RESEARCHING BILINGUALISM
PROTOLINGUISTIC DEVELOPMENT, METHOD, RIGOUR

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INTRODUCTION
One of the most remarkable accomplishments in a child's development revolves around how, from birth the child is able to acquire, and makes sense of the linguistic milieu in which it is immersed. This milieu of linguistic sound provides language demonstrations by the thousands, demonstrations of language in use. These demonstrations convey information not only about the sound system, but syntax and semantics. Yet, with apparent ease, the child within the first eighteen months of life is able to differentiate linguistic forms from this multitude of sounds, and begins to functionally communicate with outside members of the speech community. A remarkable achievement.

This ability to functionally communicate has developed from birth. Colwyn Trevarthen (1978) documented the beginnings of functional communication, showing how a newborn within the first few weeks of birth, engages in exchanges of attention. These exchanges are jointly constructed between the parents and child, and although they may contain no real content, in an adult sense, they do convey meaning. That is, they have a social function and serve a purpose. Exchanges of attention of the type described in Trevarthen are interpreted to be the very beginnings of language. Therefore an assumption that this study makes is that the function of language, from the beginning is to convey expressions of meaning. These meanings maybe personal, for the child or shared constructions between the child and significant others.

Fascination with child language development is well documented in research and reviews. For example Bar-Adon & Leopold (1971), Bloom (1970), Butler (1985), Fantini (1985), Harris (1951), Ochs & Schiefflin (1979) and Hamers & Blanc (1990). In studying child language development in the early 1970's Michael Halliday proposed a social-semantic perspective from which to view language development. Halliday (1975) traced the development in his son, Nigel's language as it moved from a symbolic "protolinguistic" phase through its transition to a symbolic, "linguistic" phase.

Halliday developed upon the work of J.R. Firth (1957, 1968) specifically developing Firth's interpretations of "category systems" into networks. Halliday (1970) claimed that a functional organization of language is reflected in the grammar or "meaning
potential" of a language. The meaning potential of language containing linguistic options that combine into "relatively independent networks" (Butler, 1985). These networks were seen to correspond with specific functions of early language.

Following Halliday's work comparable studies of children's early language development in the home have been carried out by Painter (1984) and Oldenburg (1990). Qui Shijin (1985) also used a similar theoretical framework in observing Chinese children living in Shanghai however different ages were covered within the group.

Central to these studies and specifically relating to the present study is the Phase One, or "protolinguistic phase" of language development. This phase lasts from approximately nine to sixteen months. At its core is a set of seven functions that are seen to be relevant to the linguistic meanings of the very young child. The Instrumental or "I want" function. The Regulatory, "Do as I tell you" and Interactional, "You and me" function. The very Personal, "Here I come" function. The inquisitive, Heuristic or "Tell me why" function. The Imaginative, "Let's pretend" and the Informative, "I've something to tell you" functions.

In order to learn how to use language in its multitude of functions the child must create a personal functional representation of language (Bruner, 1975). Halliday (1975) describes these functions as "functions in which a child first learns to mean" (p.37). They represent a framework of potential meanings, which language serves for the child during this symbolic stage of development. They are typically shared and constructed through interactions with significant others in the child's environment. Interactions which involve joint attention, action and communication, and from which the child learns the rules of social interaction and language within her culture (Bruner, 1975, Bruner & Sherwood, 1981).

Significant others are those who can understand or "read" the child's linguistic expressions or signs. For the child's language system at this protolinguistic stage does not contain recognizable "vocabulary" or "grammar", rather it is a system of signs. As the child draws upon and interacts with the oral language of her culture she is actively involved in constructing and reconstructing meanings. These are shared through linguistic approximations of the language. These approximations are not at this stage recognizable as conventional language. Rather they are the child's personal interpretation of the language, attempts at making sense of her world. The signs or linguistic symbols she uses are seen to be functional in different contexts. The child's protolanguage provides a window through which we are able to observe how language develops.
The research on protolanguage has provided a great deal of information about how early linguistic meaning is organised and the subsequent transitional springboard toward conventional language. The studies however have focused on monolingual children. What happens when the child's linguistic immersion contains two languages? Are similar functions developed, and in what order? It is these general questions which sparked the initial interest and organisation for the present study.

Investigations into the "early" language acquisition of bilinguals found it to be a relatively unexplored area in the field of linguistics. Of particular interest however were reports which described the social context and the effects on bilingual acquisition. It was felt that any description of early language development must consider the strategies employed by the parents and extended family for they must influence the acquisition process.

Two basic strategies, often adopted are dichotomy and alternation (Schmidt-Mackey, 1977). In dichotomy, the language is divided and fixed on the basis of factors such as person, place, or time. In alternation, there is a spontaneous switching from one language to the other. Studies by Grosjean (1982) and Zierer (1977) report on bilingual dichotomy by age and although successful problems were encountered such as the need to restrict access to particular playmates at certain ages (Zierer, 1977). A dichotic approach on age or time, it was felt, would provide an unnatural learning context and would require both parents to speak both languages. In the context of the present study this was impossible as the father was monolingual English and the mother bilingual Spanish-English.

Another approach used to avoid language confusion and provide a more natural learning context was first suggested by Grammont (1902). The approach involved a one person-one language or simultaneous immersion in two languages. For example one parent constantly and consistently addresses the child in one language whilst the other does the same in the other language. This approach has provided the foundation for several major studies in the area of bilingualism. Specifically the works of Ronjat (1913), Pavlovitch (1920) and Leopold (1939-1949). Ronjat (1913) reported on the development of French and German in his own son, "Louis", finding the language of his son in the beginning to be "unilingual". Pavlovitch (1920) recorded the development of French and Serbian in his son, "Douchan." Leopold (1939-1949) reports on one of the first truly longitudinal "systematic" studies of bilingual acquisition (Fantini, 1985). Studying the simultaneous acquisition of English and German in his daughter, "Hildegard", from birth, her early language forms characterized by the "free mixing" of both languages Ronjat and Leopold both concluded that there was no obvious delay in bilingual development or evidence of language interference.
More recent studies which have used the one language-one person approach include Celce-Murcia (1978), Dimitrijevic (1965), Garcia (1983a,b), Huerta (1977), Huerta-Marcias (1983), Imedadze (1967), Fantini (1985), Oksaar (1983), Padilla & Liebman (1975), Padilla & Lindholm (1976), Saunders (1980, 1983) and Swain (1972). See also the reviews of Genesee (1989), Hamers & Blanc (1990), Harding & Riley (1986), McLaughlin (1984), Redlinger (1979) and Schinke-Llano (1989). Whilst this one person-one language approach may have disadvantages, Zierer (1977) expresses concern over the considerable mental exertion required by the child, and the affect simultaneous immersion may have on the family. In the present study, given the languages of the parents, a simultaneous approach was seen to be the natural choice.

The bilingual studies of Bergman (1976), Carrow (1971), Cornejo (1973), Garcia (1983a,b), Huerta (1977), Keller (1976) and Padilla and Liebman (1975), also relate to the present in that they specifically examine early Spanish and English bilingual development, however they differ in two areas:

(i) they deal specifically with bilingual development in older preschool children, that is they focus upon children from 13 months, and

(ii) they fail to explore relationships that exist between the child's early speech, meaning and the child's environment.

There was then seen to be a need for a closer examination of early bilingual language acquisition. This would provide insights into the developing functional structure of a bilingual child's protolanguage as it moves toward language differentiation or language separation. Secondly, by using an established monolingual classification model (Halliday 1975) bilingual data can be compared.

Context of the study
In summary the following general guidelines were adopted in order to create and foster simultaneous bilingual development:

The mother only spoke Spanish with the child, and the father English. This was to promote language differentiation by person, thus avoiding the possibility of 'language interference' (McLaughlin, 1984). In the presence of the child the parents would converse in English with one another, the mother switching to Spanish when addressing the child.

Spanish and English speakers were encouraged, when initially addressing the child, to speak in their native language and to avoid switching. This provided a language identity and sought to avoid confusing the child and upsetting her established differentiation system (Fantini, 1985; Grosjean, 1982; McLaughlin, 1984 and Saunders, 1980).
The parents sought to expose the child to totally Spanish settings. As the mother returned to work when the child was 10 months old, the English speaking grandmother babysat during the mother's absence. Whenever possible the Spanish speaking grandparents were sought out to provide a totally Spanish context. In addition the child was frequently exposed to cultural events in Spanish.

The child was provided with books, tapes and videos in both languages. Objects around the house were labelled in both Spanish and English. Literacy development being a separate yet related part of the study.

METHOD
As parent participants researching language it was decided to collect data using a variety of techniques. Field notes in journal form were kept on a daily basis continually from birth while audio and video-recordings of the subject were made at 4-6 weekly intervals. This enabled comparisons to be made with the monolingual studies of Halliday (1975) and Painter (1984) yet avoiding criticisms specifically levelled at Halliday. Dore (1977) questioned Halliday's "virtuosity as a linguist" in the recording his data by hand and Butler (1985) suggested that video recording may have been useful in clearing up suggestions of subjectivity and transcriber error.

This multidimensional approach enabled the recording of authentic linguistic utterances from different communicative contexts and facilitated checks on the credibility of the data. To further ensure the encompassment of naturally occurring data the techniques were often used simultaneously. That is, as video or audio recordings were being made, field notes were also being kept of the same experience.

Fieldnotes
A major advantage of fieldnotes were that other participants could record while the parents were involved with the child. The fieldnotes contained transcripts of the linguistic expressions being used, notes on the environmental features, participants, objects involved and interpretative comments. They also provided an essential record of linguistic development that occurred between video and or audio taping sessions. All the linguistic samples of data collected in the fieldnotes were supplemented and cross checked with audio and videotape recorded data.

Audio Recording
Following the model set by Painter (1984) audiotape recordings were made during two 30-45 minute sessions at 4-6 week intervals. This interval was seen to allow enough time for significant changes in the child's language development to occur whilst not placing the researcher at the mercy of random non-occurrences
Transcriptions of the recordings followed the taping. Where recording involved the participation of other people, for example Zoe's English speaking grandmother, the person would sit with the researcher and assist in the transcription process.

**Video Recording**

Videotape recording began and continued at 4-6 week intervals from birth. Each taping session lasted an average of 50 minutes. A porta-pak video unit was used which enabled the recording of linguistic episodes outside the home. Transcripts of the videotaped sessions were closely compared with audiotapes and or the fieldnotes of the same session.

It should be noted that throughout the study, linguistic interactions with the subject were never forced or consciously set up to test linguistic performance. As the subject was a first child both parents were involved in providing intuitively what they thought to be appropriate language demonstrations.

**DATA ANALYSIS**

Analysis of the data occurred following the audio and video recording sessions whilst the intuitive knowledge of the language remained fresh. Protolinguistic utterances were coded according to the International Phonetic Alphabet (I.P.A.). A summary flow chart of the data collection and analysis procedure can be found in Figure 1.

As indicated in the flow chart, data were collected from a variety of communicative contexts. These ranged from early morning diaper changing sessions, free play with the video camera to birthday parties and barbecues that involved larger numbers of people. Analysis of the data transcripts as indicated occurred at 4-6 week intervals. Data were included and analyzed using the following three general inclusion rules:

1. the protolinguistic expressions were produced in different situations or communicative events, or
2. the expressions or utterances were repeated in similar communicative events, and
3. meaning could be interpreted in terms of their functional social context of use.

The interpreted social uses of the language were classified according to functional linguistic intent. Once functional intent was established the utterances were grouped into networks of linguistic options, using Painter's (1984) descriptions of functional components.
Following the classification process, credibility checks were made of the data. Credibility checks were undertaken by a "member check team" (Guba and Lincoln, 1985). The member check team consisted of both parents, the English and Spanish grandmothers and a female relative. As participant observers the parents had the most intimate knowledge of the subject's language. Next to the parents, the grandmothers were possibly the closest relatives to the child. They provided an experienced neutrality having each raised several children to be English or Spanish speakers. The final member had herself raised two Spanish-English-German trilinguals.

These member check meetings served to check the author's initial interpretation and transcription of the subject's expressions. Where disagreements over interpretations existed consensus was determined through a constant replaying of the recorded data. A technique that assisted in the analysis process involved the "fastidious oral reproduction" of the expression. That is, to code the expression (I.P.A.) each person would reproduce the expression, making efforts to match the intonation and sound.

In addition to member checking a "peer debriefing" session was undertaken which involved presenting the collated data for critical appraisal to knowledgeable but non-involved persons (Guba and Lincoln, 1985). The purpose of this peer debriefing was to ensure that the author maintained objectivity. This was achieved through probing and exploring the meanings that had been developed and which formed the basis for his interpretations. The session also provided an opportunity for the researcher to defend the direction the study was taking and to justify the methodological design. Peer debriefing also forced the author to demonstrate an explicit data "audit trail" (Guba and Lincoln, 1985). That is, peers retraced back through the data checking the trustworthiness of the data analysis process. Credibility measures of this type have laid firm and credible theoretical foundations for naturalistic evaluation (Curtis, 1986).

RESULTS
Diagrammatic outlines of protolinguistic development from 8-16 1/2 months were developed. Two types of outline were produced. A general summary of development and specific protolinguistic networks at six weekly intervals beginning form birth. Figure 2 provides an example of protolinguistic development at 12 months of age. Summaries of this type provide a cumulative overview of protolinguistic development up to and including the specific stage being focused upon. Each included the identified linguistic functions and the total number of linguistic options and expressions used within each function.
More specific information on the functions used, coded linguistic utterances and adult interpretations of their meaning were recorded in table form. See Table 1 for an example of Zoe's protolanguage at 13 1/2 months. The tables included details of the linguistic options, coded expressions, tone and interpretations of meaning within each function.

DISCUSSION

Protolinguistic Sound System

Preliminary analysis has revealed that random sounds and expressions moved toward recognizable mother tongue-father tongue language in the first year. The beginnings of more organized expressions occurred at 8 months and were grouped within the Instrumental, Interactional and Personal functions. By comparison, Halliday's (1975) son, Nigel and Painter's (1984) son, Hal, developed their first vocal expressions around this period. However Hal did not develop an Instrumental expression until around 9-10 1/2 months.

During this stage noticeable changes in Zoe's behavioural dependence were observed. She spent an increasing amount of time on her own playing with objects which interested her. She was developing the ability to support herself and manipulate objects such as spoonfuls of food. As Halliday (1990) suggests, the child has begun to develop the freedom of space-time. At the same time she is achieving the semiotic freedom of construing linguistic meanings into systems. It is this choice of meaning which is the essential feature or characteristic of protolanguage (p.3).

Throughout the study there were many expressions which, upon member checking, failed to fit exactly into the specific functions as outlined in Painter (1984). Painter's functional descriptions acted only as a guide and all members of the team preferred to use their own or consensual interpretations and labels before consulting Painter. These differences however were often more a matter of semantic interpretation rather than alternative function development. For example, Zoe used expressions which were interpreted to mean "I'm telling you so listen". These expressions were listed under the Regulatory and Interactional functions as outlined in Painter to maintain comparability.
There were noticeable differences in the development of a regulating function between Zoe and Hal. Zoe began regulatory type behaviour and expressions in the period 10 1/2-12 months whilst Hal only used non verbal behaviour to regulate a person's behaviour. Zoe in this period also began to walk. Along with this new found independence she was observed spending much of her time attempting to regulate or interact with others.

The size of Zoe's protolanguage, range of functions and meaning options increased steadily throughout the study. By comparison at 13 1/2 months, Nigel had 32 different signs, Hal had 17 and Zoe 26. A feature of Zoe's language from 13 1/2-15 months was her use phonemic expressions that served different functions and which were clear examples of Spanish and English words in the making. For example Zoe, with a book in hand, would walk towards her seated father turn around and back onto his lap. "b" she would say, "bv". If he did not respond she would headbutt his chest repeating "bv" until he began reading. The expression "bv" served to regulate her father's behaviour. Similarly, Zoe would approach her grandparents or visitors. Holding out a book she would begin her interaction with a combination of unclear sounds and end with a firm "bv". If unsuccessful in her attempts at gaining attention she would move onto another individual or small group and try again. Exchanges of this type exemplify the interactional or "Let's read together" function of her protolanguage. The expression was also used while playing alone in her bedroom. Sorting through her toy box, as books were encountered she provided her personal "bv" label. A similar expression also used in this way, was "b", for example:

017 Z: "bA" (mid tone)
018 F: "What is it Zoe?"
019 M: "You're a silly billy Pete. ""Zoe, Queres un bano, cierto?" (You want a bath right)
020 Z: "....(squeals)..... bA". (looking at father and attempting to hurdle the tub)
021 Z: "bA"(low-low tone-looking at mother) "bA" (rpt)
022 M: "Eso es lo que queres." (That's what you want)

The phonological similarities between the label "bA" for bano (Spanish) and bath (English) indicate the beginnings of linguistic mixing. That is, through a single unilingual expression Zoe was able to functionally interact with her mother and inform or tell her father of exactly what she wanted to do. The low-low intonation at this stage also indicates the beginning of language differentiation through phonological elements of syllabification. The Spanish word "bano" has clearly two syllables whereas the English word has one.

The first distinct Spanish sounding expressions occurred between 12-13 months within the Interactional and Personal functions. Before 0:8-0:10 1/2 months, Zoe could comprehend both
languages in varying contexts, favouring a "receptive" mode as opposed to a "productive" mode of bilingual language differentiation. As she matured, she began to comprehend instructions from both parents demonstrating a more "receptive" knowledge of her two languages. At 12-13 1/2 months she was moving toward the "production" of language specific to both languages. Although Zoe had not achieved the status of a "complete" bilingual, her language to 16 1/2 months, as a whole, can be described as "incipient," that is, developing toward a "complete bilingual."

The use of different intonation patterns conveyed different meanings as indicated in Zoe's use of the expression "m^a". When expressed as a mid tone with hands outstretched, it conveyed the meaning "I want to get out." The expression when used on a low tone, was interpreted as a personal greeting for her mother. Dore (1975) observed that the tones that eventually carried functional meaning may be used initially without specific phonemic intent. A feature of Zoe's tonal use concerned the fact that many of her expressions whilst not adult in sound, displayed the intonation features of Spanish and English lexical items. Examples of this included:

- (av) - 12 months; mid high - no
- (gθ) - 12 months; mid (rise fall) - yes
- (bA) - 13 1/2 months; low-low - bano
- (a:kθ) - 13 1/2 months; low-low - thank you

Zoe, like Hal, at 12 months showed a preference for higher level tones for the Instrumental and Regulatory functions whilst the Personal and Interactional functions revealed a mid-low tone preference. These developments foreshadow later systematic use of tone cited in children at 15 months (Galligan 1987) and in Halliday's and Painter's data from 16 1/2 months on.

At 16 1/2 months transition from Phase 1 was beginning. Similarities between the protolanguages of Zoe, Hal and Nigel at this stage are summarised below:
- Zoe and Nigel displayed clear distinctions between initiating and responding throughout their linguistic networks. They also used a "sharing" sign, which invited others to participate. Nigel's was a "Shared regret", Zoe's was a "Shared hurt"
- Zoe and Hal both used non verbal gestures when requesting names.
- Verbal request for names or which drew attention to objects within the environment:

  - Nigel: "a::da" - you say what it is.
  - Zoe: "Lvk" - with non verbal gestures that focussed the adult's attention on an object, and who then proceeded to give the name.
Zoe differed from both Hal and Nigel by using an instrumental demand expression for assistance "k". This was interpreted as a phonological approximation for the English word "stuck."

All three children used expressions which identified and maintained contact with specific adults. Zoe's range of options of this type was considerably more than Hal and Nigel. This could in part be due to the changes in the sociocultural context used by the parents in their effort to provide a balanced bilingual input. Zoe also developed phonological variants within these greetings and like Hal changed the intonation and stress according to whether the interaction was general or more intimately specific. Unlike Hal and Nigel, Zoe dropped her "general" greeting expression in the period 12-13 1/2 months, preferring to use non-verbal gestures when or if acknowledging unfamiliar people.

Personal sign expressions for Zoe, like Hal always accompanied first-hand experience with objects in both the personal and interactional contexts. Particularly the recognition of objects in pictures which, for Hal came much later. Zoe's familiarity and interest in books, from 0-5 months resulted in the use of specific linguistic expressions relating to these first-hand experiences with books. Many of these utterances were interpreted to be expressions of personal feeling generated through the daily sharing of books.

The first clear approximation of adult words for Zoe occurred in the period 10 1/2 to 12 months. Nigel's first possible imitation of an adult word occurred at 9-10 1/2 months while Hal's first word appeared during the 13 1/2 to 15 month period. Zoe's first English word "mo:" was seen as an approximation for the English word "mum." Painter (1984) distinguishes these types of expressions apart from "true names," as she believes they would appear to be linguistic signs that have a complex range of meanings. In Zoe's case, however, the closeness of the approximation to adult form, the contextual use and tonal differentiation suggests it to be a true name. This was supported by the recognition and interactional naming in pictorial form of the person which supports McShane's (1980) suggestion of an interactional route for understanding of names.

Zoe's first clearly identifiable Spanish word was "gato" (cat) in the 12-13 1/2 month period. This name (noun label) occurred in the personal function and was repeated immediately in situations removed from the first-hand experience, i.e., with pictures of the object. The expression developed during an extended stay in an almost totally Spanish context. A non-verbal pointing gesture led to the name being given. Zoe's classification of "gato" like objects developed from the very general to the very specific. Interestingly, Hal's first word, other than caregiver signs, also related to a "cat" label.
Zoe's development of lexical items such as "gato" support views of language development held by Bruner (1983) and Vygotsky (1962). That sociocultural experiences form the basis from which meaning and language develop. Similarly the use of language by others in the child's social environment plays an important part in stimulating actions and linguistic value placement (Vygotsky, 1962). Language used by an adult to "draw attention" to objects influences the child's perception of the world. This in turn "encourages alertness" and "stimulates curiosity and interest" (Tough, 1976). In "Thought and Language" (1962), Vygotsky illustrates how each time a particular word, i.e., "gato" is used, the child's attention is drawn to another instance of the concept. In time, the word comes to represent a general idea that has developed from many of these experiences.

In summary Zoe used the expression "gato," which at first was applied to all short hairy animals. This generalization developed as she gradually began to focus upon the specific features of "gatos," distinguishing them from other "developing" concepts or objects, for example dogs and koalas.

Cross analysis of networks also revealed the natural phonological development of specific lexical items. For example, the word "stuck":

- (ʢ) - 10 months
- (a) - 12 months
- (ʌ) - 13 months, 15 months
- (ʌk) - 16 1/2 months

Other expressions however were seen to begin as a direct result of repeated attempts at teaching by the English grandmother.

- (ʢnʌ) - 13 1/2 months - nana
- (on:ʌ) - 16 1/2 months - nana

Zoe appeared to display a language preference in the development of specific lexical items. Whether this linguistic preference relates to Slobin's (1973) notions that syntactic devices used in the production of an expression are simpler in one language than the other or Celce-Murcia's (1978) suggestion that bilingual children may avoid phonologically difficult words is difficult to ascertain from the preliminary analyses. There is generally a tendency to favour vowels, nasal consonants and stops to the exclusion of fricatives and affricatives and /r/ and /l/.

Further examination of the linguistic networks needs to be undertaken to determine specific trends in the phonological development as compared to other monolingual and bilingual studies. Specifically the studies of Bai (1984), Bizzarri (1984), Celce-Murcia (1978), Meisel (1986), and Schinke-Llano (1986).
Evidence from the transcripts suggests a difference in the way language was "demonstrated" by the parents and grandparents respectively. Linguistic demonstrations provide the learner with a clear example of how to use language (Smith, 1981). Direct and indirect demonstrations of language provided Zoe, with a literal immersion in functional language. The father and both sets of grandparents generally responded to Zoe's linguistic approximations by asking "What do you want Zoe?". After a short pause they then provided the word, for example "banana" or rephrased the question "Do you want a banana?" Both parties initiated conversation in much the same way. Zoe's mother on the other hand would ask "Queres. . .?" (Do you want. . .) but rarely repeated the name or word to which she was referring to. In the early stages of Zoe's development, until 12 months, Zoe's mother had what she described as an "innate" understanding of her daughter's needs. This resulted in less mother-daughter communicative acts when compared with the father-daughter.

At 15 months there was a noted increase in the linguistic options and a phonological closeness to adult words, particularly in Spanish. This is attributed to the change in social context which saw her Spanish grandparents baby-sitting continuously for extended periods of time. The type of communicative exchange as discussed, became a feature of the communicative events of that period. The linguistic developments which resulted serve to highlight the effect environmental factors such as input and interactional mode can have on a child's bilingual development. In the context of the present study these factors need to be examined in more detail to determine more fully the parents' "theory of linguistic accommodation" (Evans 1987), the "discourse strategies" they employ (Dopke 1986; Lanza 1988), and the "interactional patterns" (Garcia 1988) they engage the child in.

CONCLUSION
The functional organisation of protolinguistic networks provides a window through which to view the development of this child's language. Examination of the linguistic structures, their meanings and the context from which they develop serves chiefly to highlight the uniqueness of the child's language and the acquisition process.

The results of this study are unique in that the protolanguage described draws specifically upon one child and her life's experiences. Zoe's language developed as a consequence of her involvement with the people, the objects, the events, and the actions that characterized her world. Therefore the findings of this study cannot, as a result of language "uniqueness," be generalized or applied to the majority. In many ways however she does share with other children, at a general level, characteristics of language acquisition. Particularly other monolingual studies of protolinguistic development (Halliday 1975; Painter 1984) who used similar data collection and analysis
techniques. Other features that were identified through analysis of the data related to bilingual language distinction, intonation, and parental involvement in the acquisition process.

A feature of this study was the irregular development of language. Some words gradually appearing from linguistic approximations over time, while others appeared in the context of personal, interactive interest. It was noted that as the protolanguage took on characteristics of both the mother's tongue and father's tongue, a mixing of expressions occurred. Several expressions were often phonemically similar in both languages. These phonemic similarities raise issues regarding general phonological development and phonemic tolerance. At this preliminary stage of analysis these issues remain areas to be more fully explored.

At 16 1/2 months, language was identifiable as a 2 level system, one level of functional meaning (morphemic and relational), the other involving expressions (phonological). The development of the child's linguistic system was seen to be arbitrary. The oral expressions produced conveyed meaning however these meanings were not initially represented in the expressions but rather were attained over time. Characteristics of linguistic conventionality and language differentiation became more evident at 10 months of age.

Zoe's transition from protolinguistic stage displays greater development within the pragmatic functional options, particularly with her father. That is her demands for objects, for action, and her interactions in which others construe her intended meaning, seems to develop ahead of the mathetic or confirmation options. This suggests a difference in the parent roles which needs to be explored in future analysis.

Finally, the data were collected through a multidimensional approach using video-recordings, audio-taping and fieldnotes. The credibility checks undertaken generated a range of multidisciplinary perspectives from which to view the data. These perspectives are yet to be fully explored however preliminary analysis suggests these avenues of inquiry may lead toward a more informed understanding of this early phase of childhood bilingualism.
REFERENCES


Data collected from a variety of contexts and communicative events

Zoe's Linguistic Data Pool
- data transcribed, communicative events
colour coded and protolinguistic expressions
coded in accordance with the I.P.A

Data analysed utilising three
general inclusion rules.

Data to be included checked for
protolinguistic function characteristics.

Protolinguistic functions identified and
organised into networks of linguistic options

Instrumental options
Regulatory options
Interactional options
Personal options
Imaginative options
Heuristic options

At this stage credibility checks were made
- peer debriefs
- member checks

As a result of these checks changes were
made where necessary until credible,
trustworthy data was seen to have been
achieved.

Fig 1
Flow Chart of Data Collection
and Analysis Procedures
Prototype - 0 to 5 Months
- Data obtained from daily routines
- Many demands were lengthy
- Continued interest in books and specific toys.
- Objects inevitably ended up in mouth
- Expressions interpretable within 3 functions.

Prototype - 10 1/2 Months
- Function application highlighted by intonation
- Bilingual understanding in different communicative events
- Expressions interpretable within 3 functions

Prototype - 12 Months
- Emergent Regulatory function
- First words - [ma:] and [da da]
- Cross function use of expression
- Intonation determinant of function differentiation
- Expressions interpretable within 4 functions

Fig 2
Summary of Prototonguistic Development at 12 months
<table>
<thead>
<tr>
<th>Function</th>
<th>Options</th>
<th>Expression</th>
<th>Tone</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>general demand (1)</td>
<td></td>
<td>ضة (one or both arms outstretched)</td>
<td>mid high</td>
<td>I want that</td>
</tr>
<tr>
<td>Instrumental u</td>
<td>action 2a</td>
<td>ِا</td>
<td>mid rise</td>
<td>I want help</td>
</tr>
<tr>
<td>specific demand (2)</td>
<td>bath 2b</td>
<td>ِا</td>
<td>mid</td>
<td>I want a bath</td>
</tr>
<tr>
<td></td>
<td>urin 2c</td>
<td>ِا (point)</td>
<td>mid high</td>
<td>I want a drink</td>
</tr>
<tr>
<td>general request (1)</td>
<td>initiate la</td>
<td>ِا ; ِا</td>
<td>mid</td>
<td>Will you give me that?</td>
</tr>
<tr>
<td>Reguatory u</td>
<td>negative 1b</td>
<td>اَوْ :</td>
<td>long mid</td>
<td>Stop that</td>
</tr>
<tr>
<td>specific request (2) initiated</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>with objects (1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>initiate 1b</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>general 1a</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>general 1a</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interactional u</td>
<td>running/bleeding of sounds together</td>
<td></td>
<td>low rise/fall</td>
<td>Let's read the book together</td>
</tr>
<tr>
<td></td>
<td>conversation 3b</td>
<td>various blends of sound</td>
<td></td>
<td>Let's just talk</td>
</tr>
<tr>
<td></td>
<td>relaxing 1a</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>pleasure 1b</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>unhappy 1c</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>toys 2a</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>eating 2b</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>general 3a</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>specific 3b</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>pretend play (1)</td>
<td>clicking sound</td>
<td>mid</td>
<td>I'm riding a horse</td>
</tr>
<tr>
<td></td>
<td>singing (2)</td>
<td>ِا ِبَْبَ</td>
<td>wide</td>
<td>I'm singing</td>
</tr>
</tbody>
</table>

Table 1
Zoe's Protolanguage at 12 months