620 words per hour. The mean type-to-token ratio for these samples was .23, with a range from .13 to .42. The mean estimate of  $\mathcal{D}$  was 80.18, with a range of 44.91 to 108.38.

Table 6.1

*All Speech to and Around Child in South Baltimore by Family (One-Hour Samples)*

Child	Number of Samples (Age Range in Months)	Mean Word Tokens (Range)	Mean Word Types (Range)	Mean Type/Token Ratio (Range)	Mean $\mathcal{D}$ (Range)
Amy	12 (18-27)	1508 (661-2843)	332 (221-434)	.24 (.15-.35)	86.43 (65.28-108.38)
Wendy	12 (24-32)	975 (193-1723)	238 (82-381)	.27 (.19-.42)	70.99 (44.91-102.83)
Beth	12 (25-32)	2,373 (915-4732)	405 (260-620)	.19 (.13-.28)	83.13 (70.82-99.49)
Community	12 (18-32)	1,619 (193-4732)	325 (82-620)	.23 (.13-.42)	80.18 (44.91-108.38)



## The Black Belt of Alabama

Table 6.2 presents the descriptive data for all speech to and around the six girls and five boys in the Black Belt study (the descriptive statistics for individual observations are provided in Appendix A for word tokens and Appendix B for word types). Six half-hour-long observations were made of each child except for Keisha who was sent to live with another relative in a different state after her fourth observation. The observations

Table 6.2

*All Speech to and Around Child in Black Belt of Alabama by Family (Half Hour Samples)*

Child	Number of Samples (Age Range in Months)	Mean Word Tokens (Range)	Mean Word Types (Range)	Mean Type/Token Ratio (Range)	Mean $\mathcal{D}$ (Range)
Alicia	6 (24-42)	2284 (1488-2895)	342 (243-459)	.15 (.11-.20)	75.52 (49.28-103.09)
Daphne	6 (28-42)	1821 (1429-2074)	359 (318-392)	.20 (.18-.22)	85.46 (68.72-99.33)
Keisha	4 (24-30)	1912 (1275-2424)	316 (249-370)	.17 (.15-.20)	77.68 (69.76-83.91)
Kendrick	6 (28-42)	1309 (638-2204)	254 (179-325)	.22 (.13-.30)	65.04 (59.63-73.59)
Lamont	6 (24-39)	1710 (1024-2229)	284 (187-338)	.17 (.13-.21)	70.55 (50.21-85.23)
Markus	6 (24-42)	1345 (970-1882)	256 (215-374)	.19 (.16-.24)	60.32 (43.52-83.74)
Roland	6 (24-42)	983 (635-1461)	232 (170-284)	.25 (.19-.35)	72.90 (46.52-103.93)
Sebrina	6 (24-42)	2716 (1158-4215)	401 (298-536)	.17 (.10-.26)	84.33 (66.01-108.11)
Shamekia	6 (28-42)	521 (193-749)	161 (84-207)	.33 (.25-.44)	65.40 (62.37-68.80)
Stillman	6 (24-42)	2006 (790-2526)	338 (230-476)	.18 (.14-.29)	78.84 (70.49-99.61)
Tahleah	6 (24-38)	1012 (195-1310)	232 (83-282)	.26 (.21-.43)	66.79 (47.27-96.55)
Community	5.8 (24-42)	1601 (193-4215) <i>SD</i> = 609	289 (83-536) <i>SD</i> = 66	.21 (.10-.44)	72.98 (43.52-108.11)

began when the child turned either 24 ( $n = 8$ ) or 28 ( $n = 3$ ) months of age and continued until the child turned 42 months of age. Within these samples, the mean number of total words spoken per half hour (tokens) was 1,601, with a range from 193 to 4,215 words per half hour. Shamekia and Tahleah each had an observation where the number of tokens spoken by all interlocutors to and around them was more than 2 standard deviations below the community mean.

The mean number of new words (types) spoken per hour was 289, with a range from 83 to 536 words per half hour. In the prior two sets of analyses for the hypotheses surrounding speech by mothers to their children and speech by all interlocutors addressed to the focal child, conclusions were suspended concerning the presence of minimal talk outliers awaiting additional analysis of all speech in the child's environment. As in the token analysis, in this type analysis, two children (Shamekia and Tahleah) had observations where the number of types spoken by all interlocutors in their environment was more than 2 standard deviations below the community mean. These two participants were also among the group of children who had unusually small numbers of words addressed to them in the Primary Caregiver to Child and All Speech to Child conditions (although the lowest number of new words spoken to Shamekia by her mother in a single observation was 84, one word higher than the limit of 83 determined as being two standard deviations below the mean for that analysis). These similarities suggest that there does exist some reason to suspect that these observations represent a consistent situation of relative lack of verbal quality in interaction occurring within these two families and not simply an unusual circumstance. However, contrasts between the lives of these two children abound. For example, Shamekia was an only child who spent much

of her day in daycare and grandparent care while her single mother worked as a secretary at the regional university near their home, while Tahleah had several older brothers and sisters and stayed in the homes of grandparents or aunts and uncles during the day, all of whom shared caregiving responsibilities for the many children in her extended family. While Shamekia had little opportunity to interact with anyone other than her mother when she was at home, Tahleah likely enjoyed the conversations of many children and adults who simply were not in attendance during some of the observations because they were away at school. These two children demonstrate the broad range of everyday experience in the lives of children, and suggest that caution in interpretation is warranted when brief observations of that everyday experience are used to predict children's actual socialization.

The mean type-to-token ratio for these samples was .21, with a range from .10 to .44. The mean estimate of  $\mathcal{D}$  was 72.98, with a range of 43.52 to 108.11. The comparison of the number of tokens and types spoken to and around the child to the number of tokens and types spoken by all interlocutors to the child serves to demonstrate the degree to which these children live in vibrant, verbal homes that frequently center the conversation around the focal child alone, but that equally as frequently carry on the business of the home around the child. In Chapter 5 it was observed that fully eight of the 11 participants had single observations where the number of tokens addressed by any interlocutor to the focal child was more than 2 standard deviations below the community mean. However, in this analysis, only two children had such observations. This finding suggests that although each child is often the focus of conversation, they are also members of large households. At any given moment in time, any one member of the

household may be the center of attention; although much speech is spoken within the child's earshot, it may not always be addressed to her.

For the purposes of exploratory analysis, point biserial correlations were conducted to determine if there were any relationship between the gender of the child and the number of tokens or types spoken by all interlocutors to and around the child. No significant relationship was identified between the gender of the child and the number of tokens spoken by all interlocutors,  $r_{pb}(9) = .20, p = .56$ . No significant relationship was identified between the gender of the child and the number of types spoken by all interlocutors,  $r_{pb}(9) = .22, p = .52$ .

### **Jefferson, Indiana**

Table 6.3 presents the descriptive data for all speech spoken to and around the seven girls and eight boys in the Jefferson study (the descriptive statistics for individual observations are provided in Appendix A for word tokens and Appendix B for word types). Nine half-hour-long observations were made of each child beginning on average when the child turned 21 months of age and continuing until the child was approximately 42 months of age (range = 18 to 42 months). Within these samples, the mean number of total words spoken per half hour (tokens) was 1,245, with a range from 50 to 3,870 words per half hour. Five children had observations where the number of tokens spoken by all interlocutors to and around them was more than 2 standard deviations below the community mean. On the one hand, the five children with minimal talk observations were also among the children with minimal talk observations in the All Speech to Child condition. This fact suggests that these children may consistently hear fewer words despite the presence or absence of other interlocutors. However, since all but one child

Table 6.3

*All Speech to and Around Child in Jefferson, Indiana by Family (Half Hour Samples)*

Child	Number of Samples (Age Range in Months)	Mean Word Tokens (Range)	Mean Word Types (Range)	Mean Type/Token Ratio (Range)	Mean $\mathcal{D}$ (Range)
Brittany	9 (20-40)	2073 (909-2917)	356 (268-434)	.19 (.13-.29)	88.40 (70.55-106.29)
Brian	9 (22-42)	842 (184-1395)	235 (84-351)	.32 (.22-.46)	82.55 (45.21-110.08)
Caitlyn	9 (22-42)	1939 (1356-3159)	388 (307-526)	.21 (.17-.24)	99.70 (87.46-118.04)
Cherie	9 (24-42)	1149 (399-2089)	295 (162-379)	.29 (.18-.41)	97.48 (81.97-116.88)
Dalton	9 (18-42)	786 (564-972)	234 (187-291)	.30 (.23-.34)	80.42 (57.15-114.77)
Drew	9 (20-40)	772 (50-1642)	217 (35-419)	.37 (.22-.70)	80.75 (44.26-124.11)
Evan	9 (20-42)	586 (181-1153)	203 (86-317)	.40 (.25-.61)	87.58 (45.30-119.84)
Jason	9 (24-42)	1267 (697-2084)	331 (226-453)	.27 (.21-.32)	103.34 (77.79-133.17)
Jaymie	9 (19-42)	2312 (1231-3870)	431 (358-571)	.20 (.15-.29)	105.33 (86.12-131.71)
Kayleigh	9 (20-40)	921 (387-1757)	269 (172-402)	.32 (.21-.47)	96.38 (71.22-131.68)
Morgan	9 (18-42)	1335 (514-2034)	315 (176-411)	.25 (.17-.34)	93.62 (65.64-118.14)
Robbie	9 (20-42)	1748 (580-3314)	366 (219-544)	.24 (.14-.38)	105.55 (91.24-117.89)
Sarah	9 (24-42)	693 (56-1487)	231 (45-464)	.40 (.26-.80)	93.49 (76.67-125.18)
Shane	9 (22-42)	949 (159-2214)	244 (78-435)	.34 (.20-.56)	88.42 (44.76-122.46)
Wesley	9 (22-42)	1307 (610-2513)	307 (199-386)	.26 (.15-.34)	94.48 (79.61-108.34)
Community	9 (18-42)	1245 (50-3870) $SD = 523$	295 (35-571) $SD = 67$	.29 (.13-.80)	93.17 (44.26 -133.17)

had minimal talk observations in the All Speech to Child condition, the number of children with minimal talk observations in the All Speech condition represents a 66

percent decrease in the number of families who had occasional episodes of extremely low verbal interaction. To that end, support is offered for a conclusion that these children are surrounded more often than not by many interlocutors engaging in diverse conversations that may or may not involve the children.

The mean number of new words (types) spoken per hour was 295, with a range from 35 to 571 words per half hour. In the Jefferson community, five of 15 participants had at least one observation where the number of types spoken per half hour by all interlocutors to or around them was more than 2 standard deviations below the community mean. Furthermore, all five of the children in this analysis with observations where there were extremely small amounts of vocabulary spoken were also among the 10 children in the All Speech to Child condition who had similar observations. On the one hand, this finding appears to confirm the interpretation made for the Black Belt community that these children may routinely be in contexts characterized by low verbal interaction. On the other hand, the finding that only five children in the All Speech condition had at least one observation where the number of types spoken per half hour by all interlocutors to and around them was more than 2 standard deviations below the community mean compared to 10 children in the All Speech to Child condition represents a 50 percent decrease in the number of homes with minimal talk during their observations. This finding supports the interpretation offered concerning the number of tokens that occurred in the speech of Black Belt families, namely that although each child is often the focus of conversation, they are also frequently members of large households, each of whom have motives and intentions that simultaneously must be expressed and do not necessarily involve interaction with the focal child. The mean type-to-token ratio for

these samples was .29, with a range from .13 to .80. The mean estimate of  $\mathcal{D}$  was 93.17, with a range of 44.26 to 133.17.

For the purposes of exploratory analysis, point biserial correlations were conducted to determine if there were any relationship between the gender of the child and the number of tokens or types spoken by all interlocutors to and around the child. No significant relationship was identified between the gender of the child and the number of tokens spoken by all interlocutors to and around the child, although a trend was again observed for the families of the girls to be somewhat more verbal,  $r_{pb}(13) = .44, p = .11$ . No significant relationship was identified between the gender of the child and the number of types spoken by all interlocutors to and around the child, although a trend was observed for the families of the girls to be somewhat more verbal,  $r_{pb}(13) = .44, p = .10$ . Due to the inconclusive nature of these findings, no additional interpretation is offered.

### **Daly Park, Chicago**

Table 6.4 presents the descriptive data for all speech spoken to and around the three girls and four boys in the Daly Park, Chicago study (the descriptive statistics for individual observations are provided in Appendix A for word tokens and Appendix B for word types). Three ( $n = 2$ ) or four ( $n = 5$ ) half-hour-long observations were made of each child. Observations began on average when the child turned 31 months of age and continued until the child was approximately 47 months of age (range = 30 to 52 months). Within these samples, the mean number of total words spoken per half hour (tokens) in Daly Park was 911, with a range from 88 to 1,927 words per half hour. In this community, one child (Devon) had an observation where the number of tokens spoken

per half hour by all interlocutors to and around him was more than 2 standard deviations below the community mean.

Table 6.4

*All Speech to and Around Child in Daly Park, Chicago by Family (Half Hour Samples)*

Child	Number of Samples (Age Range in Months)	Mean Word Tokens (Range)	Mean Word Types (Range)	Mean Type/Token Ratio (Range)	Mean $\mathcal{D}$ (Range)
Colleen	3 (32-39)	1102 (767-1404)	315 (274-361)	.30 (.26-.36)	104.06 (93.63-110.76)
Helen	4 (31-44)	1137 (917-1428)	284 (261-304)	.25 (.21-.28)	83.14 (64.72-100.70)
Mary	3 (32-43)	815 (483-1011)	249 (201-313)	.32 (.25-.42)	94.37 (75.81-108.19)
David	4 (30-50)	753 (715-814)	247 (236-261)	.33 (.29-.37)	94.21 (85.39-109.07)
Devon	4 (32-50)	489 (88-1212)	138 (62-262)	.45 (.22-.70)	67.38 (58.61-74.94)
Michael	4 (31-48)	839 (617-1120)	270 (256-285)	.34 (.23-.43)	98.04 (44.74-126.02)
William	4 (31-52)	1246 (581-1927)	278 (217-316)	.26 (.15-.37)	85.06 (63.16-110.15)
Community		911 (88-1927) $SD = 244$	254 (62-361) $SD = 52$	.32 (.15-.70)	89.47 (44.74-126.02)

The mean number of new words (types) spoken by all interlocutors to and around the child per half hour was 254, with a range from 62 to 361 words per half hour. In the Daly Park community, one child (Devon) had at least one observation where the number of types spoken by all interlocutors to and around him was more than 2 standard deviations below the community mean. Given that the overall mean number of types spoken to and around him was also the lowest mean in the community, this result may suggest an overall lack of verbal quality in his home. It also should be noted that



although Mary heard a very low number of word types addressed to her by all interlocutors under the second hypothesis (122 per half hour), the mean number of word types spoken to and around her across all observations was 249 words per half hour, only 5 words per half hour fewer than the mean for the community. This comparison serves to demonstrate the varying levels among homes of the amount of speech children hear addressed to them individually versus the amount of speech to which they have access on a regular basis. Finally, the mean type-to-token ratio for these samples was .32, with a range from .15 to .70. The mean estimate of  $\mathcal{D}$  was 89.47, with a range of 44.74 to 126.02.

For the purposes of exploratory analysis, point biserial correlations were conducted to determine if there were any relationship between the gender of the child and the number of tokens or types spoken by all interlocutors to and around the child. No significant relationship was identified between the gender of the child and the number of tokens spoken by all interlocutors to the child,  $r_{pb}(5) = .38, p = .40$ . No significant relationship was identified between the gender of the child and the number of types spoken by all interlocutors to the child,  $r_{pb}(5) = .47, p = .29$ .

### **Longwood, Chicago**

Table 6.5 presents the descriptive data for all speech spoken to and around the three girls and three boys in the Longwood, Chicago study (the descriptive statistics for individual observations are provided Appendix A for word tokens and Appendix B for word types). Three ( $n = 2$ ) or four ( $n = 3$ ) half-hour-long observations were made of each child; one child, Tommy, withdrew from the study after two observations. Observations began when the child turned 30 months of age and continued until the child was

approximately 45 months of age (range = 30 to 48 months). Within these samples, the mean number of total words (tokens) spoken by all interlocutors to and around the child per half hour was 1,248, with a range from 381 to 2,689 words per half hour. In the Longwood community, one child (Steven) had an observation where the number of tokens spoken per half hour by all interlocutors to and around him was more than 2 standard deviations below the community mean. In contrast to other occurrences of this nature, the overall mean number of words in Steven's environment was not the lowest in the community, actually ranking fourth among the six participants. To that end, it seems reasonable to conclude that this one observation was anomalous and that there was no reason to suspect that outlying observations always represented systematic variation within families.

Table 6.5

*All Speech to and Around the Child in Longwood, Chicago by Family (Half Hour Samples)*

Child	Number of Samples (Age Range in Months)	Mean Word Tokens (Range)	Mean Word Types (Range)	Mean Type/Token Ratio (Range)	Mean $\mathcal{D}$ (Range)
Amy	3 (30-42)	1879 (1066-2610)	406 (291-522)	.23 (.20-.27)	101.02 (90.69-112.80)
Karen	4 (30-48)	787 (381-1444)	244 (154-320)	.35 (.22-.43)	96.27 (79.12-106.63)
Megan	3 (30-48)	1705 (801-2689)	365 (235-530)	.23 (.20-.29)	96.87 (77.72-123.70)
Patrick	4 (30-48)	768 (677-844)	248 (234-259)	.32 (.31-.35)	97.37 (91.24-106.27)
Steven	4 (30-48)	846 (252-1232)	213 (109-272)	.29 (.22-.43)	78.81 (62.00-93.60)
Tommy	2 (30-36)	1503 (596-2410)	367 (230-504)	.30 (.21-.39)	113.70 (110.52-116.87)
Community	3.3 (30-48 mos)	1248 (381-2689) <i>SD</i> = 461	307 (109-530) <i>SD</i> = 74	.29 (.20-.43)	97.34 (62.00-123.70)

The mean number of new words (types) spoken per hour was 307, with a range from 109 to 530 words per half hour. In the Longwood community, two children (Karen and Steven) had at least one observation where the number of types spoken by all interlocutors to and around them was more than 2 standard deviations below the community mean (and that by a single word). In both cases, the overall mean numbers of types spoken to and around these children were the lowest means in the community, thereby suggesting that there was an overall lack of verbal quality in their homes. However, this suggestion is not supported by the mean number of new words Karen heard spoken to her by all interlocutors under the second hypothesis (221 words per half hour) compared to the community mean number of new words spoken by all interlocutors to the focal child (248 words per half hour). Not only was the number of new words Karen heard under this condition within one standard deviation of the community mean, but it was also greater than the number of new words heard by two other participants. Again, this evidence provides a lens through which to view the relative importance of the amount of speech addressed to children individually versus the amount of speech to which they have access on a regular basis. The mean type-to-token ratio for these samples was .29, with a range from .20 to .43. The mean estimate of  $\mathcal{D}$  was 97.34, with a range of 62.00 to 123.70.

For the purposes of exploratory analysis, point biserial correlations were conducted to determine if there were any relationship between the gender of the child and the number of tokens or types spoken by all interlocutors to and around the child. No significant relationship was identified between the gender of the child and the number of tokens spoken by all interlocutors to the child,  $r_{pb}(4) = .45, p = .37$ . No significant

relationship was identified between the gender of the child and the number of types spoken by all interlocutors to and around the child,  $r_{pb}(4) = .42, p = .41$ .

### **Analysis of Word Tokens Across Communities**

An analysis of the total number of words (tokens) spoken by all interlocutors to and around the focal child is presented in order to capture any potential differences among the communities in terms of the quantity of speech heard by children. Whereas the analysis presented in Chapter 5 relied on an assumption that children may potentially learn vocabulary addressed to them by any interlocutor, the analysis presented in this chapter is of a different nature. It rests on two corollary assumptions, one supported by experimental research and the other supported by ethnographic research. First, this analysis depends upon the fact that children can learn vocabulary from speech in their ambient environment that is not addressed specifically to them. Of course, this situation must be true for older children, but it has only recently been experimentally demonstrated to be true for very young children as well (Akhtar, 2005; Akhtar & Gernsbacher, 2007; Shneidman et al., 2009). Ethnographic accounts have supported this conclusion for several decades, demonstrating the importance of overheard or bystander speech in communities around the world. At the same time, this analysis is grounded in ethnographic observations that suggest that the number and relative importance of caregivers in the lives of children varies greatly from community to community. Cultural beliefs dictate not only when children themselves should speak, but also when it is appropriate for others to speak to children. Coupled with the fact that children grow up in highly diverse contexts—varied in terms of the nature of the family (extended versus nuclear), of the number of siblings, and the range of activities in which they take part—

these beliefs surrounding speech to and around children may take a multiplicity of forms unimagined in their complexity.

This analysis of vocabulary quantity and quality heard by young children has never been undertaken in the literature to date. Therefore, comparisons made in these analyses to the Kansas data are only made to suggest the differences in the diversity and amount of speech some children growing up in very different contexts may hear. This study can make no predictions concerning the language that all children, even all children living within a single social address, might hear. Indeed, that goal is antithetical to the purpose of the study which is to assert that the reasons for vocabulary differences across communities defined by culture, social groupings, and economic differences are too great to package neatly.

As mentioned in previous chapters, analysis of the data from the five corpora analyzed in the current study is hindered by the differences between the hour-long transcripts of the South Baltimore observations and the data from hour-long observations in the Kansas samples of Hart and Risley (1995), and the half-hour-long transcripts of the Black Belt, Jefferson, Daly Park, and Longwood corpora. However, the problem is more easily resolved in the current analysis of tokens than it is in the analysis of types. In the analyses that follow this brief introduction, all observed tokens for the half-hour samples presented in the tables at the beginning of the chapter are doubled for easy comparison across the nine communities. Obviously this practice also represents an extrapolation of data from known to unknown quantities; however, there were few if any reasons ever to suspect in the transcribed observations that the amount of talk either increased or decreased precipitously in the immediate minutes surrounding the transcribed samples.

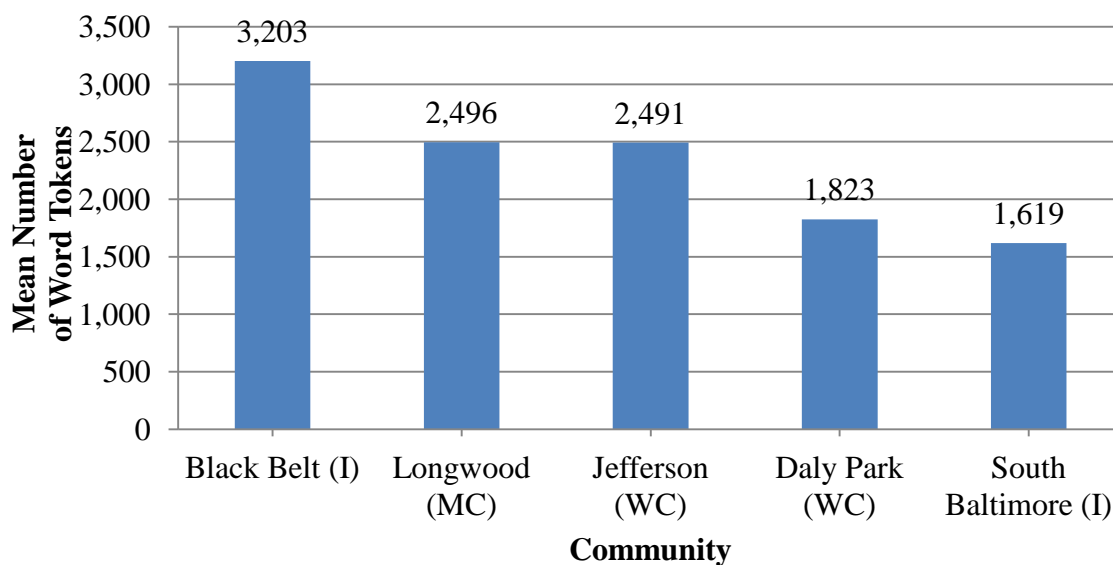
In the analysis of the hypothesis presented in this chapter, similar to those analyses in Chapters 4 and 5, a comparison of tokens will be made along two dimensions. First, the number of tokens recorded in the homes of the communities represented in the present study will be analyzed. In addition, the comparison of tokens observed in all nine communities (the five communities described in the present study and the four communities in Kansas presented by Hart and Risley, 1995), will be made. This comparison is undertaken to provide a benchmark against which to evaluate the language samples collected in the communities in this study. In addition, this comparison will facilitate the evaluation of any differences that may exist across the two sets of communities (the five communities in the present study and four communities in Kansas) due to differences in data collection procedures, namely the differences between the ethnographic observational methods employed in the five communities described in this study and the traditional observational methods employed by Hart and Risley in the Kansas communities (please refer to Chapter 2 or Chapter 4 for a more complete description of these differences). Specifically in this case, this analysis provides a more ethnographically sound estimate of the vocabulary heard by children in diverse homes.

To restate the discussion of the separation of these analyses from Chapter 4, it is noted that handling the data from the five communities in this study both alone and as part of the larger analysis of nine communities is questionable in terms of statistical principles. The analysis is pursued here with awareness of that fact, but in consideration of the importance of analyzing the five communities apart from the Kansas communities due to the fact that these data record a unique condition of all speech to and around the child. To that end, the best analysis of differences among the communities is in isolation

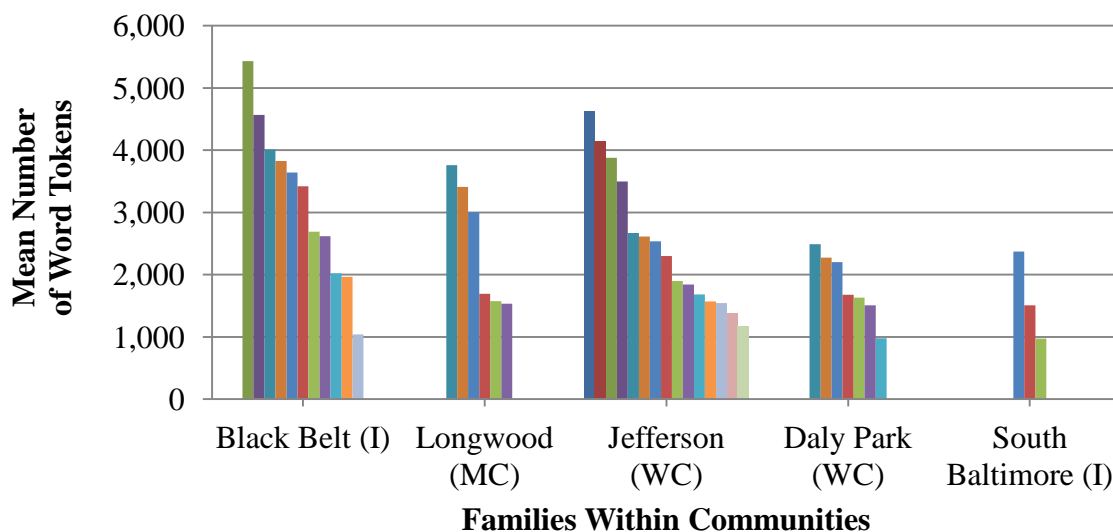
from the data from the Kansas communities. By contrast, the comparison of all nine communities is warranted due to the overarching interest in this study surrounding the comparison of the total number of words heard by children under three distinctly different conditions (Primary Caregiver to the Child, All Speech to the Child, and All Speech to and around the Child), two of which have not been considered quantitatively in the literature to date. It was reasoned that a comparison of these new conditions with extant findings concerning the disparity among the numbers of words spoken by primary caregivers to children was necessary to evaluate the merits of those approaches. In sum, the analysis of all nine communities provides the only access available to pursue questions concerning whether or not the three hypotheses distinguish differences in the amount of words children hear. By contrast, the analysis of the five communities studied ethnographically provides the only access available to pursue questions concerning whether or not vocabulary differences among communities exist due to differences in beliefs about who talks to children and when.

### **Analysis of Five Communities**

The total numbers of words (tokens) spoken by all interlocutors to and around the focal children in the five communities are presented in Figure 6.1. The means of the five communities were compared using the Tukey-Kramer Test of Paired Comparisons. A trend to difference was observed among the number of tokens spoken by all interlocutors to and around the focal children across the five communities  $F_{(4,37)} = 2.507, p = .06$ . Nevertheless, the *HSD* for this group of five means was 1,704, and no comparison between means approached this magnitude. A presentation of the distribution of individual averages within each community is offered in Figure 6.2. As is typical of



*Figure 6.1.* The mean number of word tokens addressed per hour by all interlocutors to and around the focal child in the Black Belt of Alabama, Longwood (Chicago), Jefferson (Indiana), Daly Park (Chicago), and South Baltimore. Tokens in the communities of the Black Belt, Longwood, Jefferson, and Daly Park are twice the number actually recorded to adjust for the half-hour samples.



*Figure 6.2.* Distribution by family of the mean number of word tokens addressed per hour by all interlocutors to and around the focal child in the Black Belt of Alabama, Longwood (Chicago), Jefferson (Indiana), Daly Park (Chicago), and South Baltimore. Tokens in the communities of the Black Belt, Longwood, Jefferson, and Daly Park are twice the number actually recorded to adjust for the half-hour samples.

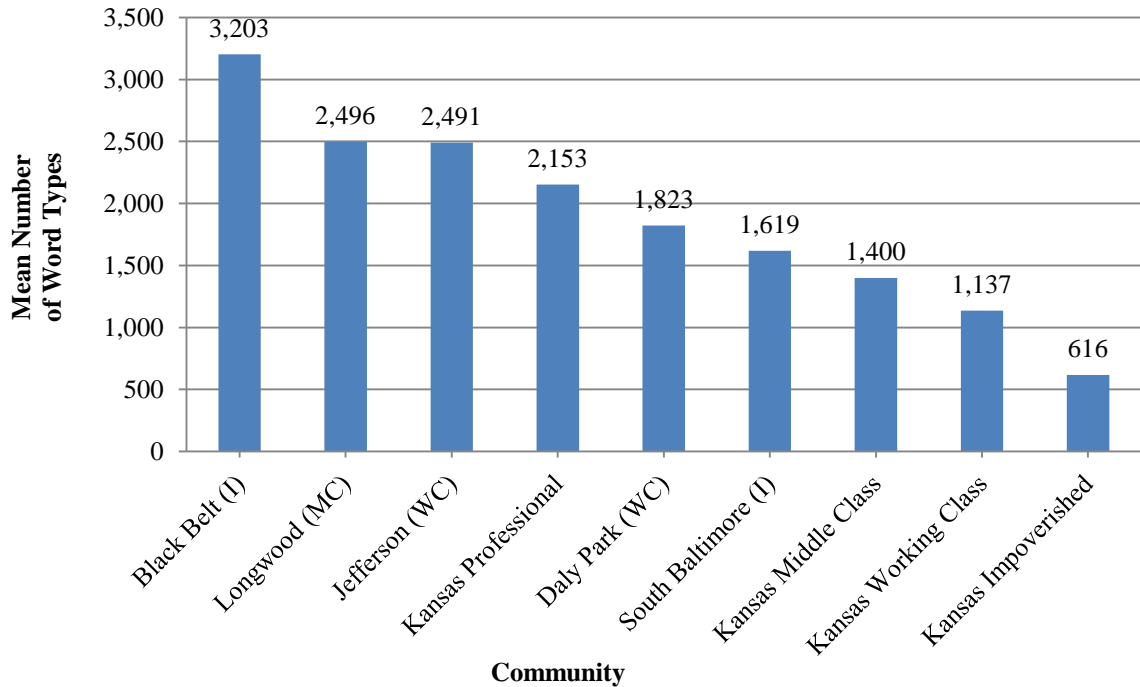


naturally occurring language samples, the variation among individual mothers is quite large, but there does not appear to be any reason to believe that the distributions are not distributed normally. However, it is apparent that the distributions do overlap to a great extent. In particular, the low limits of each distribution are relatively equivalent.

Although eight of the Black Belt and seven of the Jefferson families spoke more words to and around the child than did all of the families in Daly Park and South Baltimore, the differences are not as great between these two communities and Longwood.

### **Analysis of Nine Communities**

In order to situate these data within the context of the Kansas data, the total numbers of words (tokens) spoken by all interlocutors to the focal children in all nine communities are presented in Figure 6.3. The means of the nine communities were compared using the Tukey-Kramer Test of Paired Comparisons. In this analysis, several comparisons reached statistical significance. The Kansas Professional ( $\bar{X} = 2,153$ ) to Kansas Impoverished ( $\bar{X} = 616$ ) comparison reached statistical significance,  $HSD_{.05(9, 75)} = 1,513.86, p < .05$ . This comparison merely replicates the finding discussed in Chapters 4 and 5, namely that there is reason to assume that the Kansas children from professional homes heard more words spoken to them by the interlocutor whose speech was reported by Hart and Risley (1995) than did children from the Kansas impoverished homes. In addition, the Black Belt ( $\bar{X} = 3,203$ ) to Kansas Middle Class ( $\bar{X} = 1,137$ ) comparison reached statistical significance,  $HSD_{.01(9, 75)} = 1,760.61, p < .01$ . In this and subsequent cases, caution must be made in interpreting the result, since the comparison is being made between the speech of one interlocutor in the Kansas samples and among multiple interlocutors in the five communities in the present study. Given this caveat, there is



*Figure 6.3.* The mean number of word tokens addressed per hour by all interlocutors to and around the focal child in the Black Belt of Alabama, Longwood (Chicago), Jefferson (Indiana), Daly Park (Chicago), and South Baltimore, and by primary caregivers to the focal child in the four Kansas communities described in the study by Hart and Risley (1995). Tokens in the communities of the Black Belt of Alabama, Jefferson, Daly Park, and Longwood are twice the number actually recorded to adjust for the half-hour samples.

reason to assume that the Kansas children from middle-class homes heard fewer recorded words spoken to them than the Black Belt children heard spoken to and around them by all interlocutors. The Black Belt ( $\bar{X} = 3,203$ ) to the Kansas Working Class ( $\bar{X} = 1,137$ ) comparison reached statistical significance,  $HSD_{.01(9, 75)} = 1,760.61, p < .01$ . Again, caution in interpreting the result is warranted for the above reason, but there is reason to assume that the Kansas children from working-class homes heard fewer recorded words spoken to them than the Black Belt children heard spoken to and around them by all interlocutors. The Black Belt ( $\bar{X} = 3,203$ ) to the Kansas Impoverished ( $\bar{X} = 616$ ) comparison reached statistical significance,  $HSD_{.01(9, 75)} = 1,760.61, p < .01$ . There is

reason to assume that the Kansas children from impoverished homes heard fewer recorded words spoken to them than the Black Belt children heard spoken to and around them by all interlocutors. The Longwood ( $\bar{X} = 2,497$ ) to Kansas Impoverished ( $\bar{X} = 616$ ) comparison reached statistical significance,  $HSD_{.01(9, 75)} = 1,760.61, p < .01$ . There is reason to assume that the Kansas children from impoverished homes heard fewer recorded words spoken to them than the Longwood children heard spoken to and around them by all interlocutors. The Jefferson ( $\bar{X} = 2,491$ ) to Kansas Impoverished ( $\bar{X} = 616$ ) comparison reached statistical significance,  $HSD_{.01(9, 75)} = 1,760.61, p < .01$ . There is reason to assume that the Kansas children from impoverished homes heard fewer recorded words spoken to them than the Jefferson children heard spoken to and around them by all interlocutors. Finally, the South Baltimore ( $\bar{X} = 1,619$ ) to the Black Belt ( $\bar{X} = 3,203$ ) comparison reached statistical significance,  $HSD_{.05(9, 75)} = 1,513.86, p < .05$ . Here no caution is necessary in interpreting the results because in both cases all speech that occurred during the observations was recorded and coded. There is reason to assume that the South Baltimore children heard fewer words spoken to them by all interlocutors than did the Black Belt children. These results are summarized graphically in Figure 6.4 where community comparisons that are underscored are not significantly different from each other while comparisons that are not underscored are significantly different from each other.

### **Analysis by Social Class**

As stated earlier, a central goal of the present study was to demonstrate the degree to which estimates of the amount of vocabulary child hear on a routine basis are augmented by the more inclusive counting of all words spoken within their earshot.

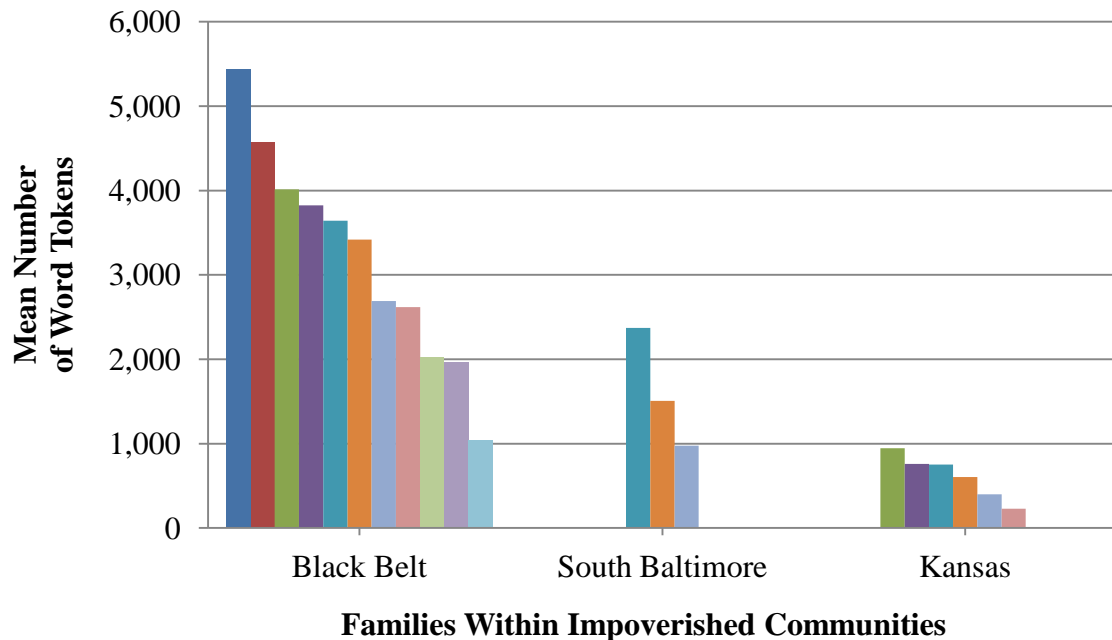
Community	Black Belt (I)	Longwood (MC)	Jefferson (WC)	Kansas Professional	Daly Park (WC)	South Baltimore (I)	Kansas Middle Class	Kansas Working Class	Kansas Impoverished
Mean Tokens	3,203	2,497	2,491	2,153	1,823	1,619	1,400	1,137	616

*Figure 6.4.* Homogeneous groups of communities based on the number of word tokens addressed by all interlocutors to and around the focal child in the Black Belt of Alabama, Longwood (Chicago), Jefferson (Indiana), Daly Park (Chicago), and South Baltimore, and by primary caregivers to the focal child in the four Kansas communities described in the study by Hart and Risley (1995). Underscored mean numbers of tokens are not statistically different from each other. Tokens in the communities of the Black Belt, Longwood, Jefferson, and Daly Park are twice the number actually recorded to adjust for the half-hour samples.

Since the construct of the thirty million word gap has been presumed to place the children living in low-income homes at a particular disadvantage, it is of critical importance to ascertain whether or not these children have access to other sources of vocabulary from which to learn. To that end, the present analyses examine the differences found across communities of the same social address in terms of the number of words spoken to and around children. In this manner, the language children heard in the two impoverished communities represented in the present study may be compared with the impoverished Kansas community to determine if this more inclusive measure helps to ameliorate the devastating sentence pronounced by the indictment of the thirty million word gap. Similarly, the language children heard in the two working-class communities represented in the present study may be compared with the working-class Kansas community to determine to what extent, if any, the more inclusive measure of all words spoken to and around the child refocuses our attention away from the language deprivation inferred to

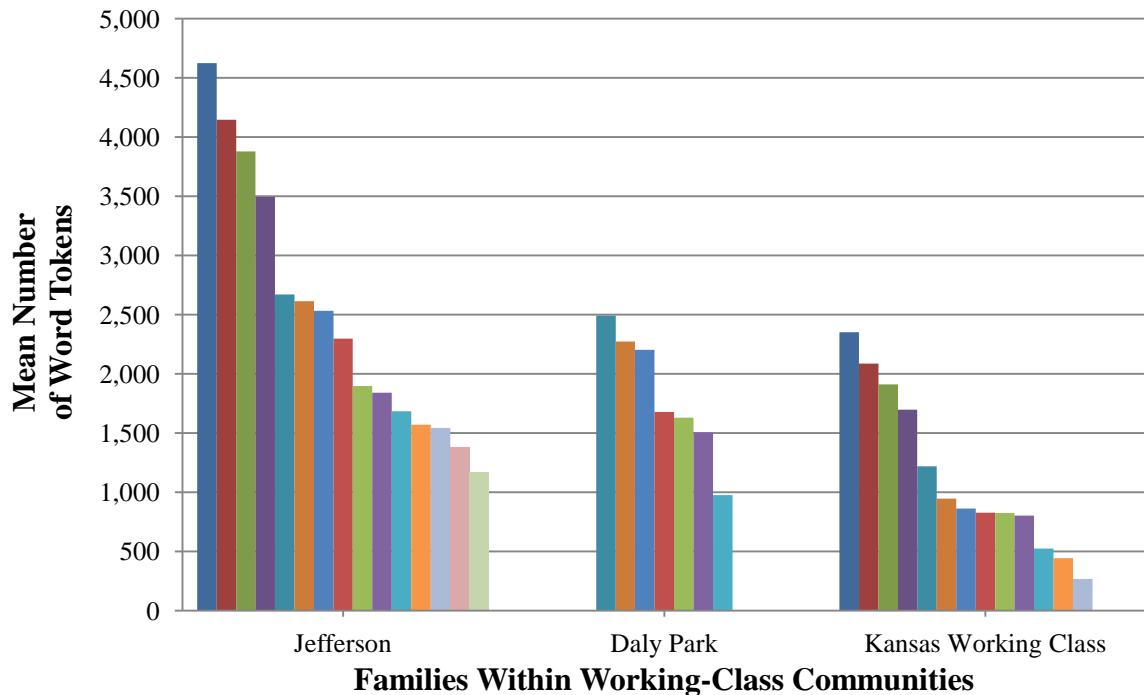
exist in these homes. Finally, for purposes of this analysis, the middle-class communities of Longwood and Kansas will be grouped with the professional community in Kansas.

**Comparison of impoverished communities.** Figure 6.5 shows the distribution of means of word tokens spoken by all interlocutors to and around the child across the two impoverished communities of South Baltimore and the Black Belt compared to the word tokens spoken by a primary caregiver to the child in the impoverished Kansas sample. Initial inspection of the figure revealed that the means appeared normally distributed and that there was little overlap across the three distributions. There was more speech addressed by interlocutors to and around focal children in every household in the Black Belt than was addressed by the most talkative primary caregiver to the child in the impoverished Kansas sample. Moreover, fully eight Black Belt families spoke more to and around their children than did all of the South Baltimore families, and all 11 Black Belt families spoke more to and around their children than did two of the South Baltimore families. There is also no overlap between the South Baltimore samples and the impoverished Kansas samples, with all of the South Baltimore samples falling above the range of the impoverished Kansas data. In sum, there is no reason offered by the distributional analysis to question the results from the analysis of means, namely that the Black Belt families spoke significantly greater numbers of words to and around the child than did the South Baltimore families or the impoverished Kansas primary caregivers. In sum, there is considerable evidence that within the impoverished communities represented in the present study that children routinely had access to a far greater amount of vocabulary in their ambient environment than the amount suggested by the impoverished Kansas sample.



*Figure 6.5.* Distribution by family of the mean number of word tokens addressed per hour by all interlocutors to and around the focal child in the impoverished communities of the Black Belt of Alabama, South Baltimore, and by primary caregivers to the focal child in the impoverished Kansas community described by Hart and Risley (1995). Tokens in the community of the Black Belt are twice the number actually recorded to adjust for the half-hour samples.

**Comparison of working-class communities.** Figure 6.6 shows the distribution of means of word tokens spoken by all interlocutors to and around the child across the two working-class communities of Jefferson and Daly Park compared to the word tokens spoken by a primary caregiver to the child in the working-class Kansas sample. Initial inspection of the figure reveals that the means appear normally distributed and that there is little overlap across the three distributions. There appears to be a significant overlap between the communities of Daly Park and working-class Kansas with agreement at both the upper and lower extremes of the distributions. In sum, there is no reason offered by the distributional analysis to question the results from the analysis of means for these two communities, namely that there is no reason to believe that differences exist in the number of words addressed by all interlocutors to and around the focal children between



*Figure 6.6.* Distribution by family of the mean number of word tokens addressed per hour by all interlocutors to and around the focal child in the working-class communities of Jefferson (Indiana), Daly Park (Chicago), and by primary caregivers to the focal child in the working-class Kansas community described by Hart and Risley (1995). Tokens in the communities of Jefferson and Daly Park are twice the number actually recorded to adjust for the half-hour samples.

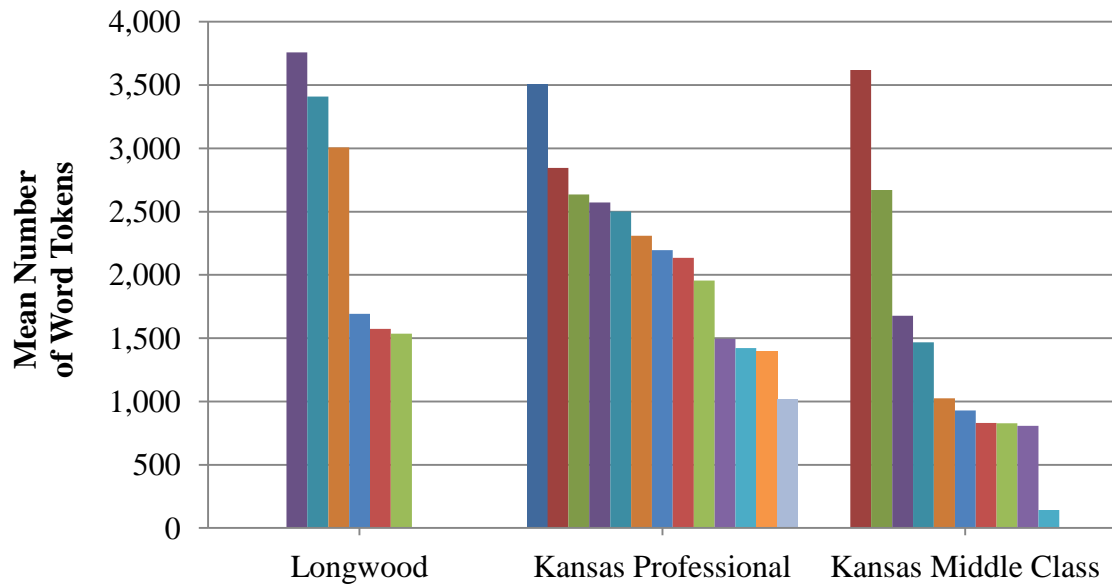
the Daly Park and working-class Kansas communities. However, the distribution of means for the Jefferson community does not overlap the other two distributions to the same extent. In fact, seven of 15 Jefferson families spoke more words in the child's ambient environment than did all of the Daly Park and working-class Kansas families. To examine this situation, a Tukey-Kramer Test for Planned Comparisons was performed for the data from just these three working-class communities. The test demonstrated that within the context of working-class households alone, the Jefferson families spoke more words in the child's ambient environment than the working-class Kansas primary caregivers spoke to the child,  $HSD_{(2,32)} = 1,172, p < .01$ . This result is to be expected given the differences between the two communities in terms of what vocabulary is being

counted. It does confirm, however, that children do hear more words in their everyday lives than simply those words spoken directly to them. The comparison between the Jefferson and Daly Park families did not reach significance. This result is also to be expected given the fact that the amount of vocabulary measured in both cases was from the same sources, all interlocutors within the child's earshot.

**Comparison of middle-class and professional communities.** Figure 6.7 shows the distribution of means of word tokens addressed by all interlocutors to and around the focal children in the middle-class community of Longwood, and by the primary caregivers to the focal children in the middle-class and professional communities in Kansas. In this condition, there does seem to be some reason to suspect that the Longwood distribution is bimodal, with the majority of the means only overlapping the Kansas middle-class distribution in its upper range. Although there is near agreement at both the upper and lower extremes of the distributions, there is a denser concentration of means in the upper range of the distribution in the Kansas Professional sample, a fact reflected in the overall community mean. In sum, there is little reason to suspect the finding of no difference among these means from the overall analysis of means for all nine communities.

Upon initial consideration, this result might seem surprising given that the Longwood means included speech addressed both to and around the children whereas the Kansas means included only the speech of the child's primary caregiver. After additional consideration, however, this result represents one of the most compelling findings in the study. There is very little difference in the speech around the child in these two conditions within families of higher socioeconomic status precisely because these





### Families Within Middle-Class and Professional Communities

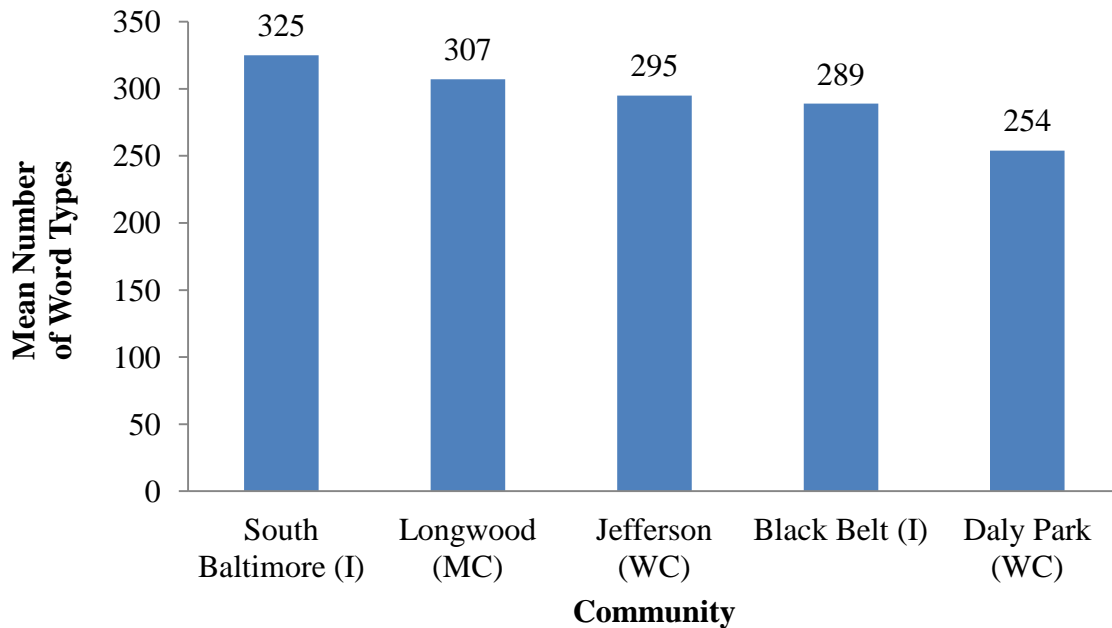
*Figure 6.7.* Distribution by family of the mean number of word tokens addressed per hour by all interlocutors to and around the focal child in the middle-class community of Longwood (Chicago), and by primary caregivers to the focal child in the middle-class and professional Kansas communities described by Hart and Risley (1995). Tokens in the community of Longwood are twice the number actually recorded to adjust for the half-hour samples.

families are the most similar to one another. Very few other interlocutors were ever present during the Longwood observations, and siblings were very young and contributed little if any talk to the mix. All of these mothers were accustomed to being alone with their children and were used to filling up conversational time by themselves. They were not used to sharing conversational space with other interlocutors as were mothers in the Black Belt and Jefferson, for example. In contrast to mothers in the impoverished Kansas example, they lived lives of affluence and privilege, with superior educational backgrounds that conferred upon them the ability to make choices about child care arrangements, about outside activities for them and their child, and about the non-essential accoutrements of child rearing such as toys and books. Perhaps most importantly, their educational background allowed them to see the data collection process

for what it was—a chance to help a student researcher earn a degree, and possibly an opportunity to contribute to a general understanding of child development. It is probably not possible to imagine how the impoverished Kansas mothers living in a housing project viewed the data collection process, but it is likely that they did not consider it to be as sanguine as did the middle-class and professional mothers.

### **Analysis of Word Types Across Communities**

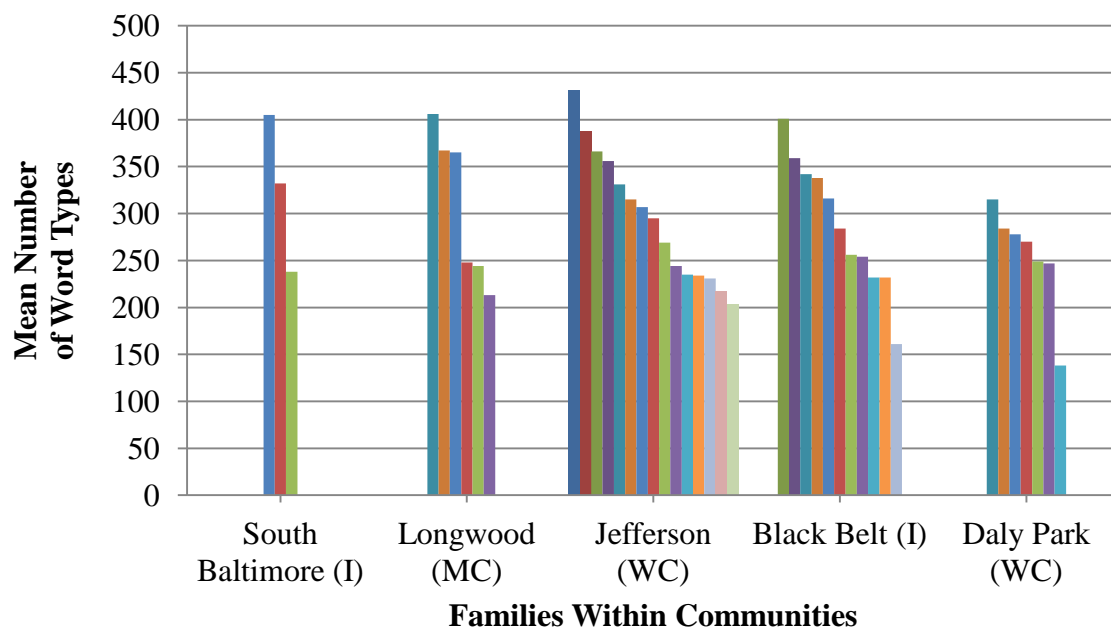
The total numbers of word types, or different words, spoken by all interlocutors to and around the child are now examined in order to estimate the amount of diversity or quality of vocabulary present in the child's ambient verbal environment. As stated in Chapters 4 and 5, the analysis of word types is constrained in this study by the difference between the hour-long observations in the South Baltimore community and the half-hour-long observations in the Black Belt, Jefferson, Daly Park, and Longwood communities. Nevertheless, a presentation of these means is instructive despite the inability to interpret them conclusively. Mean numbers of word types spoken by all interlocutors to and around the focal children are presented in Figure 6.8. Inspection of this graph suggests that these means are very similar, and indeed a Tukey-Kramer Test of Paired Comparisons revealed no reason to assume otherwise. Therefore, even given the differences in sampling times between the South Baltimore observations and the observations of the other four communities, there was no reason to suspect that all interlocutors in any community spoke a greater number of new words to and around the focal children.



*Figure 6.8.* The mean number of word types addressed by all interlocutors to and around the focal child in South Baltimore, Longwood (Chicago), Jefferson (Indiana), the Black Belt of Alabama, and Daly Park (Chicago). The observations in South Baltimore were one hour in length, but the observations in the Black Belt, Longwood, Jefferson, and Daly Park were one-half hour in length.

A comparison of the distributions of family mean numbers of new words spoken by all interlocutors to and around focal children is presented in Figure 6.9. This comparison supports the previous finding that no significant differences exist among community means. There appears to be no reason to believe that the means are not normally distributed. Figure 6.9 reveals that there is a considerable amount of overlap among community distributions, and that the upper and lower limits of each community distribution are relatively equal.

Finally, given that there is no comparable measure of vocabulary production under this condition in the Kansas City samples, no analysis is presented.



*Figure 6.9.* Distribution by family of the mean number of word types addressed by all interlocutors to and around the focal child in South Baltimore, the Black Belt of Alabama, Jefferson (Indiana), Daly Park (Chicago), and Longwood (Chicago). The observations in South Baltimore were one hour in length, but the observations in the Black Belt, Jefferson, Daly Park, and Longwood were one half-hour in length.

### Analysis of Vocabulary Diversity Across Communities

The  $\mathcal{D}$  estimate of vocabulary diversity was examined for its validity in measuring differences among these five communities in terms of the quality of vocabulary spoken by all interlocutors to and around the focal child. A Pearson product-moment correlation was conducted to test for a relationship between the  $\mathcal{D}$  estimate and the number of types spoken by all interlocutors to and around the focal child. It was reasoned that if the  $\mathcal{D}$  estimate is measuring vocabulary diversity, a positive relationship should exist between the estimate itself and the number of different types spoken by all interlocutors to and around the children. In other words, households that produce higher numbers of different words in their speech should not be penalized by any estimate of

diversity simply due to the fact that these same households also tended to be characterized by more talk. The analysis demonstrated that this situation obtained. The correlation between the  $\mathcal{D}$  estimate and the number of new words spoken by all interlocutors to and around the focal child was .51,  $p < .001$ . The  $\mathcal{D}$  estimate increased as the number of new words spoken by interlocutors increased.

A Pearson product-moment correlation was also conducted to test for a relationship between the  $\mathcal{D}$  estimate and the number of word tokens spoken by all interlocutors to and around the focal child. Here it was reasoned that if a negative relationship were found, such that the  $\mathcal{D}$  estimate decreased when the numbers of word tokens spoken to and around children increased, the  $\mathcal{D}$  estimate would be responding to the extreme differences in vocabulary production across the five communities in a manner similar to the type-to-token ratio. In other words, this analysis was conducted to guarantee that the  $\mathcal{D}$  estimate was not sensitive to the sheer differences in volume of speech spoken by interlocutors to and around children across these five communities. In this analysis, no significant relationship was found between the quantity of words spoken by all interlocutors and the  $\mathcal{D}$  estimate of vocabulary diversity,  $r = .17$  (not significant). In other words,  $\mathcal{D}$  was not sensitive to the number of words spoken by all interlocutors to and around the focal children. This situation stands in contrast to the analysis undertaken of mothers' speech to their children in Chapter 4, but is similar to the analysis undertaken of interlocutors' speech to the focal child in Chapter 5. In the first analysis, there was a significant relationship between the  $\mathcal{D}$  estimate and the total number of word tokens spoken by the mothers. That result was in an unexpected direction however, since the  $\mathcal{D}$

estimate was demonstrated to increase as the number of word tokens increased; consequently, that result was difficult to interpret. However, in the second analysis of speech of all interlocutors to focal children, no relationship between the  $\mathcal{D}$  estimate and the total number of word tokens was found. At that point, a tentative conclusion was drawn that there was no reason to assume that the  $\mathcal{D}$  estimate was sensitive to the amount of word tokens spoken despite large variations in sample size. This conclusion is supported by the current result of no relationship between the  $\mathcal{D}$  estimate and the total number of word tokens existing in all speech to and around the child, and is strengthened by the fact that the total number of word tokens in this condition is even more highly varied than in the prior two conditions (primary caregivers' speech to children, and all interlocutors' speech to the focal child).

The means of the  $\mathcal{D}$  estimate for vocabulary diversity for all speech to and around the child across these five communities are presented in Figure 6.10. Given the strong, negative association between the  $\mathcal{D}$  estimate and the number of new word tokens spoken by all interlocutors to and around the child, it seems very likely that  $\mathcal{D}$  does represent a valid estimate of diversity for the communities analyzed here. To that end, an analysis of the  $\mathcal{D}$  estimate of vocabulary diversity within all speech to and around the child across these five communities was conducted using the Tukey-Kramer Test of Paired Comparisons. In this analysis, several comparisons reached significance. The diversity of speech spoken by all interlocutors to and around the focal child in the impoverished community of the Black Belt ( $\mathcal{D} = 72.98$ ) was significantly less than the diversity of speech spoken by all interlocutors to and around the focal child in the middle-class

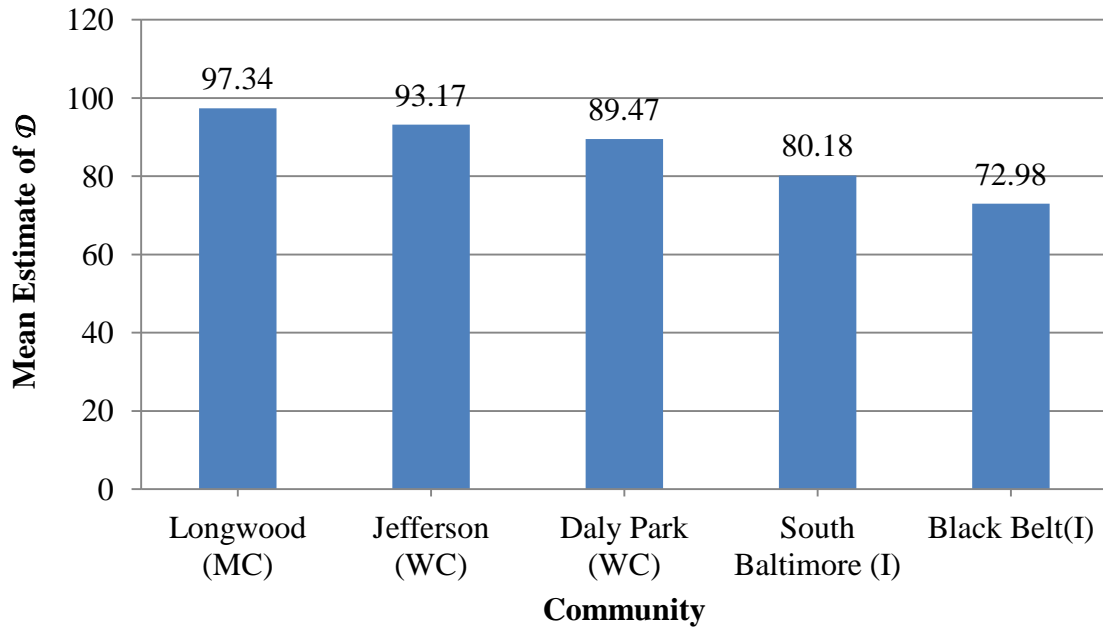


Figure 6.10. The  $\mathcal{D}$  estimate of diversity within vocabulary spoken by all interlocutors to and around the focal child in the communities of Longwood (Chicago), Jefferson (Indiana), Daly Park (Chicago), South Baltimore, and the Black Belt of Alabama.

community of Longwood ( $\mathcal{D} = 97.34$ ,  $HSD_{.01(4, 37)} = 18.77$ ,  $p < .01$ ), in the working-class

community of Jefferson ( $\mathcal{D} = 93.17$ ,  $HSD_{.01(4, 37)} = 18.77$ ,  $p < .01$ ), and in the working-

class community of Daly Park ( $\mathcal{D} = 89.47$ ,  $HSD_{.05(4, 37)} = 15.35$ ,  $p < .05$ ). Furthermore,

the diversity of speech spoken by all interlocutors to and around the focal child in the

impoverished community of South Baltimore ( $\mathcal{D} = 80.18$ ) was significantly less than the

diversity of speech spoken by all interlocutors to and around the focal child in the

middle-class community of Longwood ( $\mathcal{D} = 97.34$ ,  $HSD_{.01(4, 37)} = 18.77$ ,  $p < .01$ ). These

results are displayed graphically in Figure 6.11, where community comparisons that are

underscored are not significantly different from each other while comparisons that are not

underscored are significantly different from each other.

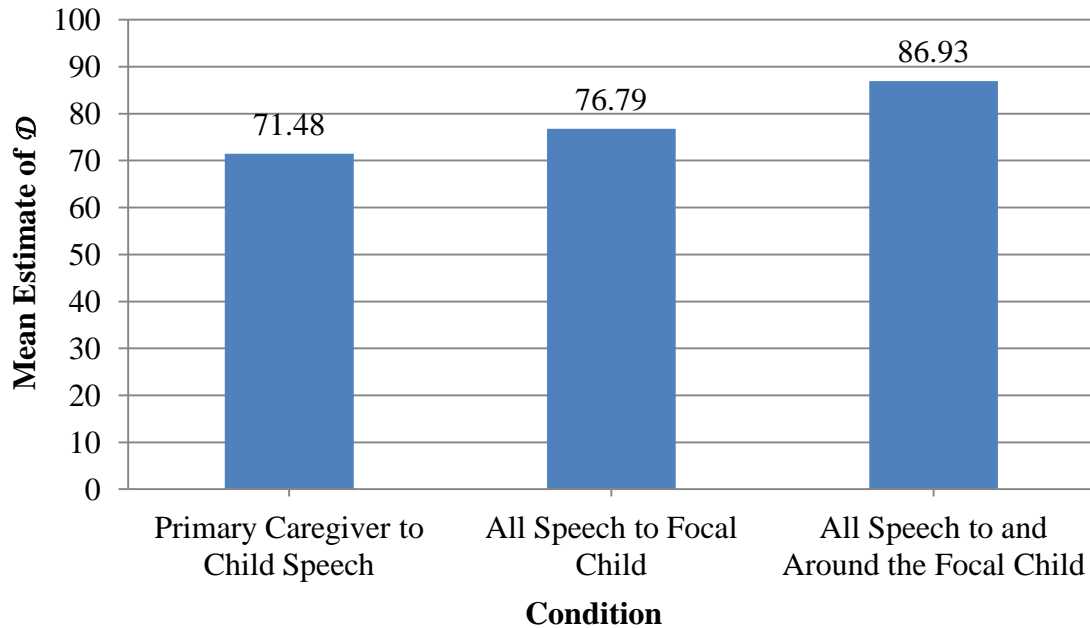
Community	Longwood (MC)	Jefferson (WC)	Daly Park (WC)	South Baltimore (I)	Black Belt (I)
Mean $\mathcal{D}$	97.34	93.17	89.47	80.18	72.98

*Figure 6.11.* Homogeneous groups of communities based on the  $\mathcal{D}$  estimate of diversity within all vocabulary spoken to and around the focal child in Longwood, Jefferson (Indiana), Daly Park (Chicago), South Baltimore, and the Black Belt of Alabama. Underscored mean  $\mathcal{D}$  estimates of diversity are not statistically different from each other.

Results in Chapter 5 demonstrated that the speech of all interlocutors to the focal child was more diverse than was the speech of mothers alone to their children. The question remains whether there was more or less vocabulary diversity across these five communities under the hypothesis analyzed in this chapter, namely all speech in and around the focal child, than in the speech of all interlocutors to the focal child.

Difference scores were calculated between the  $\mathcal{D}$  estimates for each of these two conditions, and the resulting differences analyzed using a matched-pair  $t$  test. The mean  $\mathcal{D}$  estimate for the All Speech to and Around the Child condition was significantly higher than was the mean  $\mathcal{D}$  estimate for the All Speech to the Child condition,  $t_{41} = 10.36$ ,  $p < .0001$ . In other words, the speech of all interlocutors to and around the focal child is more diverse than the speech of interlocutors addressed to the child which is in turn more diverse than the speech of mothers alone addressed to the child. This situation is not surprising given that the condition of all speech to and around the child includes speech by adult interlocutors addressed to other adult interlocutors within earshot of the child. These results are displayed graphically in Figure 6.12.

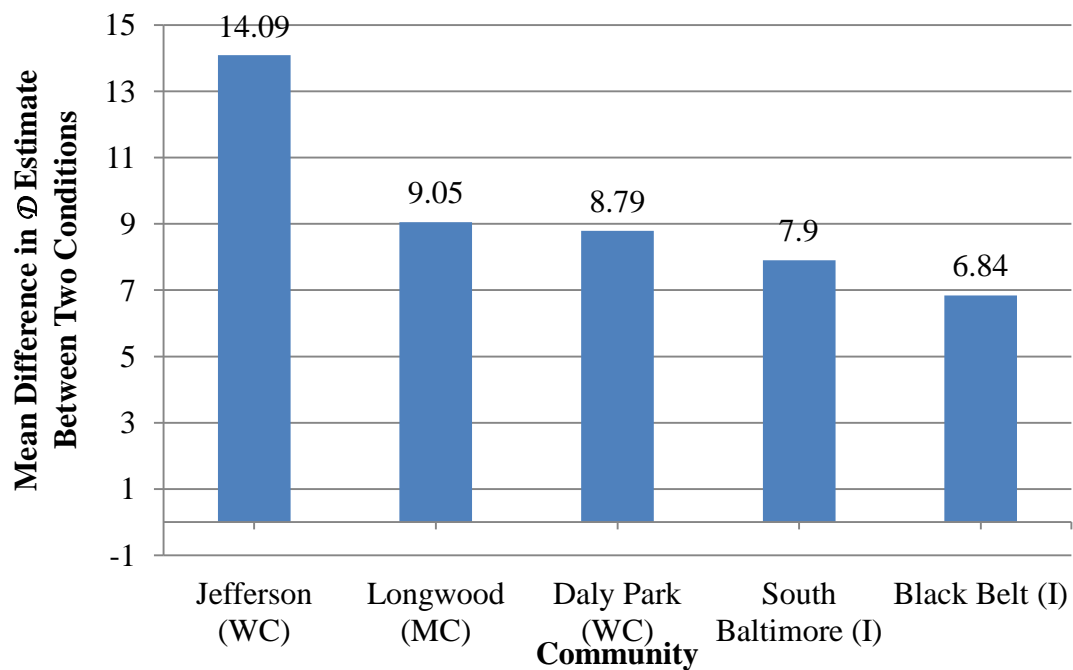




*Figure 6.12.* The mean  $\mathcal{D}$  estimate of diversity within vocabulary across three conditions: the speech of primary caregivers to their children, the speech of all interlocutors to the focal child, and the speech of all interlocutors to and around the focal child. In each case, the mean includes all samples from South Baltimore, the Black Belt of Alabama, Jefferson (Indiana), Daly Park (Chicago), and Longwood (Chicago).

Given the fact that the diversity of all speech to and around the focal child was significantly greater than the speech of all interlocutors to the focal child, the next analysis sought to determine whether or not the increase in the  $\mathcal{D}$  estimate of diversity was stable across the five communities. In other words, is there reason to suspect that the role of other interlocutors was of greater or lesser importance in the lives of the focal children in any particular community? To recall the findings in Chapter 5, there were no significant differences in the magnitude of change of vocabulary diversity between the Primary Caregiver to Child condition and the All Speech to Child condition. In other words, there was no reason to suspect that children in any one community benefitted more or less from the increase in vocabulary diversity afforded by the additional speech addressed to them by other interlocutors. However, given the fact that the present

condition of All Speech to and Around the Child includes adult-to-adult speech, the situation may arise where children in homes where more adults are typically present may be exposed to a more diverse vocabulary than children in homes with fewer adults typically present. To examine this question, the mean differences between the  $\mathcal{D}$  estimates for vocabulary diversity for all speech to and around the focal child and for the speech of all interlocutors to the focal child are presented in Figure 6.13. In each of the five communities, the diversity of all speech to and around the focal child was more diverse than the speech of all interlocutors to the focal child; in other words, the mean increase in the vocabulary diversity between these two conditions across all communities



*Figure 6.13.* Mean differences of the  $\mathcal{D}$  estimate of vocabulary diversity between the speech of all interlocutors to and around the focal child and the speech of all interlocutors to the focal child in Jefferson (Indiana), Longwood (Chicago), Daly Park (Chicago), South Baltimore, and the Black Belt of Alabama

previously analyzed was supported by individual community increases in all five communities. Additional analysis of these mean differences was conducted to determine if the magnitude of change between the two conditions varied among the five communities. A Tukey-Kramer Test of Paired Comparisons revealed no significant differences in magnitude of change among the five communities, and the conclusion was made that there was no reason to assume that the children in any particular community were exposed to more or less vocabulary diversity due to the presence of other interlocutors in their ambient verbal environment.

### **The Everyday Nature of Speech to and Around Children**

Much of what should count as meaningful speech in any young language learning child's life, but especially that of a toddler or preschooler, is often not addressed specifically to the child. Whereas this study wishes to remain agnostic with regard to the relative weights of importance of joint-attention episodes versus overheard speech in the early language-learning months, it nevertheless asserts unequivocally that by the time children are two and three years old, they are learning language from multiple interlocutors speaking both to and around them. Overheard speech varies across many dimensions, including the nature of the interactional situation and the intent of the speakers. The following discussion approaches these dimensions individually for purposes of illustration of how they emerge in talk to and around children.

#### **Overheard Speech Examined by Interactional Situation**

**The case of apparent inattention.** At times there is no immediate indication that young children are paying attention to the conversations around them. Rather they seem intent on their goals, goals that may or may not intersect with the activity in their midst.

The following episode presents one such example, where the focal child Caitlyn seems not to be paying attention to her older sibling, at least if one measures attention only by speech addressed to her by her sibling or to her sibling by her.

*Example 6.1.* Caitlyn, 40 months.

Caitlyn and her older sister Bree (5 years) are playing outside on a swing set with their grandmother when a neighbor comes over with her daughter, Missy (18 months). Bree and Caitlyn immediately begin jockeying for the privilege of taking care of Missy.

Caitlyn: hey, Missy's here/

and her can swing too!/ (runs to a teeter-totter swing and holds it up to show Missy)

swing, Missy/

swing/

Missy!/  
Missy, Missy, Missy, Missy/ (screaming)

Bree: (her attention turns to Missy)

C'mon, Missy.

Caitlyn: Missy!/  
Missy! (screaming)

let's play this/

okay?/

Missy can sit on this side/

Bree: Missy, lookie.

You wanna get on . you wanna get on the slide? (gets off of her regular swing and points to the slide)

(This interaction continues for several turns, with Caitlyn getting more frantic, yelling "Missy!" repeatedly.)

Bree: Missy slide-y?/ (leads Missy towards the slide)

slide-y?/

(Missy starts to climb on the slide. Encouraged by Grandma, Caitlyn accepts that Missy might be afraid of the swing. However.....)

Bree: Missy, lookie (runs over to regular swing, followed closely by Missy)

Caitlyn: watch, Missy/ (still at teeter-totter swing)

Bree: You wanna swing? (to Missy)

Caitlyn: watch, Missy!/  
(Caitlyn continues shouting Missy's name as Missy and Bree walk off camera together)

*(End of example)*

In this example, Caitlyn (40 months old) and her older sister Bree (5 years old) are engaged in a bout of sibling rivalry as they vie for the opportunity to take care of their neighbor's 18-month-old daughter, Missy. Both children are trying to get Missy's attention; at the same time, it seems obvious that they are well aware of the intentions, actions, and speech of their sibling. Furthermore, in Caitlyn's case, her increased emotion seems to suggest she is well aware that Bree is winning this battle. One cannot really say that Bree is addressing Caitlyn at all, for all of her comments are especially focused on Missy. However, it does not make sense to say that Bree is not aware that her sister is listening. Certainly we know that the adults in the scene are listening to the entire transaction for they temporarily side with Caitlyn's plight by trying to get her to realize that Missy might be afraid of the swing (and, consequently, not playing with Caitlyn due to fear rather than lack of desire). Caitlyn's behavior is also not consistent with a notion that she believes she is engaging in dyadic speech—no one is directly talking to her—and it would be naïve to suggest that she is unaware of Missy's current preference for Bree or of Bree's role in the matter. If we simply look at this situation from the perspective of the child, it does not matter who is talking to whom. If a child is

completely engaged in a verbal transaction, it is reasonable to assume that she hears the words of others regardless of whether or not those words are addressed to her. In this case and others like it, Caitlyn's social position vis à vis her sister, and the culmination of her desire to be the important person taking care of Missy, both depend upon her understanding the entire situation. This time, she failed; the next time, she is more likely to win.

How to count speech such as found in this brief episode? There is no evidence that Bree is ever really addressing Caitlyn. Since Caitlyn is not engaging in any form of contingent response to Bree, we have no evidence that she is listening to any of the words. For this reason, it may seem easier to limit the words that are counted as language input to the speech that is being addressed to the child; it is typically (but not always) more highly marked as intended for the child's ear. Listening is always, however, internally motivated, driven by the child's desire and actualized from the child's perspective. The speaker's intention is never a guarantee that the child is listening. As any parent knows, just because you talk does not mean children listen. So, to the extent that one has behavioral evidence that the child is listening, it seems appropriate that the words should be counted.

**The case of wavering attention.** Much interest has traditionally been focused on situations where a clear dyadic focus characterizes a conversation shared by two mutually agreeing interlocutors. However, whenever more than two people are present in a conversation, perhaps the largest part of any one interlocutor's speech is addressed not to any single individual, but rather to everyone who is earshot of the interlocutor's voice. Even in some situations where the conversation is apparently dyadic, the speaker is often

desirous of having her words heard by everyone around her; for example, a classroom teacher may speak first to one student and then to another, but it is difficult to imagine that she does not wish all of the students to gain from these brief dyadic interactions. In families, parents address all of their children when they ask what they want for dinner-- they do not poll individual children one at a time. Stories about a day's events are told to all who will listen. Although behavioral guidance is often spoken to a particular child who has failed to heed earlier direction, children in the aggregate are often told to sit still, to mind, to stop acting out, to finish eating, or to pick up their toys.

Of course, the observer often does not have direct evidence that children are listening, again no more evidence than one ever has that an individual child is listening. In the following example, the focal child Sebrina alternately plays with her doll and engages in the story, her attention seeming to float in and out of the conversation. Yet underneath it all, it is easy to suspicion that she is listening to every word, using her doll play only to keep her hands busy as she enjoys her aunt's story.

*Example 6.2. Sebrina, 32 months.*

Earlier in the conversation, Aunt Sebrina encouraged Sebrina to tell a story about the deer that had come around the yard earlier that day. It was noted that the deer was exceptionally brave, a fact that may have alerted the adults to the possibility that it was ill and threatening. Although we cannot know that fact for sure, we do learn that Brownie, the family dog, barked loudly and chased the deer away. Aunt Sebrina then begins a tale about the booga that came to the house, scaring Sebrina and attempting to get into her hair. After some time, Linda said to Sebrina, "I bet you were scared," and Sebrina readily acknowledged the fact. Talk gradually veers to conversations about doll play and taking care of the doll's hair. Soon, Keisha, Sebrina's 4-year-old cousin, asks if she can have hair grease for her doll for Christmas. Soon, tales of Christmases past and present abound, and talk of Santa's deer meld into retellings of the saga of the deer that was in the yard earlier in the day. Aunt Sebrina is prompted to remember a pet deer that she and her siblings had many years before.

Aunt Sebrina: And remember, you, you wasn't born, we had a little baby deer used to come in the house and watch TV with us. (She tries to get Keisha's attention; the story is told to Keisha.)

My brother found him when he was newborn baby (laughs)

And he raised him to about that high (making imaginary measurement with hand)

He would go off in the woods (pointing toward the woods)

His mama would bay for him and then I guess she'd feed him and he'll come back in the yard (beckons with her hand, gazing across the yard)

He'll go in the wilderness and he'll come back (waving one arm out)

And then one day he got in the hog pen and he ate some hog slop and it killed him (looking directly at Keisha)

Keisha: (gazing at S, clinging to every word)

Linda: (laughs)

Aunt Sebrina: But he would come in the house and lay on the floor and watch the TV with us (touches Keisha on the leg)

Keisha: (smiles at Aunt Sebrina)

Aunt Sebrina: And play with us and butt us like he thought he was the goat.

He thought he was a goat.

Keisha: (smiles big, enjoying every word)

Sebrina: (seemingly disinterested, she continues to tie the doll's hat around the doll's neck)

Aunt Sebrina: He butt our head like that (pushes her head against Sebrina's hand, trying to get her back into the conversation)

Sebrina: (smiles big with mouth open wide)

Keisha: That was a gray, that, that was a girl? (rubbing the doll's hair in such a way that the hair is straight up on top of the doll's head)

Aunt Sebrina: She was a, a baby fawn, she deer.

She was a little baby fawn (playing with a doll shoe in her hand)

She was a she.



Keisha: Give my, my rubber band (reaching for it)

Aunt Sebrina: But she was a beautiful, she was gonna be a beautiful deer (takes the rubber band from around her wrist)

Then she, then that corn choked her to death (gives the rubber band to Keisha)

She got too much corn (pointing against her neck where one swallows)

She was so bad.

She would eat dog food, anything.

Eat candy, chew bubble gum and everything (handing Keisha the rubber band)

Linda: (laughs softly)

Keisha: How'd she chew? (watching Aunt Sebrina)

Aunt Sebrina: She'd put it in her mouth (looking at Keisha)

She wouldn't eat what you'd just put down on the floor.

She almost, she thought she was human 'cause she was a baby when we, when we found her.

So she didn't know no better.

Sebrina: (continues to play with her doll, tying its hat on)

Keisha: There was a girl deer? (putting the rubber band around her doll's hair)

Aunt Sebrina: And people come up in the yard.

She'll peep out from around the house and she'd try to imitate the dogs, too (looking down)

She wasn't afraid of nobody.

Sebrina: I scared that booga/ (looking up at Aunt Sebrina, still playing with the doll)

I scared that booga/ (glancing at the camera and looks back at Aunt Sebrina, smiling)

*(End of example)*

This episode represents family storytelling at its finest. Aunt Sebrina is thoroughly entertaining the girls in her charge while they keep their hands busy with their toys. Keisha pays rapt attention to the story, but nevertheless feels no compunction against interrupting it to ask for a toy hair band. Sebrina, by contrast, seems to be less attentive to the story, only acknowledging Aunt Sebrina's gentle head push with a smile and returning to doll play. Yet even this simple smile seems to suggest that Sebrina is listening, if only to the point that she is not surprised by her aunt's efforts to include her in the conversation. Certainly, the moment that Aunt Sebrina mentions the word, "afraid," Sebrina is back in the conversation, ready to regale her aunt and sister with another version of the booga fantasy.

**The case of divided attention.** In many situations, it is difficult to determine exactly who is talking to whom. One of those situations has been described as plaza talk (Heath, 1983) indexing the locale where this type of talk is frequently observed—large, open spaces that are central to a community to which people come to sit and chat for short or protracted amounts of time. Plaza talk was a commonplace occurrence in the Black Belt families, especially when large numbers of siblings, cousins, or neighborhood children were present during videotaping. One such instance is presented here, where Tahleah (age 28 months) is sitting in her living room with her siblings Shea (age 12), Theo (age 10), Andre (age 7), and Teisha (age 6).

*Example 6.3.* Tahleah, 28 months.

The horror movie *Cujo* is playing on the television, much to the interest of the older siblings, but of equivocal merit to Tahleah who cannot decide whether to pay attention to the show or not. She holds a toy gun throughout the episode, brandishing it at the slightest menace whether from her siblings or the television.

Andre: It is in that boy closet.

See the door open (points at TV)

Teisha: Theo, wasn't a dog in there scaring that boy?

Andre: (gets off couch)

Teisha: That dog was in there scaring 'em (returns to sofa with Andre)

Andre: He make sounds (repeating the boy in the movie; breathes aloud)  
That boy sure was right.  
It will scare that lady.

Tahleah: (hits Andre in leg with a toy gun she's holding)  
what I told you 'bout stop say'n that/ (murmuring)  
stop say'n it/

(Conversation veers to several subjects, but soon a scuffle between Tahleah and Teisha begins over a book they have been reading while the movie is still playing.)

Teisha: Pow (grabs and points a toy gun toward Tahleah)

Tahleah: (gazing at Teisha)  
pow, pow, pow/ (using her finger as a gun)

Teisha: Pow, pow (still pretending to shoot; continues to point toy gun at Tahleah)

Theo: I call the police (off camera)

Tahleah: tell the police (repeating Theo, gazing at Teisha)

Teisha: Cujo, Cujo/ (provocatively)

Tahleah: (gazes at Teisha as she speaks and pulls off her sock)  
he didn't say Cujo, girl/

*(End of example)*

For many utterances in this short episode, it is impossible to say who is talking to whom. In fact, the question seems irrelevant. The speaker is often simply expressing an personal observation for the benefit of whomever is listening. The children are all talking about a theme of common interest, the *Cujo* movie. Tahleah routinely gazes at whoever is speaking at the moment, likely assuming the speech is addressed to her as much as it is

addressed to anyone. Throughout the entire observation, both before and after this short excerpt, no one has made a specific effort to exclude Tahleah from the conversation, or to suggest that she is being troublesome when she sits and listens. Occasionally, someone addressed something specifically to her, since all of the children are well aware that Tahleah is the “star” for the day. They were amused when she acted like a typical two year old, and often teased her directly to elicit responses which all participants find humorous. This type of speech is not “overheard” speech in the manner that it is commonly assumed to occur in the literature where one interlocutor is specifically addressing another interlocutor, and the child listens in a manner similar to what might be described as eavesdropping. Rather, this type of speech exemplifies an important fact in the everyday lives of children. Children are part of families, and equally a part of the contexts they inhabit; they are not conversational interlopers who covertly sneak around to listen to the conversations of others (although of course they may occasionally do just that.)

*The case of open attention.* Gaskins and Paradise (2010) describe an alternative to joint attention that they term open attention, a state of listening that they described as wide angled, or distributed across a wide field of objects and events, and abiding, or capable of being sustained across a long period time. Such is the attention of Darrien, the five-year-old brother of the focal child Drew in the following episode.

*Example 6.4.* Drew, 32 months.

Drew's mother has been busy cleaning the house for her mother's visit the next day. She is in the middle of doing laundry, and has placed a collection of Drew and his five-year-old brother Darrien's clean clothes on top of the bunk beds the boys share. Drew has been a pest throughout the entire observation. In the moments preceding this brief episode, he was sitting on top of the bunk bed throwing his clothes on the floor. His mother is peeved with Drew in general, but

she is particularly irritated about the clothes due to her mother's impending visit. Darrien has been alternatively defending Drew to their mother (saying, "He didn't throw them"), explaining Drew's current innocence in the matter (saying, "He threw them a long, long, long time ago"), and disavowing he has a part in the problem (saying, "Mom, didn't throw any" when their mother yells, "Pick up your clothes, guys!" from the other room). In other words, Darrien has been very busy keeping track of the action in the current scene (Drew throwing the clothes) and in the household in general (Mother coming in and out of the boys' bedroom, trying to make the house presentable). Immediately before the current episode, Mother has threatened Drew with a spanking and then leaves the room, apparently going back to her laundry area.

Darrien: (to Drew) Get down there and pick those toys up! (said in a "hick" accent while covering Drew's face with an article of clothing)

Drew: no! (screamed while he tries to pull the clothing away from Darrien and off of his face)

Mother: Wayne? (loudly, presumably from the laundry area)

Father: What?

(During this brief interchange, Drew has rolled onto his stomach on the bed while Darrien put his feet on the wall, lifting his bottom up and down using the pressure of his feet.)

Mother: I would say I probably found your cigarette!

Father: Where at?

Mother: In the washer!

Darrien: In the washer!  
His cigarette's in the washer.  
They got washed! (laughing and covering his mouth)

*(End of example)*

Despite Darrien's involvement in the clothes scene in the bedroom, he demonstrates throughout this episode the degree to which he is monitoring the behavior of the entire household, evincing the wide-angled perspective of open attention described by Gaskins and Paradise (2010). The episode also captures Darrien's abiding interest in

the local scene as the events unfold over approximately 15 minutes of interaction; furthermore, references in the episode to his father's cigarettes even suggest that he has been following the scene between his parents much longer. In this episode, the evidence of Darrien's open attention is at once inferred and indirect as he monitors the conversation between his mother and brother over Drew's clothes throwing, and specific and obvious as he directly repeats the speech of his mother in the closing statements.

### **Overheard Speech Analyzed by the Intent of the Speakers**

**Morality discourse.** Although much speech spoken to and around children might be considered didactic in that children are learning the mechanics of language and knowledge of the real world, certain speech is expressly instructional in nature as caregivers strive to impart the beliefs and values essential to becoming a member of the family and of the community. Not all discourse about issues dealing with proper behavior and morality is directed to the child in dyadic form, however. Parents routinely capitalize on their implicit assumption that their children are hearing them when they address other individuals about the child, particularly in cases where the parents are retelling the child's misdeeds. In this manner, much overheard speech is simply indirect socialization where the parent uses the presence of a new interlocutor and the venue of friendly conversation to reassert her values concerning what the child did wrong in the past. Overheard narratives of the child's past experiences, whether positive or negative in valence, have been demonstrated to be particularly interesting to young children (Miller, 1994; Miller, Potts, Fung, Hoogstra, & Mintz, 1990), and the importance of the child being cast in a bystander role in conversation has been documented across many world cultures (Miller et al., 2012). For example, Miller and her colleagues (2012) report

an episode in one of the Taiwanese homes they visited where the mother of one of the child participants, Long-long, appeared to be listening attentively as his mother told the researcher about how he had broken several extremely costly audiotapes. Narratives where the child was cast as bystander were documented to occur less frequently in the Longwood community than in Taiwan, but they nevertheless remained a tool in these parents' arsenal of socialization tactics.

Not all overheard speech is of a negative valence, however, attempting to reform children's future behavior by revisiting past transgressions. In Episode 6.5, Drew's mother is intent on reinforcing his spontaneous efforts to clean his room earlier in the day. Drew is busily engaged with his toy boxing glove through most of this observation, a preoccupation that gets him into trouble on a few occasions as he annoys his mother by alternatively trying to force the glove on her hand, or hitting her with it. In this brief scene, she initially draws Drew into her recounting the good deed of his room cleaning to his father, but Drew can only be momentarily distracted from his glove. Nevertheless, his mother and father insist on praising his initiative.

*Example 6.5.* Drew (40 months).

Mother: D'you tell Daddy who cleaned your room today? (smooths Drew's hair over)

Huh?

Drew: what?

Mother: D'you tell Daddy who cleaned your room today?

Drew: what?

Father: Who cleaned your room?

Drew: I did/ (takes glove out of mouth and closely inspects it)

Father: Yay!

Mother: All by yourself.

Father: You do it all by your lonesome?

Mother: I didn't even have to make him.

He just went in there and started doin' it.

*(End of example)*

In three of Mother's five utterances she specifically addresses Drew; at the same time, however, she clearly intends Father to overhear the message about Drew's efforts to clean his room. Interestingly, Mother's talk at the end of this episode, the talk that Drew overhears but does not answer, fulfills two purposes. First, it continues to inform Drew's father about Drew's "big boy" behavior. After Mother comments to Drew that he had cleaned his room all by himself, Father extends this demonstration of praise by the confirmation question addressed to Drew, "You do it all by your lonesome?" When Drew does not answer this question, Mother elaborates and clarifies her thought, specifying that she had not made him. This overheard elaboration fulfills the second purpose of this interchange, namely conveying dual positive moral messages to Drew about the importance of cleaning his room and the significance of doing so without being asked. Given Drew's penchant for throwing clothes a few months earlier, this was probably an important message. From the point of view of participation frameworks (Goffman, 1981), however, this example succinctly demonstrates how rapidly participant roles shift from speaker to speaker and addressee to addressee when multiple interlocutors are present.

**Informative discourse.** Conversations where the child is essentially a bystander do not always occur in order to impart moral lessons, however, regardless of whether or



not those lessons are about bad or good behavior. In Example 6.6, Alicia's mother is telling Linda, the researcher, about a mysterious event that happened to Alicia at preschool. Alicia came home with a swollen lip, and no one could tell if she had been accidentally hit or was perhaps having an allergic reaction of some kind.

*Example 6.6. Alicia, 28 months.*

Mother: Tell her [Linda] what happened to you at school.

Say, "I don't know."

Say, "My lip got swole all up and my jaw was swole up.

"And don't nobody know what happened to me."

Tell Mrs. Sperry.

*(End of example)*

In this short excerpt, two competing motivations attend Mother's telling about this situation. First, Alicia's mother seems to know from the outset that Alicia will not be able to tell this complex set of past occurrences satisfactorily by herself. After initiating the conversation about this incident and asking Alicia to tell Linda about it, she immediately proceeds to tell the story herself, adding the short coda at the end, "Tell Mrs. Sperry." At the same time, she clearly engages Alicia as a participant through her two requests of her to tell the story herself and through her presentation of the facts in Alicia's voice. Nevertheless, that fact that Mother gives Alicia so little opportunity to participate suggests that the Researcher is the true addressee of Mother's talk situating Alicia's role as overhearer. It is as if Mother wants Alicia to learn more about the gist of storytelling than about the actual words. It seems safe to assume that Alicia's mother told this story to Alicia's father at the very least, and to any other relatives or friends who saw Alicia during the time that her lip remained swollen. Furthermore, through these probably multiple retellings, Alicia was afforded the opportunity

to learn vocabulary that may have been unfamiliar to her (e.g., “jaw,” “swole”), as well as to hear rehearsed ways of telling about herself, personal injury, and events of an unknown or mysterious nature.

## **Conclusion**

The dimensions discussed in this brief examination of the nature and variety of overheard speech in these corpora is by no means meant to be exhaustive, either in terms of the types of contexts in which overheard speech occurs or in the ways in which caregivers use this type of speech in their parenting. Indeed, the categories presented here overlap at times, both in the nature of interaction and content present in the episodes. Rather, the purpose of the discussion is to provide a flavor of the ubiquity of overheard speech in the lives of young children and the ways in which it impacts their lives. In each case, children came and left conversations, often preoccupied with things or actions they seemingly found more compelling at the moment. However, they kept track—sometimes closely, sometimes distractedly—to the events, and most importantly the words around them.

## **Summary**

In terms of the number of tokens spoken in the ambient environment of young children, there was a trend to difference among the families in South Baltimore who spoke the least around the children (1,619 words per hour) and the families in the Black Belt who spoke the most around their children (3,203 words per hour). Of course, there were many more words spoken by the South Baltimore mothers to the researcher, especially in the context of telling stories about their past experiences. These results were excluded from the present analysis due to the desire to be conservative in estimating

the amount of speech these children typically hear. Nevertheless, there is good reason to assume, at least in the case of South Baltimore, that these stories were told frequently to all visitors.

Interestingly, these two communities were also the least economically advantaged communities in the study. The families in the working-class community of Jefferson (2,491 words per hour) and the middle-class community of Longwood (2,496 words per hour) spoke the next greatest number of words around their children after the Black Belt families. The working-class community of Daly Park more closely resembled the impoverished community of South Baltimore with families in this community speaking 1,823 words per hour around their children.

When these community averages are situated within the context of the amount of words addressed by primary caregivers to their children observed by Hart and Risley (1995), the true differences offered by a consideration of ambient speech emerge. In this analysis, the impoverished Black Belt families were found to talk more around their children than all but the working-class families in Jefferson and Daly Park and the middle-class families in Longwood. Although the difference did not reach statistical significance, the Black Belt families talked 49 percent more around their children than the Kansas Professional families talked to their children despite enormous differences in educational and economic capital. In fact, the Black Belt families talked 28 percent more around their children than did the next most talkative families in the middle-class community of Longwood.

If these differences are teased apart by social class it becomes more readily apparent that both impoverished communities in the present study spoke more tokens

around their children than the primary caregivers spoke to their children in the impoverished Kansas (Hart & Risley, 1995). In fact, there is no overlap whatsoever between the distributions of South Baltimore and the Black Belt and that of the impoverished Kansas sample. On the one hand this result is not surprising since the quantities being compared represent data from two different conditions. On the other hand the dramatic differences set into relief the degree to which counting only those words addressed by one person to the child may severely underestimate the amount of vocabulary heard by impoverished children on a daily basis. This conclusion is buttressed by a look at the relative increase in the number of words children heard in these two impoverished communities when all ambient speech is considered. In the South Baltimore case, children heard 52 percent more vocabulary in the ambient environment than they heard spoken by their mothers alone. In the Black Belt case, children heard 74 percent more vocabulary in the ambient environment than they heard spoken by their mothers alone.

The differences observed between these two conditions (All Speech to and Around the Child in Jefferson and Daly Park and Primary Caregiver to Child speech in Kansas) across the three working-class communities provide a different lens through which to view these results, however. When these communities' means are considered within the context of all nine communities, no significant differences emerge among them. Only within the context of the working-class communities does there exist a difference between the amount of speech spoken to and around the child in Jefferson and the amount of primary caregiver speech spoken to the child in Kansas. When one recalls the no difference finding among these three communities when only primary caregiver

speech to the child is measured, it seems likely that on the whole children in each of these communities may be hearing approximately the same amount of speech in their daily lives.

Even if one assumes that children across the social class spectrum are hearing approximately the same amount of speech, however, the dramatic differences between the speech heard by Jefferson children in their ambient environment and the speech heard by Kansas children spoken by their primary caregivers again points to the degree to which counting only those words addressed by one person to the child may severely underestimate the amount of vocabulary heard by working-class children on a daily basis. Again this claim is supported by a look at the relative increase in the number of words children heard in these two working-class communities when all ambient speech is considered. In Daly Park, the addition of all speech spoken to and around the child to that of speech spoken by the primary caregiver to the child resulted in the lowest relative increase of the five communities in this study, 35 percent. In this particular community, there was little coming and going of other children and adults, at least during the times of the observations. By contrast, the addition of all speech spoken to and around the child to that of speech spoken by the primary caregiver to the child in Jefferson resulted in the highest relative increase of the five communities in this study, 138 percent.

A more acute focus on the differences afforded by counting all vocabulary in the child's ambient vocabulary is provided by the comparison between the middle-class and professional communities. The addition of all speech to and around the child to the vocabulary mix increased the mean number of tokens heard by the Longwood children from 1,490 per hour to 2,491 per hour, an increase of 68 percent. Perhaps more

interestingly, the change in these two conditions situated the Longwood families differently. In the Primary Caregiver condition, Longwood children heard almost the same number of words per hour as did the Kansas middle-class children (1,490 words per hour in Longwood as compared to 1,400 words per hour in Kansas). This result is unsurprising since both communities were middle class consisting of parents who likely had similar educational, economic, and social backgrounds. However, when the Longwood results are considered for the more inclusive condition of All Speech to and Around the Child, the Longwood children heard more words per hour than did the Kansas children of professional parents (2,497 words per hour in Longwood as compared to 2,153 words in Kansas).

There were no significant differences in the mean number of word types across these five communities. This result is somewhat surprising given that several important differences emerged along social class lines in terms of vocabulary diversity as determined by the D estimate. First, the two impoverished communities' speech types were not different one from each other, but they were both significantly less diverse than the middle-class community of Longwood. In addition, speech in the Black Belt was significantly less diverse than speech in the two working-class communities of Daly Park and Jefferson. One suspicion that must be confirmed by additional research is that there was overall more adult talk in the Black Belt around the child that was about the child. Caregivers in the Black Belt often talked about what the focal child was doing (or was supposed to be doing) within earshot of the child. By contrast, adults and other children in Jefferson often veered off the topics in which the focal child was participating abruptly, and then returned to the same conversational topic with the child equally as

abruptly. It is possible that the concomitant vocabulary shifts in these isolated segments are contributing to higher  $\mathcal{D}$  estimates due to the bootstrapping procedures it uses to estimate diversity.

The  $\mathcal{D}$  estimates for the condition of All Speech to and Around the Child were greater than the  $\mathcal{D}$  estimates for the condition of All Speech to the Child. This result is not surprising given the fact that this condition includes more talk occurring exclusively between adults in the presence of the child. Nevertheless it demonstrates an avenue for word learning for the young child that remains unexplored by the other two conditions. Furthermore, this possibility holds equal potential for children from all communities, regardless of social class. There was no reason to assume that the magnitude of difference among the conditions was different for any group of children in the study.

In conclusion, it seems likely that for most if not all communities, counting all of the words in the ambient environment results in a more encompassing look at the words to which children are routinely exposed. Certainly the brief vignettes capture some of the variety of situations in which children hear the talk of others and hint at the ways they incorporate this talk into their ongoing actions and conversations. As the vignettes demonstrate, conversation is intricately woven in and around the lives of all whom it touches. The significance of this statement is brought home when one attempts to parse language that is multi-party by its nature into dyadic speaker-addressee couplets. The results begin to appear increasingly artificial and not at all representative of what is really going on in the moment. This parsing only results in the exclusion of much of the linguistic capital available to children in large homes consisting of many family members. Of course it is impossible to determine conclusively from the data available if

the more inclusive view provided by counting all of the words compensates for the educational capital enjoyed by the Kansas professional families; in fact, one would not really expect that it would do so. However, it does firmly suggest that the vocabulary situation for children in impoverished and working-class homes is not as bleak as heretofore thought.



## CHAPTER 7

### DISCUSSION

This study examined the amount and quality of vocabulary spoken in the ambient environment of children across three conditions defined by interlocutor and conversational context: (1) Vocabulary spoken by the primary caregiver to the child, (2) Vocabulary spoken by all interlocutors to the child, and (3) Vocabulary spoken by all interlocutors to and around the child. In addition, the data drawn from the five corpora analyzed in this study--South Baltimore, the Black Belt of Alabama, Jefferson (Indiana), Daly Park (Chicago), and Longwood (Chicago)—were compared to data collected in Kansas by the research team of Hart and Risley (1995). For these comparisons, the Kansas data served as a benchmark against which to compare the vocabulary spoken in the families of the five communities analyzed in the present study in two ways. First, the Kansas data consisting of primary caregiver speech addressed to the focal child provided baselines for the five communities in the present study to be compared to the Kansas communities of similar social class. In this manner, similarities and differences between the sets of data measured on the first condition alone provide a foundation for evaluating whether or not the extreme social class differences observed by Hart and Risley obtain across other communities in the United States. Second, these baselines established by the Kansas data and any comparisons that exist with data analyzed under the first condition from the five communities together ground the analyses of the latter two conditions that were designed to offer a more inclusive analysis of the amount of speech children regularly hear.

However, comparisons and contrasts between the data from these five communities and between the Kansas communities are illustrative on the one hand, and difficult on the other hand. The Kansas data provide illustrative comparisons for the data in the present study for several reasons. First, they were collected across roughly the same age ranges. Furthermore, the data were collected monthly, so multiple, regular observations were available for the compilation of mean numbers of word tokens and types across the entire span of data collection. These facts make comparison between the corpora data in this study and the Kansas data appealing, since many of the available data on vocabulary development were collected in observational designs with limited longitudinal sampling (e.g., Hoff-Ginsberg, 1991; Hoff, 2003; Pan et al., 2005). The Kansas comparisons are also appealing because the 42 participants in the Kansas study were representatives of four distinct groups defined by socioeconomic status. These groupings provide reasonable and meaningful comparisons with the communities in the present study. However, the Kansas data, especially as they are available for comparison in this research, present unique problems. As noted in Chapters 4 and 5, it remains unclear whose speech was counted as speech of a primary caregiver. Although Hart and Risley (1995) do acknowledge that they counted fathers and even grandfathers as primary caregivers, it is impossible to determine from their monograph whether only the speech of one caregiver was counted at a time within the category of parental speech. Furthermore, direct comparison of vocabulary quality is impeded by the different lengths of transcripts across the Kansas and the corpora samples and by not having the Kansas transcripts for the calculation of the  $\mathcal{D}$  statistic.

However, the greatest difference between the corpora in this study and the Kansas samples revolves around the method of data collection employed in the studies. Hart and Risley (1995) began their research with the explicitly held view that the low-income preschoolers in their study came from linguistically deprived homes. Their research was grounded in an intervention plan stemming from research evaluating Head Start that was based on principles of behavior modification. Their stated purpose was to raise the achievement levels of their low-income preschoolers to that of children from university families. These assumptions fostered several methodological choices that are questionable, at least from the vantage of ethnographic inquiry. First, there is little indication in the Hart and Risley monograph that extensive involvement in the communities of all of their participants was sought, and similarly little indication that researchers were well acquainted with participants before the onset of data collection. Both involvement in the communities during data collection and pre-study contact were considered essential in the five corpora used in the present research to satisfy the rigors of ethnographic inquiry. Hart and Risley were extensively involved in the preschool associated with the housing project where their low-income families resided, but we do not have evidence that they participated routinely in activities that were defined by the culture of their participants as opposed to being defined by a preschool run by a university. Second, Hart and Risley discouraged talk of other adults than the primary caregiver during the home observations in an effort to reduce the transcription burden. This combination of unusual circumstances--unfamiliar visitors in the home, videotaping, a certain lack of hospitable conversation, all coupled with the presumption of linguistic deprivation--may well have adversely affected the nature of data collected in any home.

However, the impoverished families in the study of Hart and Risley were also all African American, living in an urban housing project, and very likely isolated from extensive contact with family and friends. Given these circumstances, it seems likely that the data collection procedures employed in the Kansas samples created a sense of unease among the impoverished families to a greater extent than among the professional families.

The results from the present study concerning the quality of vocabulary were provocative. Despite the fact that conclusive statements about vocabulary quality comparisons across the nine communities could not be made due to differences in sample sizes, it was nevertheless shown that within the communities analyzed in the present study, each speech condition increased the diversity of the vocabulary heard by the child. On the one hand, this result might be expected. Each condition added more adults to the conversational mix, and sometimes these adults were significant enduring presences in the child's life such as the child's father or aunt or uncle who either lived in the same household as the child or was a frequent visitor to the child's home. It is reasonable to assume that the speech of other adults, like that of the primary caregivers, is more child-focused, providing a zone of proximal development within which the child can acquire new words. However, on the other hand, the fact that vocabulary diversity increased across conditions was unexpected. Each condition also added the speech of several younger members of the child's family, whether siblings, cousins, or neighborhood friends. The speech of young children is typically less complex than the speech of adults, and it would have also been reasonable that the addition of youth speech to the second condition (all interlocutors to the child) might have decreased the overall diversity of speech from that of the primary caregiver alone. This situation did not occur. As stated

in Chapter 5, it is hypothesized that the reason for this finding may rest in the fact that the speech of other children is different from that of adults in terms of the types of words used while remaining less diverse within itself.

Related to this finding, this dissertation also provides support for the contention of Malvern and Richards (1997) that the type-to-token ratio is inadequate for the analysis of large corpora of data. In each instance, the type-to-token ratio taken by itself penalized interlocutors who spoke larger quantities of word tokens even when the same interlocutors also presented higher numbers of word types to the conversational mix. In each case, the parameter  $\mathcal{D}$ , described by Malvern and Richards, provided better estimates of vocabulary diversity in these large samples.

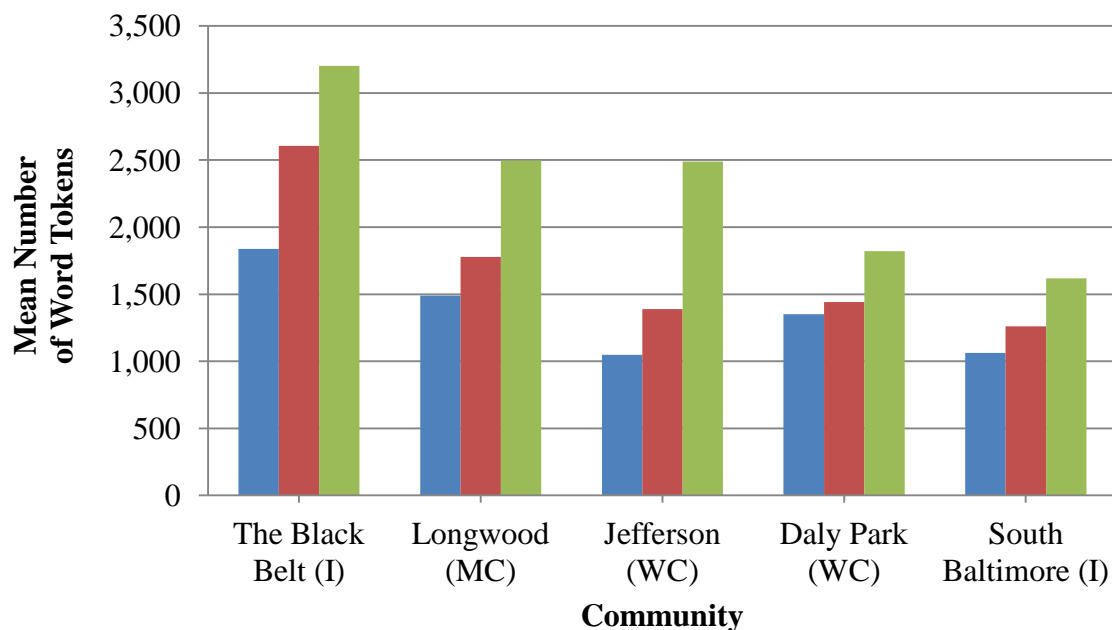
Nevertheless, it is the findings with regard to the amount of vocabulary heard by children across these three conditions that are the most dramatic. A central finding of this study confirmed the work of other laboratories (DeTemple & Snow, 1996; Hurtado et al., 2008; Pan & Rowe, 1999, July) that there is enormous variability between households within any given social class in the number of words spoken on average, variability that has been particularly noted in observations of low-income families. This variation defies explanation in terms of its cause (cf. Hart & Risley, 1995). In the present study, variation existed in all communities, regardless of the social class or cultural characteristics of the community. Wide variation also existed across longitudinal observations of individual families. Many times the number of words spoken in a single observation of a typically talkative family resembled more the average number of words spoken in all observations by the least talkative families.

The amount of talk was often the product of situational variables. For example, the presence or absence of older children due to the time of the observation and their attendance at school often resulted in dramatic differences in the amount of vocabulary heard. In addition, the fact that significant events (birthdays, Christmas) had just happened or were about to happen in the lives of the families contributed to the generation of more talk than at other times. The amount of talk seemed less the product of structural variables such as social class or cultural variability. These anecdotal observations call into question the essentializing of social class. Observers do not live with families--they visit them. Even extensive visits cannot possibly reveal the range of any behavior in which people engage. They certainly do not allow the observer access to more than the participants want to be seen.

The second striking result of the present study was that there were so few differences between the numbers of tokens children heard spoken by their primary caregivers across the nine communities. Only one comparison across all nine communities reached statistical significance: the comparison between the Kansas professional families and the Kansas impoverished families. Of course, this difference does reflect the oft-described 30 million word gap. However, it is the only significant difference, and it is between the highest and lowest ends of the economic spectrum observed in any research to date. This finding helps provide focus on another finding, namely that the second highest mean according to this metric was found in the data from the Black Belt of Alabama, a community similar to the impoverished families in Kansas along lines of both economic disadvantage and cultural ties. In fact, the Black Belt primary caregivers spoke on average 31 percent more word tokens per hour to their

children than did the primary caregivers in the next most talkative community, the middle-class Kansas group.

Of course, these comparisons become even more dramatic as the speech of other interlocutors is added into analyses in the other two conditions of the study; however, the comparisons to the Kansas data under those two conditions can only be for informational purposes since it was assumed (but not known) that the data in the Kansas samples only included the speech of one person talking to the child. Notwithstanding that point, in each of the five communities in the corpora study, children heard increasing amounts of talk across the three conditions (see Figure 7.1 for a presentation of mean word tokens across the three conditions in these communities). These results lend credence to the notion that the way in which Hart and Risley (1995) operationalized the amount of words available for young children to learn may have significantly underestimated reality. The



*Figure 7.1.* Means of amount of talk across three conditions (Primary Caregiver Speech, All Speech to Child, All Speech to and Around the Child) in the five corpora.

data in the present study represent the best view possible of the everyday ecologies of the child participants and their families. It is likely that the speech heard by the Kansas participants only represented a fraction of what they heard as well. What is known is the fact that the speech spoken by the primary caregiver to the child was only a small subset of the entire verbal environments of the children in the five communities analyzed here.

Within the All Speech to Child and the All Speech to and Around the Child conditions, the families in the Black Belt were decidedly the most talkative. In the All Speech to Child condition, the Black Belt families directed 47 percent more word tokens per hour to their children than did the next most talkative families in the middle-class community of Longwood. In the All Speech to and Around the Child condition, this percentage fell to 28 percent; nevertheless it remained true that in all conditions, the impoverished families in the Black Belt spoke more than did the middle-class families in Longwood.

One other result from the All Speech to and Around the Child bears repeating. With particular reference to the three impoverished communities whose data were analyzed, there was absolutely no overlap in the distributions between the number of words overheard by children in South Baltimore and the Black Belt and the number of words directed to children in Kansas. This observation is offered as an additional suggestion that the Kansas sampling procedures greatly underestimated the amount of language available in the ambient environment from which impoverished children can learn.



## **Telling a Story With Numbers**

This study has presented results that align themselves broadly along two fronts: the number of words children from different social classes hear spoken by primary caregivers and the different opportunities for children to hear vocabulary spoken by other interlocutors in their ambient environment. First, it has been demonstrated that the longitudinal findings concerning the mean numbers of words children hear spoken by primary caregivers from different social addresses may not be quite as straightforward as the work of Hart and Risley (1995) suggested. At the very least, these results suggest that the Kansas professional group was a special situation; the mean number of words spoken by these caregivers not only outstripped the Kansas middle-class group, but also the very affluent, urban Longwood group by 44 percent. Although we do not have specific indication that these families in the Kansas professional group were largely associated with academia, there seems to be good reason to suspect so given these large differences and the fact that earlier studies of Hart and Risley (1992) directly compared academic families and impoverished families. Furthermore, the results suggest that impoverishment is not the only criterion that determines language output, for the Black Belt sample had a higher mean number of word tokens spoken to children than all other samples in the present study or in the Kansas samples with the sole exception of the professional group. In addition, the South Baltimore impoverished sample had a mean word token production that was 72 percent higher than the impoverished sample in the Kansas data. Of course, an alternative suggestion to explain this situation might be that the Kansas impoverished sample was unusual, an outlier among impoverished communities. Regardless, the current study suggests strongly that the relationship

between social class and vocabulary output is murkier than heretofore believed, and that the 30 million word gap is really only convenient fiction.

The second front along which this study presents findings is that of the nature of different types of language input children receive in terms of variation in speakers and contexts. Of course, there are no direct comparisons to be found in much of the psychological literature on vocabulary development for these results (although exceptions will be discussed later), but literature grounded in language socialization and anthropology has consistently demonstrated the power of overheard or bystander speech (Miller, 1994; Miller et al., 2012; Schieffelin, 1990; Ward, 1971), of learning by observation (Rogoff, 2003), and of open attention (Gaskins & Paradise, 2010).

### **The Language of the Primary Caregiver**

Current research on vocabulary suggests that several relationships between socioeconomic status, education, vocabulary, and ultimately school achievement have been well established. In particular, those relationships have been defined in many circles as revolving around the quantity of language in general, and of vocabulary specifically, that young children hear spoken to them by their primary caregivers. This result persists in its importance despite many corollary findings concerning the importance of the quality of caregiver talk specifically (e.g., Hart & Risley, 1992) and differences between ways of raising children in general. It has been well established that there are ways of childrearing that provide children with different types of social capital as they enter the school (e.g., the distinction between concerted cultivation and natural growth childrearing approaches described by Lareau, 2003), or provide children with entirely different orientations to social interaction within the world (e.g., the hard and soft

individualisms described by Kusserow, 2004). Yet much of this macro-analytic work has remained seemingly undiscovered by policy makers and curriculum writers who prefer to dwell on micro-analytic relationships, albeit important ones, between social class and school achievement as mediated by maternal vocabulary spoken to the child. Indeed, Snow, Burns, and Griffin (1998) may have expressed best the current climate surrounding this issue: “It is now clear that, though poor and uneducated families provide much the same array of language experiences as middle-class educated families, the quantity of verbal interaction they tend to provide is much less” (p. 122).

Nevertheless, recent research has provided many important results. Even before the publication of *Meaningful Differences* by Hart and Risley (1995), it was well established that there was a direct relationship between maternal vocabulary input and children’s vocabulary achievement (Huttenlocher et al., 1991). Furthermore, in addition to the work of Hart and Risley, there have been several significant experimental demonstrations of the relationship between social class and linguistic output of mothers (e.g., Hoff-Ginsberg, 1991), and between the relationship between social class and vocabulary development as mediated by the vocabulary of mothers (e.g., Hoff, 2003; Pan et al., 2005). Furthermore, there is emerging evidence that maternal education mediates the relationship between social class and maternal vocabulary output (Huttenlocher, Vasilyeva, Waterfall, Vevea, & Hedges, 2007; M. L. Rowe, 2008).

How should one make sense of the disparities between these findings and the results of the present study? First, it must be acknowledged that apart from the rather dramatic results at the upper and lower ends of the social class spectrum, the results of the present study in terms of number of words spoken by primary caregivers to their

children are not that much different across the working-class and middle-class communities in the present study and the Kansas study (Hart & Risley, 1995). This observation lends credence to the notion that the real differences lie at the extremes, namely that the Kansas professional and impoverished communities (upon whose results the 30 million word gap is predicated) are outliers, inconsistent for whatever reason with other communities of similar social class. Many reasons for this suspicion have already been cited in this study, but it bears repeating that the observational conditions set up by Hart and Risley likely biased the findings from the impoverished sample in particular.

Nevertheless, the Black Belt findings defy any similar explanation. There is no reason to assume that the children in this study were any more successful in school than their community peers, many of whom were the very siblings, cousins, and friends who talked to these children every day. The children in this community consistently performed in the bottom five percent of a state that itself was in the fifth percentile nationally. Clearly, these children were failing in terms of traditional educational metrics, yet the vocabulary spoken around them was only less in amount than that spoken to children in Kansas professional homes.

One possible explanation concerns what it means to be impoverished or middle class. Families do not define childrearing in consistent manners across social class, whether the unit of analysis be language input (Ochs & Schieffelin, 1984), socialization of self (Kusserow, 2004; Miller et al., 2005), or general daily activities (Lareau, 2003). These differences often defy easy categorization. It may be erroneous to assume, for example, that the fact that parents across cultures engage in the same caregiving behavior means that they animate that behavior similarly in terms of the language they use. So, for

example, the fact that mothers spoke different numbers of words at meal times or dressing times (Hoff-Ginsberg, 1991) may pertain less to socioeconomic differences in terms of the amount of language they speak overall and pertain more to cultural differences in terms of the view they hold about the role of language in these situations.

Similar observations concerning cultural differences may be made to shed additional light on findings that parents from different social classes do not participate in the play activities of the children in a highly verbal manner (cf. Hoff-Ginsberg, 1991; Pan et al., 2005). Many discussions of play assume that the play of highly educated European Americans is representative of play in cultures both in the United States and around the world (Gaskins & Goncu, 1992). However, mothers in some communities may feel it inappropriate to engage in language use around toy play because they want their children to discover the toy for themselves. Many adults in cultures around the world value children's play highly, but do not believe that they should take part in it (Gaskins, Haight, & Lancy, 2007; Lancy, 1996).

An even more obvious example of differences in cultural patternings around an activity may be found in practices surrounding book reading, another arena where lower-income caregivers have been shown not to talk as much as upper middle-income caregivers (e.g., Hoff-Ginsberg, 1991; Pan et al., 2005). Numerous studies have documented the importance of joint book reading for school achievement outcomes (e.g., Bus, van IJzendoorn, & Pellegrini, 1995; Payne, Whitehurst, & Angell, 1994) and the comparative lack of joint book reading episodes in working-class and impoverished families (Heath, 1982, 1983). Book reading styles in different cultural groups take different forms than one sees performed by European American, middle-class parents. In

her study of book reading styles of African American mothers, Hammer (2001) found that very few mother-to-child interactions in the context of book reading could be considered consistent with joint attention. The predominant style of the low-income mothers in this study, exhibited by one-third of the participants, was described as a modeling style, where mothers labeled pictures for their children to imitate. Furthermore, parents provide literacy experiences at home that they view as consistent with their everyday lives (Rogoff et al., 1993). Many parents in Trackton, the African American community studied by Heath (1982), believed that a questioning style resembling the one frequently used in joint book reading where children are asked to name objects or to list discrete features of objects was the provenance of European American talk.

One possible reconciliation of these diverse results then is to conceptualize them outside of the framework of the 30 million word gap. If the focus is shifted away from this inflammatory rhetoric, what is left is the simple fact that caregivers from different cultures and different social addresses do talk differently to their children. Some talk more in certain situations, others talk more in other situations. All of the research converges around that central point. It may be then, that the important point is not that children in lower-income homes hear fewer words altogether, but that they hear fewer words in situations where children in upper-income homes hear a lot of talk. It is easy to see how this type of mismatch might become baggage carried with the children to school. Research has shown that the narrative styles of children from different classes and cultures receive more or less approbation in the school room (Corsaro, Molinari, & Rosier, 2002; Michaels, 1991), much the same as the questioning styles observed by Heath (1982). Family talk in middle-class homes around the dinner table coheres around

the day's events in school employing school discourse in the home (Martini, 1995; Martini & Mistry, 1993; Ochs & Capps, 2001). When all of these factors are considered, it becomes apparent that what the fiction of the 30 million word gap has actually done is to cause us to forget old truths about children and talk. Children from diverse backgrounds may simply not talk, or not be used to talking, in contexts where mainstream children are comfortable with conversation (Philips, 1972). As Rogoff (2003) wrote, children from all homes learn to do lessons before starting school; the lessons in some homes are consistent with the classroom, and the lessons in some homes are vastly different. To recast Lareau (Lareau, 2003, p. 237), there are many ways that lower-class children suffer, ways that are invisible to them and to their parents, from the lack of similarity between the cultural repertoires in their homes and the standards of the mainstream classroom.

In addition, family talk in the home may be more a factor of educational level of the parents than of social address. Recent research has shown that there is no predictive merit to social class when education of the parents is controlled (Huttenlocher et al., 2007). Knowledge of child development has also been shown to mediate the relationship between social class and vocabulary learning (M. L. Rowe, 2008), a finding consistent with the notion that parental educational level in general is the most significant predictor of vocabulary knowledge, and perhaps eventual school success.

One final possibility to the reconciliation of these findings deserves mention. Although many studies of vocabulary consist of longitudinal data collection to some degree, few recent studies contain as many observations per child as the present studies did. For example, Hoff-Ginsberg (1991) only evaluated mothers' speech on one visit

after at least one preliminary visit to establish familiarity. Her evaluation of child data (Hoff, 2003) rests on two visits for data collection, situated ten weeks apart. Pan and her colleagues (2005) collected three samples of data from their participants, but almost half of their participants failed to be present for all three data collection points. Interestingly, Hoff (2003) found that only five percent of the variance in vocabulary development among her child participants was due to the socioeconomic status of their families. Relevant to this finding is the fact that Huttenlocher and her colleagues (2007) found that family income was not a significant predictor of language outcomes when parental education was controlled; this study was more truly longitudinal in nature, with every participant being visited five times. It may be that the extensive number of visits to many of the participants in the present study contributed to providing more accurate averages of the amount of vocabulary children routinely hear in the home on the one hand, and demonstrate that social class differences wash out over time on the other hand revealing more significant predictors of vocabulary development such as parental education.

This suggestion, while having merit, must be evaluated in light of new findings concerning vocabulary development and old theories of child development in general. Rowe (2012) found in her longitudinal analysis of 50 parent-child dyads that what seemed to be happening was that parents scaffolded different aspects of language at different points in the early years, with varying results. In this study, children's vocabulary skill one year after each observation was most highly predicted by the quantity of vocabulary input at the 18-month observation, the diversity of vocabulary input at the 30-month observation, and the amount of decontextualized language such as narrative and explanatory at the 42-month observation. This important hypothesis, if



confirmed in additional research, may provide critical insight into why some cultures like the Black Belt of Alabama, where narrative is encouraged both in frequency and complexity as early as the third year of life (L. L. Sperry & Sperry, 1996), fail to have their prodigious verbal outputs translated into academic success.

### **Vocabulary in the Ambient Environment**

Throughout this dissertation, considerable effort has been made to describe the methodological choices made by researchers who study the speech addressed by one caregiver to the child. In particular, this speaking style, characterized by joint attention between speaker and addressee, is at once both highly prevalent in many world cultures and used very seldom in others (Ochs & Schieffelin, 1984). Although joint attention may not be used extensively as a method of language teaching in many cultures, considerable evidence has suggested that it is an effective method to help young children enter into the language system (Tomasello & Farrar, 1986). Recent research has demonstrated that even in cultures where overheard speech is highly prevalent, the amount of speech directed to the child predicts later vocabulary development (Shneidman, Arroyo, Levine, & Goldin-Meadow, 2013). The fact that caregiver speech directed to the child is used predominantly in cultures associated with advanced technological resources may mean that it provides a more efficient means by which to teach young children language quickly in the face of busy, often chaotic childhoods. However, at best, this observation as it pertains to vocabulary development represents for the time being no more than an untested hypothesis.

What cannot be denied is that joint attention episodes seem to be a preferred style of learning in many highly literate cultures. This observation is of critical importance to

the present results because it helps to explain the motivation behind measuring only the speech of one caregiver to the child past the earliest stages of language learning. Joint attention episodes in normal conversational interchanges may well decrease in frequency between parent and child communication as toddlers mature into preschoolers. However, one of the key benefits frequently ascribed to book reading is the continuation of dyadic routines similar to joint attention in early mother-to-child conversations (Ninio & Bruner, 1978; Whitehurst et al., 1988). Therefore joint attention episodes played out as time spent book reading continue to influence language development as well as school readiness into the preschool years.

Despite the importance of joint attention in language learning, considerable research has demonstrated that even very young children learn words through overhearing (Akhtar, 2005; Akhtar & Gernsbacher, 2007). The remaining question, however, is to what extent does overheard speech impact the child's learning of vocabulary? In one recent study, Shneidman and her colleagues (2013) determined that for the 27 participants in their study directed speech at 30 months predicted vocabulary growth at 42 months, regardless of whether the directed speech was from the child's primary caregiver or another household member. Overheard speech, however, did not demonstrate any relationship to vocabulary growth for these children. This study measured only input vocabulary at one 90-minute observation. It remains to be seen if these results hold out when household speech is analyzed across extended observation times and different cultural groups.

### **Strengths and Limitations of the Current Study**

The present research depended upon the enormous amount of work that went into the completion of each of its five original investigations. The study of human behavior, regardless of method, is no simple task, and ethnographic data collection is no exception to this rule. Hours upon hours of field work (and foot work) must go into the project before the "first" observation is made. Relationships must be cultivated, understandings must be learned. The present research would be insignificant if not for the meticulous investigations upon which it is built. The detailed field notes, community research, volunteer hours, and finally videotaped observations combine to add to the richness of the data presented in this project. Perhaps the single greatest strength of the present research is the fact that it captures the lives of the participants as they actually live them to the greatest extent possible.

Additionally, literally thousands of hours went into the transcription of the data used for this project. Needless to say, it would not have been feasible in one study to analyze the quantity of data presented in the current research if one had "started from scratch." One strength of this study is the completeness with which it presents the language environment of 42 children across five communities within the United States. That strength was only made possible by the efforts of the primary researchers and their assistants for each of the five corpora.

The methods employed in the original studies, coupled with the meticulous transcription of each corpus, allowed one strength of the present study to emerge. This study represents a unique combination of qualitative and quantitative approaches to the study of language phenomena in order to add depth to either type of empirical inquiry

used alone (Denzin & Lincoln, 2011; cf. Flick, 2002). This study was not accomplished using mixed methods in the sense commonly used by some scholars to suggest a continuous and reiterative process of data collection where qualitative and quantitative approaches are undertaken in a single study, the one informing the other in order to generate new hypotheses (Creswell, 2011). These investigations often include the ability of the researchers to recruit community participants throughout the data collection process in order to interrogate and interpret the emerging results. However, in the present work, no opportunity was available either to engage the original participants in an experimental study or to interrogate them concerning the meanings they might derive from this investigation (although participants were interviewed in the original investigations with regard to the subject matter of those studies). In this manner, it was more similar to an approach termed content analysis (Denzin & Lincoln, 2011) where the decision of what and how to count represents the most critical aspect of the work (Sandelowski, Voils, & Knafl, 2009). In that manner, the present research relied on the careful and consistent practices followed in the previous ethnographic studies in order to conduct quantitative analyses that attempt to provide another form of close observation of the available data that might not be available through the lens of interpretive methods alone (Weisner, 2002; Yoshikawa, Weisner, Kalil, & Way, 2008). Yoshikawa and his colleagues argued that any combination of qualitative and quantitative investigation is possible and should be employed to the extent that it has the potential to provide important insights into a developmental question.

In particular, the methods employed in the present study allow for the establishment of recurrence of practice. Brown and Gaskins (2014) have recently

criticized studies undertaken using the principles of language socialization for their failure to establish that the practices they describe are ordinary, routinely occurring in the lives of their participants. Indeed, the determination that a language practice recurs is a fundamental goal of language socialization as initially conceived (Kulick & Schieffelin, 2004), and of sociolinguistic study in general. In the present study, careful transcription allowed fine-grained distinctions to be made concerning both speaker and addressee categories, thereby permitting the assessment of vocabulary in the ambient environment across three overlapping conditions. In addition, this "counting in context" (Hymes, in Sankoff, 1980, ix) made possible situating these conditions within the greater cultural and economic forces attending the lives of the participants.

Along with strengths come limitations. Although the ethnographic foundations of the five corpora study provide the richness and external validity mentioned earlier, it is also the case that none of the five previous investigations were undertaken with the goal of learning about caregiver vocabulary and its relationship to the future academic success of the children in the respective studies. In fact, most ethnographic studies eschew predictive validity in favor of situational validity, or the ability to understand and interpret the beliefs and values of participants through their own eyes. The five investigations upon which this research was built were no exceptions. Furthermore, in each case, the previous five studies had as their goal to understand the language practices (and in the cases of the Black Belt, Jefferson, Daly Park, and Longwood specifically the narrative practices) of the children at the developmental moment when they were studied. To that end, no thought was given in any of the studies to follow-up investigations when the children entered school. Therefore, there are no data that might help us to know how

well any of these children did in school. There is no way to correlate the amount of vocabulary the children heard with outcome measures such as the Peabody Picture Vocabulary Test or any intelligence measure as did Hart and Risley (1995). We can only speculate that on average, these children performed in school in manners similar to other children in their communities.

An ancillary weakness that hampers direct comparisons across communities, and particularly comparisons with the Kansas data of Hart and Risley (1995), is the availability of only half-hour transcripts for the Black Belt, Jefferson, Daly Park, and Longwood communities. Although in each case longer observations are available for transcription, it was deemed impractical to set out to transcribe a complete hour for each observation. In the end, breadth of data collection across ages of sampling was valued over depth of data collection at any particular age. Nevertheless, this inadequacy renders impossible decisive conclusions about the diversity of language in these homes, when compared to the Kansas samples. With the complete transcripts, the present study is able to use the  $\mathcal{D}$  ratio to estimate language quality, but no comparisons may be made using this parameter with the Kansas samples without access to the complete transcripts from these communities. Nevertheless, the  $\mathcal{D}$  ratio has been used in recent studies of vocabulary development (e.g., Rowe, 2008); it is hoped that as the  $\mathcal{D}$  ratio is used more in vocabulary studies that the estimates found in these data will prove useful for future investigations.

### **Future Directions**

The present study has left unanswered several questions concerning the nature of speech both to and around the child. The most important question that must be addressed

in future research on these data concerns any possible relationship between the conditions described in the present study and the children's overall vocabulary development. Do children who hear more speech from other interlocutors--either addressed to them or in the ambient environment—have a different trajectory in vocabulary acquisition? Do these other sources of vocabulary alone abet their acquisition of words, provide no additional support, or perhaps even impair their development when compared to the speech of the primary caregiver? This study did not evaluate the vocabulary production of the focal children, choosing to focus its lens first on the relative differences in the number of words spoken by others between communities defined by social address and across conditions defined by family constitution. However, each corpus analyzed in this study includes the full record of speech of the focal child. Future research must construct and evaluate the developmental curves of vocabulary acquisition for each child and seek to establish any relationships between quantity and source of additional vocabulary in the environment and the child's learning of new words.

Perhaps the principal anomaly in these data concerns the contribution of youth speech to the child. On the one hand, youth speech alone to the child is less diverse than the speech of the primary caregiver to the child. However, when youth speech is included in the mix of all interlocutor speech to the child, the diversity of speech within the latter condition is greater than the diversity of primary caregiver speech alone. As mentioned in Chapter 5, this incongruity could be the result of the way the category of all interlocutors was realized in the present analysis, namely that adults other than the primary caregiver were counted in that condition. Nevertheless, it was also noted that the speech of youth represents a significant percentage of the speech both addressed to the

child and spoken around the child. In fact, this percentage is far greater than the relatively small amounts of speech contributed by other adult interlocutors. Future analysis is needed to tease apart these findings and to confirm or disconfirm the suspicion that although youth speech by itself is less diverse, the words youth use are on the whole quite different from the words adults use when speaking to the child.

A promising direction for future analysis stems from Rowe's (2012) recent investigation that demonstrated that the most successful word learners had parents who scaffolded different aspects of vocabulary--first quantity, then quality, then words decontextualized from the present scene--at different ages. As mentioned earlier in this chapter, investigation into this possibility seems particularly fruitful, especially in terms of resolving several findings from the Black Belt corpus. Black Belt parents spoke more words to and around their children than any other families in this study, yet the overall verbal diversity scores as measured by the  $\mathcal{D}$  parameter were the lowest. Parents in the Black Belt heavily encouraged their young children to engage in narrative-like talk from the earliest ages of observation at 24 months (L. L. Sperry & Sperry, 1996). In addition, these parents valued highly (as did the preschool teachers) the verbatim recitation of nursery rhymes, prayers, the Pledge of Allegiance, and song texts. One possible explanation for the low verbal diversity means in this community that warrants future investigation is the degree to which extensive scaffolding of these memory feats resulted in moments in time where vocabulary diversity may have been high if measured in terms of the presence of low-frequency words, but was inadvertently measured as low due to the excessive repetition of certain words as parents encourage their children to remember lengthy texts. The direct measure of  $\mathcal{D}$  by the CHILDES program would not be able to



capture that possibility directly from the entire transcript since it bootstraps its statistic from 50-word samples. The possibility exists that more refined analyses of the transcripts that separate segments where verbal recitation is requested by the parents from the entire transcript would yield different findings in terms of the vocabulary diversity that exists outside the context of these recitation times. Another possibility is that the encouragement of decontextualized speech at a very early age simply works against overall vocabulary development in the preschool years by stressing discourse memory over vocabulary memory. Additional research must be done to investigate these possibilities.

Another possible line of inquiry involves the juxtaposition of the results on vocabulary production from this study with results and future analysis of narrative production in the homes of these children and their families. While the importance of home vocabulary as a predictor of eventual school success has long been asserted, the importance of narrative in the everyday lives of children and their families is also well known. Oral narrative is a cultural universal, and it is especially highly valued as a verbal art form in working-class homes and communities (Bauman, 1986, 1992; Labov, 1972; Miller et al., 2005), the very communities whose vocabulary use is often considered deficient. Caregivers and their children within these homes avidly participate in narrative, often more than their middle-class peers (Miller et al., 2005; Wiley et al., 1998). Furthermore, research has demonstrated that narrative in some diverse communities may emerge in the talk of children much earlier and demonstrate a broader range of genres than in mainstream communities (L. L. Sperry & Sperry, 1996). Working-class families cast narrative in a different slant than do middle-class families

(Miller et al., 2005), but these slants come at a price (Michaels, 1991). Adult caregivers in middle-class homes do not interrogate the narrative productions of their children in the same manner that working-class and diverse families do. Miller and her colleagues showed that the children in Daly Park were encouraged to tell stories that privileged negative content, and when challenged, were expected to defend their point of view. In a related manner, Sperry and Sperry found that the children in the Black Belt were strongly discouraged from telling any aspect of a story of personal experience that could be misinterpreted as being untrue.

To date, no research has integrated an assessment of caregiver vocabulary with an assessment of caregivers' participation in the co-construction of narrative within the same study. This comparison is not without merit; connections between conversational narrative and early school experiences such as sharing time and beginning literacy instruction have been frequently reported (eg., Dickinson & Snow, 1987; Dickinson & Tabors, 1991; Heath, 1982; Michaels, 1991; Peterson, 1994). To date, however, work on narrative has focused on its power to convey cultural meaning, affective significance, and insights into discourse structure; research has neglected the possibility that narrative is a fertile ground for vocabulary acquisition. Narrative offers the child a unique view on word meanings by presenting them in the context of decontextualized references, that is, references not situated within the here and now (cf. Curen-ton & Justice, 2004; McGillicuddy-DeLisi & Sigel, 1991).

A related possibility is that other aspects of discourse may be moderating the growth of vocabulary development in certain communities but not in others. For example, recent investigations have provided preliminary results that certain speech acts

take a far broader range of forms in different communities (D. E. Sperry, Glass, Kolodziej, Hamil, & Sperry, 2012, June). In the data of D. Sperry and his colleagues, African American parents used many more discourse variations of the essential speech act of telling their child to stop doing something than did European American parents. This work is consistent with verbal style differences described by Lareau (2003), but in ways that are sometimes at odds with her characterizations. The African American diversity of speech acts seemed to support more verbal parrying between child and adult than was observed among European American families in a possible effort to demonstrate and socialize values concerning complex rhetorical structure. In that case, it may be that Black Belt parents favor rhetorical style over vocabulary content. This hypothesis requires additional investigation.

Of course, vocabulary and everyday discourse may develop essentially independent of one another. In other words, these representational abilities may emerge hand in hand, but without easily observed transactional relationships. Alternatively, everyday discourse such as oral stories of personal experience may provide a privileged pathway in which vocabulary is used and learned. The privileged nature of conversational narrative in terms of both affective development (Miller et al., 2005) and representational development (L. L. Sperry & Sperry, 1996, 2000) may heighten children's attention to novel vocabulary and make its acquisition more likely.

If this scenario obtained, the vocabulary use of children who demonstrate precocious narrative abilities may be reassessed within this context, rather than evaluated independently. Regardless of the outcome, teachers of young children will be better served with more information about their students than that provided by vocabulary

results alone. To date, educational policy has determined that vocabulary is important for success in academic contexts, but studies only measure its effects in the isolated context of standardized vocabulary tests. If vocabulary is important, it is important in all contexts, including that of everyday discourse. The measurement of vocabulary outside of the contexts in which it was learned enables the process through which the language of diverse children is erased, by a topic to be examined in the following chapter. The failure to attend to the contexts in which diverse children learn vocabulary, and to the vocabulary itself that populates those verbal contexts, allows for a tendency to favor language contexts and vocabulary of the mainstream to the detriment of individuals of particular class and ethnic identities. This failure runs the risk of missing other language contexts where any particular verbal skill in question--in this case vocabulary development--may be ascendant, and inadvertently foster the mismatch between the culture of the home and the culture of the school.

## CHAPTER 8

### EPILOGUE

#### **Ideological and Rhetorical Challenges**

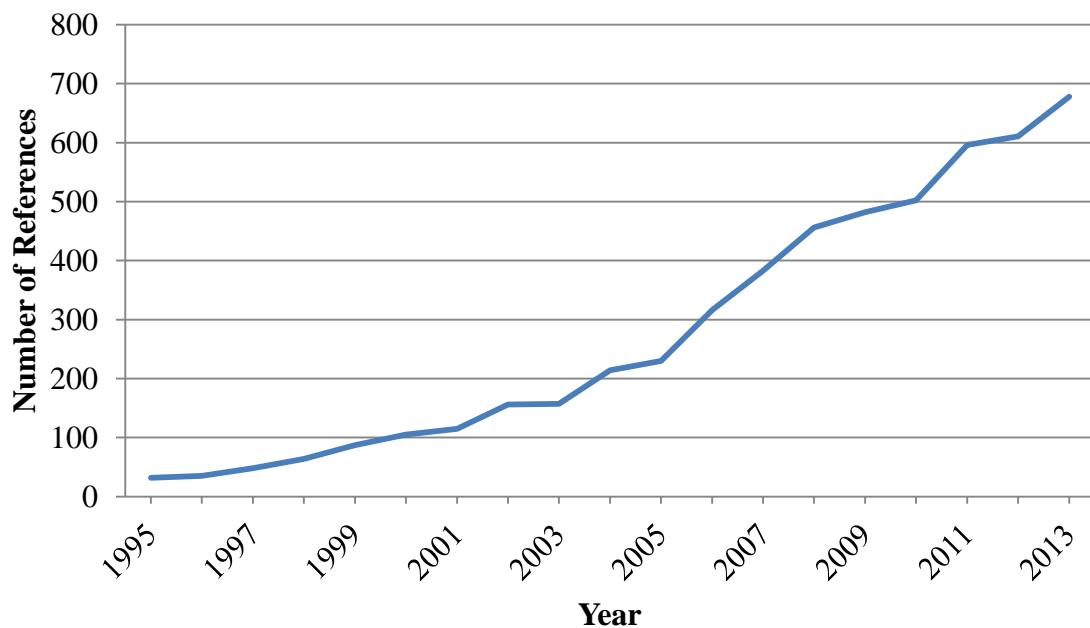
As I was completing the discussion for this dissertation, the White House, in conjunction with the Bill, Hillary, and Chelsea Clinton Foundation, the Department of Health and Human Services, and the Department of Education, sponsored a conference entitled *Bridging the Word Gap* on October 16, 2014. Although this development helped to confirm the currency of the present project, it nevertheless delayed the completion of the manuscript as I endeavored to make sense of the presentations of scholars in attendance and the large amount of media coverage reporting on the conference.

Several related, but sometimes conflicting, voices emerged from the conference. First, proceedings of the conference, and in particular the media that covered it, suggested that the conference itself was thoroughly grounded in the view that the results of Hart and Risley (1995) were unassailable, part of a small scientific body of knowledge that had been elevated past the point of theory to law. These reports confirmed the viewpoints expressed in many recent research studies that cite the findings Hart and Risley with little to any critical evaluation.

It is clear that the voices decrying linguistic deprivation are alive and well. The language ideology that ties poor children to economic and school failure has proven massively powerful and impermeable to evidence despite seemingly having been laid to rest in the 1970s and 1980s. The purpose of this Epilogue is to summarize the recent events and writings in which this many-headed dragon has emerged.

## Recent History, Old Themes

The attention paid to the *Word Gap* has steadily increased since Hart and Risley (1995) released their monograph. An examination of citations of this influential work (presented in Figure 7.1) reveals that each year since its release has seen a rise in the number of references to the book. It is difficult to find a scholarly manuscript dealing with vocabulary development written since the 1995 publication date of *Meaningful Differences* that has not cited the book, even if in passing (cf. Cartmill et al., 2013; Fernald et al., 2006; Hoff, 2003; Pan et al., 2005; M. L. Rowe, 2008). Dudley-Marling (2011) reported that as of the date of his writing, a *Social Science Citation Index* search found more than 350 references to the monograph across a wide range of disciplines.



*Figure 8.1.* The number of references per year to Hart and Risley (1995) found in a Google Scholar search performed on October 20, 2014 using the search terms <hart and risley meaningful differences>.

What drives this extraordinary level of attention? One likely culprit is the educational reform act, No Child Left Behind Act of 2001 (NCLB). NCLB was signed into law by President George W. Bush on January 8, 2002, and it mandated that all public schools desirous of receiving federal funding must have in place a state-wide assessment plan that incorporates standardized testing as a measure of Adequate Yearly Progress (AYP). Vocabulary is included as a sub-assessment on the Nation's Report Card, the publication detailing the successes of NCLB. The National Assessment of Educational Progress (NAEP) cites the research of Hart and Risley (1995) in its rationale for including vocabulary as part of the overall reading assessment: "The associations between vocabulary and learning to read and then between vocabulary and reading comprehension are well documented in research (Hart and Risley 1995)" (National Assessment Governing Board, 2012, p. 33). The report continues by referring to a growing body of research justifying the inclusion of a systematic measure of vocabulary, although it only provides a specific reference to Hart and Risley.

Of course, the fact that vocabulary is important to reading is undeniable. What is more at issue here is a two-fold erasure of conversations that challenge the unquestioned use of vocabulary in the manner designated by the NAEP. Erasure involves the systematic ignorance of an entire sociolinguistic field in deference to one aspect of the field, often the parts of the field with political hegemony over the linguistic terrain (Gal, 1998). When different and perhaps opposing views of appropriate language practices come into contact, some language practices or forms are either ignored entirely or redefined in manners consistent with the prevailing linguistic ideology. In the present example, the first example of erasure concerns the fact that there is also a large body of

research documenting the large and significant mismatch between home and school environments, research that offers information concerning the differences in vocabulary and the range of verbal skills that diverse children bring to the classroom. This research is never cited by the NAEP. Adjoining the erasure of these scholarly findings is the erasure of the skills diverse children themselves possess. There is no discussion of precocious narrative abilities (e.g., Corsaro et al., 2002; Miller et al., 2005; L. L. Sperry & Sperry, 1996); there is no discussion of the ability of young elementary school children to write these and other stories (e.g., Dyson, 1997, 2003); or of older English-language-learning youth to translate for their parents (e.g., Dorner et al., 2007). This erasure is further manifested in the type of vocabulary deemed important by the NAEP. The writers make it clear that they are testing a specific type of vocabulary, specifically *written* vocabulary that is characteristic of “mature language users” (National Assessment Governing Board, 2012, p. 36). Since there is nothing inherent in an English word by itself that makes it a written or a spoken word, this statement can only be meant to index a preference to avoid phonetic variants that occur across spoken languages and that often distinguish social and cultural differences underlying dialectical use and informal or slang use.

In addition, the word “mature” calls forth a host of associations, none of which are favorable for the diverse child. Presumably the NAEP is not suggesting that children be tested on college-level vocabulary. To that end, any word that is reasonably a part of a fourth grader’s vocabulary would certainly be within the lexicon of an older, better-educated person. The word “mature,” then, cannot literally refer to the age of the person knowing the word to be assessed, but to other ineffable qualities possessed by that



person—qualities that can only be assumed to be highly represented among the European American middle class. To reinforce this belief, the NAEP suggests that test item distracters be constructed to “present a different common meaning of the target vocabulary word, which must be ignored in favor of the meaning in context” (National Assessment Governing Board, 2012, p. 36). Given the notion that assessed vocabulary should have as its provenance the written productions of mature language users, context as it is conceived here can only be construed as embodying the everyday worlds of mainstream children, contexts that are not accessible to children from diverse backgrounds.

A detailed examination of the reported desirable and undesirable effects of NCLB is beyond the scope of the present project. However, its effects on the industry of the creation, publishing, and evaluation of curriculum for students across the span of their educational years are undeniable. In fact, vocabulary development has gradually taken over the study and practice of pedagogy within the preschool and elementary years (Dudley-Marling, 2011). cursory perusal of the catalogs of major academic presses reveals the degree to which authors and publishers have risen to meet the demand of educators and parents who want their students to succeed. Of course, very few educators and parents do not want their students to succeed. To that end these volumes are actually proxies for the amount of buy-in that school administrators and teachers make to a new system that demands metrics for accountability in the classroom. The release from Teachers College Press accompanying the 2013 publication of *All About Words: Increasing vocabulary in the common core classroom, Pre K-2* by Neuman and Wright states, “Vocabulary forms a relentless divide between children who succeed and those

who do not. This divide is often between poor children and their privileged counterparts. Without vocabulary knowledge, children cannot interpret text meaningfully or respond in ways that enable them to fully participate in classroom discussions” (Teachers College Press, n.d.). Neuman, a former U. S. Assistant Secretary for Elementary and Secondary Education, was recently featured on National Public Radio, and spoke about the need to “immunize” young children against illiteracy. It would seem, as Dudley-Marling (2011) suggests, that “with hard work and a standards-based education, anyone can grow up to be middle-class” (The Language of the Poor: The Case of Hart and Risley section, para. 11).

The Word Gap has been the focus of several major political and philanthropic ventures in the past two years alone. Three of these ventures include *Providence Talks*, an interventional program created in Providence, Rhode Island and funded by Bloomberg Philanthropies; *Project Aspire* and the *Thirty Million Words Initiative*, two research and clinical practice programs created by Dana Suskind, M.D. at the University of Chicago; and various political initiatives begun by the Bill, Hillary, and Chelsea Clinton Foundation and extending to current White House interest.

**The case of Providence Talks.** Many national media outlets brought heightened attention to the Word Gap following the 2013 announcement that the City of Providence had won the Bloomberg Philanthropies Mayor’s Challenge grand prize (Office of Mayor Angel Taveras, 2014). The proposal of Providence Mayor Angel Taveras was selected out of 304 submissions to receive the monetary award of five million dollars. The proposal was to create *Providence Talks*, a family intervention program designed to teach poor families how to increase the amount of talk they address to their children. The

program began in February, 2014, with 75 families participating. It seeks to grow to include approximately 500 families by the end of 2014 and 2,000 families by the middle of 2016.

Tina Rosenberg, writing for the New York Times *Opinionator* blog (2013), reported on this win. After describing the research of Hart and Risley and decrying the fact that this research had not had an immediate effect on public policy, she turned to a discussion of Meredith Rowe's 2008 *Journal of Child Language* article. In her article, Rowe reported that parental knowledge of child development mediated the relationship between socioeconomic status and child-directed speech, concluding that "...parents from different SES groups have different beliefs about child development which influence how they communicate with their children on a day-to-day basis" (2008, p. 199). She proceeded to write that "...parents who hold beliefs about child development that are more in line with information offered by experts, pediatricians and textbooks, talk more, use more diverse vocabulary and longer utterances . . . than parents who do not hold these beliefs" (pp. 201-202). These statements affirm a positive approach to the problem of differences in vocabulary between families of different social class, supported by Rowe's conclusion that providing poor families with this information is an exciting possibility to addressing vocabulary differences, because "... knowledge of child development is potentially more amenable to intervention than SES" (p. 203). Rosenberg, however, translated these findings and statements describing them to suggest that Rowe "found that poor women were simply unaware that it was important to talk more to their babies—no one had told them about this piece of child development research" (Rosenberg, 2013, para. 9).

So, why did the research of Hart and Risley become part of public consciousness and immediately change the behavior of poor parents? According to Rosenberg, it was difficult to persuade poor parents to talk with their children more “because there [is] no practical way to measure how much parents talk” (2013, para. 11). Enter the LENA Foundation. LENA is an acronym for the Language Environment Analysis System, a powerful new technology for recording estimates of speech. At the heart of the LENA system is the capability for the algorithmic models underlying its design to segment and appropriately identify sounds of varying amplitude and intensity (Ford, Baier, Xu, Yapanel, & Gray, 2008). These algorithms were developed using iterative modeling processes coupled with analysis of extant language transcripts to confirm the analytical outputs of the algorithms. The LENA system is capable of downloading recorded samples of actual speech, but its most central function is to analyze speech by formants and to estimate the amount of speech recorded across large sample sizes without reference to the precise words recorded. It is capable of reliably separating adult speech from child speech, speech near to the recorder from speech far from the recorder, speech sounds versus non-speech sounds, and speech generated by electronic versus natural means (Ford et al., 2008). Its total cost is estimated to be approximately \$1,000 per child (LENA Foundation, 2014).

The LENA Foundation reported that the device records language spoken “to and around the key child” (LENA Research Foundation, 2012, p. 2); the “around” is limited however. The device does not record speech well that is spoken behind the child, regardless of whether or not that speech is addressed to the child. Furthermore, “the software does not count speech when speakers are indistinguishable, such as overlapping

adult and child speech” (p. 3). Clearly the device is not a human transcriber; overlapping speech does not typically render the words unintelligible. Most telling, however, is that the system defines “meaningful speech” to include only “close and clear vocalizations” (p. 6), distinguishing meaningful speech from distant and overlapping, television and other electronic sounds, noise, silence, and background noise.

The LENA system is used increasingly in many contexts and by researchers and practitioners alike. As of April, 2013, it was being employed by about 200 universities and research hospitals (Rosenberg, 2013). It has undoubted merit in these contexts. It is certainly true that the traditional research methods employed for longitudinal investigation of child language are not practical in clinical practices where LENA is frequently used to augment the work of speech pathologists, pediatricians, and other professionals helping young children on the ground. It is also true that it is a compelling gadget in a gadget-obsessed society. The LENA website is an internet browser’s delight, demonstrating different packages available for purchasing the device. The website is clearly designed for the research and clinical professional as well as the private shopper, but the “LENA Store” link remains prominent on the home page. There are even adorable toddler jumpers, overalls, rompers, and onesies for purchase for your LENA toddler (<http://shop.lenafoundation.org/default.aspx>).

It goes without mention that the average poor and working-class family could not afford LENA without being aided by a program such as *Providence Talks*, despite the LENA press release announcing that a “new intervention to bridge the Word Gap aims to reach disadvantaged families widely and affordably” (Hannon, 2014). Therefore, while LENA is a serious research enterprise, it also seems to have become big business. In the

internet searches conducted for this study, there was never a page found that did not contain a sidebar advertisement for LENA. Most of the web articles and blogs ended with significant reference to the new technology, clearly suggesting that it represented the latest revolutionary solution for good parenting.

The LENA system has received a very different level of attention than have other scientific breakthroughs or technological advancements. It is extensively advertised, to the point where one suspects that the purpose of any given article is to promote the purchase of the LENA system rather than to discuss the fact that impoverished children fail in school due to small vocabularies. For example, Maria Hinojosa, reporting for National Public Radio, advised Latino families to take at least fifteen minutes per day to talk to their children in any language (Hinojosa, 2014). Apart from the incredulous inference that Latino families do not already talk to their children at least fifteen minutes a day, this report devolves quickly into an extended advertisement for LENA; the entire report is 7 minutes, 43 seconds long, and the LENA system is discussed for approximately 1 1/2 minutes beginning at two minutes into it.

It must be said that there is also a certain irony in Rosenberg's review of LENA and *Providence Talks*, indexing the privilege associated with the few children who both might be considered to need this intervention and for whom it is economically feasible. The article features a cartoon in its header, with a father talking to his infant.

The quiet subtleties in Gould's "Goldberg" Variations just blow me away. I could listen to Bach all day, couldn't you? Then again, you can't beat some '60s rock 'n' roll... The Beatles *invented* it—say after Daddy: JOHN, PAUL, GEORGE and RINGO. R . I . N . G . O! He played the drums. What other instruments do

we know? Guitar...KEY-board. The keyboard goes: 'La, La, La' We like that sound! We like art, too, don't we? Remember our day out to the gallery? Who are our favorite artists? PI-CA-SSO...KOOOONS...OL-DEN-BURG...

(Rosenberg, 2013, para. 1)

Interestingly in this cartoon, the father is standing and the infant is sitting. It might be more accurate to say that the father is talking *down* to his infant, perhaps a wry indication of Rosenberg's recognition of the silliness involved in hoping that all parents would ever come to speak to their children in such an elevated, pretentious manner.

Regardless of the impression that Rosenberg (2013) intended to give, it must be acknowledged that the rhetoric surrounding the word gap is incredulous. Darshak Sanghavi of the Brookings Institution recently closed his blog post with the quip, "Sometimes, encouraging social mobility really is all talk" (2013, para. 4). On December 29, 2013, an online forum was created on the social media site Facebook (Edmund, n.d.). The forum's name was "Close the Word Gap," an innocuous enough moniker. However, the site's logo was reminiscent of many religious images, with a white hand holding a key toward a deeply blue sky, the key surrounded by a radiant halo of light. One cannot help thinking of the glow of light following the angel "America" in John Gast's famous painting, *American Progress*, depicting the nation's manifest destiny.

**Project Aspire and the Thirty Million Words initiative.** Dana Suskind, M.D. is a pediatric otolaryngologist at The University of Chicago Medicine Comer Children's Hospital. As a prominent advocate of cochlear implants in children with hearing loss, she noticed several years ago that children from lower-income families lagged behind their middle-class counterparts in terms of progress post implant. Based on her clinical

findings and the research of Hart and Risley (1995) Suskind decided that the reason for this lag was that the lower-income families were not talking as much as the middle-income families to their children (Neufeld, 2013). She founded dual programs, *Project Aspire* and the *Thirty Million Words Initiative* (TMW), both aimed at remedying the problem (ASPIRE is an acronym for "Achieving Superior Parental Involvement for Rehabilitative Excellence"). TMW, funded by the Hemera Foundation, is a comprehensive curriculum that draws from many disciplines to help educate parents, "in a culturally sensitive and cognitively fluent manner" about the cognitive and behavioral development of the child (Thirty Million Words, 2014, The TMW Curriculum section, para. 2). Parents are taught to focus on the "Three Ts—Tune In, Talk More, and Take Turns" (<http://tmw.org/>). Parents "Tune In" by paying attention to what their child is focused on or trying to communicate to them. Parents are encouraged to "Talk More" by using lots of descriptive words. Finally, parents are admonished to "Take Turns" with the child by engaging in her conversation. Prominently, the LENA System is used as a talking "pedometer" to help parents record how much they speak to their children

This project has received considerable coverage in the national media; indeed, it served as inspiration for the winning proposal, *Providence Talks*, in the Bloomberg Philanthropies competition. Sara Neufeld, a correspondent for Slate Magazine, reviewed the program under the header, "Baby Talk Bonanza: Children aren't born smart. They're made smart by conversation" (Neufeld, 2014). In addition, Suskind was named to the advisory council of Hillary Rodham Clinton's initiative "Too Small to Fail," a part of the Bill, Hillary, and Chelsea Clinton Foundation (The University of Chicago Medicine, 2013).



**The Too Small to Fail initiative.** The Bill, Hillary, and Chelsea Clinton Foundation, begun in 2001, "works to improve global health, strengthen economies, promote health and wellness, and protect the environment by fostering partnerships among governments, businesses, nongovernmental organizations (NGOs), and private citizens to turn good intentions into measurable results" (<https://www.clintonfoundation.org/clinton-presidential-center/about/bill-hillary-chelsea-clinton-foundation>). One cannot help hearing, ironically, echoes of NCLB in the call for measurable results, and the Word Gap proved to be a ready target for attack as the Clinton Foundation created the initiative *Too Small to Fail* (Clinton Foundation, n.d.). This initiative has recruited some unusual bedfellows in its quest to close the Word Gap, including President Barack Obama, former Democratic Senator and Secretary of State Hillary Clinton, former Republican Senator and Senate Majority Leader Bill Frist, and Cindy McCain, wife of Republican Senator John McCain (Too Small to Fail, 2014). President Obama's statement, released on June 25, 2014, is conspicuous in that it misquotes the research: "We know that right now, during the first three years of life, a child born into a low-income family hears *30 million fewer words* (emphasis in original) than a child born into a well-off family" (Obama, 2014). The extrapolation of vocabulary estimates performed by Hart and Risley (1995) were performed for the first four years of life, not three. On the one hand, this address is sure evidence that the push to cure sagging achievement levels by increasing the number of words low-income parents speak to their children has penetrated not only the media and scholarly research, but also the highest levels of national government. On the other hand, the error in the address is curious—why was it not detected? Given the degree to which the national media

scrutinize every aspect of what the President says, the tolerance of this error seems to index the non-critical nature of attention surrounding this issue, a willingness to accept any facts presented if they confirm pre-existent ideologies.

The most significant action undertaken by the Too Small to Fail initiative to date is the White House Word Gap Event, held on October 16, 2014 (Too Small to Fail, 2014). In the press release for the event entitled "White House Word Gap Event to Share Research, Best Practices Among National Experts and Advocates with Aim to Close Word Gap," several significant announcements were made. First, it was announced that in 2015, Too Small to Fail intends to convene leaders in several major cities "with burgeoning or ongoing word gap campaigns to share and inspire ideas, and will provide capacity- building webinars on how to develop and bolster these campaigns" (Too Small to Fail, 2014, para. 2). It was further noted that these meetings would present road maps to success and strategic resources based on ongoing pilot programs developed in Tulsa, Oklahoma and Oakland California.

Many other new initiatives were announced at the White House conference (Shankar, 2014), including:

1. A \$300,000 Bridging the Word Gap Incentive Prize, sponsored by the United States Department of Health and Human Services (HHS), challenging organizations to develop "low-cost, scalable, technology-based interventions that drive parents and caregivers to engage in more back-and-forth interactions with their young children."

2. The creation by the HHS of the Bridging the Word Gap Research Network, a project supported by two years of funding to help develop a national research agenda to solve this problem.
3. Financial support from HHS and the United States Department of Education for efforts to address the word gap in the 20 state members of the Race to the Top--Early Learning Challenge.
4. The Word Gap Toolkit, a set of enrichment and early language development resources for caregivers and teachers, developed under the joint auspices of HHS and the Too Small to Fail initiative.

It must be noted that not all voices at the White House Conference were unambiguously supporting the panacea of talking more to children in order to boost their school achievement. In particular, two prominent language acquisition scholars expressed concerns that the rhetoric to close the word gap may be oversimplifying the issue. Katherine Hirsh-Pasek presented her findings that it is the quality of vocabulary, not the quantity, that matters in determining eventual school success (Quenqua, 2014). She emphasized the seldom referenced findings of Hart and Risley (1995) concerning the strong relationships of parental tone, responsiveness, and use of symbols to the child's eventual success in school as she related her findings that it was the prevalence of joint-attention episodes and infant-directed speech that predicted language ability at age 2, not the total number of words. Patricia Kuhl was also noted to express her concern that rhetoric about closing the word gap underemphasizes the challenges that face poor families and their children. In addition, she indexed the notion that technology might be seen as a substitute for good parenting, saying, "I worry about these messages acting as

though what parents ought to focus on is a word count, as though they need a Fitbit for words" (cited in Quenqua, 2014, para. 9).

Despite these significant rejoinders to the overall mission of the White House Event, this initiative and the conference have generated some of the most potent rhetoric yet about the word gap. In the Strategic Roadmap for the Clinton Foundation (n.d.), entitled, "Preparing America's Children for Success in the 21st Century: Too Small to Fail," the word gap is even compared to world hunger. "When a child is deprived of food, there is public outrage. And this is because child hunger is correctly identified as a moral and economic issue that moves people to action. We believe that the poverty of vocabulary should be discussed with the same passion as child hunger" (p. 11). These words made the national media as well, as Jessica Lahey repeated them in her coverage of the White House Event for the Atlantic magazine (2014).

### **Language Ideologies at Play**

Labov (1972) long ago voiced the concern that the systematic linking of the notion of language deficiency to certain categories of persons would result in a sort of epiphenomenal process where if poor children (or minority children) were viewed as a whole as linguistically deficient, than their individual differences and inherent abilities would be misconstrued as deficits rather than as opportunities for growth. Discussions of how language acquisition occurs have always been ambushed in the process. At each level of the equation, stakeholders (whether in the polity or in families themselves) possess ideologies surrounding language acquisition that may or may not be consciously realized (Riley, 2011). These language acquisition ideologies are embodied in the practices of both the mainstream as they seek to maintain social capital and pass it on to

their children, and by non-mainstream families as they enact caregiving routines on the ground. Bourdieu (1991) spoke of the process of *misrecognition* where parties on both sides of the equation misallocate priority to certain obvious attributes of social life, failing to recognize the underlying motivational force behind inequality, namely the desire of the privileged to extend that privilege to their children. Bourdieu and Passeron (1977) argued that the most fundamental role schools play is the consecration, inculcation, and consecration of class culture to the point of determining who has power in a society. While Bourdieu's emphasis is on the ways schools come to see their ways as superior through their implicit association with power and capital, individuals without power also play the game without knowing its rules. For example, parents and teachers in the Black Belt highly scaffolded extensive verbal routines because they viewed these routines as critical to school success; in fact, in the classrooms in their community where most teachers were African American themselves, the ability of children to accomplish those routines did translate into academic success. Yet those very same children remained unsuccessful in the context of mainstream educational measures—the misrecognition by teachers and parents alike of what it means to be successful in a mainstream world may have cost these children dearly.

One analytic scheme that provides much insight to the workings of language ideology in the present case of talk about the 30 million word gap was offered by Irvine and Gal (2000) in their description of three semiotic processes through which misrecognition of language use, language ability, and even language existence occurs. The first semiotic process, *iconization*, involves a transformation of a particular abstract sign relationship between linguistic features and the social images with which they are

linked. With reference to the word gap ideology, the language of the mainstream middle class, existing as the language of both power and majority influence, maintains a position of superiority by linking its existence to an American Dream of prosperity and upward social mobility. The American Dream is predicated on notions that through hard work alone, one can succeed in every endeavor. Therefore, if families are not successful, a source of their failure to work diligently at gaining success must be found. The word gap fits the mold perfectly—families whose children do not succeed in school are simply not working hard enough at talking to their children. The word gap ideology is additionally made real by establishing a particular set of arbitrary standards through testing that fail to acknowledge the degree to which they are based on the language of one group as opposed to another group. The language around NCLB supports this iconization completely. If children do not succeed, neither their parents nor their teachers are being accountable—they simply have not worked hard enough to earn the American Dream. In this manner, the goals of testing and of demonstrating school accountability may come to be seen as the mainstream seeking features of language and results that reify its own practice. By selecting qualities that are coincidentally shared by the linguistic community of the mainstream and the social image of prosperity, the two constructs become inextricably tangled and nearly impossible to tease apart.

The process of *misrecognition* of other's language abilities continues as the mainstream seeks to find additional conjunctions between, in this case, the realization of the American Dream of prosperity and the language practices of the majority. Irvine and Gal (2000) described the process of fractal recursivity to be the projection of any opposition that is salient at some level of relationship onto another level of analysis. Any

differences noted through testing or other achievement measures are recursively attributed to differences in social class and by extension to the parenting abilities of the people who inhabit those social addresses. The parenting abilities of impoverished or working-class parents are impugned in the process for they are seen as inadequate to guarantee their children's success on mainstream measures. Children with hearing impairments who were recently fitted with cochlear implants are being prevented from the full benefits of technology and surgical expertise because they are not being talked to enough. Programs such as Too Small to Fail are extended to children from diverse communities across the United States with no respect to their immigrant status, the presence or absence of bilingualism in their community, or their regional variation in dialect. All of these differences become another way of reducing important variables in language learning to simple impediments to prosperity. Ultimately, the differences between those who have and those who have not are equated to extreme poverty and world hunger—children are cast as literally starving for words.

One might also suggest that fundamental differences between experimental methodologies common to psychology and qualitative methodologies common to anthropology and sociolinguistics are misunderstood at the core, an effect of the language ideology rather than a cause. Psychological inquiry has always attempted to uncover essential truths about humans as a species, truths that most modern researchers would agree are shared by all. Anthropologists and sociolinguists seek to look at the many pluralities that exist across peoples as defined by culture and instantiated by practice. Therefore, whereas psycholinguists rightly seek commonality (Chomsky, 1965), anthropologists seek diversity (Duranti, 1997). In this analysis, the differences between

methodologies become not the battleground of ideas in which they are commonly understood, but another unfortunate victim of the fractal recursivity of a mainstream audience seeking to find confirmation of beliefs that maintain its political hegemony and erasing all results that disconfirm these beliefs (cf. Bourdieu, 1991).

Finally, the school system and its political backers in general; and test makers, curriculum designers, and teachers specifically come to ignore or disavow any indications that children from minority groups have skills that other, usually majority, children may not. Research on narrative practices or discourse sophistication (e.g., Corsaro et al., 2002; Michaels, 1991; Miller et al., 2005; L. L. Sperry & Sperry, 1996), writing in children's own voices (Dyson, 1997, 2003), or Hip Hop language and hybridity (e.g., Sanchez, 2010; Smitherman, 2006) becomes another victim of the prevailing ideology. This outcome is termed *erasure* by Irvine and Gal (2000), the process in which an ideology, through simplification of the sociolinguistic field, renders some persons or activities invisible. Miller and Sperry (2012) argued that the process of erasure in the economy of educational practice helps to explain the durability and persistence of notions of linguistic deficit such as the word gap. The mainstream polity is content to rely on methodologies and outcome variables that are easily measured because the results that are found confirm their deeply held commitments. Poignant calls to ground pedagogy in "our students' abilities and experiences as the source of knowledge and learning" (Alim, 2007, p. 28) remain unheard at best and dismissed at worst by the mainstream language ideology.



## **Conclusion**

This project was begun based on a premise that there is too little conversation between quantitative and qualitative methodology in general, and between experimental studies of vocabulary input and acquisition and ethnographic studies of language learning in context in particular. Experimental studies of language development have often focused on uncovering the essential cognitive aspects of syntactic, semantic, and phonetic development. With regard to vocabulary input and development, these studies have uncovered many provocative and far-reaching findings concerning, for example, the relationship of vocabulary growth to essential perceptual and memory processes (Fernald et al., 2006), or the ability of very young children to learn words that are not expressly directed to them (Akhtar, 2005; Akhtar & Gernsbacher, 2007). However, many studies have attempted to simulate what happens on the ground in the laboratory, attempting to circumvent lengthy and protracted data collection procedures characteristic of ethnographic methods for the expediency of experimental control. Yet what happens on the ground only happens on the ground if the intent of the actors is privileged. It is not enough to assume that because all parents must attend to certain everyday tasks of caregiving that they will do so in a similar manner. However, that is precisely the condition placed on these tasks by any assumption that they can be fruitfully compared across another variable such as the number of words the parents speak while attending to the task.

It is the contention of this study that what the laboratory is best suited to do is to test the limits of what children can do under various experimentally controlled circumstances. Such study is consistent with what Hanks (1996) described as study of

formalist understandings of the general laws of language and models of the combinatorial potential of linguistic systems. What the laboratory should not attempt to demonstrate is how language is used in everyday life, or the “actual manifestation of speech” (Hanks, 1996, p. 7). Here lies the boundary between what children can do, and what they actually do. Hanks argued that an understanding of language as it is actually used depends upon relational understanding, an understanding of “not what might be said under all imaginable conditions but what *is* said under given ones” (1996, p. 7, emphasis in the original). When one begins to investigate how vocabulary knowledge affects achievement, one has crossed the boundary from potential to performance. No matter how much one might like it to be so, achievement is not simply a product of abstract, cognitive abilities that can be quantified by their presentation in experimentally conceived situations. School achievement (and any contribution the possession of a certain vocabulary makes to school achievement) is, *from the child’s perspective*, grounded in a host of cultural practices that both determine and measure its success.

Most social behavior is highly routinized, having been repeated thousands or even millions of times across many situations and across much time (Bourdieu, 1977). Cultural practices are socialized effortlessly as children both watch them instantiated countless times and are vicariously rewarded by engaging in them themselves (Miller & Goodnow, 1995). Most significantly for the argument at hand, cultural practices are invested with “normative expectations and with meanings or significances that go beyond the immediate goals of the action” (Miller & Goodnow, 1995, p. 7). To that end, even the most basic caregiving routines, from eating a meal together to dressing to picking up toys, are saturated with cultural meaning that may or may not infuse them with the level

of similarity necessary to guarantee that they can be employed as a backdrop of experimental control for the accurate measure of language used within them.

In fact, sociolinguists have long asserted that language practices are among the most basic, routine, and recurrent of all cultural practices (Hymes, 1974). The teaching and learning of vocabulary can be no different. It is another manifestation of a socialization and acquisition scheme that like all other manifestations is inculcated with the practices of the home, and by extension of the cultural group, and is made to seem so natural that the child cannot imagine speaking with any other semantic tools. Yet, for many children, that is precisely what they must do as they leave the confines of home and enter the world of school where attitudes and actions have been shaped by social and economic forces alien to their lives heretofore. To paraphrase Goodnow (1990), the classroom, like the world at large, is not necessarily a benign free market. Certain linguistic goods are easily displayed and readily purchased, while others are either shunned or ignored, having no currency in the school context. The narratives children bring to school are one well-studied example of how the linguistic abilities of children are erased in this market. The narratives of many children of diverse backgrounds have been shown to be complex and creative, often exceeding the narratives of their middle-class peers in those qualities (Miller & Sperry, 2012; L. L. Sperry & Sperry, 1996); yet these narratives are often considered sub-par or at least too far outside of the mainstream to be acknowledged (Corsaro et al., 2002; Michaels, 1991). It is the contention of this study that standardized tests perform the same disappearance act on the words diverse children commonly hear and use, and experimental studies of vocabulary input extend this erasure

of language ability by ignoring the contexts in which children learn much of their language or by defining these contexts in middle-class, mainstream ways.

So what we are left with is the fact that there is a vocabulary of school, a vocabulary of political hegemony grounded in its mainstream roots (cf. Delpit, 1986; Delpit, 1988); and there is a vocabulary of home that may or may not conform to the vocabulary of school. Both of these vocabularies are practiced in rich contexts overlaid with distinct meanings and purposes. Only some of these practices are acknowledged. Until the diverse child enters the school room, her language learning has followed the course of all socialization of cultural practices, that of a graceful, continuous learning curve, where she occupied well-established, culturally configured niches in which cultural experts presented a relatively homogeneous, well-defined set of principles instantiated through repetition. For children of different linguistic or socioeconomic traditions, however, this graceful curve is abruptly halted when they enter mainstream schools whose traditions differ from their own.

Vocabulary teaching and learning are embedded activities. Which specific words are used, who talks to whom, and what is appropriate to be referenced are all questions situated within a particular context that lead to decisions made by the interlocutors at hand. Mothers (and fathers, and siblings) do not talk about everything; they do not name everything; they do not provide words for every action. It is quite simply impossible to do otherwise. Indeed, the essential problem of reference is making certain that expert and novice are both attending to the same object or activity in the environment as it is being named. The point here is that although vocabulary may appear to represent the lowest common denominator in terms of the child's and the adult's ability to engage in semantic

reference, even individual words and the situations in which they are used are a way of occupying the world (cf. Hanks, 1996). "Speakers and the objects they talk about are part of the same world; a division between subjects and objects is one of the *products* of linguistic practice, something people create with language, not the irremediable condition against which language must work" (Hanks, 1996, p. 236).

To take a step back, an understanding of the role of vocabulary in young children's lives, both at home and at school, might benefit from recalling the words of Wittgenstein (1953). All speech acts are language games woven into, but not subsuming, the actions of everyday life. If one is playing a language game, one is well served by playing by the rules of the game (Moss et al., 2009). It also follows that one is more likely to win the game if one knows what the rules are in the first place. Children who are considered by educational policy or educators themselves as linguistically deprived are often simply playing another game—the only game they know. It is the hope of this study that educators, curriculum writers, and policy makers will come to acknowledge that there are other games in town than their own—games with their own rules, their own playing fields, and their own vocabulary. The games are really neither more nor less complicated or sophisticated than the game they are playing—they are just different. The players of the game who really matter are very little—too little to be able to influence the rules of the game. They have actually only just learned the rules of the game they are playing and have yet to learn any reason to question the merit of their game or the value of learning another game. Really, how would they? Even the big people around them seem not to know that, in fact, multiple language games are being played.

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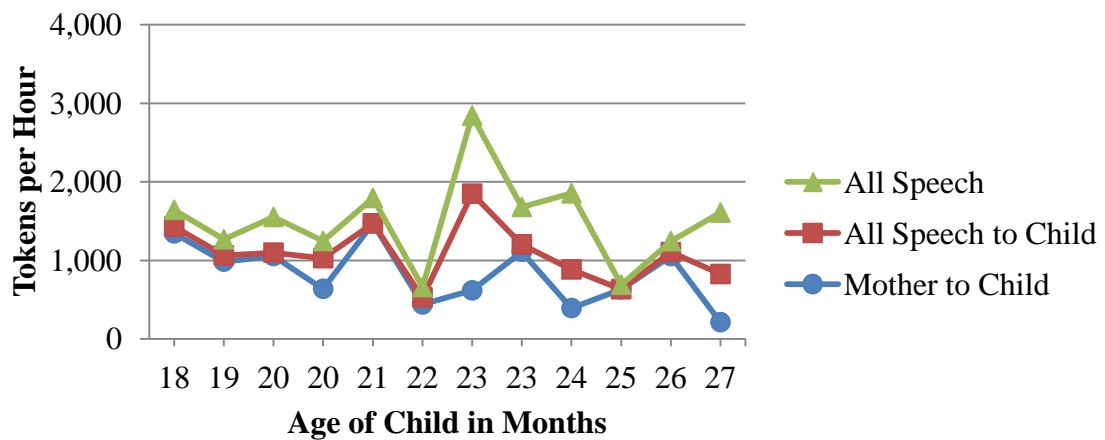
## APPENDIX A

### MEAN NUMBERS OF WORD TOKENS

#### ACROSS FIVE COMMUNITIES

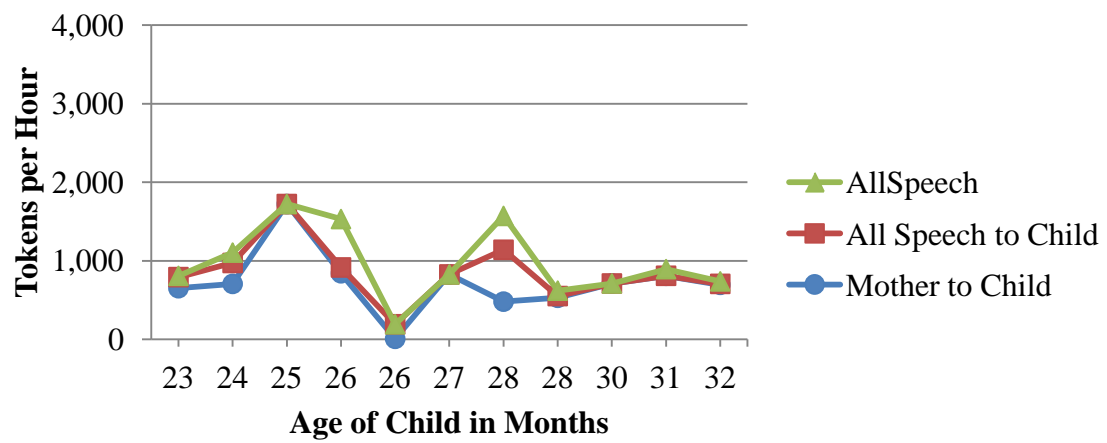
In this appendix, the mean number tokens spoken per half hour across three conditions are presented by individual child participants in each community. The first condition is the number of tokens spoken by the mother (usually) or the primary caregiver to the child. The second condition is the number of tokens spoken by all interlocutors to the child. The third condition is the number of tokens spoken by all interlocutors to and around the child.

**Figure A1. South Baltimore**

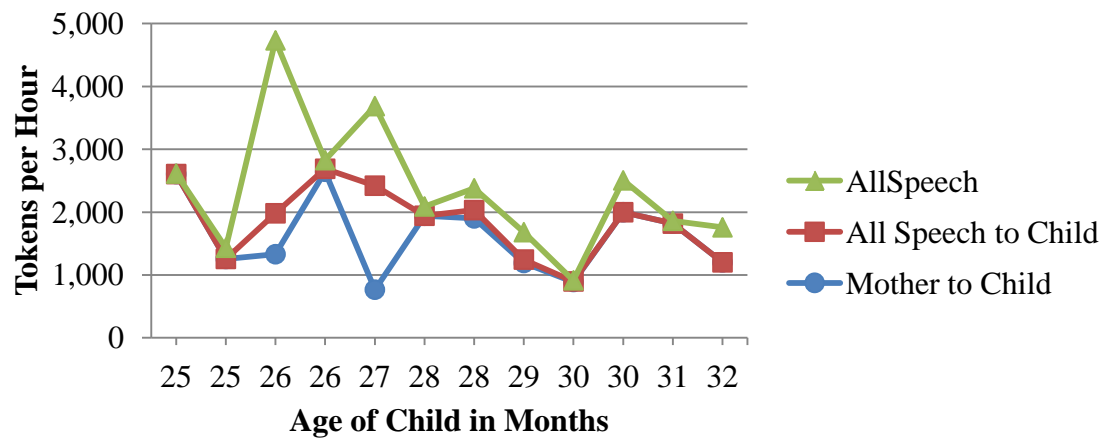


**Figure A1.1 Amy**

**Figure A1 (cont.)**



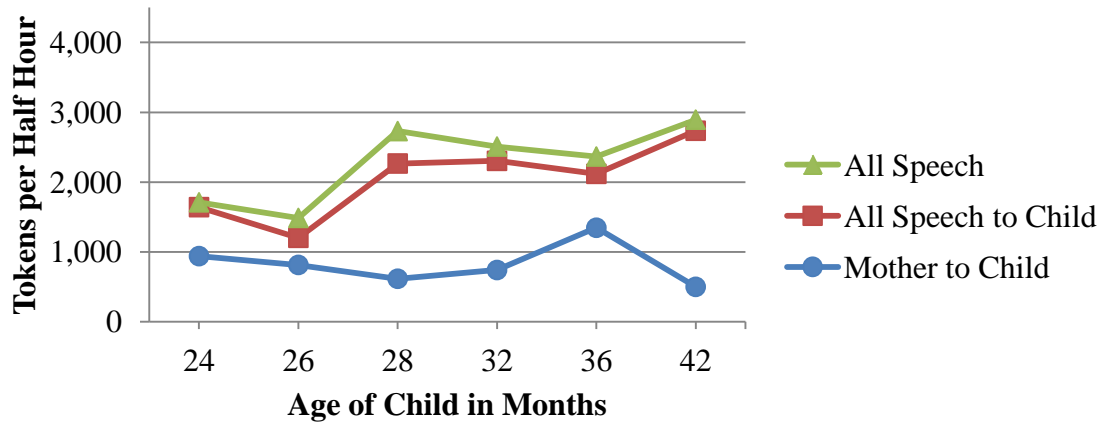
**Figure A1.2 Wendy**



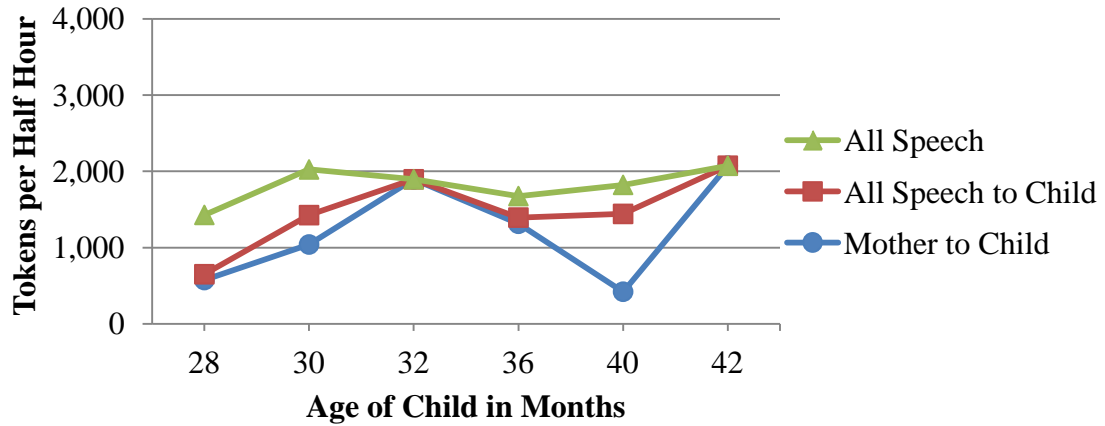
**Figure A1.3 Beth**



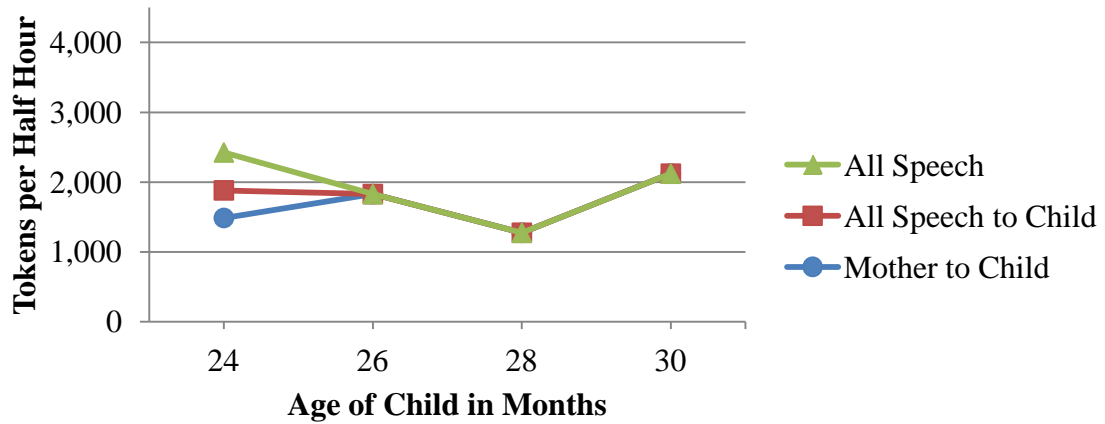
**Figure A2. The Black Belt of Alabama**



**Figure A2.1 Alicia**

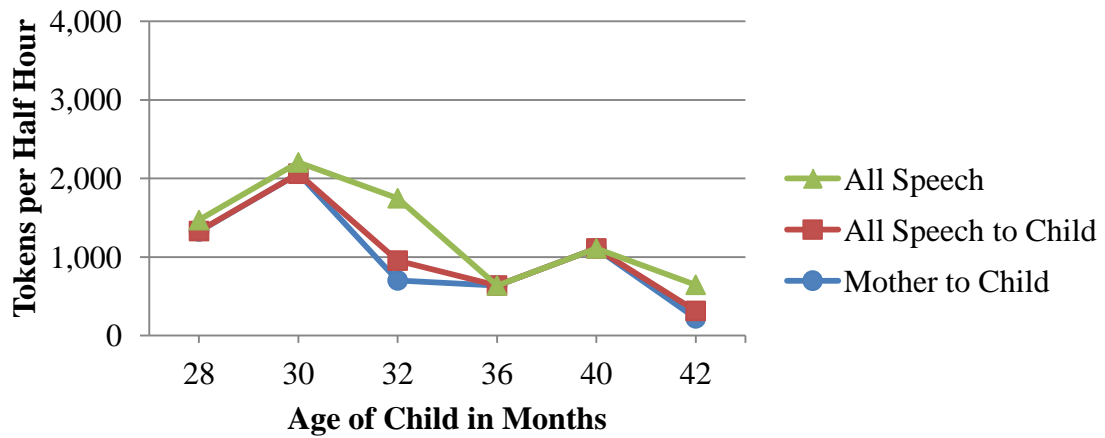


**Figure A2.2 Daphne**

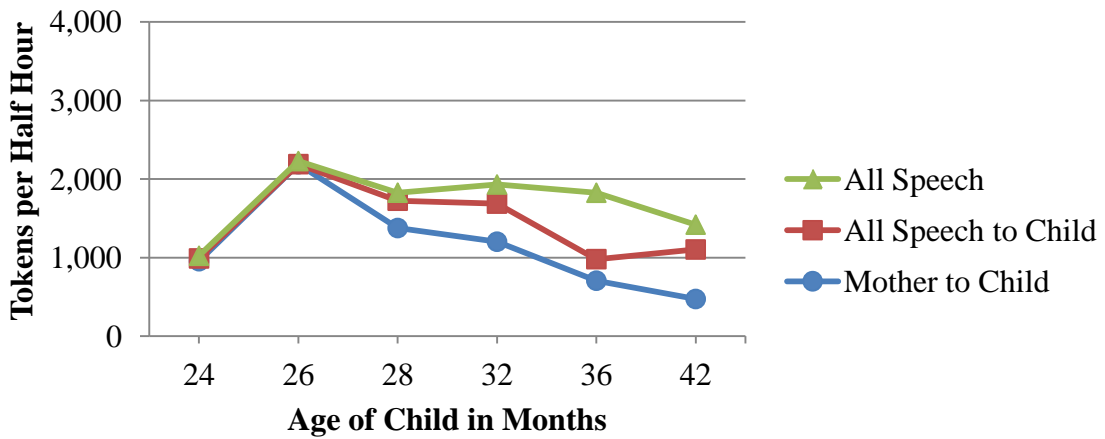


**Figure A2.3 Keisha**

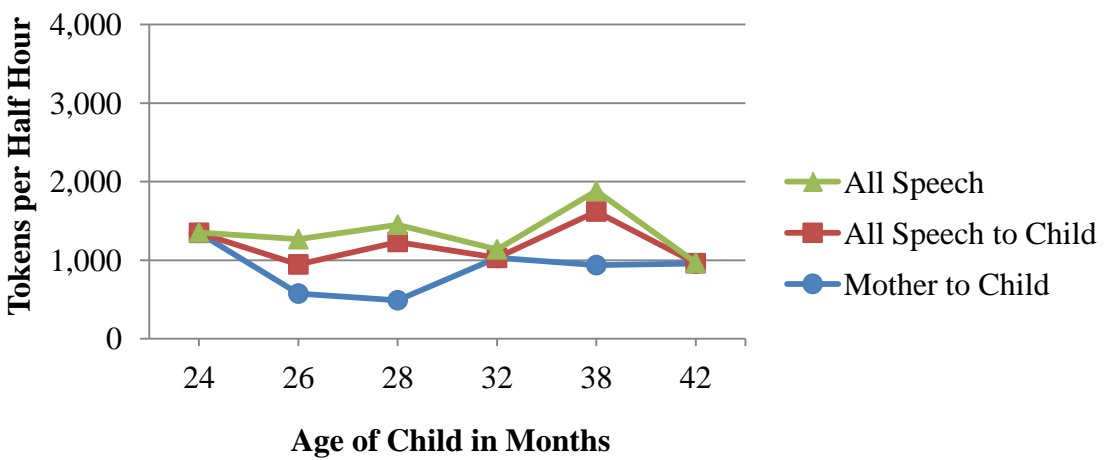
**Figure A2 (cont.)**



**Figure A2.4 Kendrick**

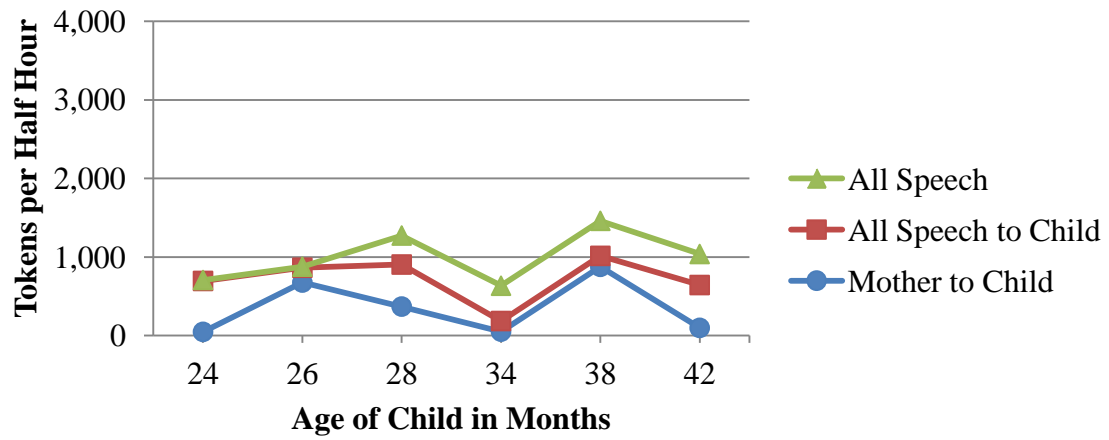


**Figure A2.5 Lamont**

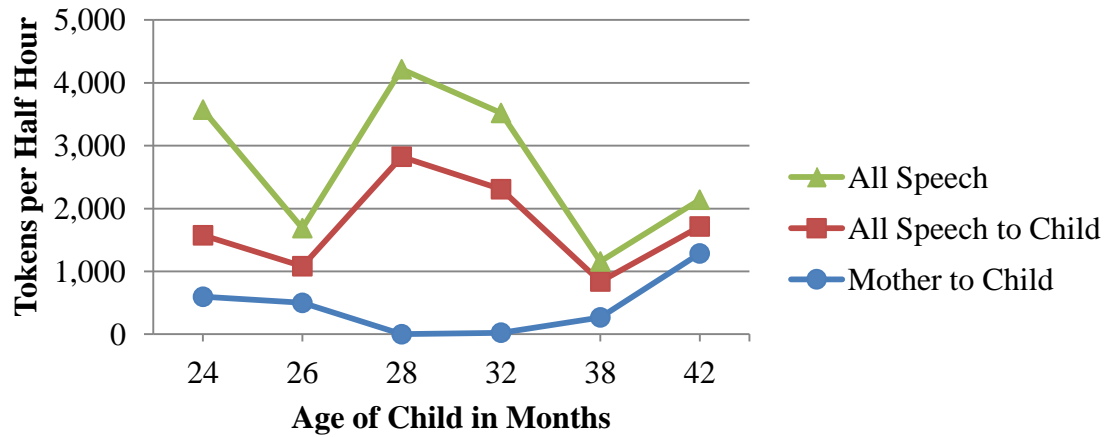


**Figure A2.6 Markus**

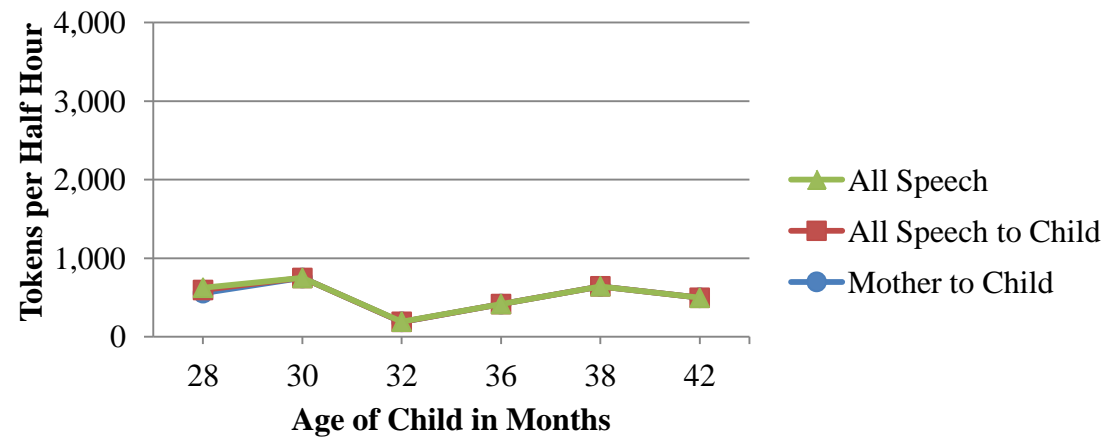
**Figure A2 (cont.)**



**Figure A2.7 Roland**

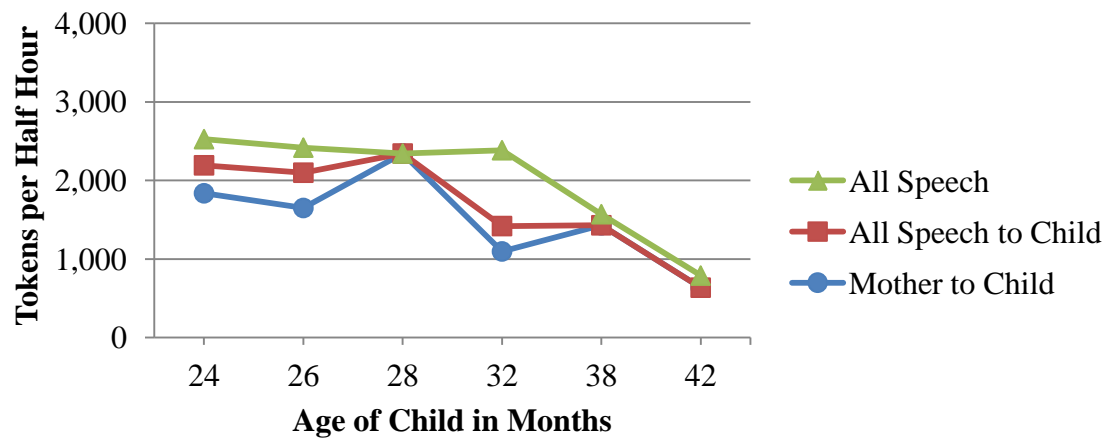


**Figure A2.8 Sebrina**

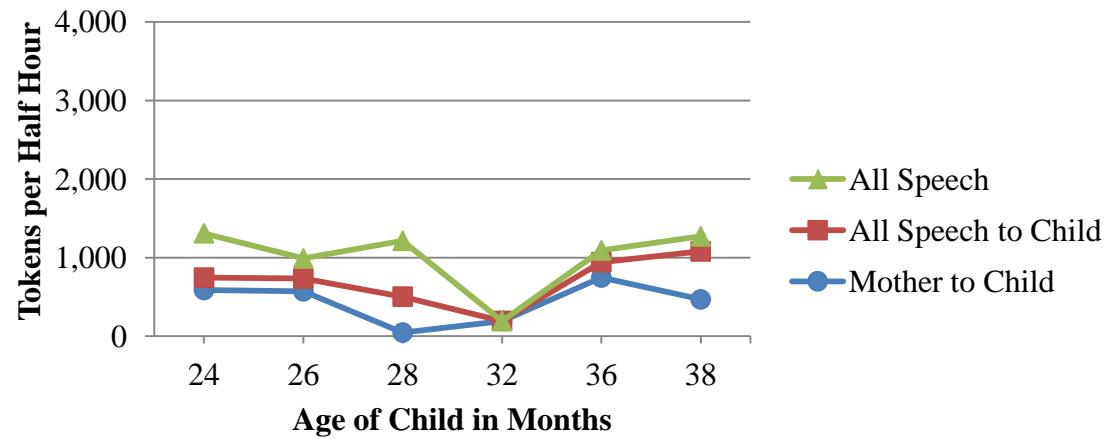


**Figure A2.9 Shamekia**

**Figure A2 (cont.)**

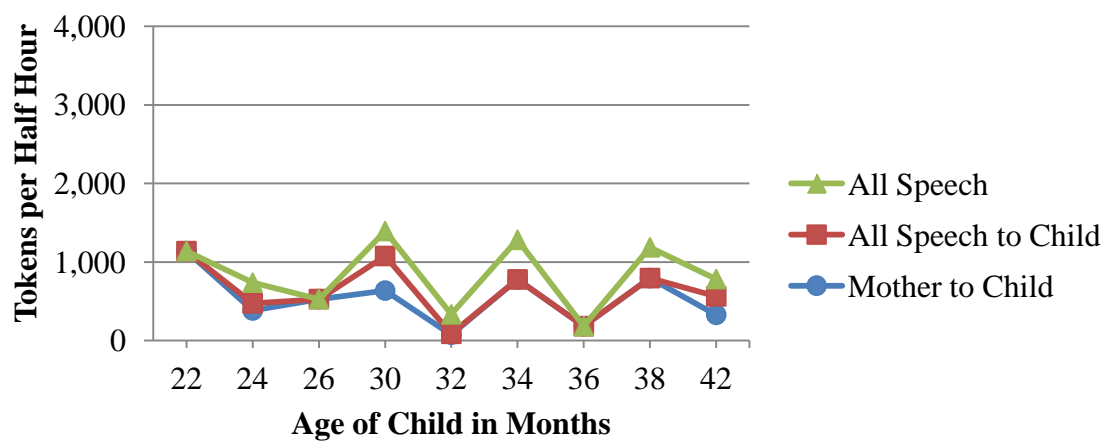


**Figure A2.10 Stillman**

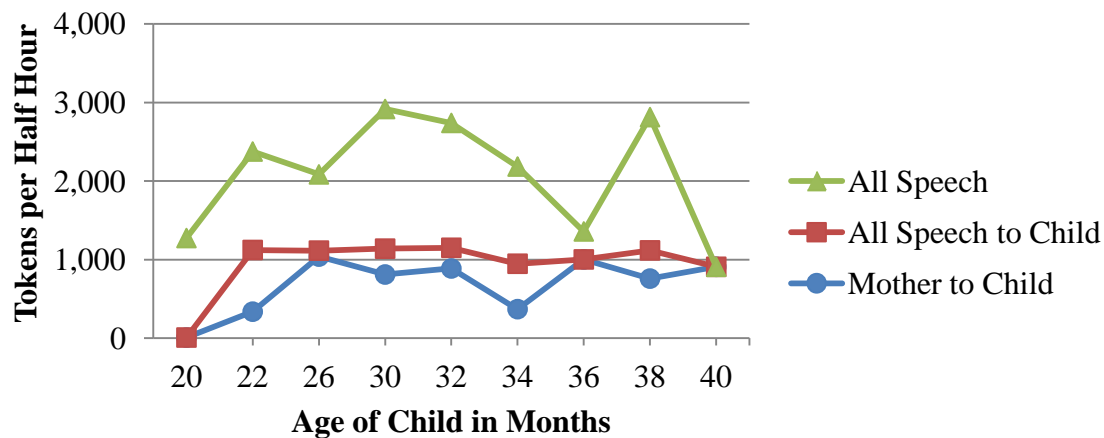


**Figure A2.11 Tahleah**

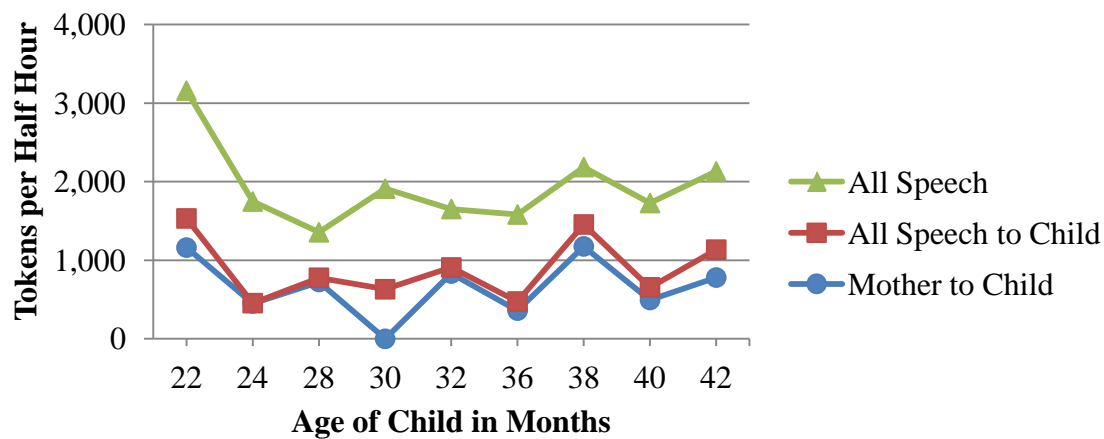
**Figure A3. Jefferson, Indiana**



**Figure A3.1 Brian**

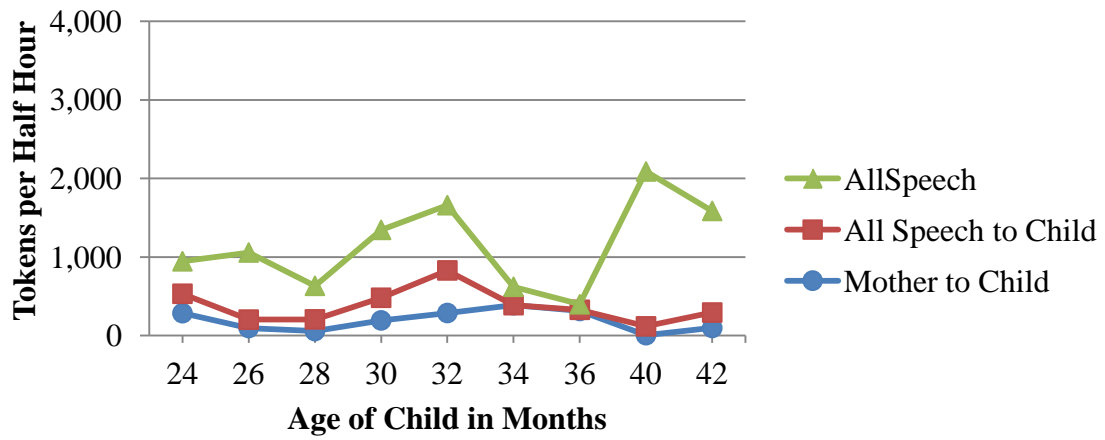


**Figure A3.2 Brittany**

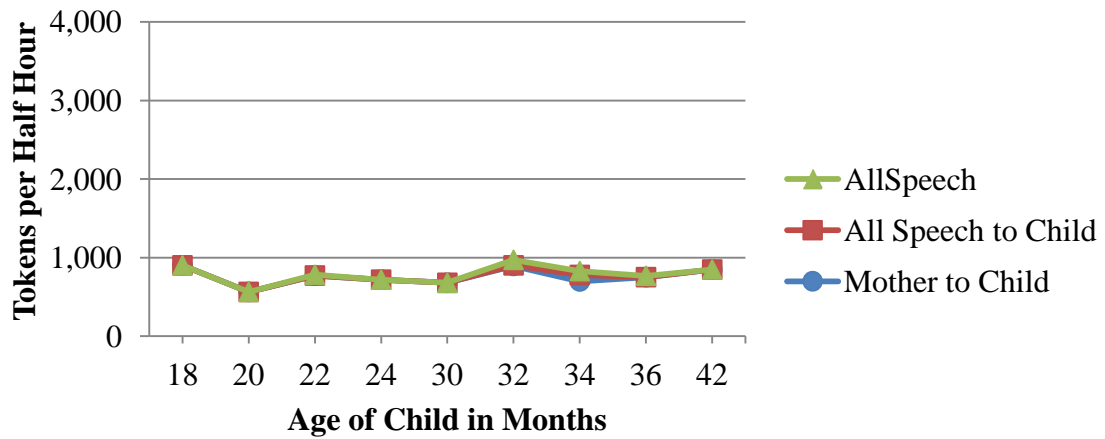


**Figure A3.3 Caitlyn**

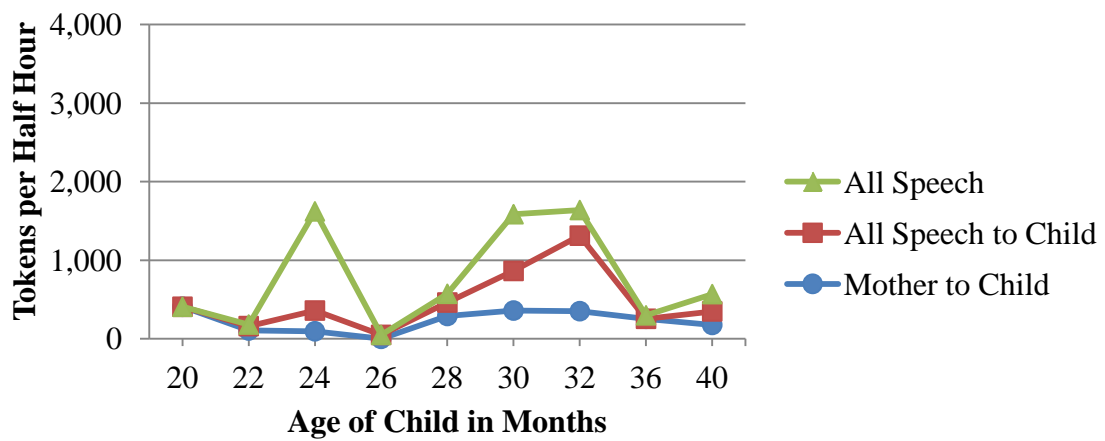
**Figure A3 (cont.)**



**Figure A3.4 Cherie**

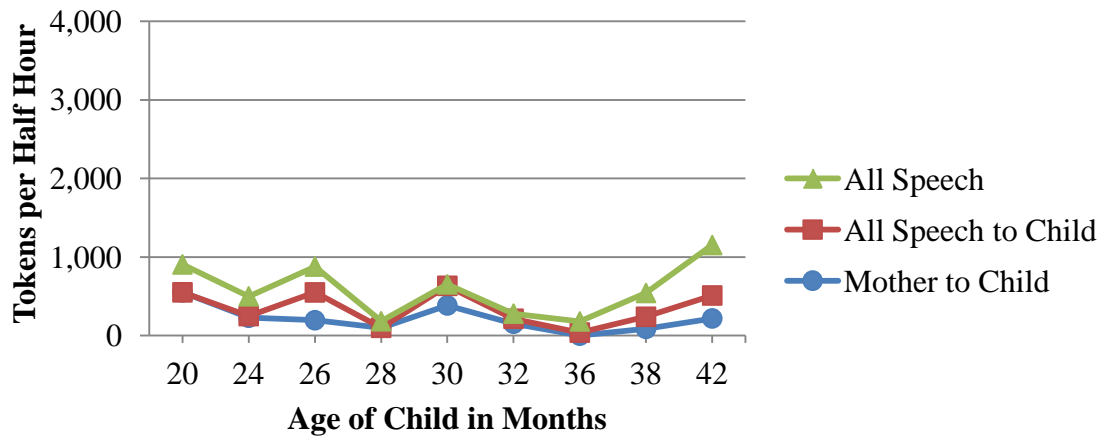


**Figure A3.5 Dalton**

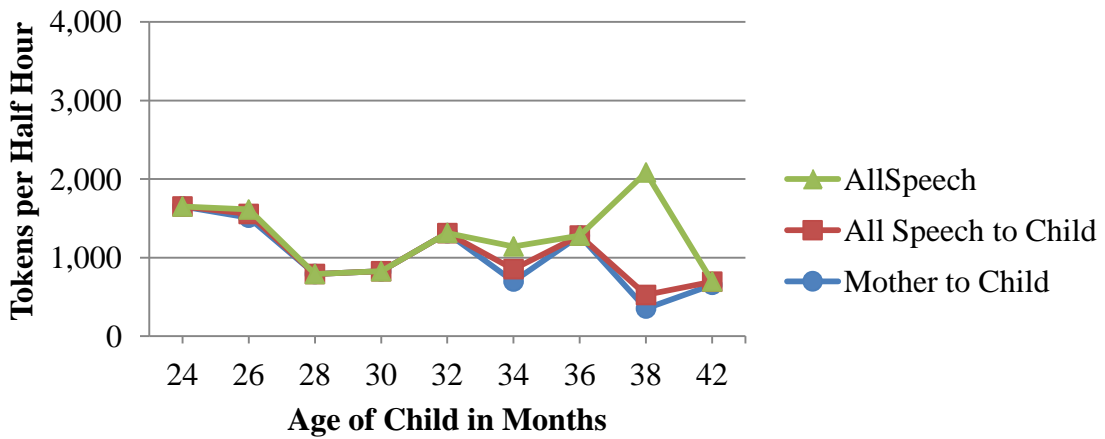


**Figure A3.6 Drew**

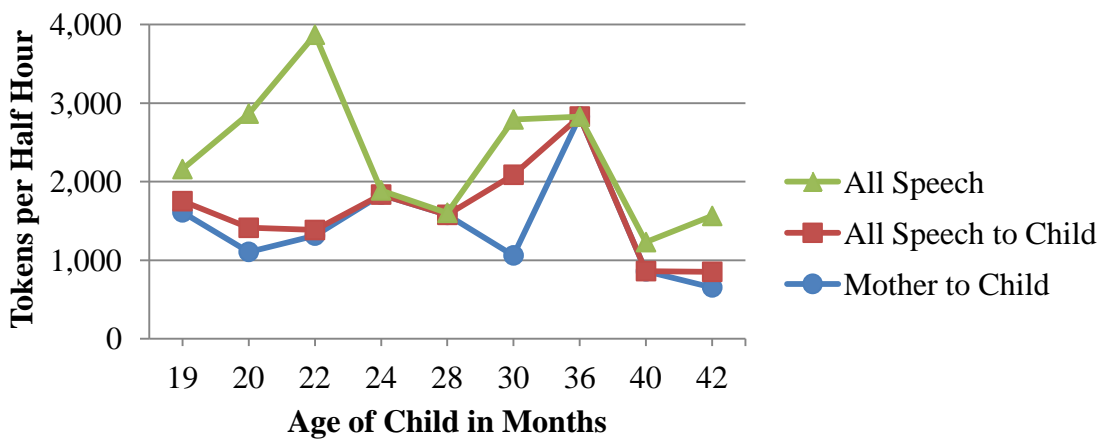
**Figure A3 (cont.)**



**Figure A3.7 Evan**

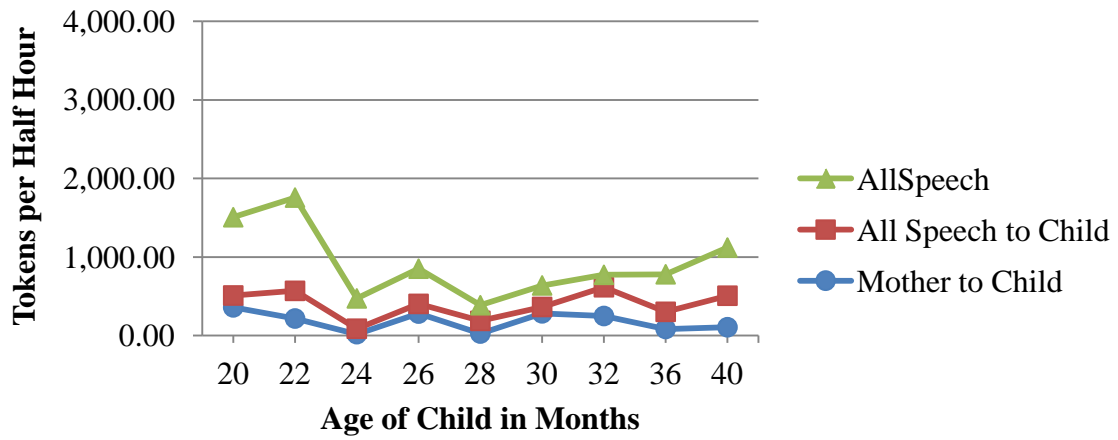


**Figure A3.8 Jason**

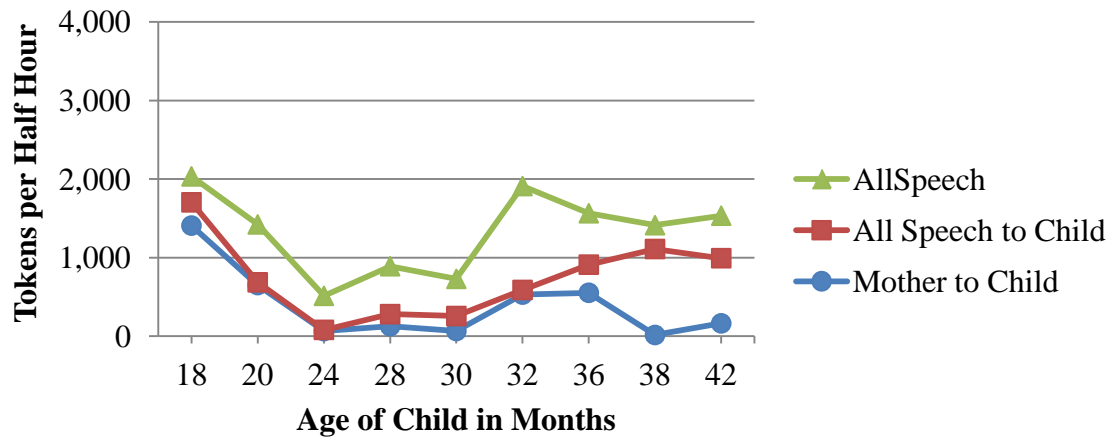


**Figure A3.9 Jaymie**

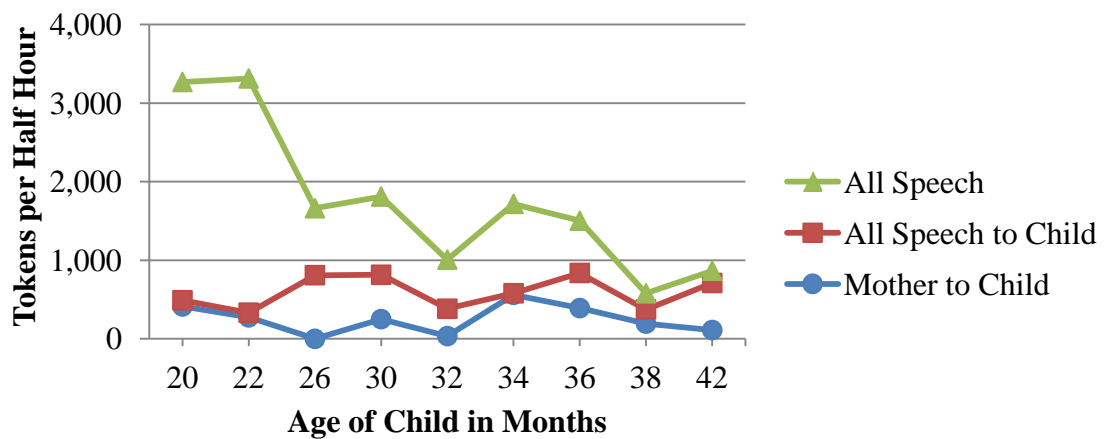
**Figure A3 (cont.)**



**Figure A3.10 Kayleigh**



**Figure A3.11 Morgan**



**Figure A3.12 Robbie**



Figure A3 (cont.)

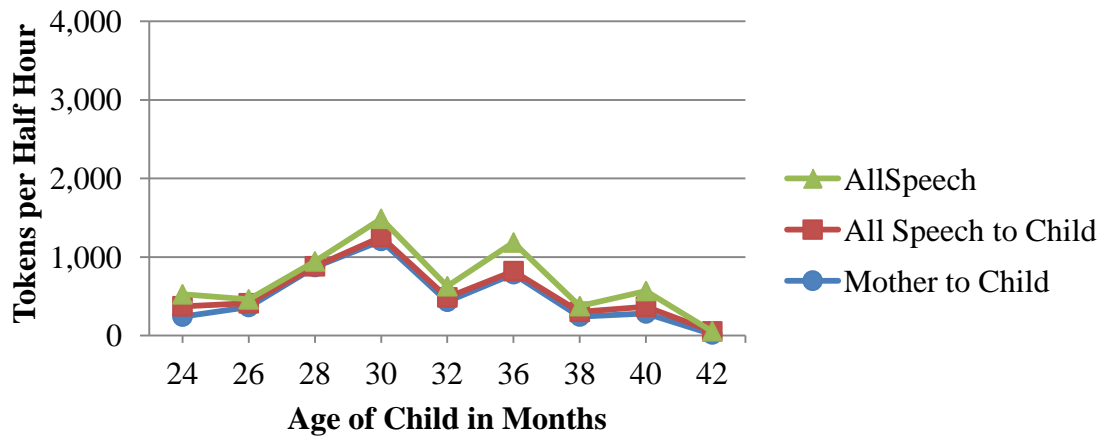


Figure A3.13 Sarah

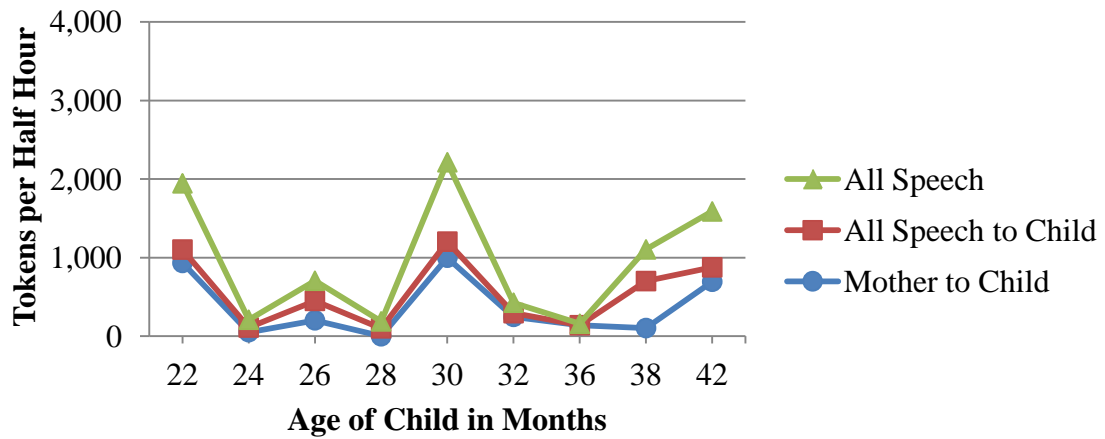


Figure A3.14 Shane

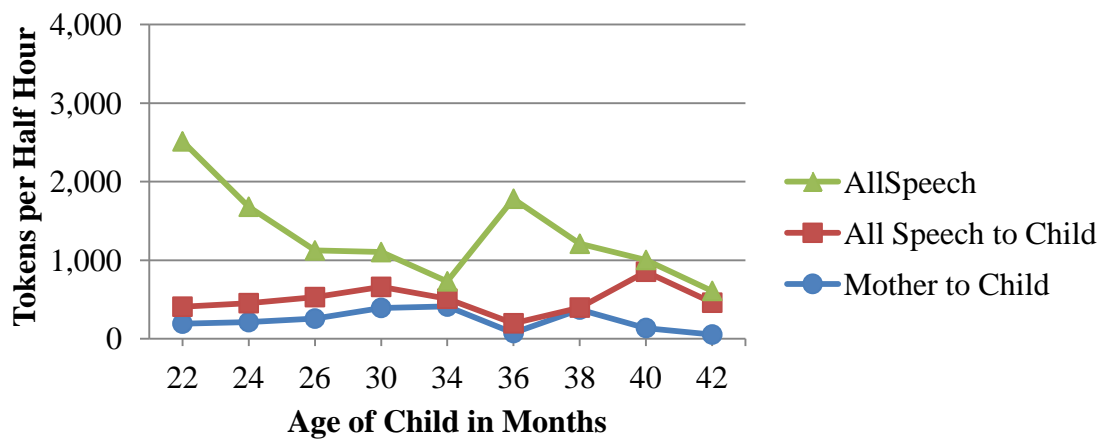
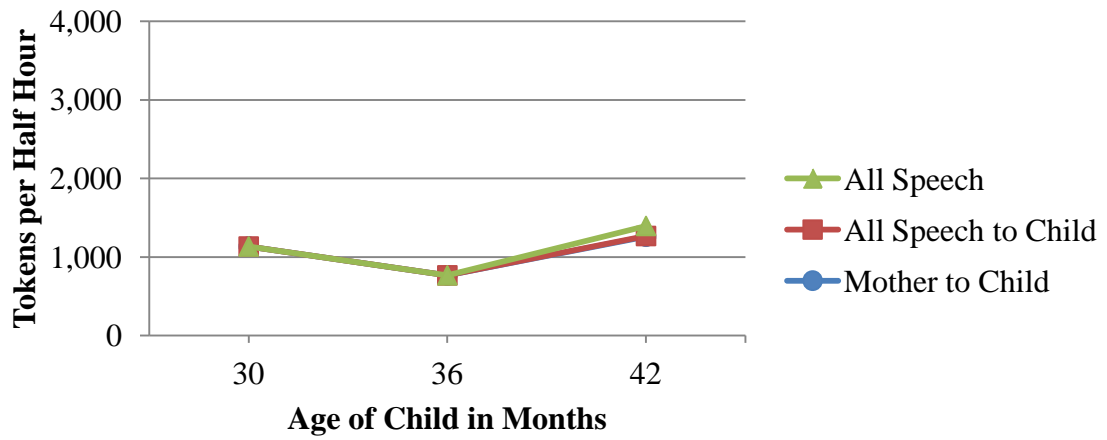
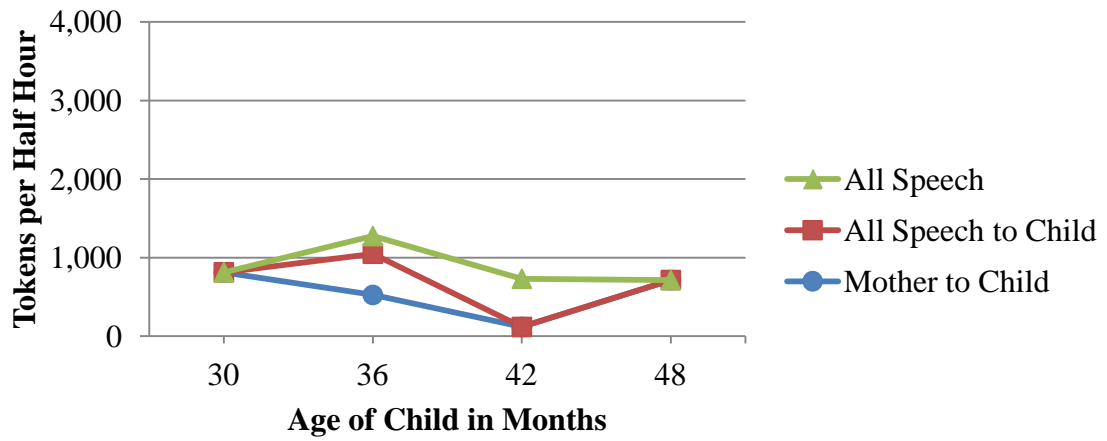


Figure A3.15 Wesley

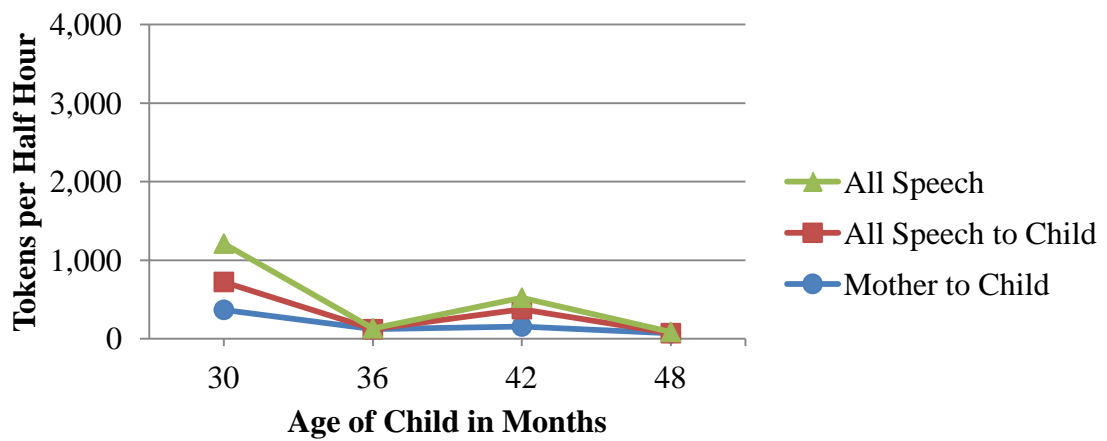
**Figure A4. Daly Park**



**Figure A4.1 Colleen**

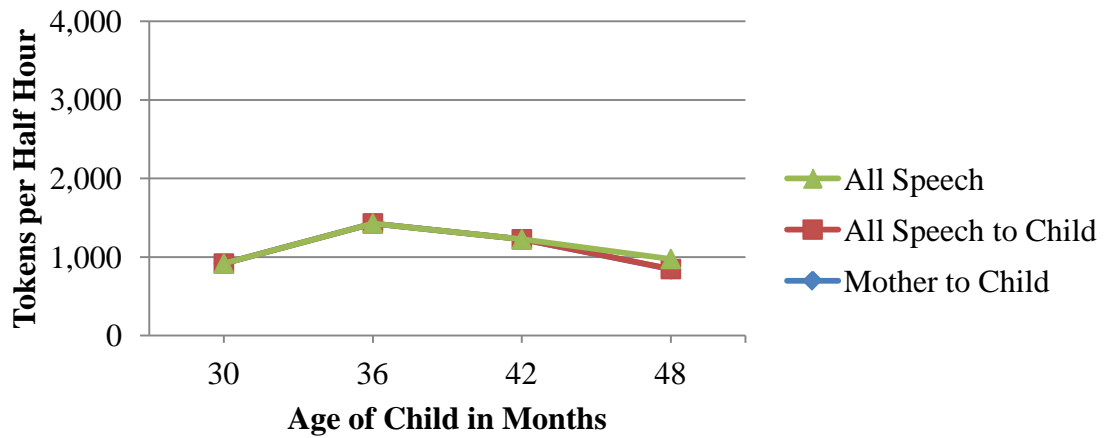


**Figure A4.2 David**

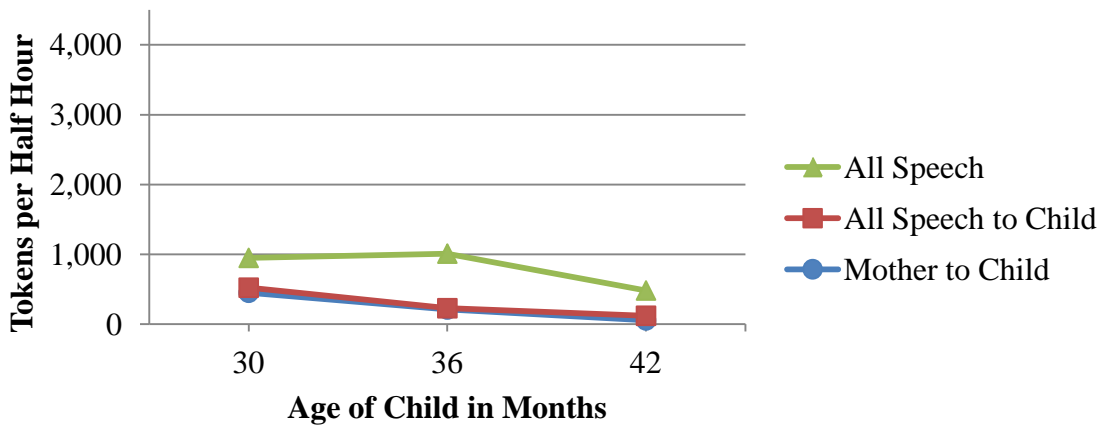


**Figure A4.3 Devon**

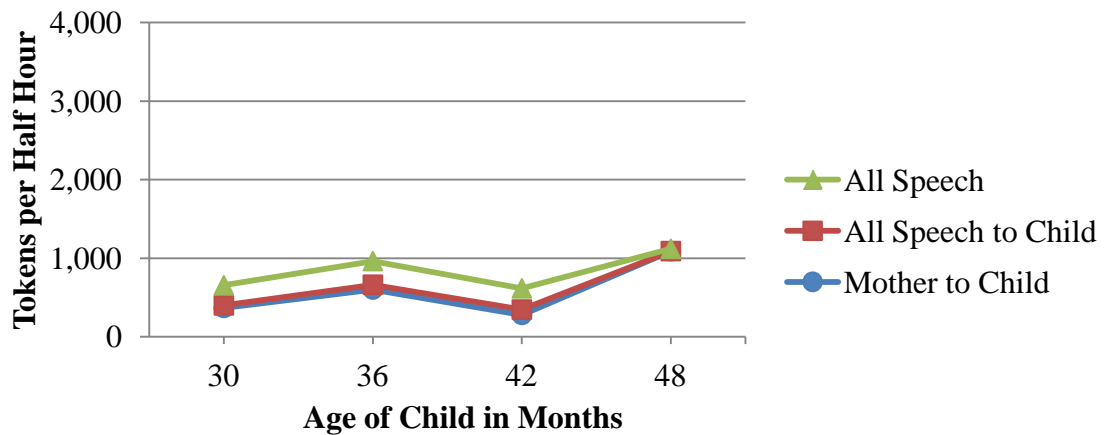
**Figure A4 (cont.)**



**Figure A4.4 Helen**

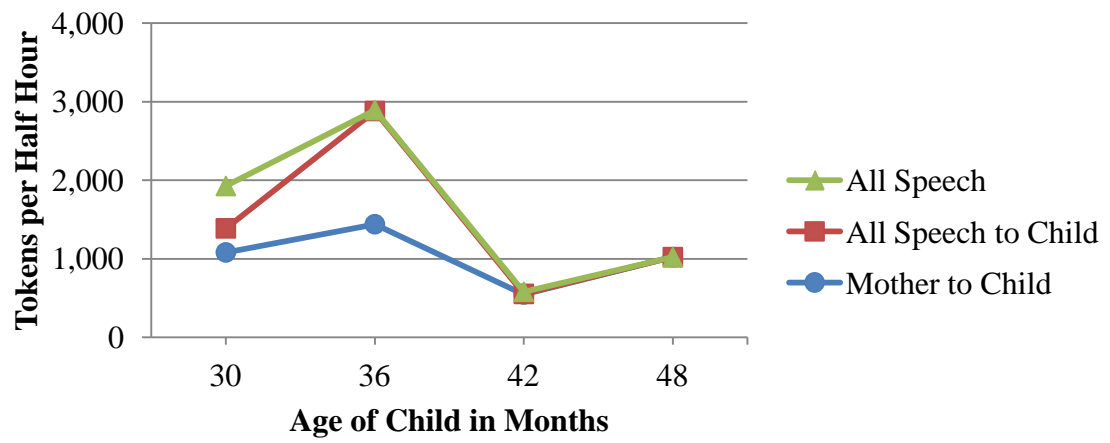


**Figure A4.5 Mary**



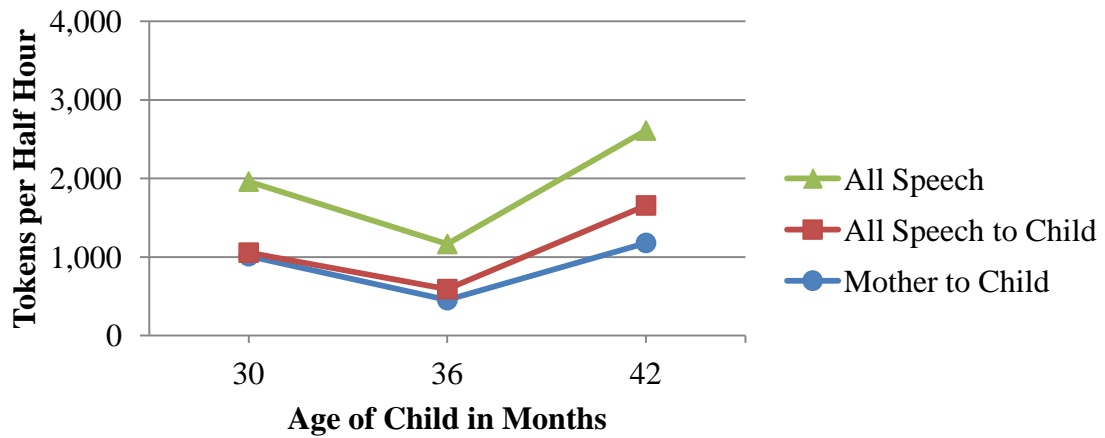
**Figure A4.6 Michael**

**Figure A4 (cont.)**

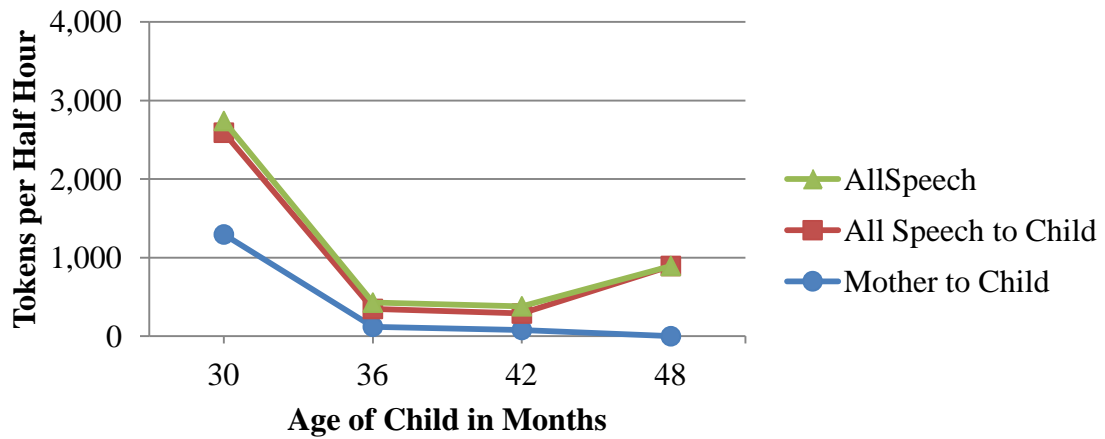


**Figure A4.7 William**

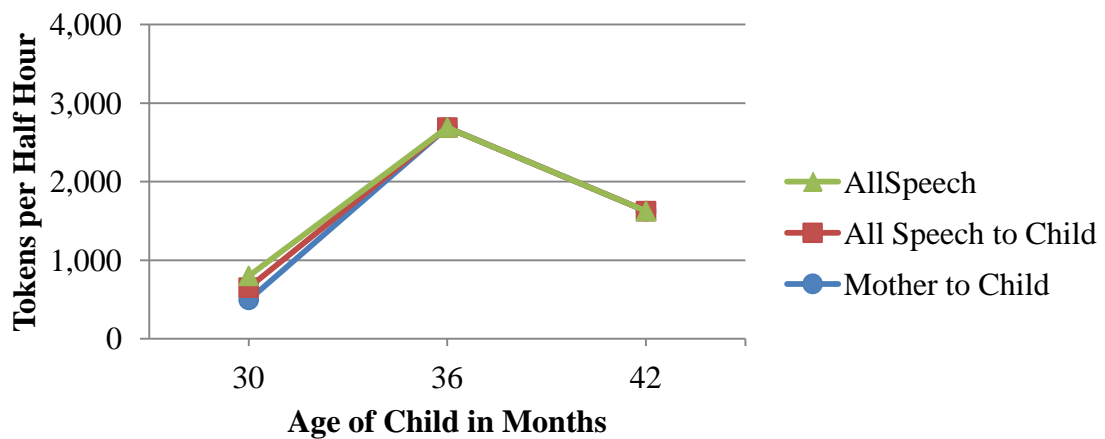
**Figure A5. Longwood**



**Figure A5.1 Amy**

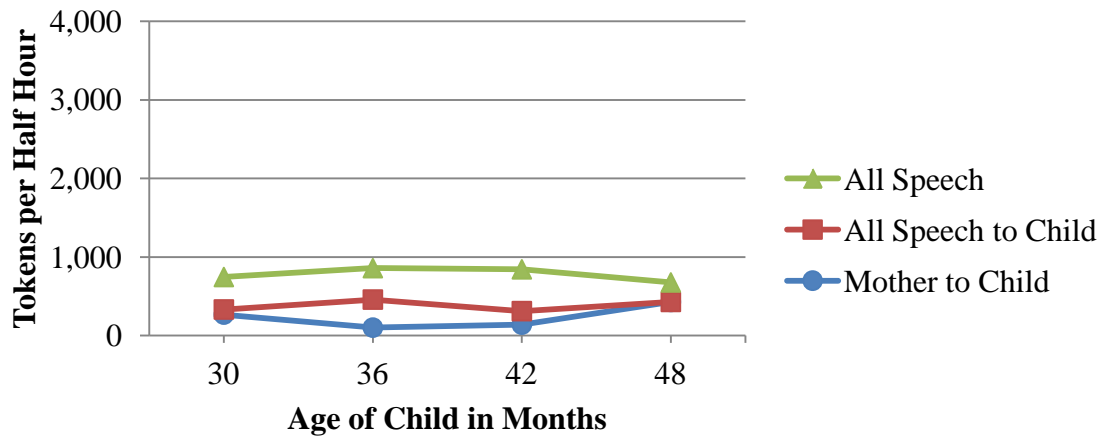


**Figure A5.2 Karen**

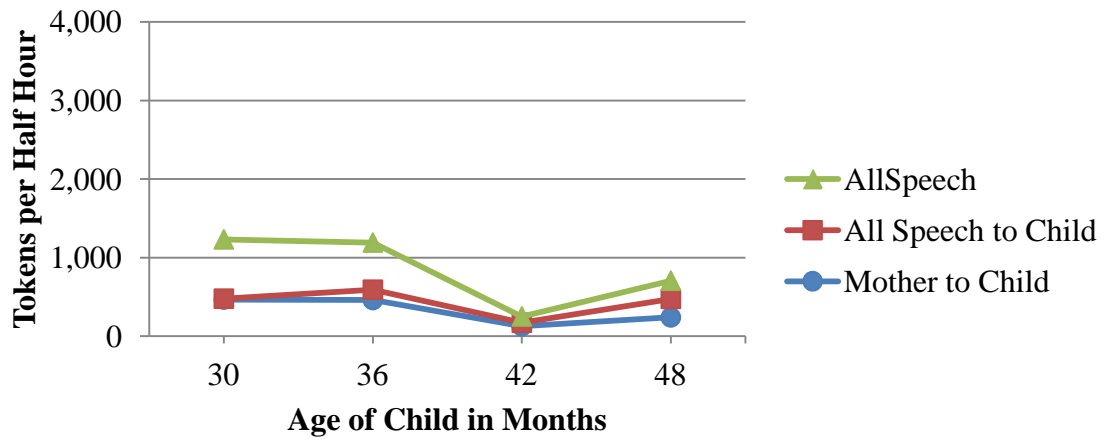


**Figure A5.3 Megan**

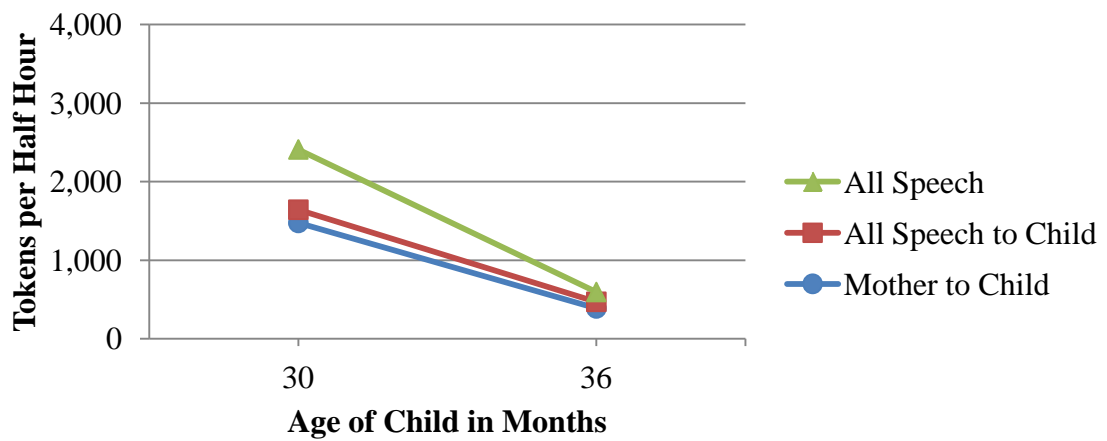
**Figure A5 (cont.)**



**Figure A5.4 Patrick**



**Figure A5.5 Steve**

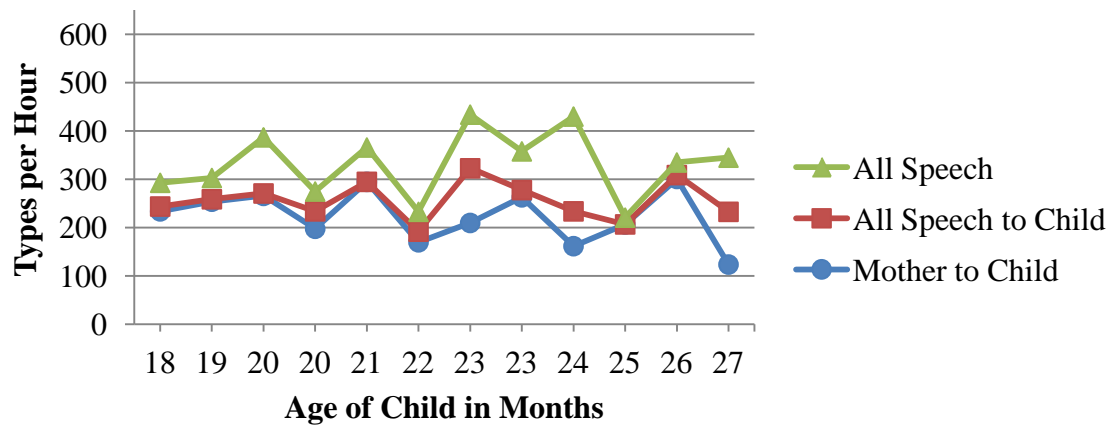


**Figure A5.6 Tommy**

APPENDIX B  
MEAN NUMBERS OF WORD TYPES  
ACROSS FIVE COMMUNITIES

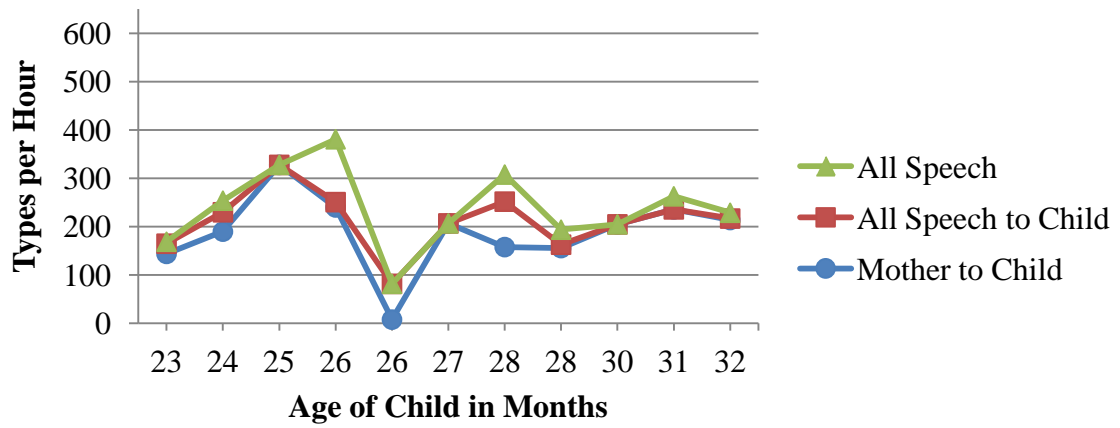
In this appendix, the mean numbers of types spoken per hour or half hour, across three conditions, are presented by individual child participants in each community. The first condition is the number of types spoken by the mother (usually) or the primary caregiver to the child. The second condition is the number of types spoken by all interlocutors to the child. The third condition is the number of types spoken by all interlocutors to and around the child.

**Figure B1. South Baltimore**

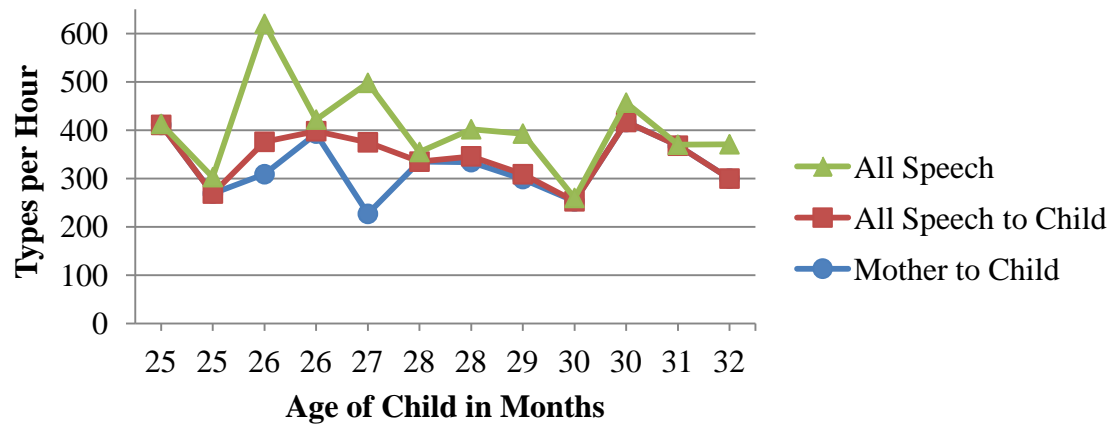


**Figure B1.1 Amy**

**Figure B1 (cont.)**



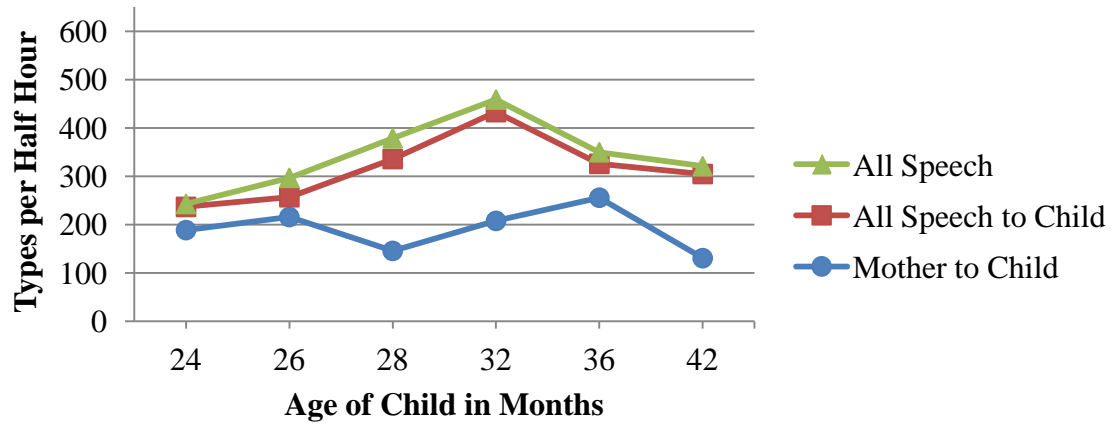
**Figure B1.2 Wendy**



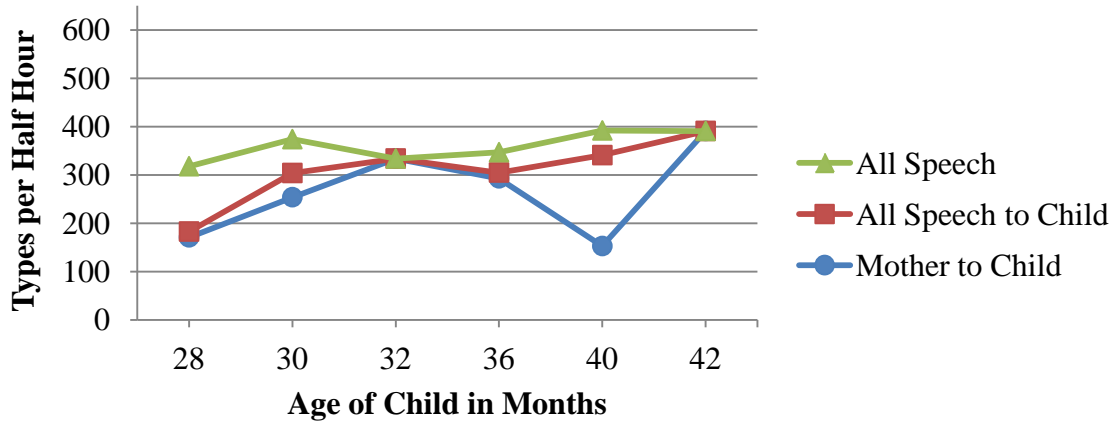
**Figure B1.3 Beth**



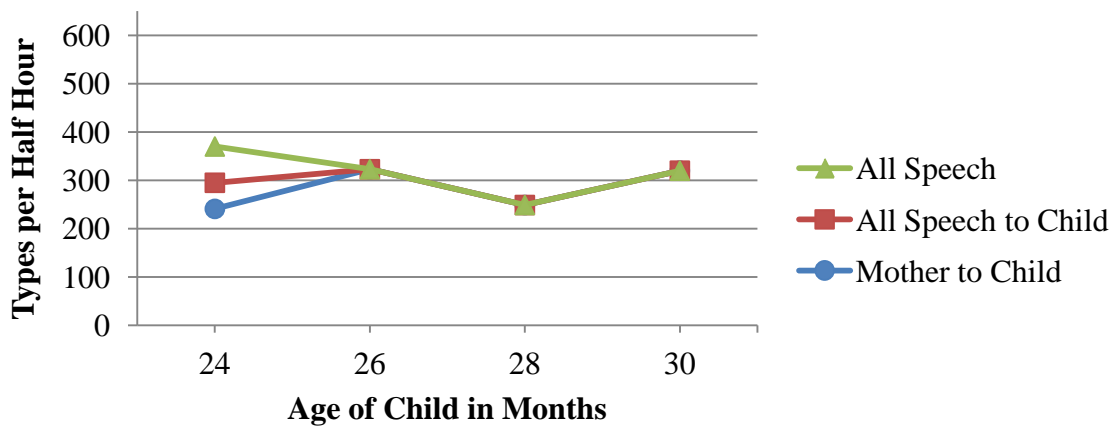
**Figure B2. The Black Belt of Alabama**



**Figure B2.1 Alicia**

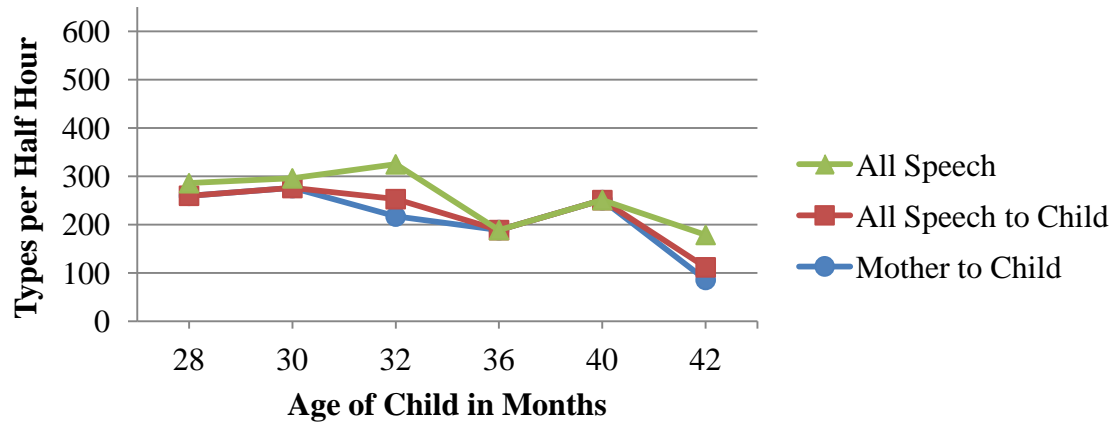


**Figure B2.2 Daphne**

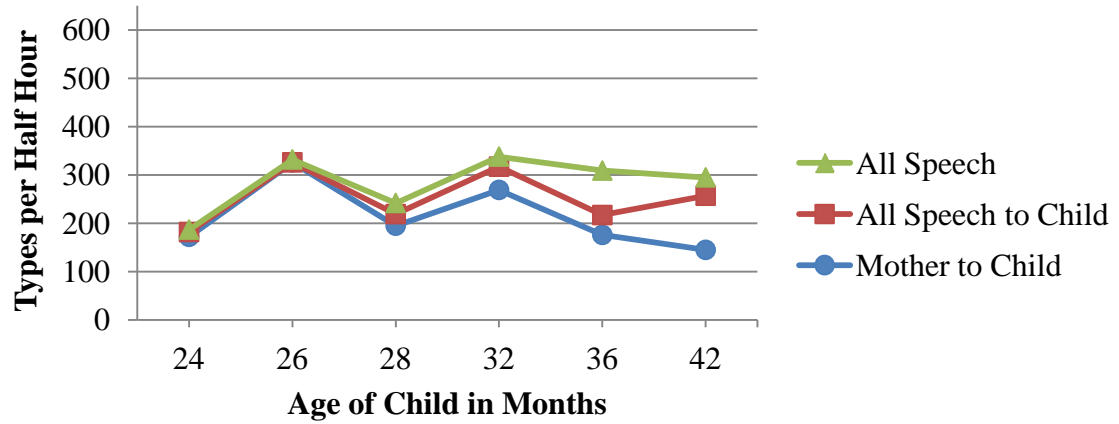


**Figure B2.3 Keisha**

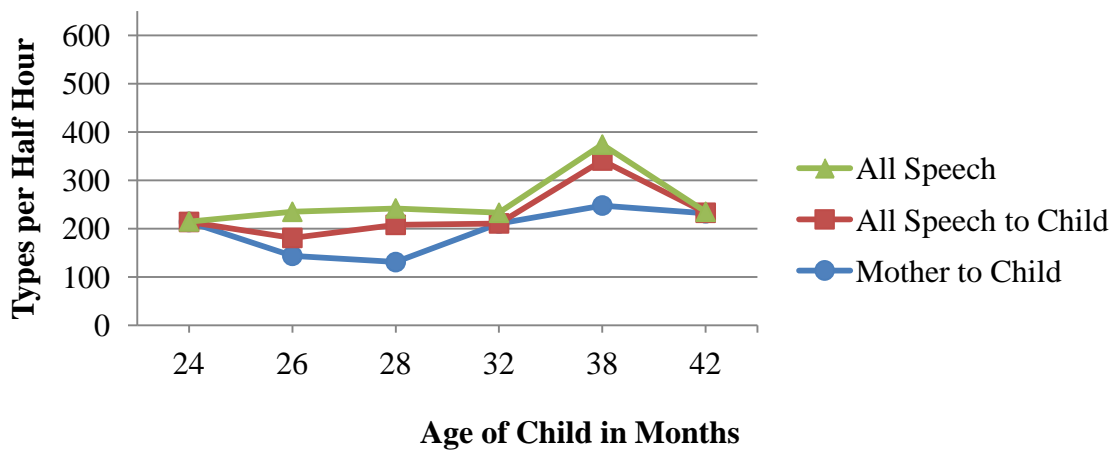
**Figure B2 (cont.)**



**Figure B2.4 Kendrick**

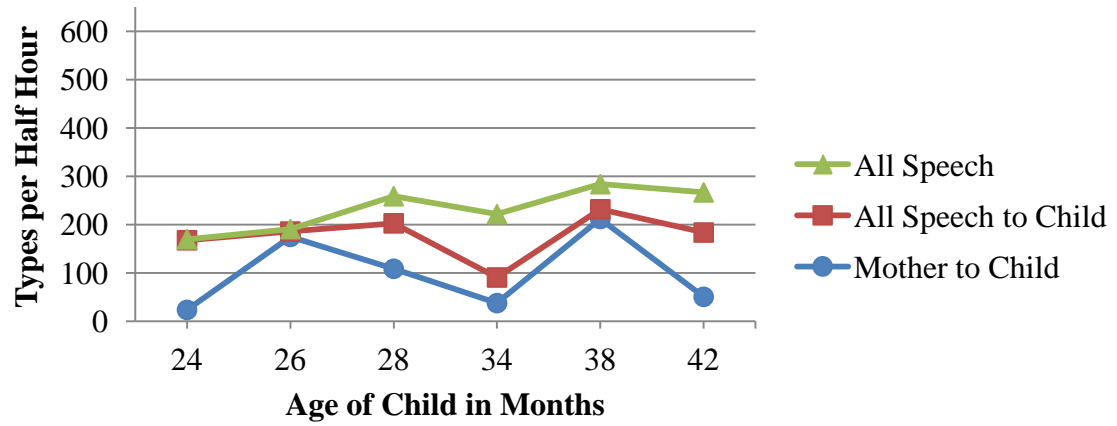


**Figure B2.5 Lamont**

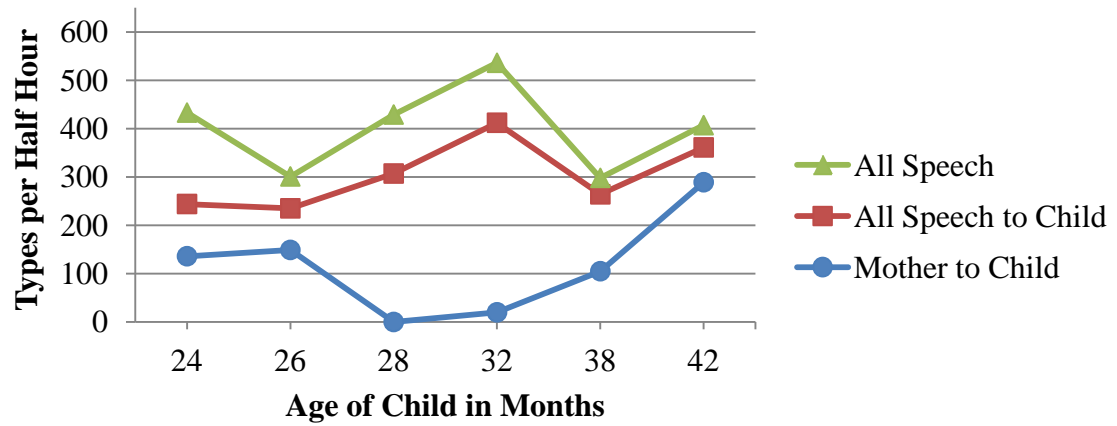


**Figure B2.6 Markus**

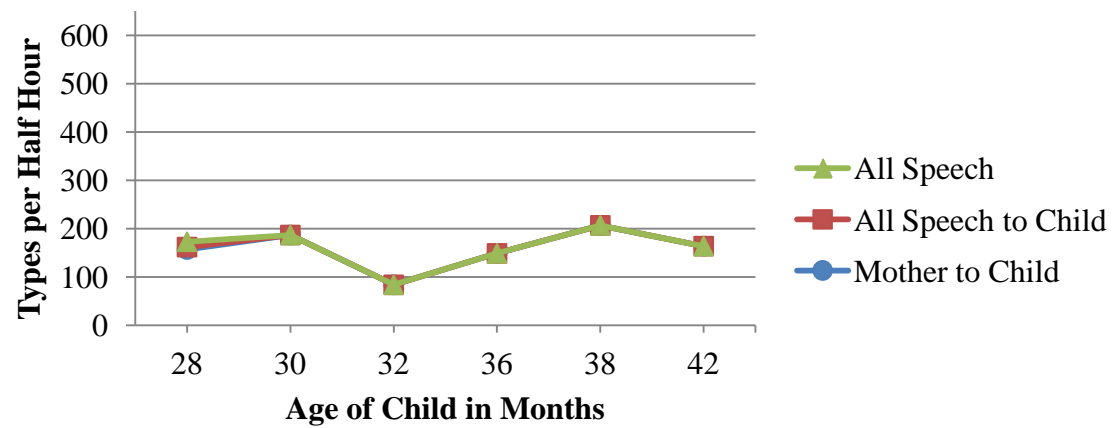
**Figure B2 (cont.)**



**Figure B2.7 Roland**

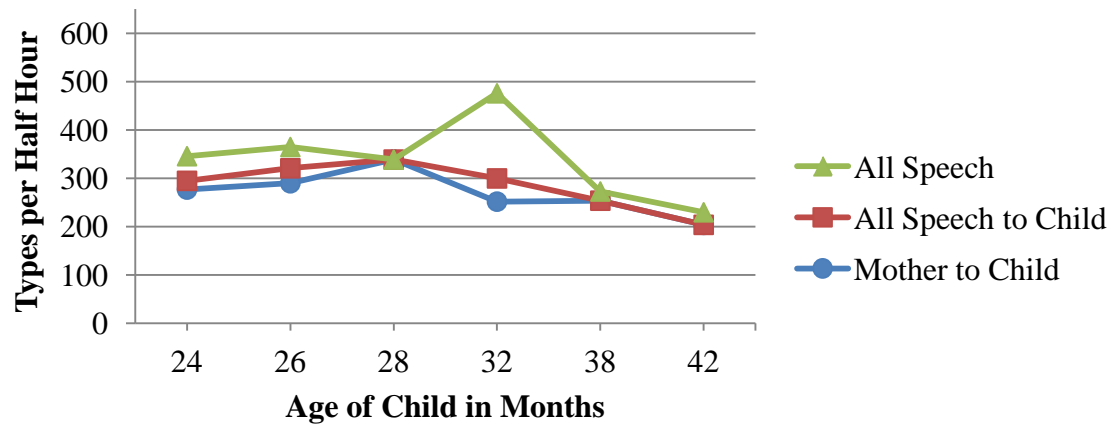


**Figure B2.8 Sebrina**

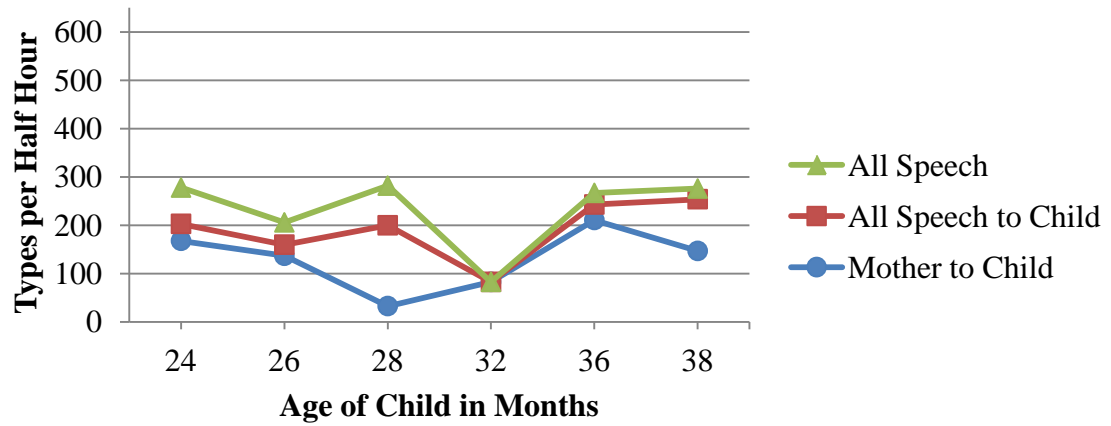


**Figure B2.9 Shamekia**

**Figure B2 (cont.)**

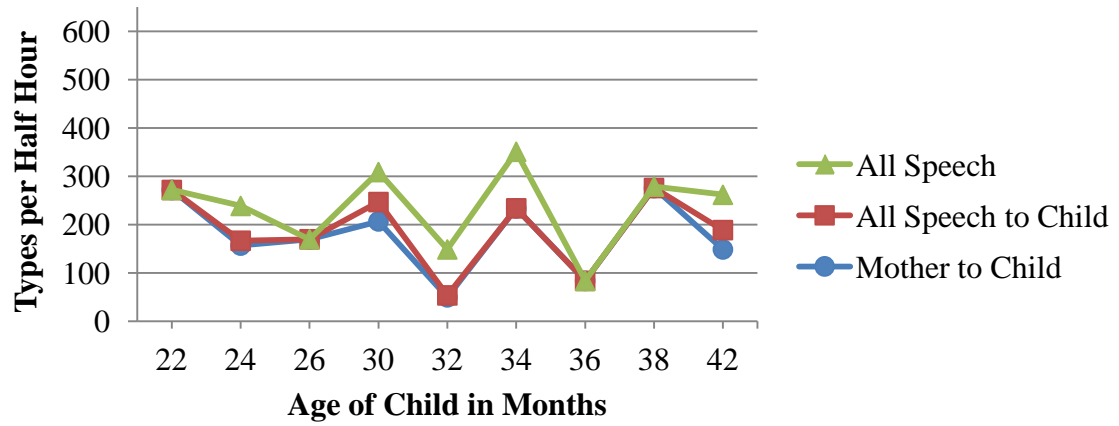


**Figure B2.10 Stillman**

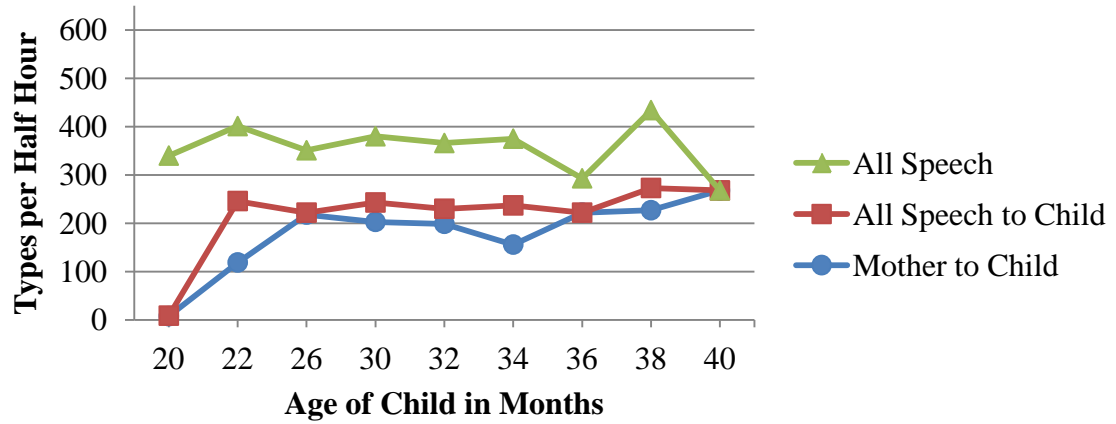


**Figure B2.11 Tahleah**

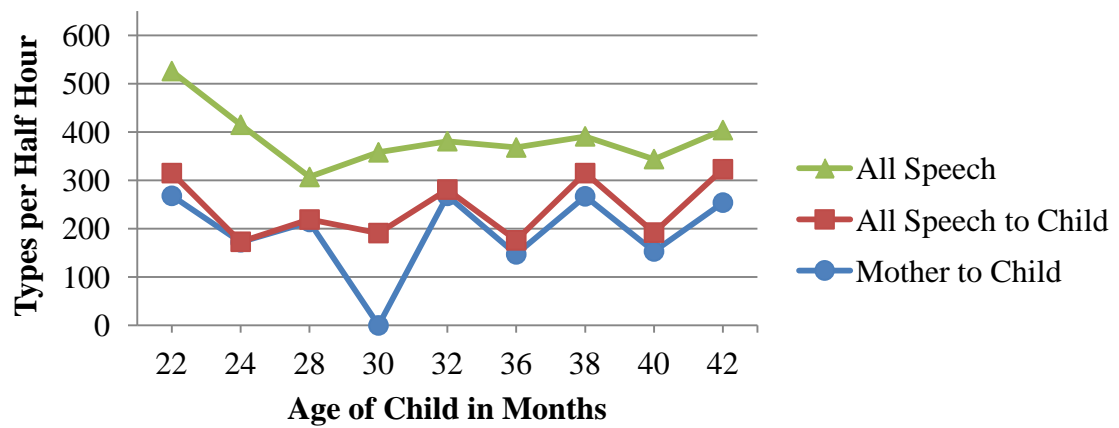
**Figure B3. Jefferson, Indiana**



**Figure B3.1 Brian**

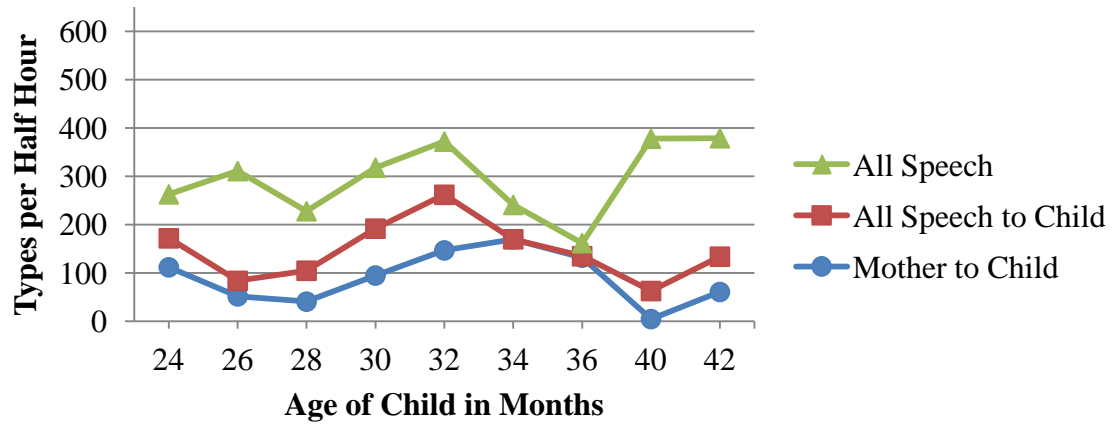


**Figure B3.2 Brittany**

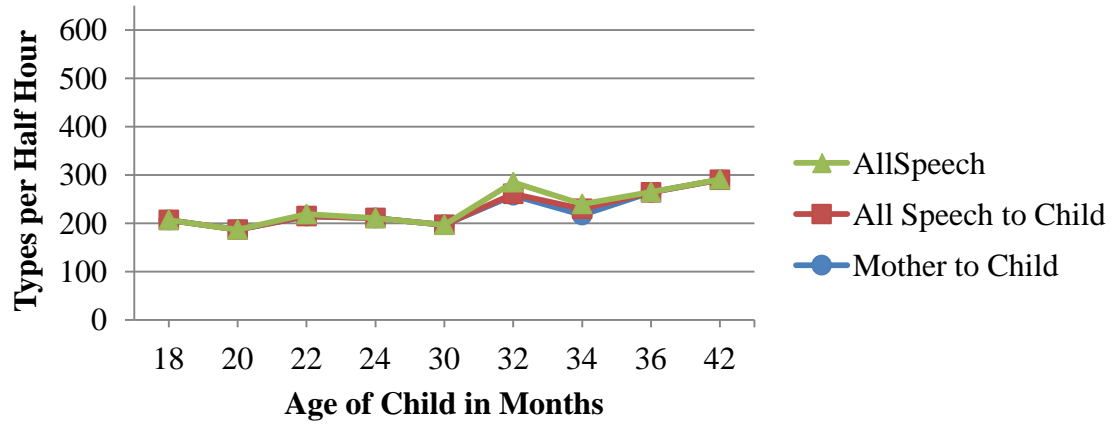


**Figure B3.3 Caitlyn**

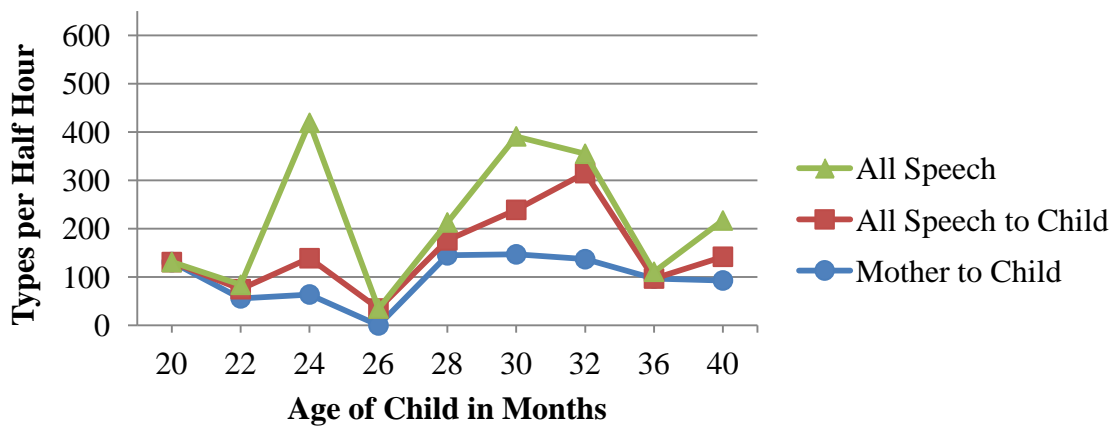
**Figure B3 (cont.)**



**Figure B3.4 Cherie**

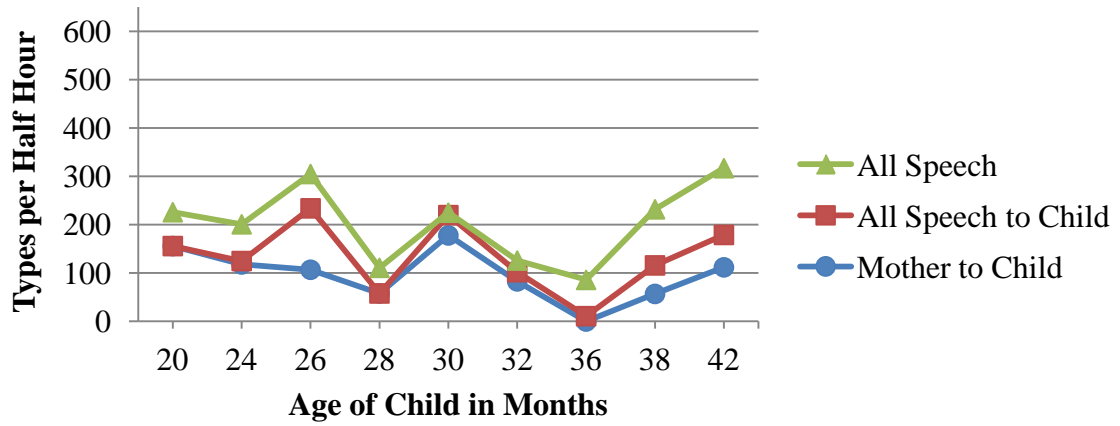


**Figure B3.5 Dalton**

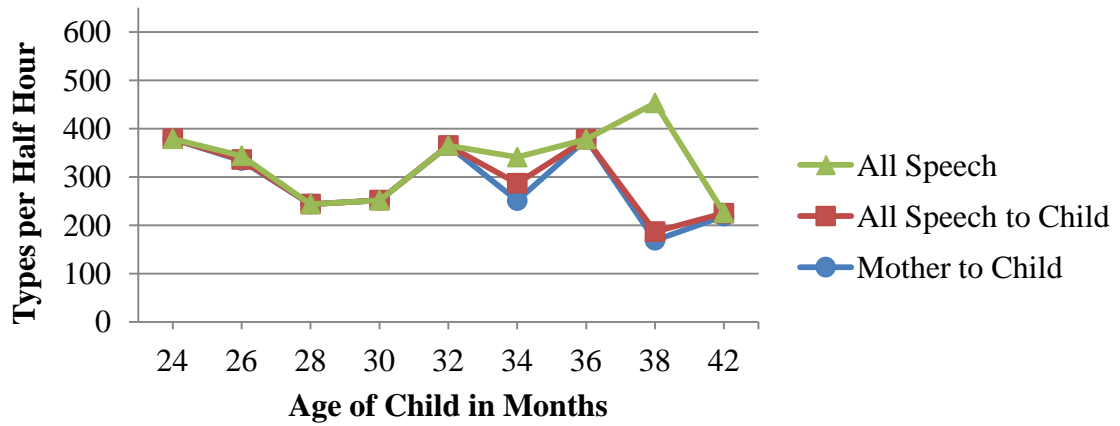


**Figure B3.6 Drew**

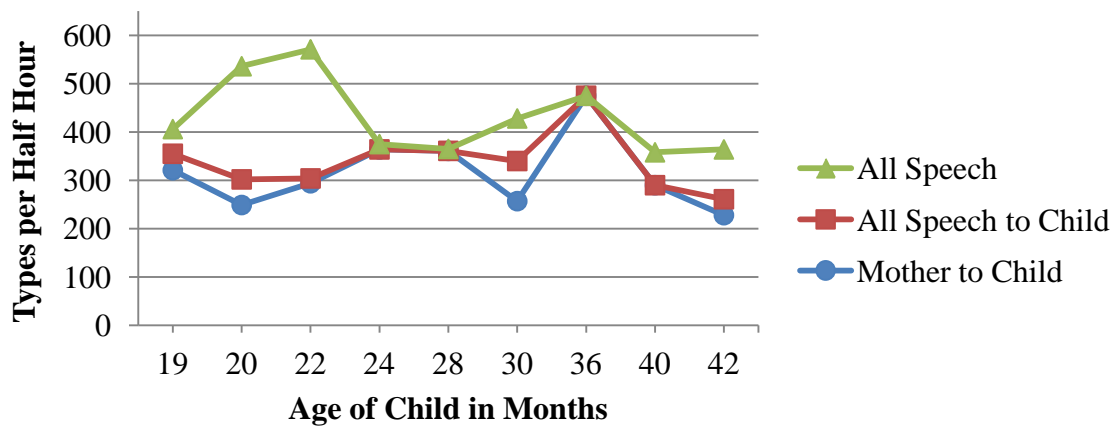
**Figure B3 (cont.)**



**Figure B3.7 Evan**

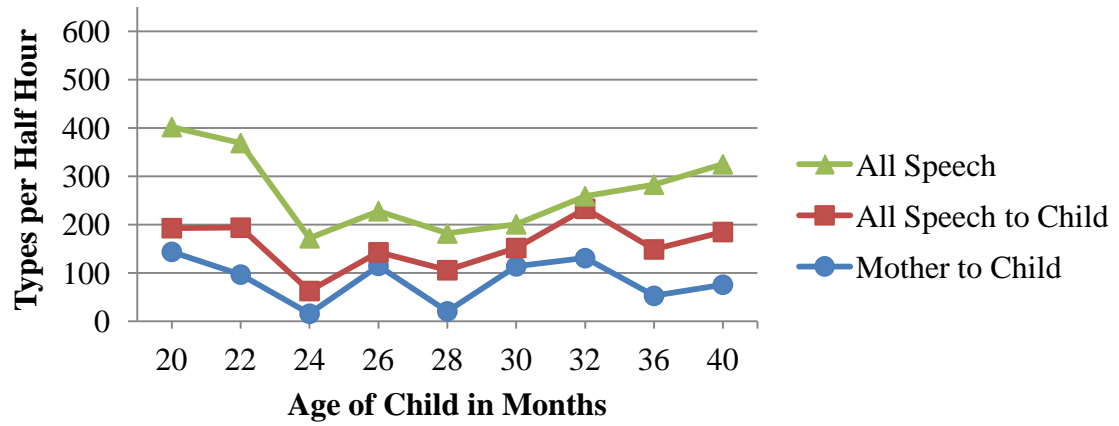


**Figure B3.8 Jason**

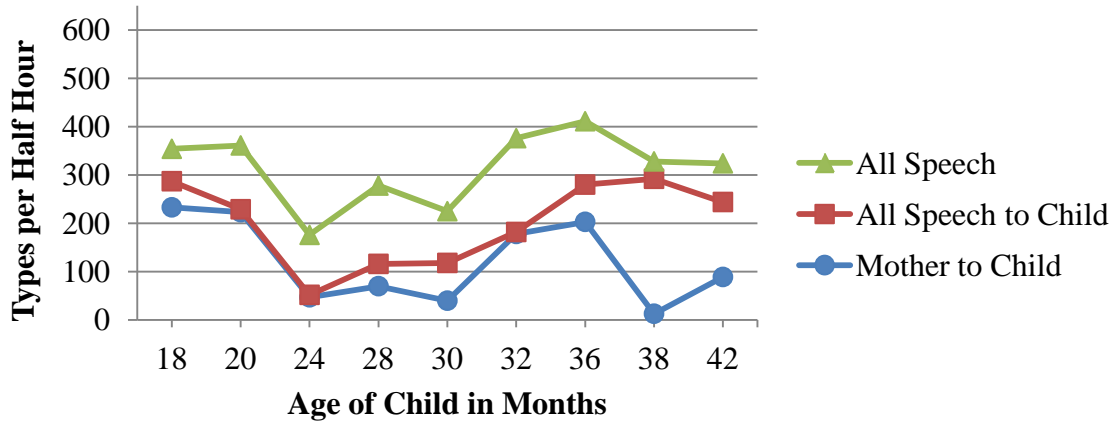


**Figure B3.9 Jaymie**

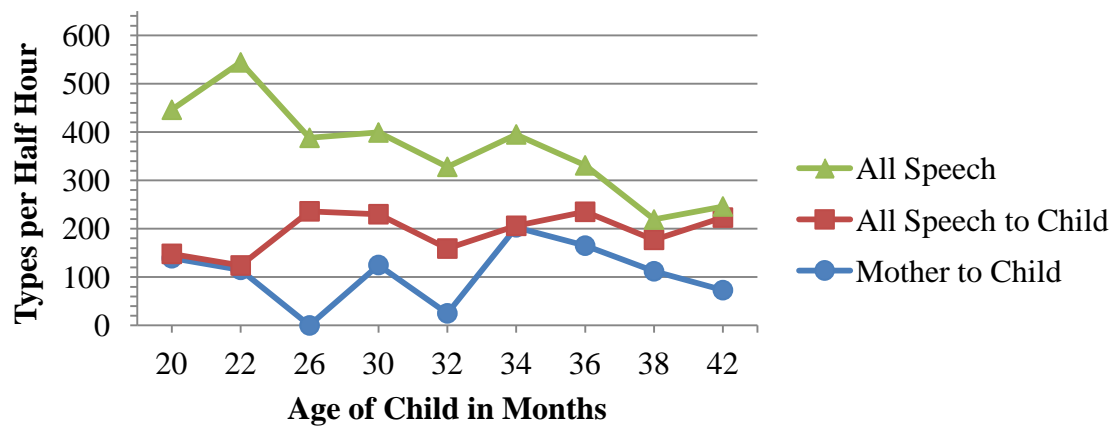
**Figure B3 (cont.)**



**Figure B3.10 Kayleigh**



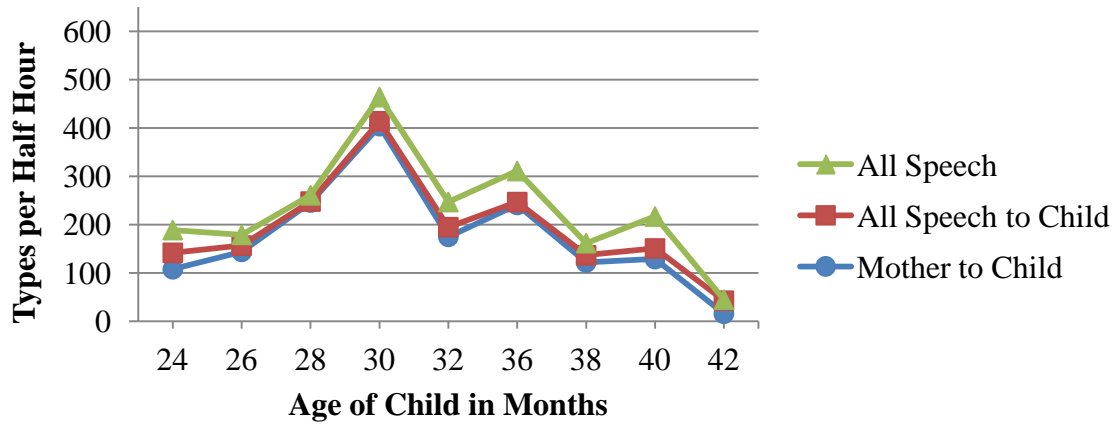
**Figure B3.11 Morgan**



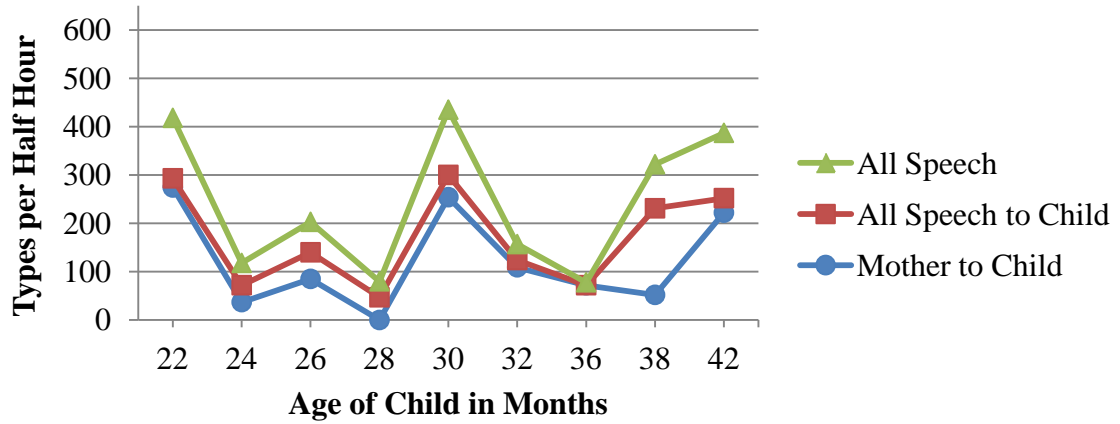
**Figure B3.12 Robbie**



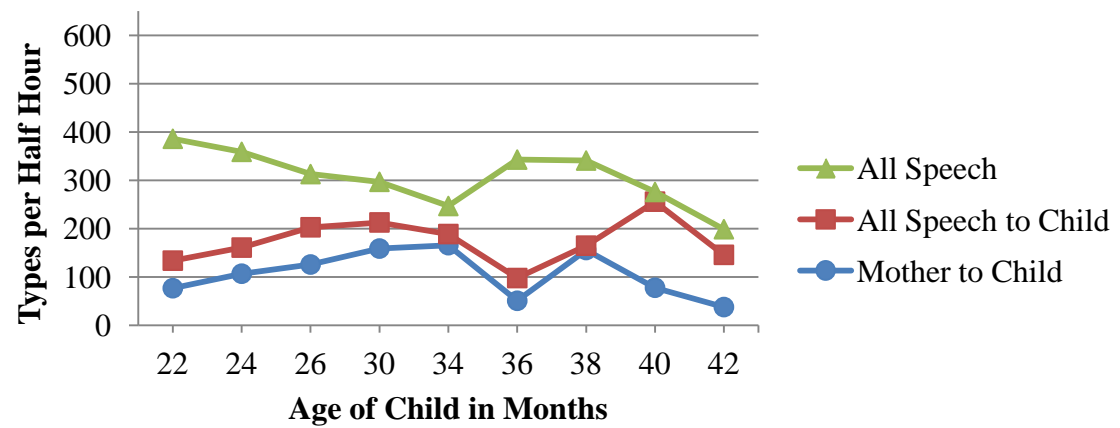
**Figure B3 (cont.)**



**Figure B3.13 Sarah**

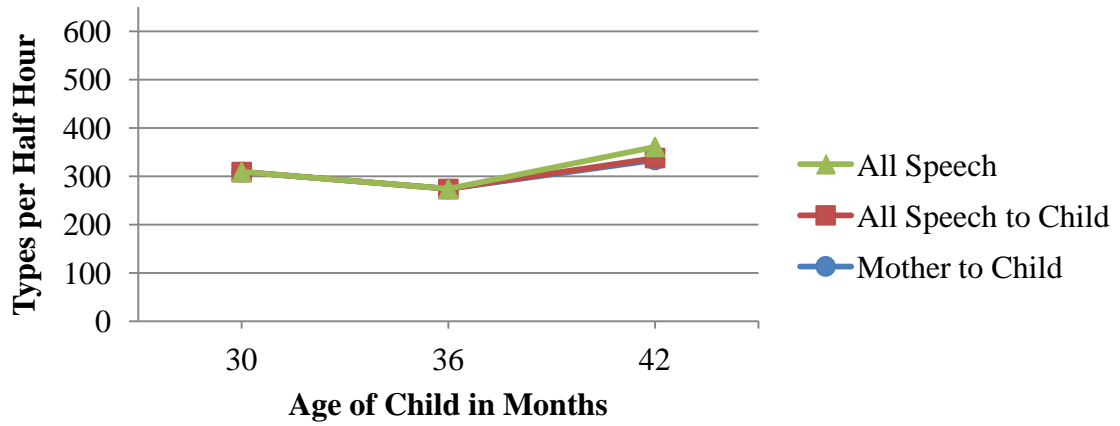


**Figure B3.14 Shane**

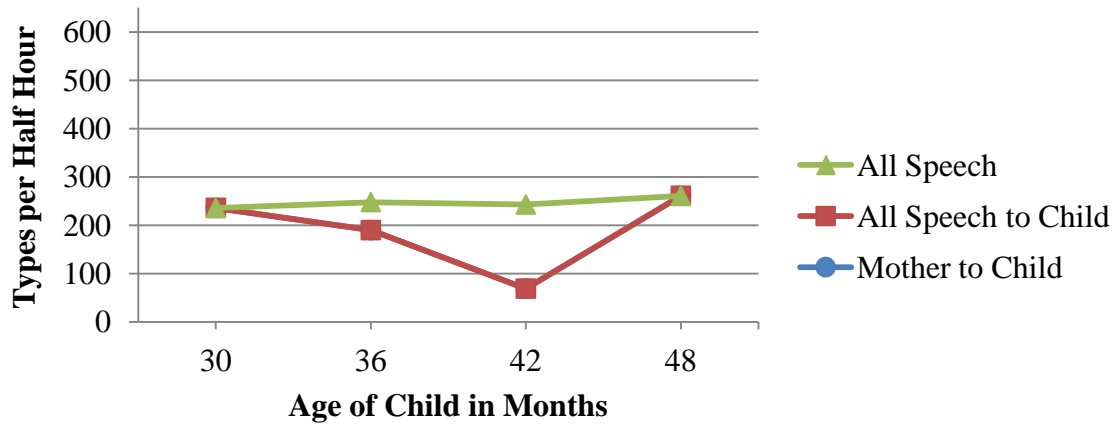


**Figure B3.15 Wesley**

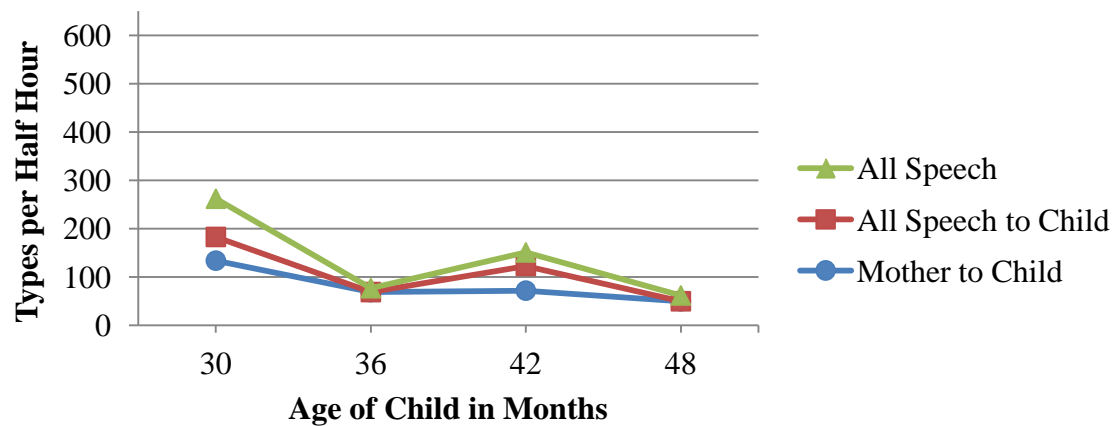
**Figure B4. Daly Park**



**Figure B4.1 Colleen**

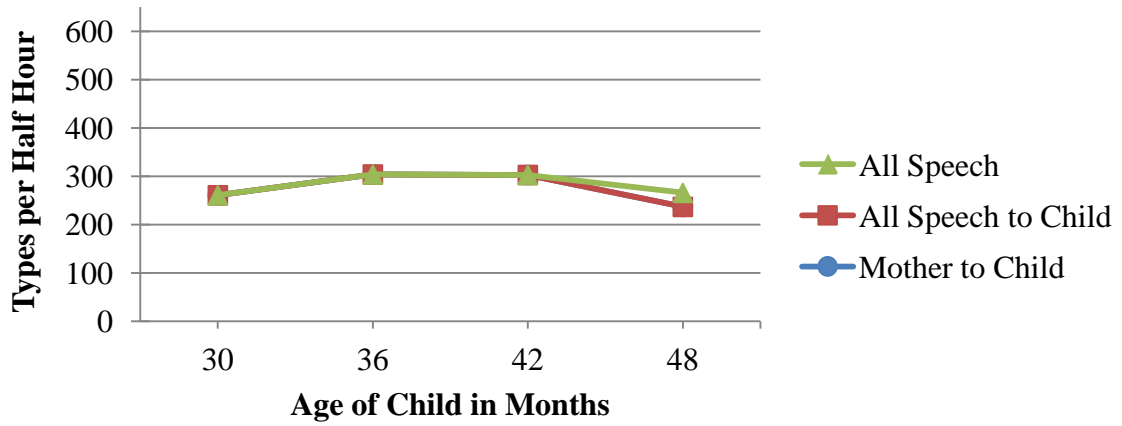


**Figure B4.2 David**

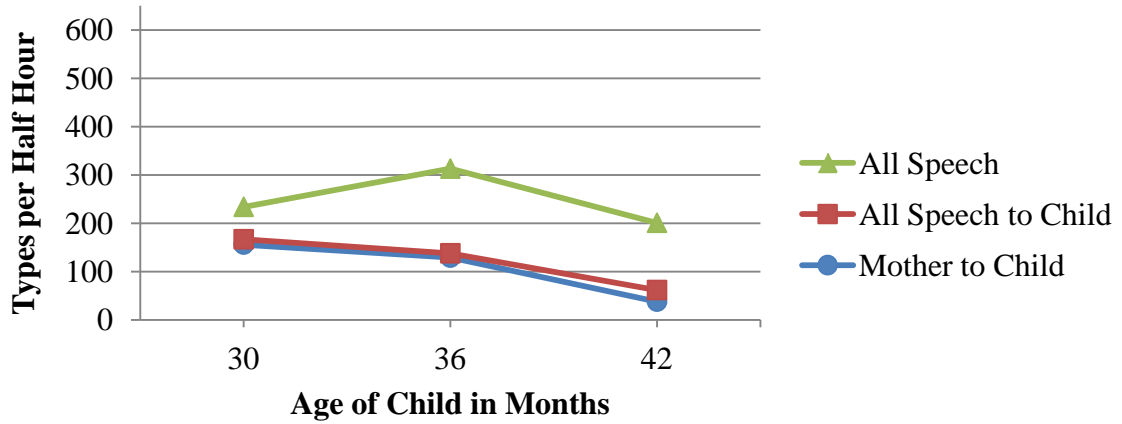


**Figure B4.3 Devon**

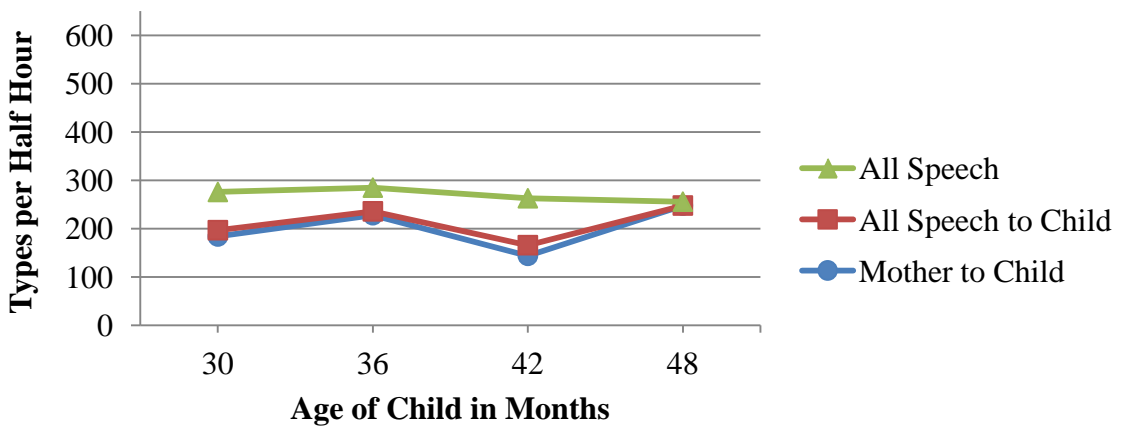
**Figure B4 (cont.)**



**Figure B4.4 Helen**

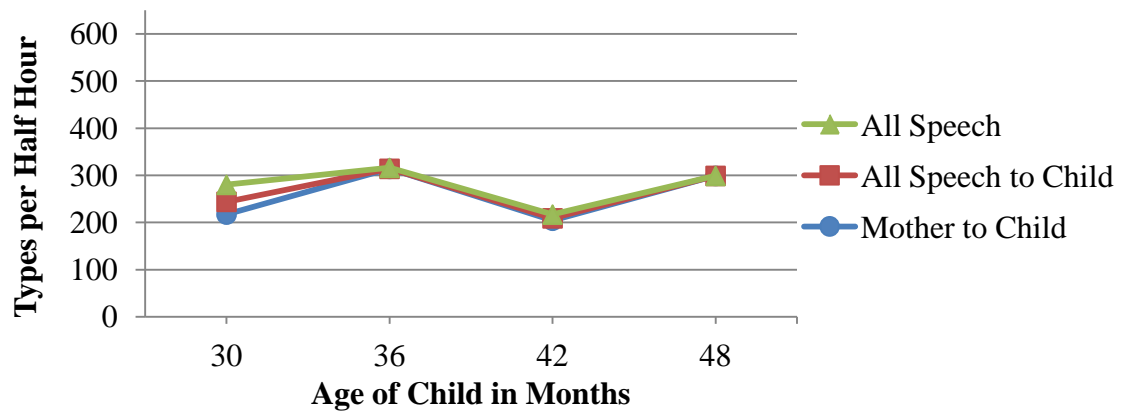


**Figure B4.5 Mary**



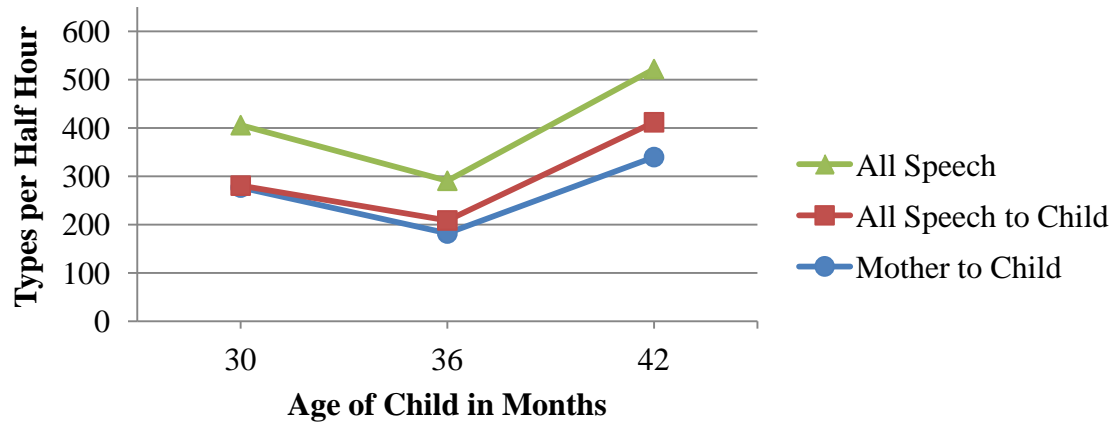
**Figure B4.6 Michael**

**Figure B4 (cont.)**

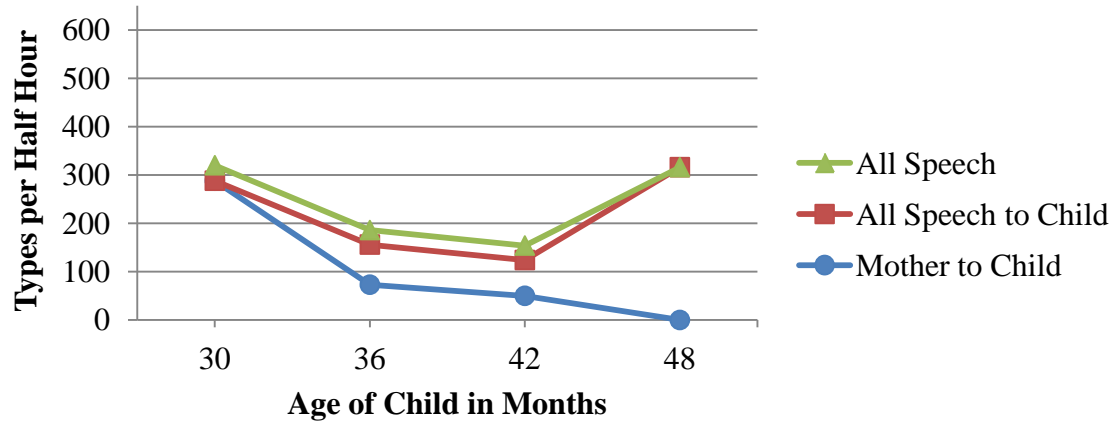


**Figure B4.7 William**

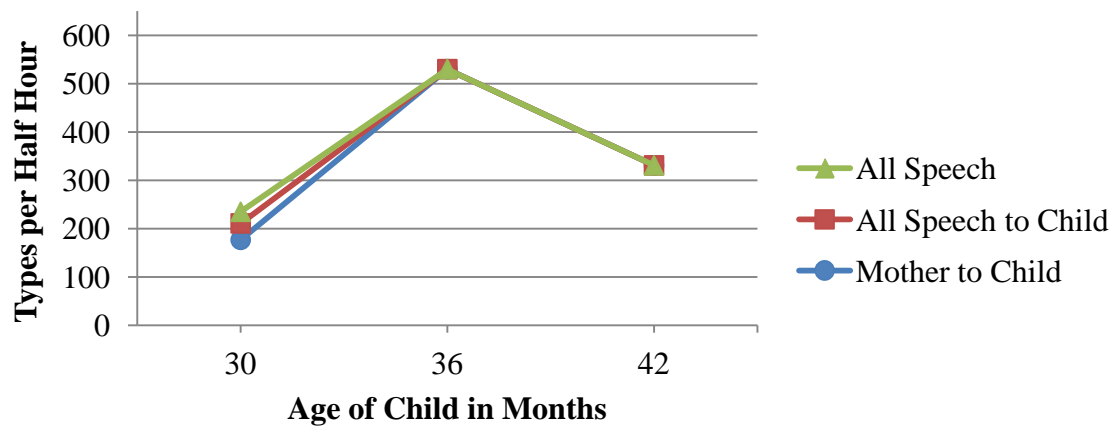
**Figure B5. Longwood**



**Figure B5.1 Amy**

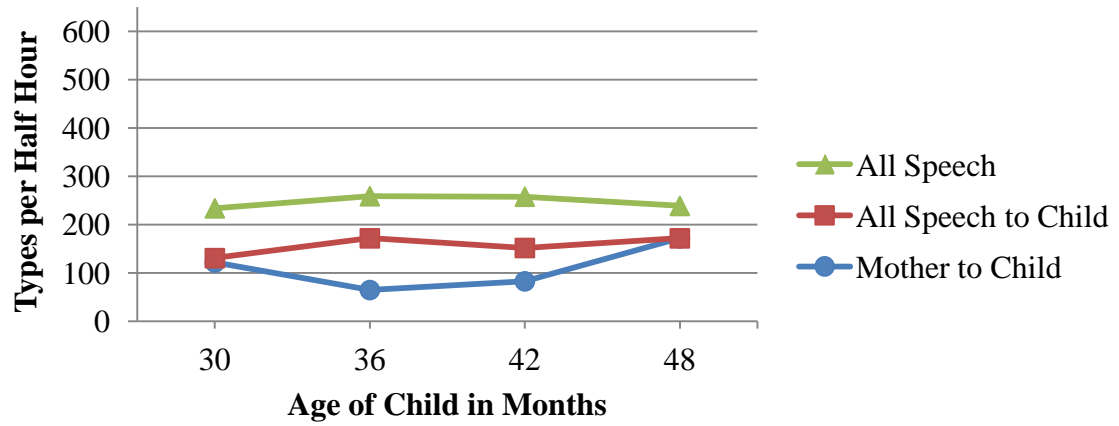


**Figure B5.2 Karen**

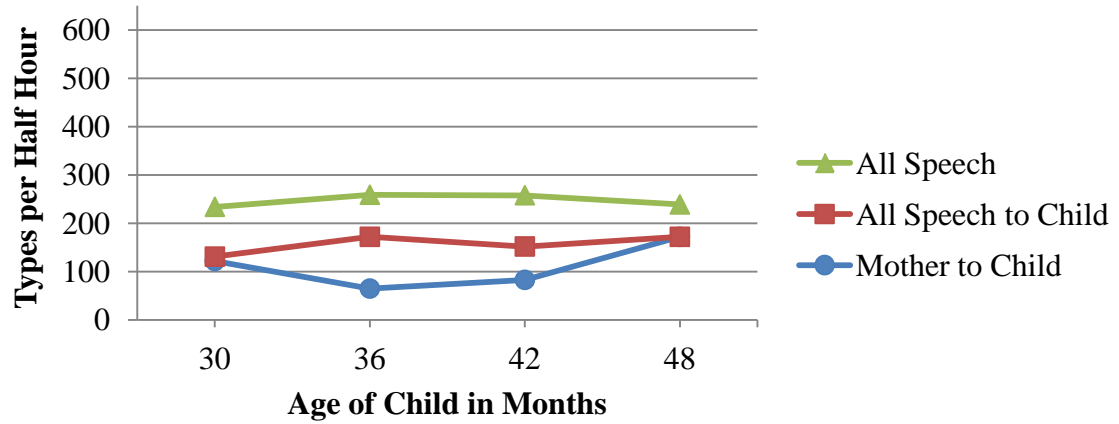


**Figure B5.3 Megan**

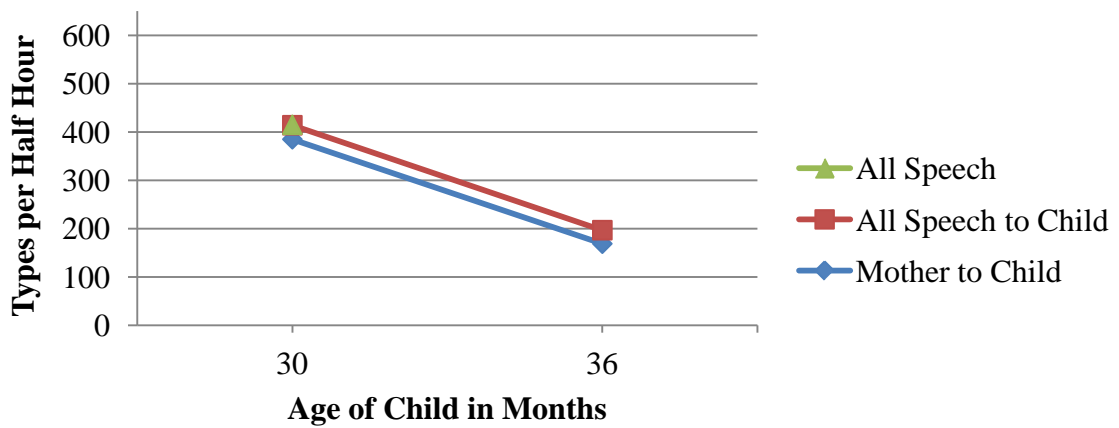
**Figure B5 (cont.)**



**Figure B5.4 Patrick**



**Figure B5.5 Steven**



**Figure B5.6 Tommy**

## APPENDIX C

### HART AND RISLEY (1995) TABLES

Hart and Risley (1995) provided the averages of caregiver vocabulary per hour spoken to children during monthly samples between 13 and 36 months of age. The averages of number of types are provided in Table C1 and the averages of number of tokens are provided in Table C2 for individual families in their longitudinal study.

**Table C1**

*Number of Tokens per Hour Averaged When Children Were 13-36 Months Old*

Family	Professional	Middle Class	Working Class	Welfare
1	1495	2671	443	752
2	2134	143	828	231
3	1422	1025	1697	400
4	2635	3618	526	606
5	2310	828	1221	761
6	2845	1677	1912	947
7	3504	808	805	
8	2501	930	2353	
9	1019	1468	948	
10	1397	830	268	
11	2573		826	
12	2195		862	
13	1956		2088	
Mean	2152.8	1399.8	1136.7	616

**Table C2***Number of Types per Hour Averaged When Children Were 13-36 Months Old*

Family	Professional	Middle Class	Working Class	Welfare
1	337	467	109	187
2	423	56	219	91
3	284	249	283	119
4	423	480	150	161
5	408	198	206	175
6	460	332	360	201
7	469	215	197	
8	403	249	380	
9	260	307	191	
10	294	212	108	
11	431		214	
12	373		210	
13	383		384	
Mean	380.6	276.5	231.6	155.7