

# CHILDREN'S ABILITIES TO DISTINGUISH NOVEL LANGUAGES

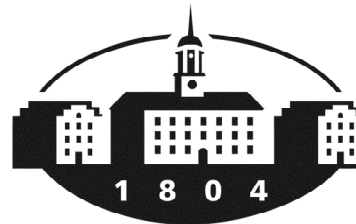
*Z. S. Bond and Verna Stockmal*

*With assistance of Liz McKenna*

*Department of Linguistics*

*Ohio University*

*Athens, OH 45701 USA*



**OHIO**  
UNIVERSITY

*Acoustical Society of America*

*Vancouver, May, 2005*

# ABSTRACT

When adults hear spoken samples of a language which they do not know, they can often identify it and discriminate between languages even when produced by the same talkers. Children have much less experience making metalinguistic judgments. How do children respond to languages which they do not know?

We have conducted three experiments examining the abilities of 4 year old and 8 year old children to discriminate between spoken samples of different languages produced by bilingual talkers. We constructed listening tests from 5-second phrases excerpted from fluent reading provided by the talkers. In the three experiments, we progressively simplified the response mode employed by the children as well as the cognitive load of the task. Even in the simplest version, only a third of the four-year-olds could do the task while the eight year old children performed above chance in all three experiments. The younger children tended to respond 'different' more than 'same', as if their criterion for 'same' was identify.

# BACKGROUND

- Prelinguistic infants are able to discriminate between their ambient language and other foreign languages even when produced by the same talker (Moon, et al. 1993; Mehler, et al., 1996; Bosch & Sebastian-Galles, 1997). Infants are even able to detect dialect variation (Nazzi, et al. 2000).
- Adults have sophisticated metalinguistic abilities which enable them to identify and to discriminate between foreign languages (Lorch & Meara, 1989, 1995; Bond, et al., 1998).
- Adults are able to identify new samples of a foreign language when produced by a novel talker (Bond & Stockmal, 2002).
- Adults are able to discriminate between languages even when produced by the same talker (Stockmal, et al., 2000).
- Young children are able to differentiate foreign languages under some conditions (see Stockmal, 1995).

# OBJECTIVE

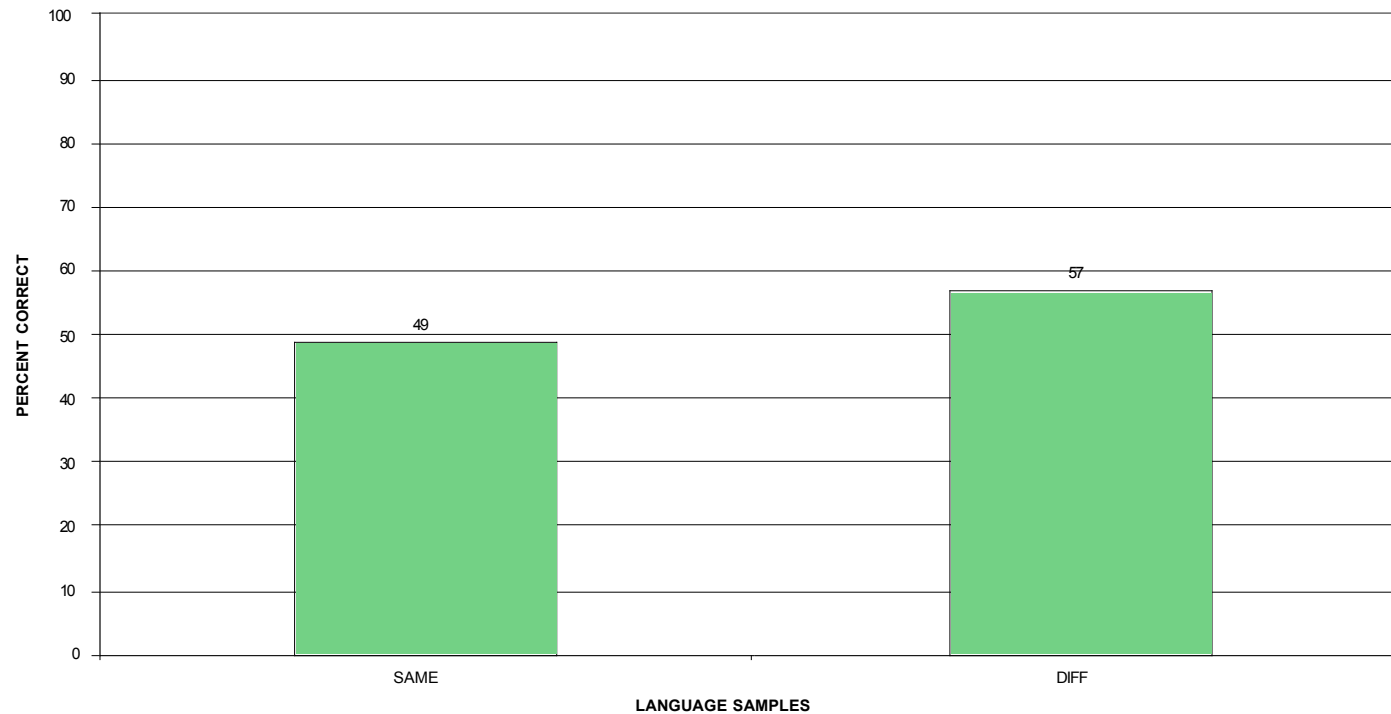
To determine whether young children are able to separate language characteristics from talker characteristics.

# EXPERIMENT 1

The experiment was a replication with children of previous work with adults.

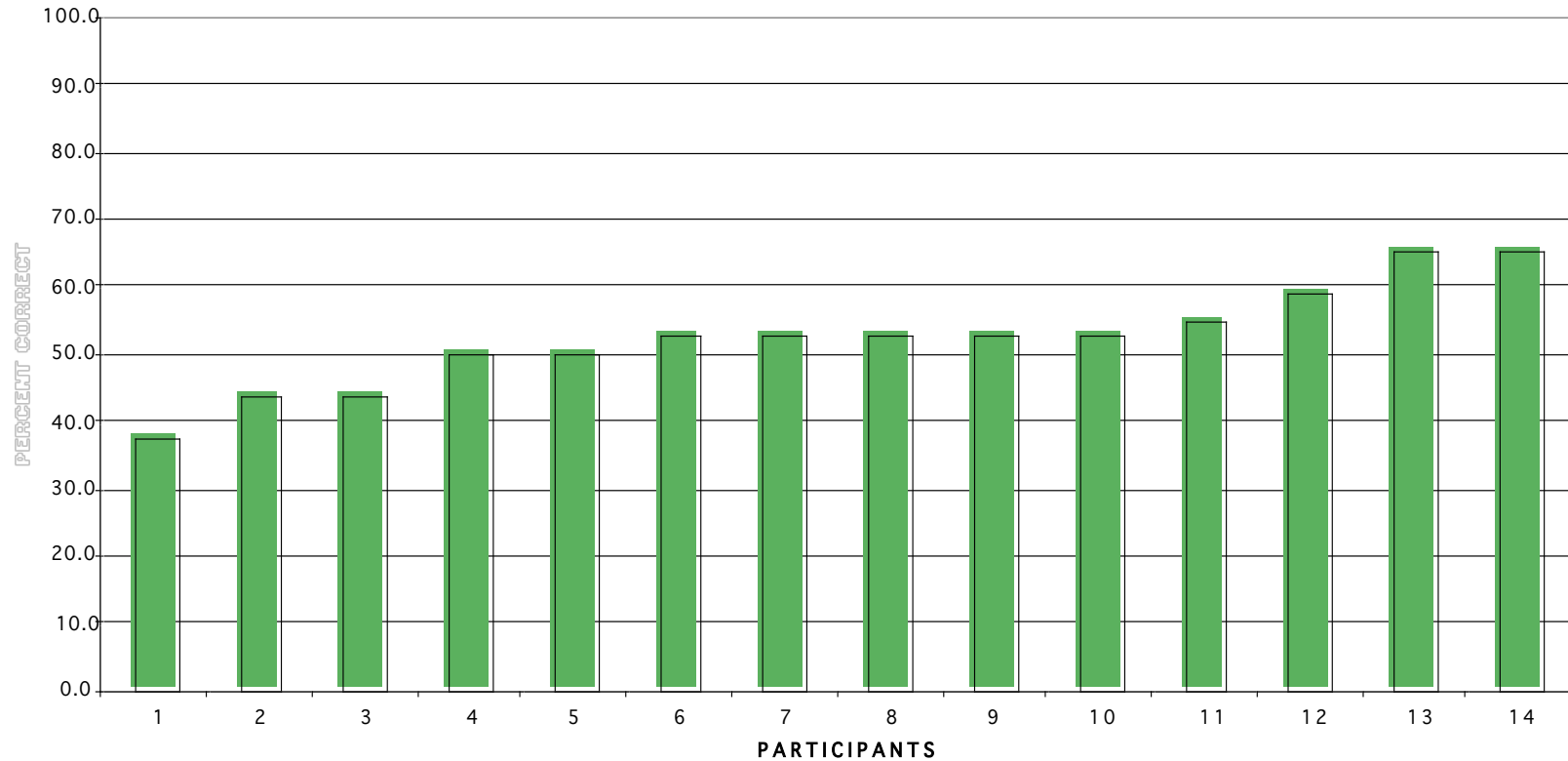
- Two male bilingual talkers, Arabic-French, German-Hebrew and two female bilingual talkers, Mbawa-French, Japanese-Korean
- 32 test items, pairing same language and different-language samples, each about 5 seconds in duration.
- 14 listeners, 4-5 years old, made same-different judgments
- Test items were preceded by a number and language samples within test items were separated by a 'beep'

# Overall performance



*Although there was variability in responses to different language samples, 4 year old children found the task extremely difficult, responding essentially at chance.*

# Performance of individual children



*Only 2 of 14 participants performed well enough to suggest that they were able to do the task reliably.*

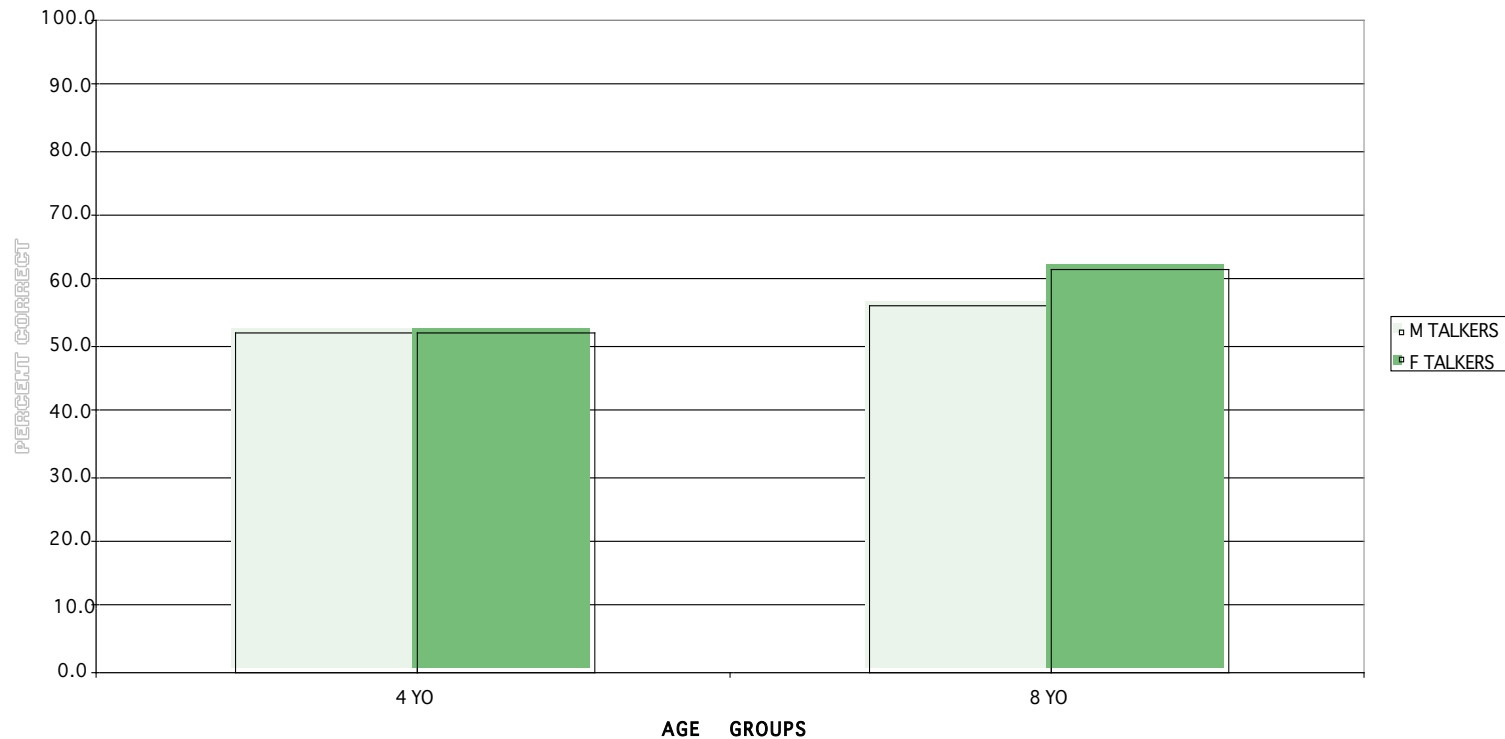
# Experiment 2

Perhaps the length of the task and the number of voices and languages were confusing for the children.

We simplified the task by presenting language samples produced by male and female talker in separate test. Otherwise procedure was the same.

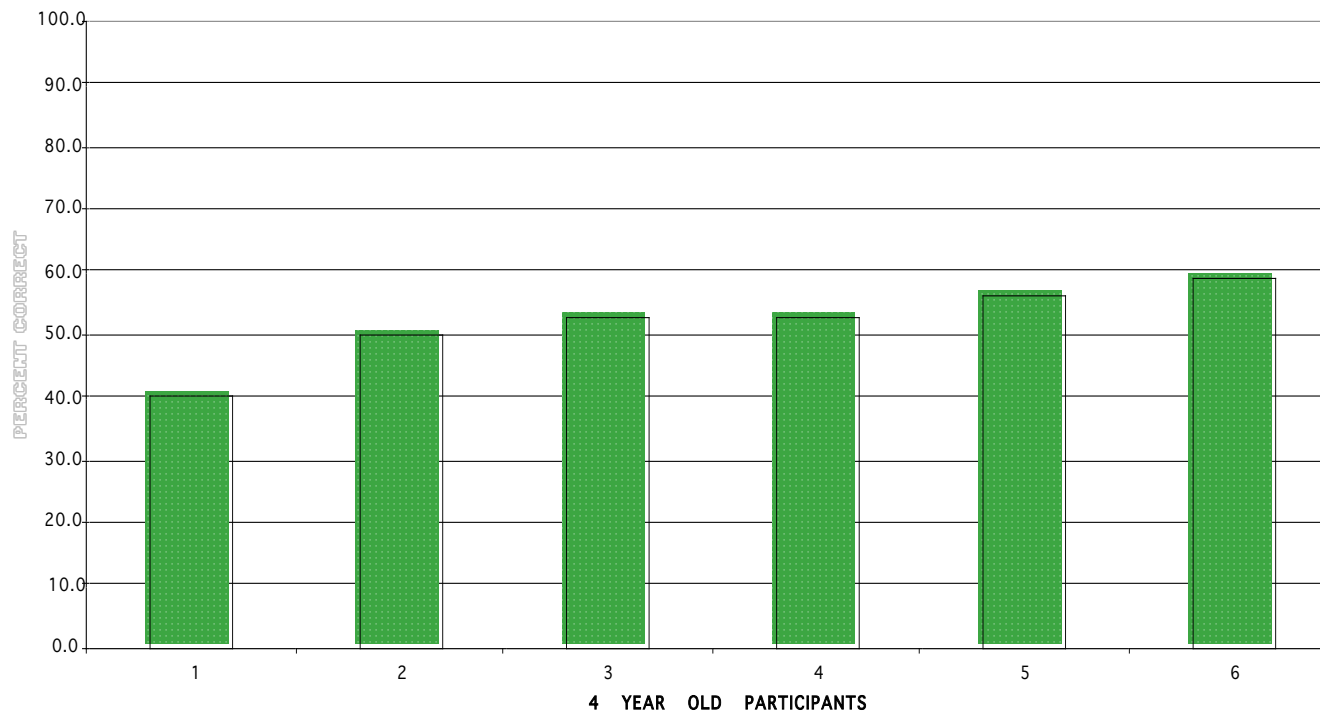
- Language samples from same bilingual talkers in 16-item test, 2 female or 2 male talkers.
- 12 8-year-old listeners and 6 4-year-old listeners, making same-different judgments.

# Overall performance



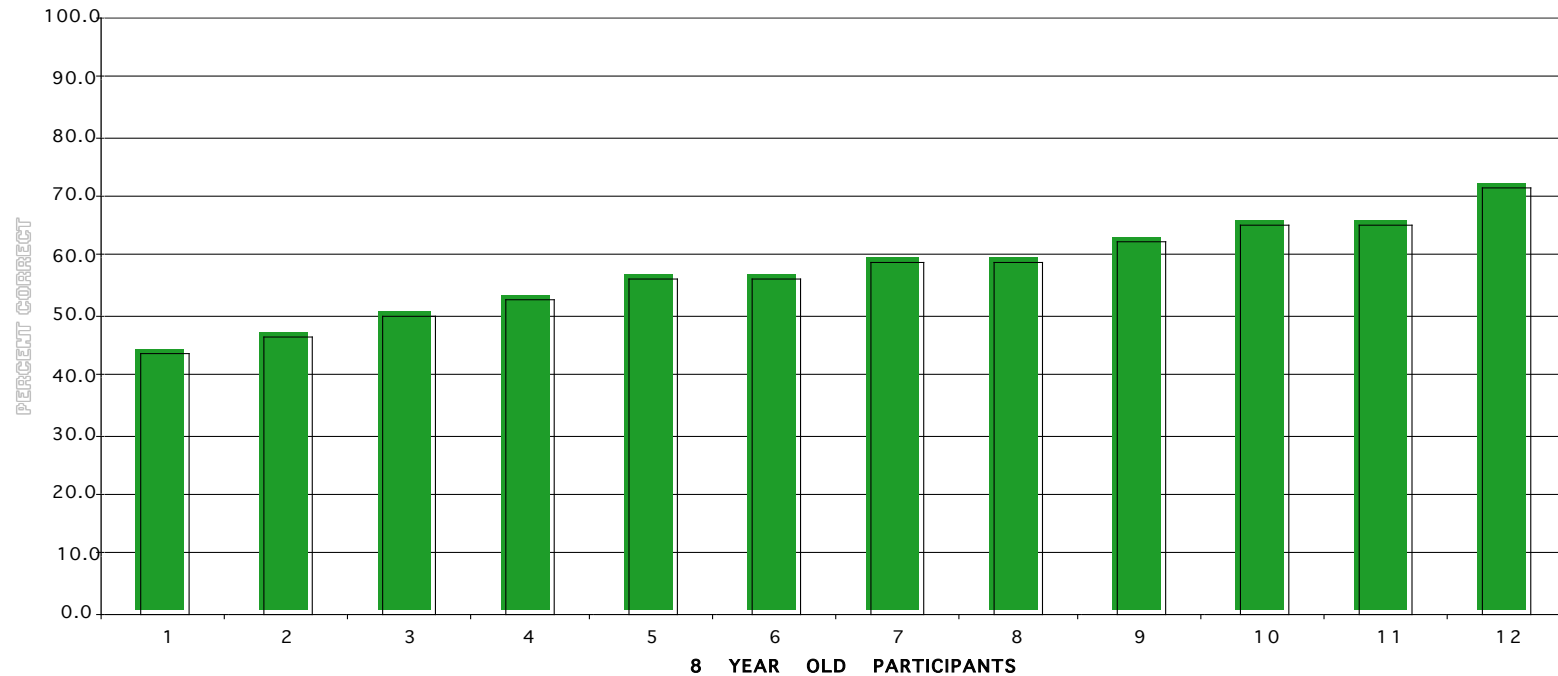
*Four year olds did not exceed chance performance on either test.  
Eight year olds did reasonably well discriminating between the  
languages of the female talkers.*

# Performance of individual four-year-olds



*None of the four year old participants seemed to be able to perform the task, responding at chance.*

# Performance of individual 8-year-olds



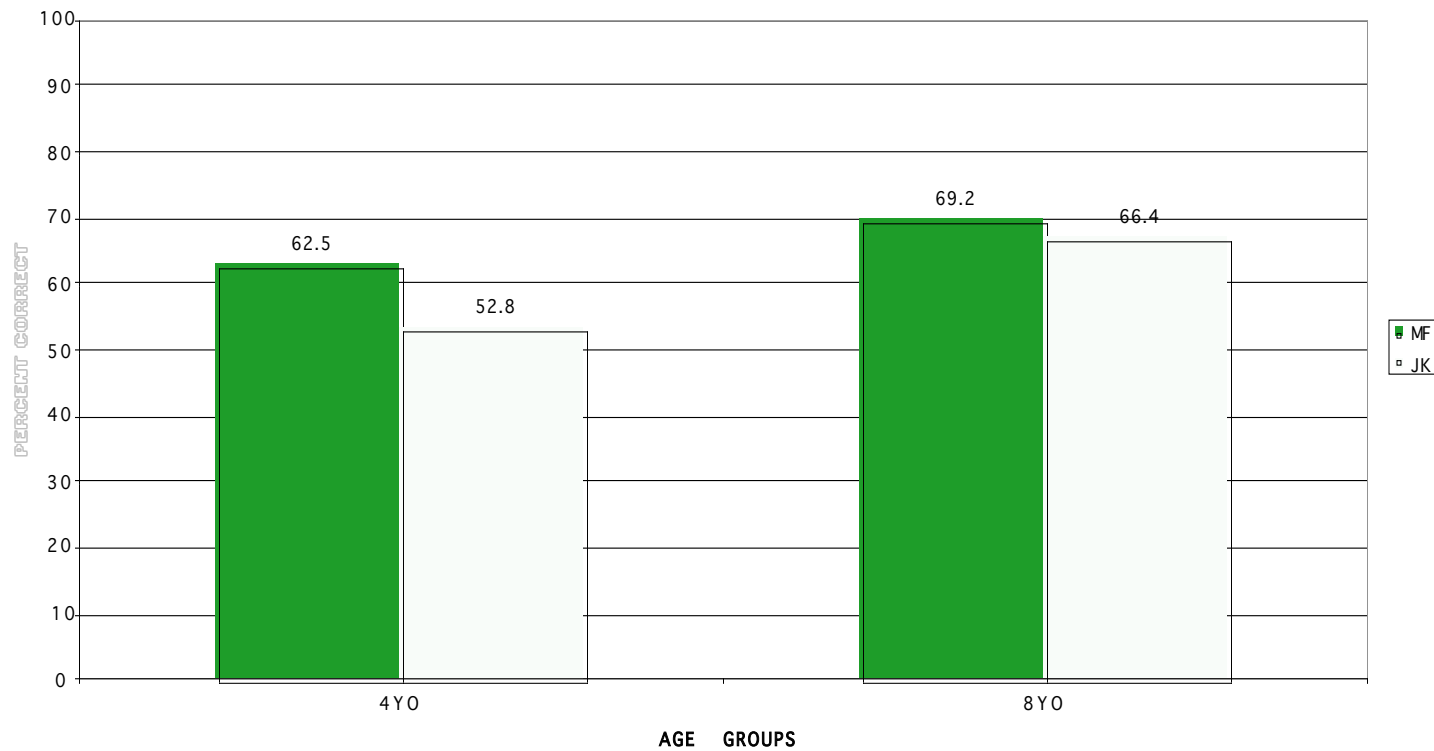
*Only three 8 year-olds were able to do the task reliably.*

# Experiment 3

We simplified the task again, in as many ways as we could imagine

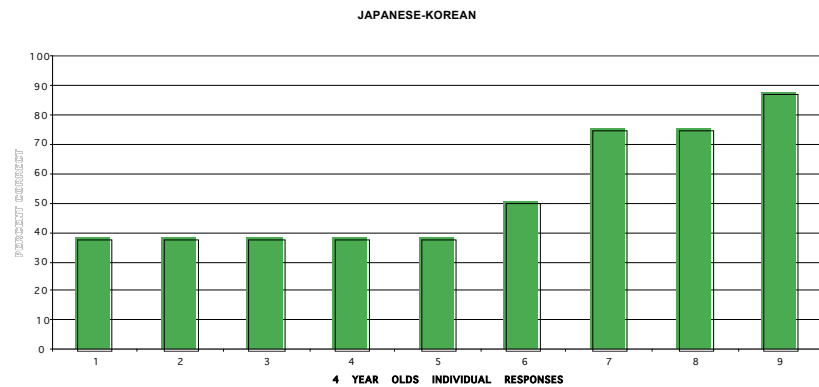
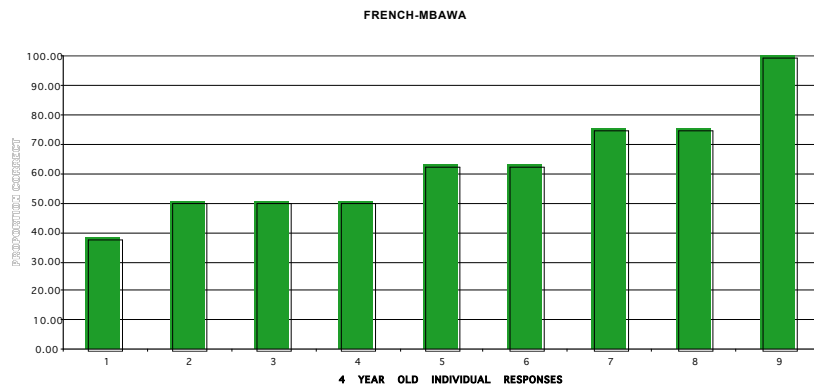
- Removed item numbers and ‘beep’ separator as possible distractors.
- Reduced test length to 8 items, each test representing only one bilingual female talker, Korean-Japanese or French-Mbawa.
- Simplified conceptualization of the task: “*Does the lady talk in the same way at the beginning and at the end?*”

# Overall performance



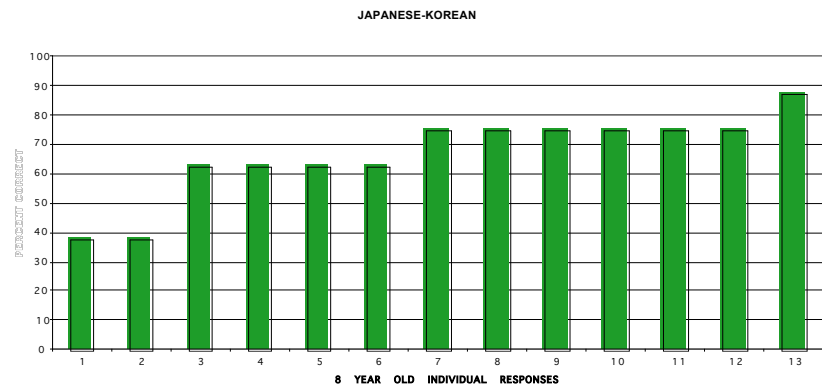
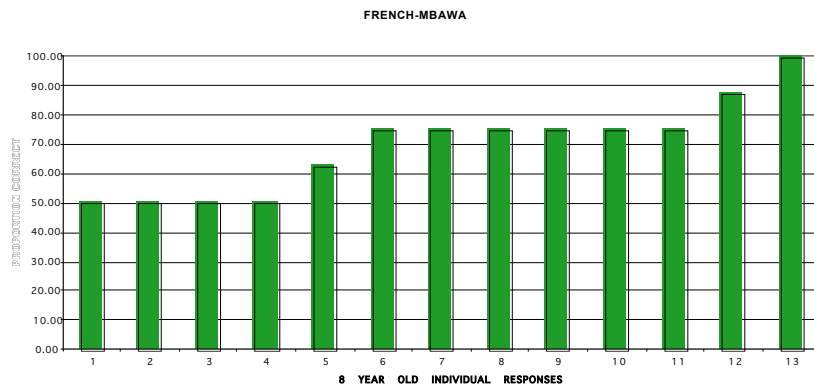
*Both 4 and 8 year olds could discriminate between samples of French and Mbawa. 8 year olds could discriminate Korean from Japanese as well.*

# Individual responses of 4-year-old children



*For each language tested, some of the 4 year olds could discriminate between the language pairs.*

# Individual responses of 8-year-old children



*The majority of the 8 year olds were able to discriminate both language pairs.*

# DISCUSSION

- When the task is relatively clear, 8-year-old children are able to separate the characteristics of a language from the characteristics of a talker.
- Some 4-year-old children are also able to separate language from talker.
- Yet making judgments about language vs. talker identity is extremely difficult for 4-year-olds. At best, their performance is marginal.
- It is not clear whether the task is too abstract for them or whether they can not separate language from talker characteristics.

# References

- Bond, Z. S., Stockmal, V. & Muljani, D. Learning to identify a foreign language, *Language Sciences* 20 (1998) 353-367.
- Bond, Z.S. & Stockmal, V. Distinguishing samples of spoken Korean from rhythmic and regional competitors, *Language Sciences* 24 (2002) 175-185.
- Bosch, L. & Sebastian-Galles, N. Native-language recognition abilities in 4-month-old infants from monolingual and bilingual environments, *Cognition* 65 (1997) 33-69.
- Lorch, M.P. & Meara, P. How people listen to languages they don't know, *Language Sciences* 11 (1989) 343-353.
- Lorch, M. P. & Meara, P. Can people discriminate languages they don't know? *Language Sciences* 17 (1995) 65-71.
- Mehler, J., Dupoux, E., Nazzi, T. & Dehaene-Lambertz, G. Coping with linguistic diversity: The infant's viewpoint. In *Signal to Syntax* (J.L. Morgan & K. Demuth, eds.) Manwah, NJ: Lawrence Erlbaum, 1996.
- Moon, C., Cooper, R. P. & Fifer, W. Two day-olds prefer their native language, *Infant Behavior and Development* 16 (1993) 495-500.
- Nazzi, T., Jusczyk, P. & Johnson, E. K. Language discrimination by English-learning 5-month-olds: Effects of rhythm and familiarity, *Jl. of Memory and Language* 43 (2000) 1-19.
- Stockmal, V. Discrimination of unknown foreign languages in spoken utterances: A developmental study. M.A. Thesis, Ohio University (1995).
- Stockmal, V., Moates, D. & Bond, Z. S. Same talker, different language, *Applied Psycholinguistics* 21 (2000) 383-393.