METHODS 1

Data Collection

Cell 1: Videotaped every month until "first-word" in each language, then every three months

Cells 2 & 3: Videotaped every three months

5 Conditions: Experimental Manipulation of "Speakers" & Contexts

Condition	Goal
1) Multiple "Speakers" Open	Lang. choice in uncontrolled context
2) a. Mother Alone	Lang. choice to familiar (one Lang.)
b. Father Alone	Lang. choice to familiar (other Lang.)
3) Novel Exp. Language 1	Lang. choice to unfamiliar (one L.)
4) Novel Exp. Language 2	Lang. choice to unfamiliar (other L.)
5) Multiple "Speakers" Closed or "Competition task"	Lang. Choice in controlled context

Additional: Experimenter Records & Parental MacArthur CDI

METHODS 2

Transcription & Coding

Cell 1 Fully transcribed

Cells 2 & 3 Standard sampling: 3 minutes of every condition

Criteria for Lexical Attribution

Applied Equally Over Vocal & Manual Productions[4]

a. form used in relation to a referent across contexts (extension/ intension)
b. form minimally had one phonetic unit in common with adult form
c. form had a similar pattern of syllabification and stress to adult form

Criteria for Coding & Analyzing Language Use & Mixing

For All Sampled Utterances

1. Number of words produced by the child in each of its languages (language indistinguishable= "neutrals")
2. Addressee of each utterance and addressee's primary language
3. Language(s) that adult had just used with the child

Cells 2 & 3 Additional Analyses for Utterances Containing Language Mixing in Children and Adults

1. Sequential mixing (lexicon from one, followed by lexicon from other); all children
2. Simultaneous mixing (two lexicon items produced at the same time); LSQ-French only
   - Simultaneous Sign & Word with same meaning= "congruent"
   - Simultaneous Sign & Word with different meaning ="incongruent"

RESULTS 1

All French-English and LSQ-French Children

1) Achieved the classic milestones in each language at approx the same time, and followed the same course as monolinguals (Fig. 1)
2) Demonstrated relatively comparable rate and growth of lexical development in each language over time. Only French-English children produced "neutrals," as modality differences aided language differentiation across LSQ and French (Fig. 2)
3) Differentiated between their two lexicons from their earliest use of words (signs) in each of their languages, see "translation equivalents" (different words/signs from each language with the same meaning; Table 1)[5]
4) Altered their language choices depending upon interlocutor's language ("interlocutor sensitivity"); despite a tendency for LSQ-French children to use mixed utterances to all addresses, they demonstrated a clear sensitivity to interlocutor by increasing and decreasing both the amounts of mixed utterances and its language content to match the specific language patterns of a particular interlocutor (Fig. 3)
5) Produced language mixing rates that reflected parents' mixing rates (Fig. 4)

RESULTS 2: MIXING

6) All Children Produced Mixing That Was Patterned & Systematic. LSQ-Fr children did exploit the modality, but it was highly patterned

FRENCH-ENGLISH MIXING, TABLE 2

Low frequency (2% of each child's utterances); Sequential only

a. "Host" language, plus 1 or 2 words from "guest" language[6]
b. Guest words not mixed in randomly: Semantically coherent
c. Guest words content words (nouns, verbs, adv, adj), but not other syntactic classes (e.g., pronouns)

LSQ-FRENCH MIXING, TABLE 3

High frequency (19%, C 2; 44%, C 3); Seq. (10%) and Simultaneous (90%)

a. Lexicon mixed at same time
b. Lexicon not mixed in randomly: Semantically coherent
c. Lexicon mixed were content words, but not other syntactic classes (as above)

Congruent Mixes - Most Frequent, All semantically coherent

Incongruent Mixes - Least Frequent, All semantically coherent

Type A: Different lexicon/grammatical class produced simultaneously (T3: A)

Type B: Same lexicon/grammatical class produced simultaneous (T3: B)

KEY: Grammar of each distinct language is preserved

SUMMARY

Given All Children's

Capacity to differentiate between their two languages from their earliest attempts at language production

Comparable rates of lexical development in each language over time

Change in language choice & mixing rates depending upon parental mixing rates, child's interlocutor sensitivity and emerging language preference[1]

CONCLUSIONS

We conclude

that the young bilingual's capacity to differentiate between its two languages is in place prior to first words. We hypothesize that this capacity may be built up from mechanisms discovered in all infants that are sensitive to distributional and temporal patterns in the input[7], which in turn may provide the child with the data necessary to build early phonological representations. In Petitto et al.[1] we provide additional details about how these mechanisms might develop in the bilingual infant, and we offer suggestions about why the contradictory views of bilingual acquisition have persisted