



Technology Assisted Reading Acquisition (TARA): Children Acquiring Literacy Naturally

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Early Literacy (Current Belief)

- Speech is Special
 - Specialized Module
 - Is Acquired Unintentionally
- Reading is Artificial
 - Must be Taught
 - Wait Till Schooling Begins

Language and Speech are Special

independent language organ

independent course of
development

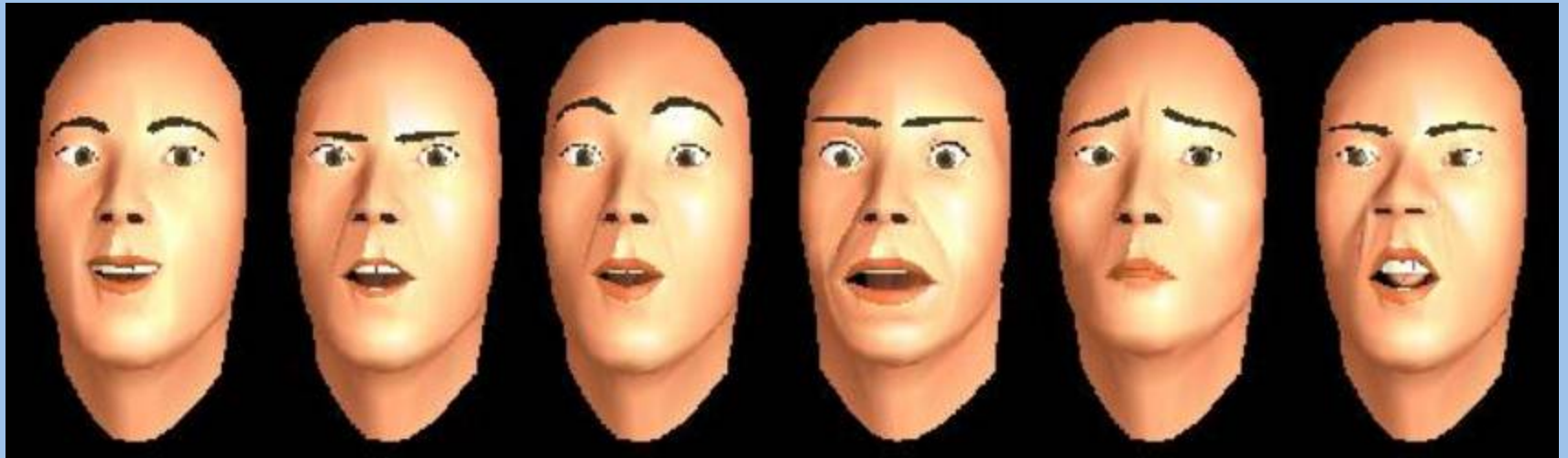
not standard perception and
learning



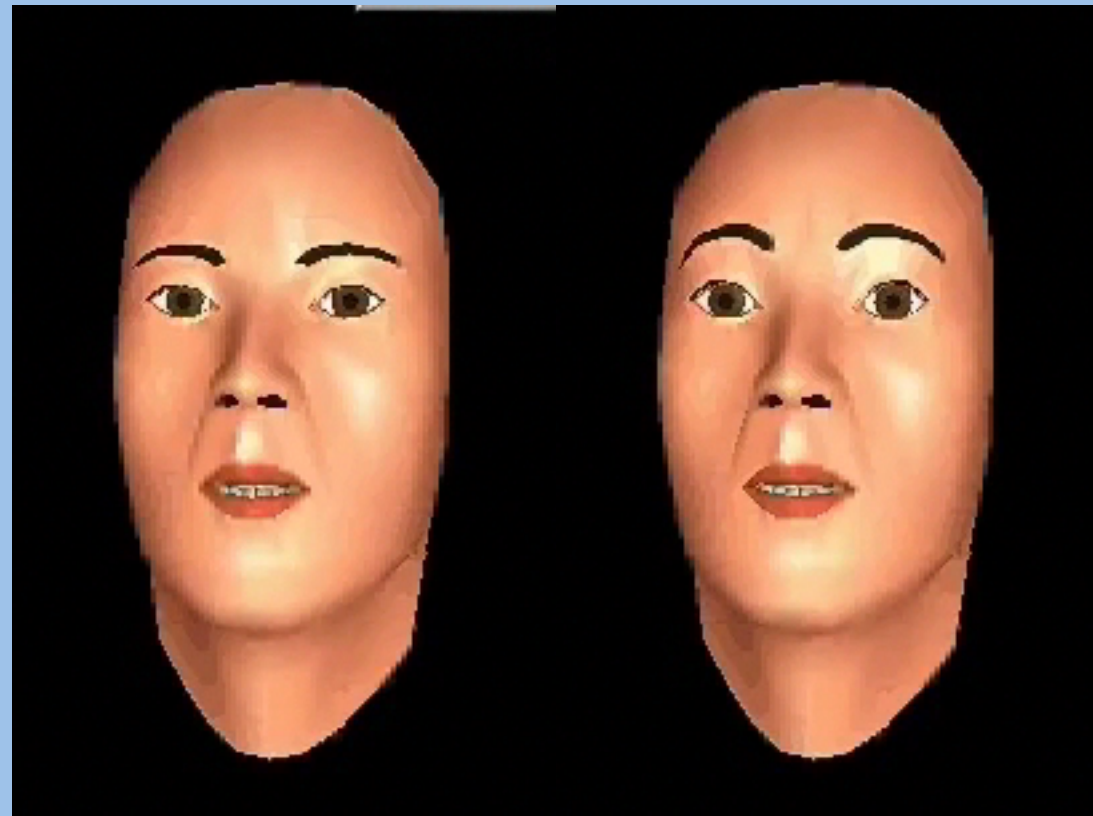
Noam Chomsky
Univ. of Maryland, Jan. 26, 2012

Value of the Face

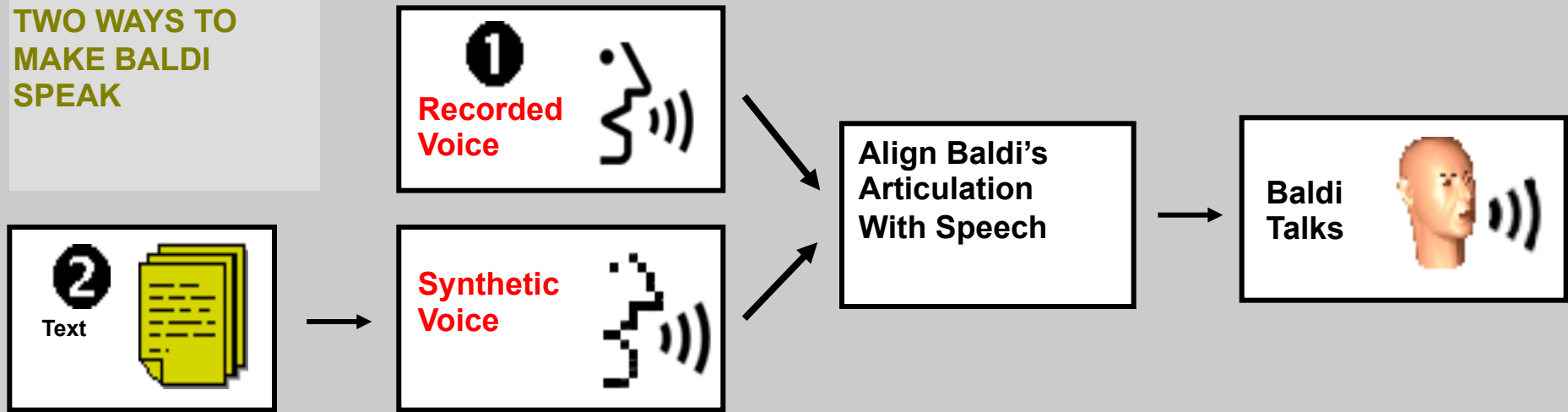




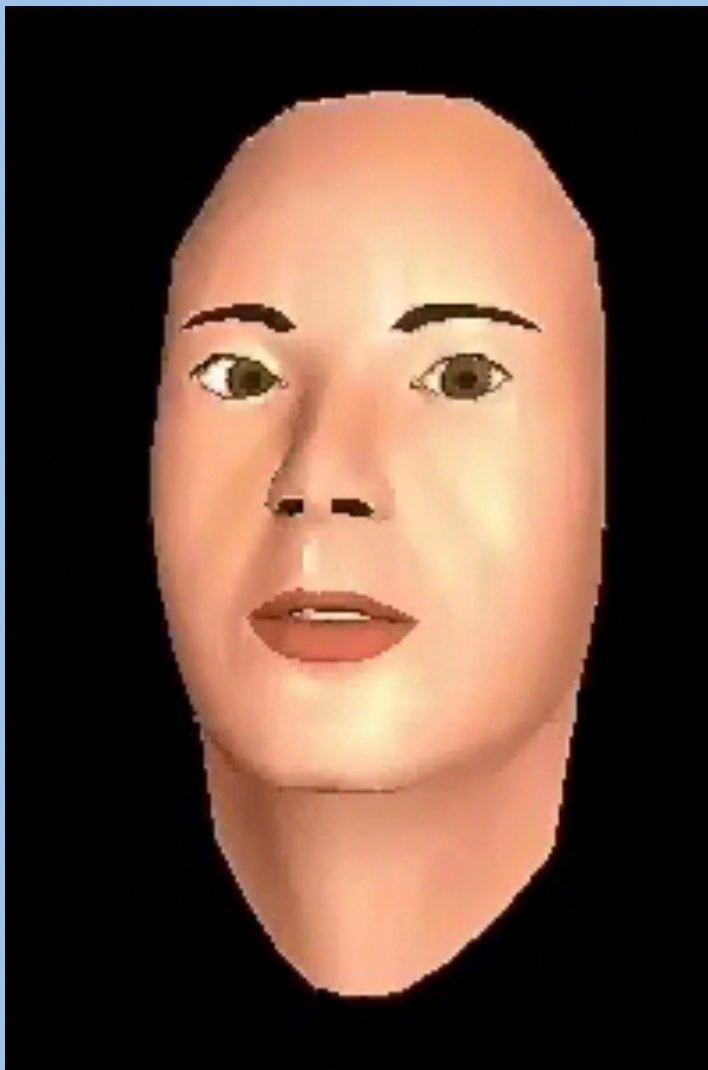
Realistic Emotion and
Affect



**TWO WAYS TO
MAKE BALDI
SPEAK**



*Baldi's "visible speech" can be driven by either **1** a recorded voice or **2** text that is automatically converted into a synthesized voice. Either voice is automatically aligned with Baldi's articulation.*



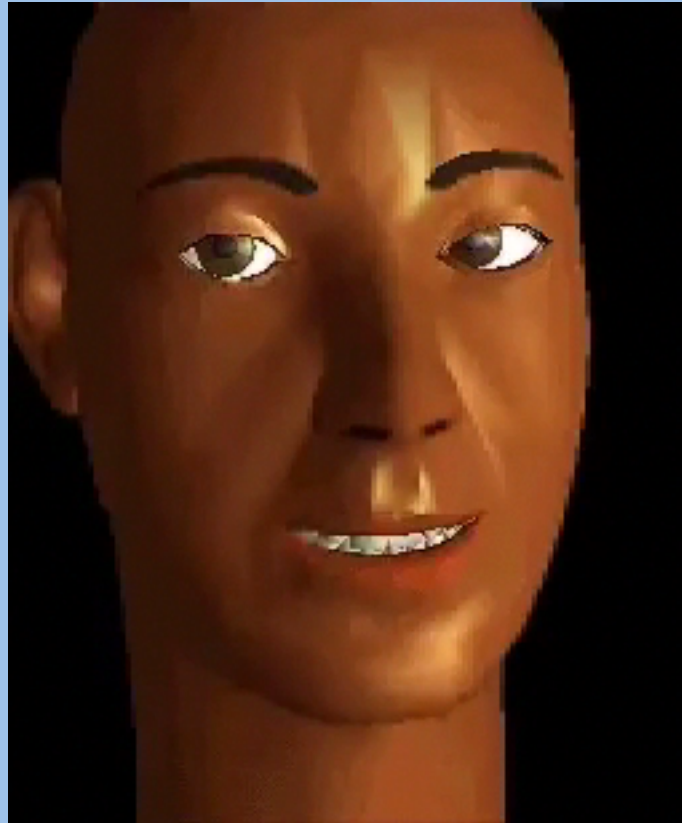
Mandarin

Translation:

The new-age
system for
Taiwanese
language involves
word change.

Bao

Baldi Speaks



Aligned with Natural Speech



Baldi: upcoming virtual
vocalist

Examples:

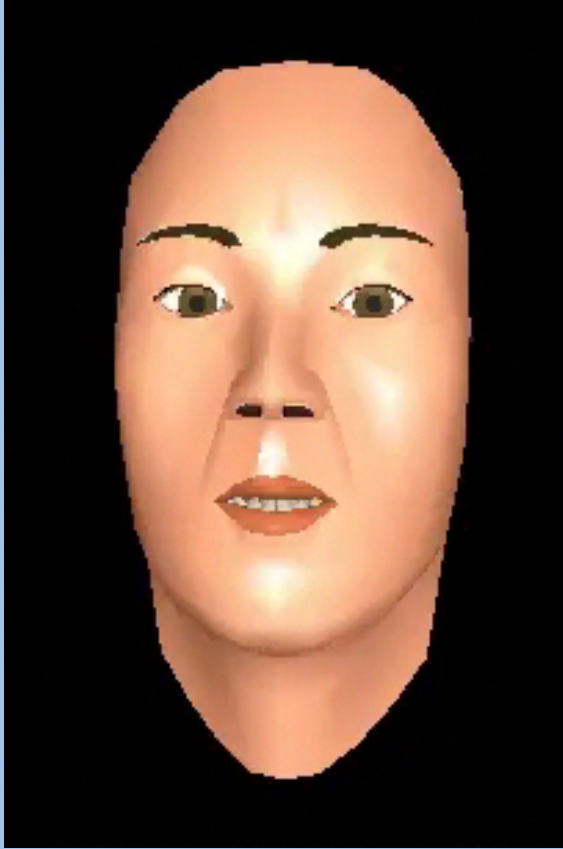
<http://mambo.ucsc.edu/psl/primus.html>



Primus

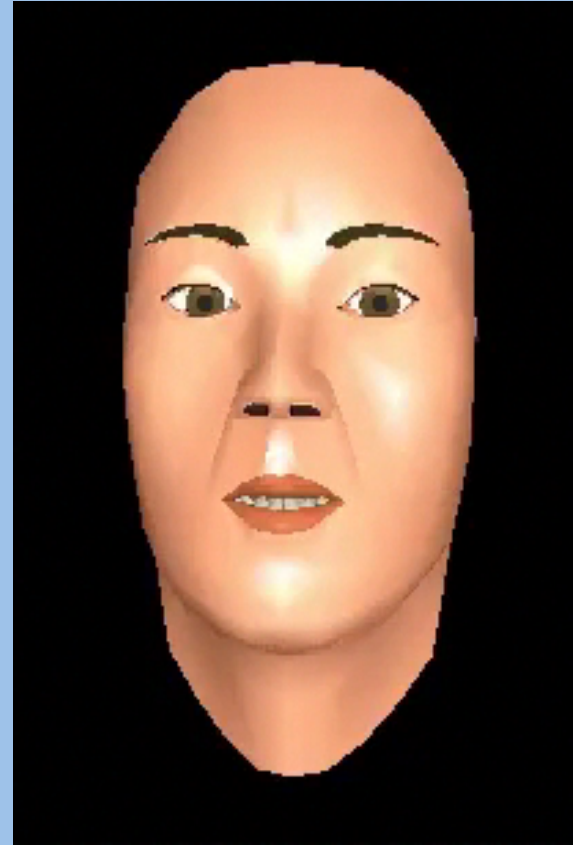
Examples:

<http://mambo.ucsc.edu/psl/primus.html>



verse 2

my notes on tap at my side

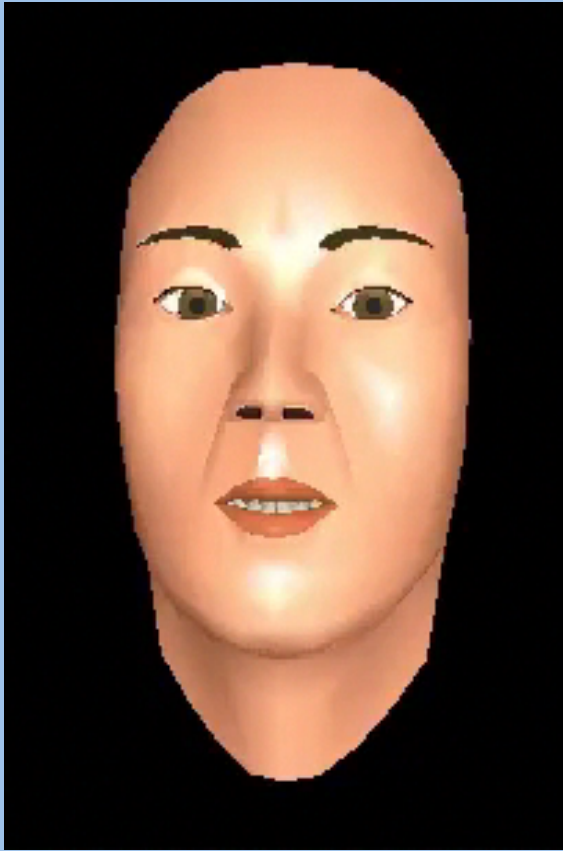


verse 3

a fluorescent tan covers my hide

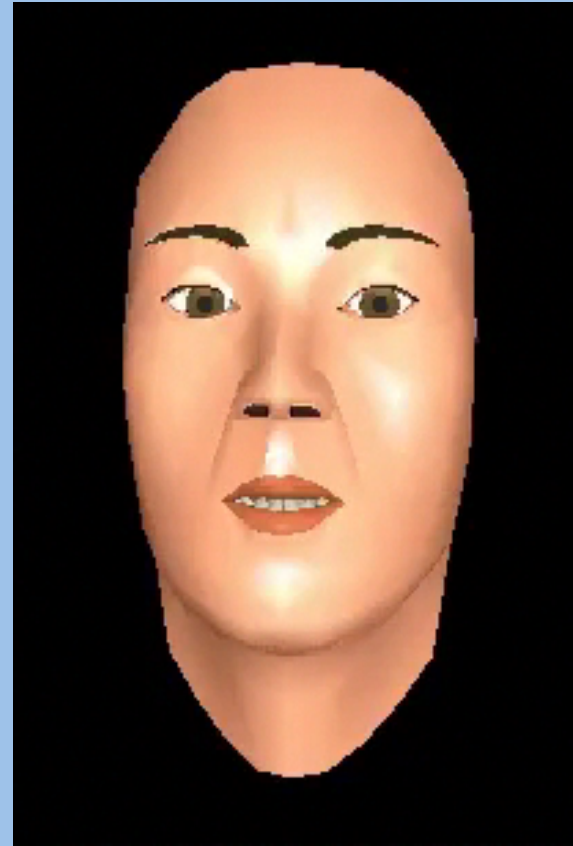
Examples:

<http://mambo.ucsc.edu/psl/primus.html>



verse 2

my notes on tap at my side



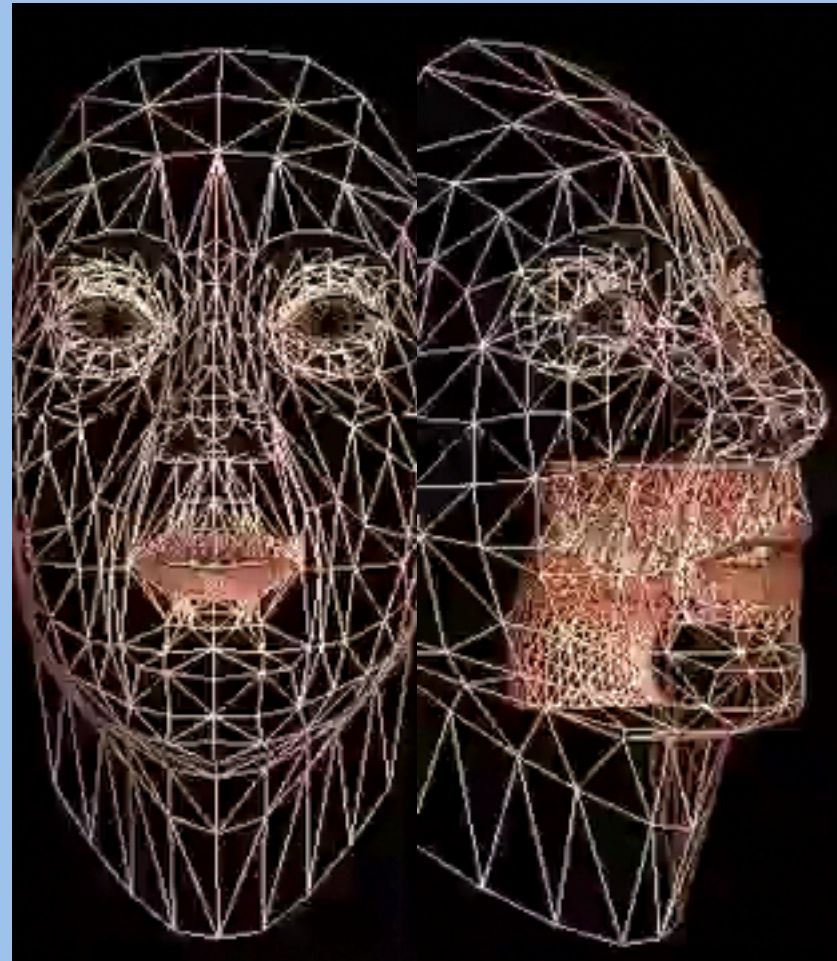
verse 3

a fluorescent tan covers my hide

Realistic Speech

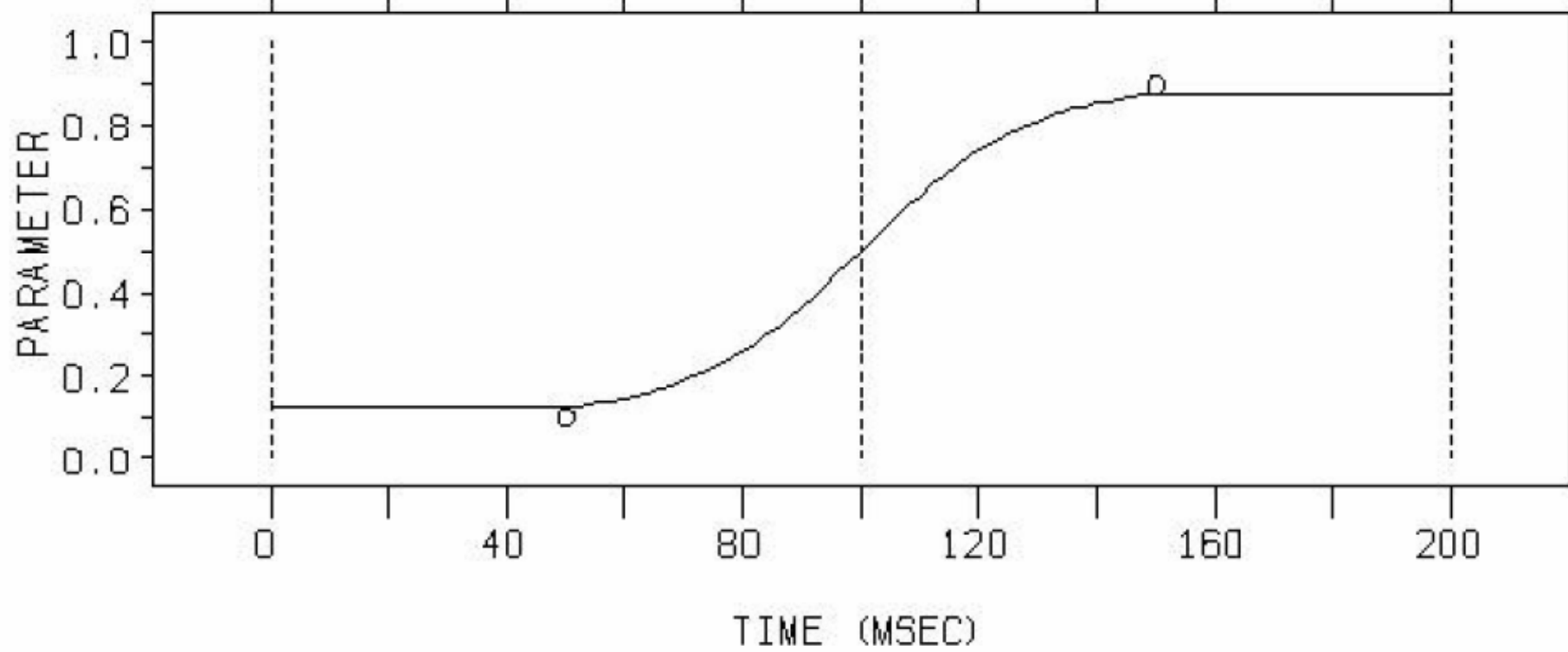
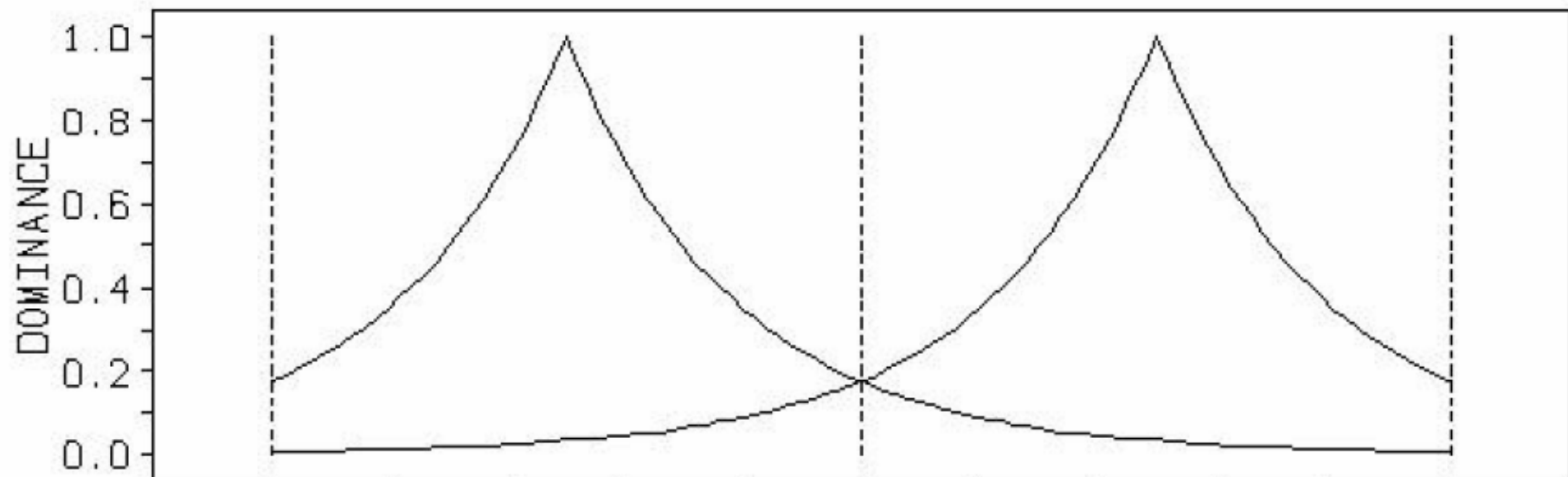
Facial control parameters.

- 1 jaw rotation
- 2 lower lip f-tuck
- 3 upper lip raising
- 4 lower lip roll
- 5 jaw thrust
- 6 cheek hollow
- 7 philtrum indent
- 8 lip zipping
- 9 lower lip raising
- 10 rounding
- 11 retraction

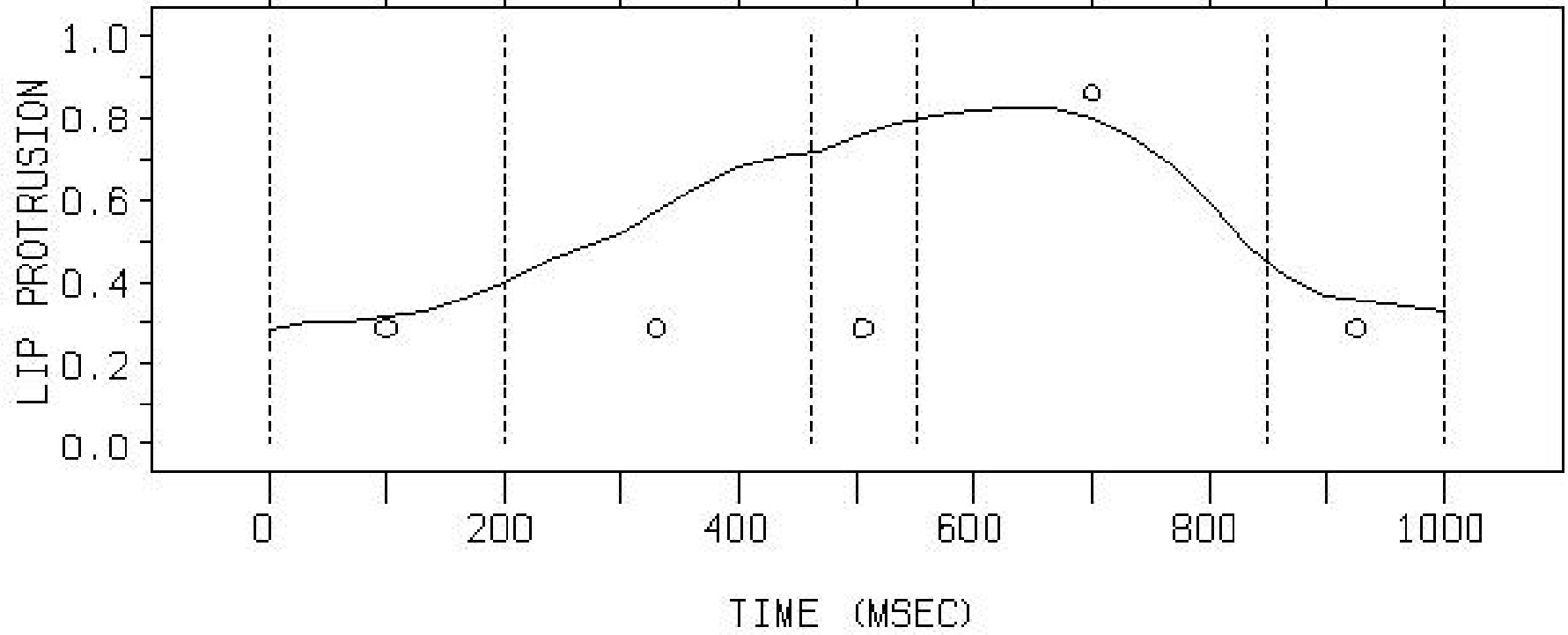
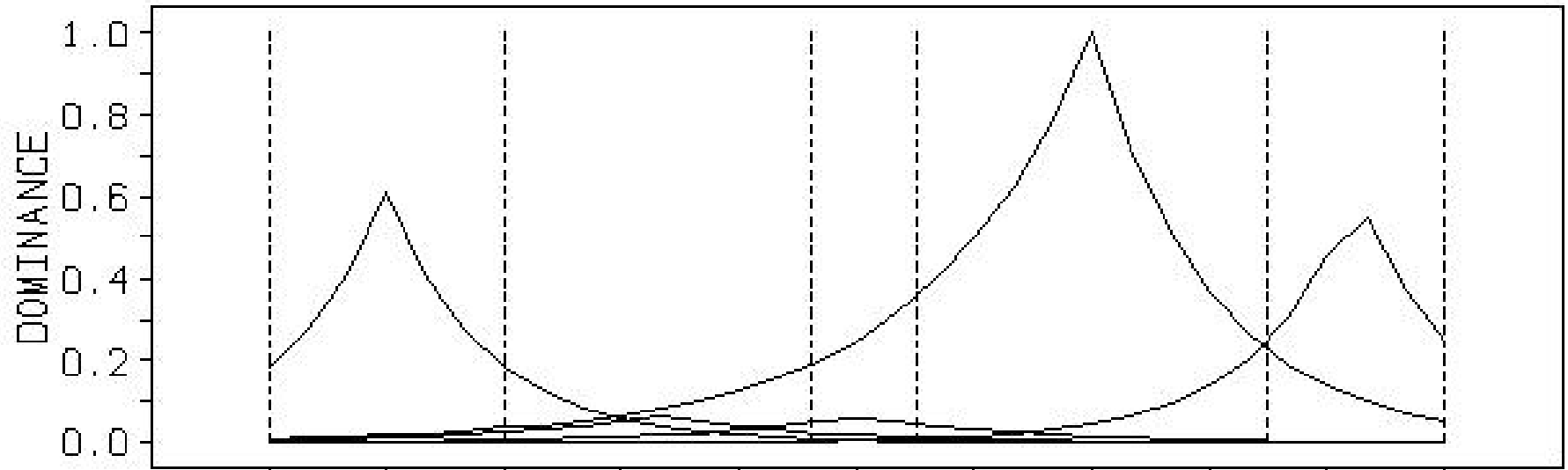


SEGMENT 1

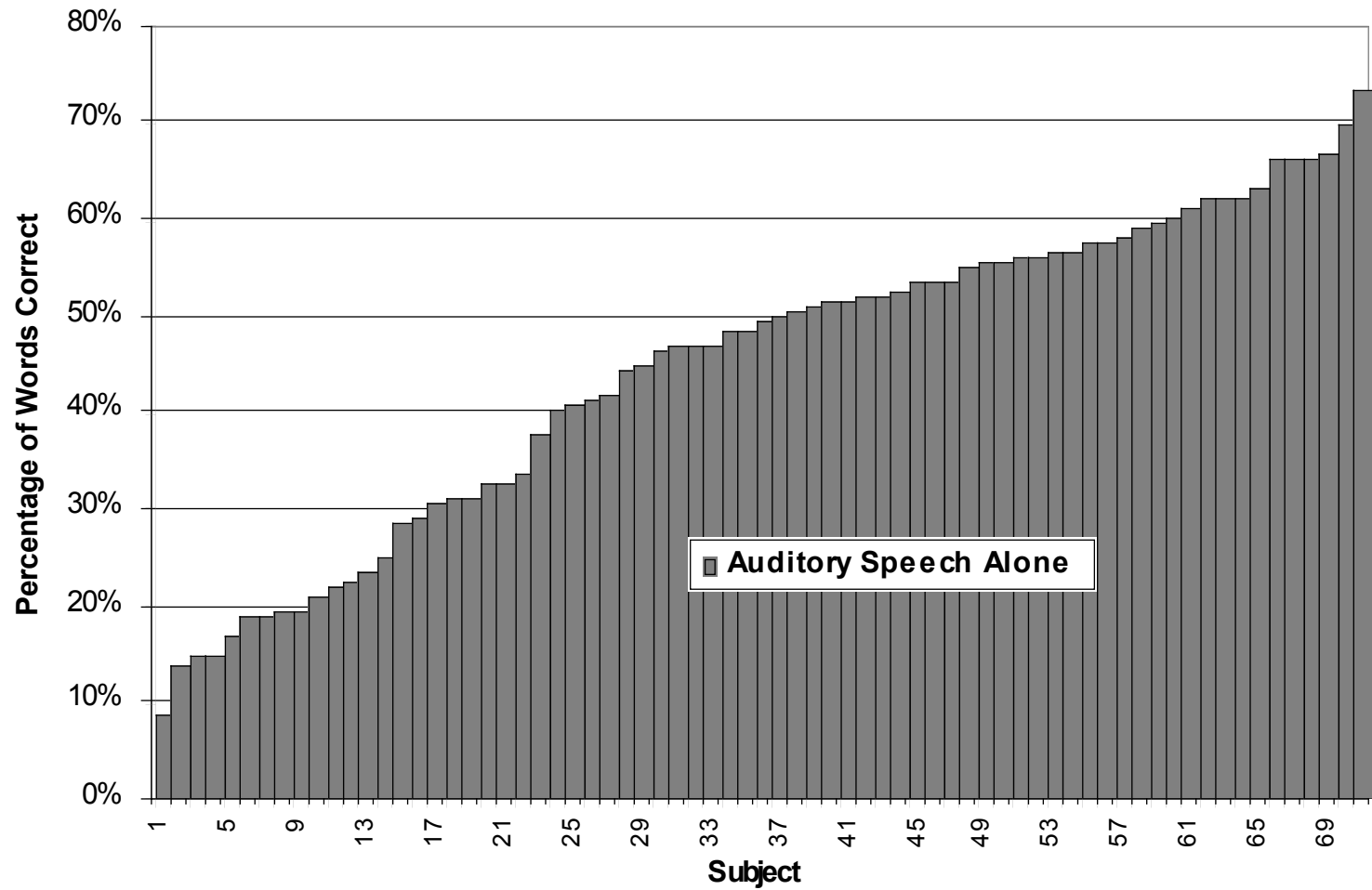
SEGMENT 2



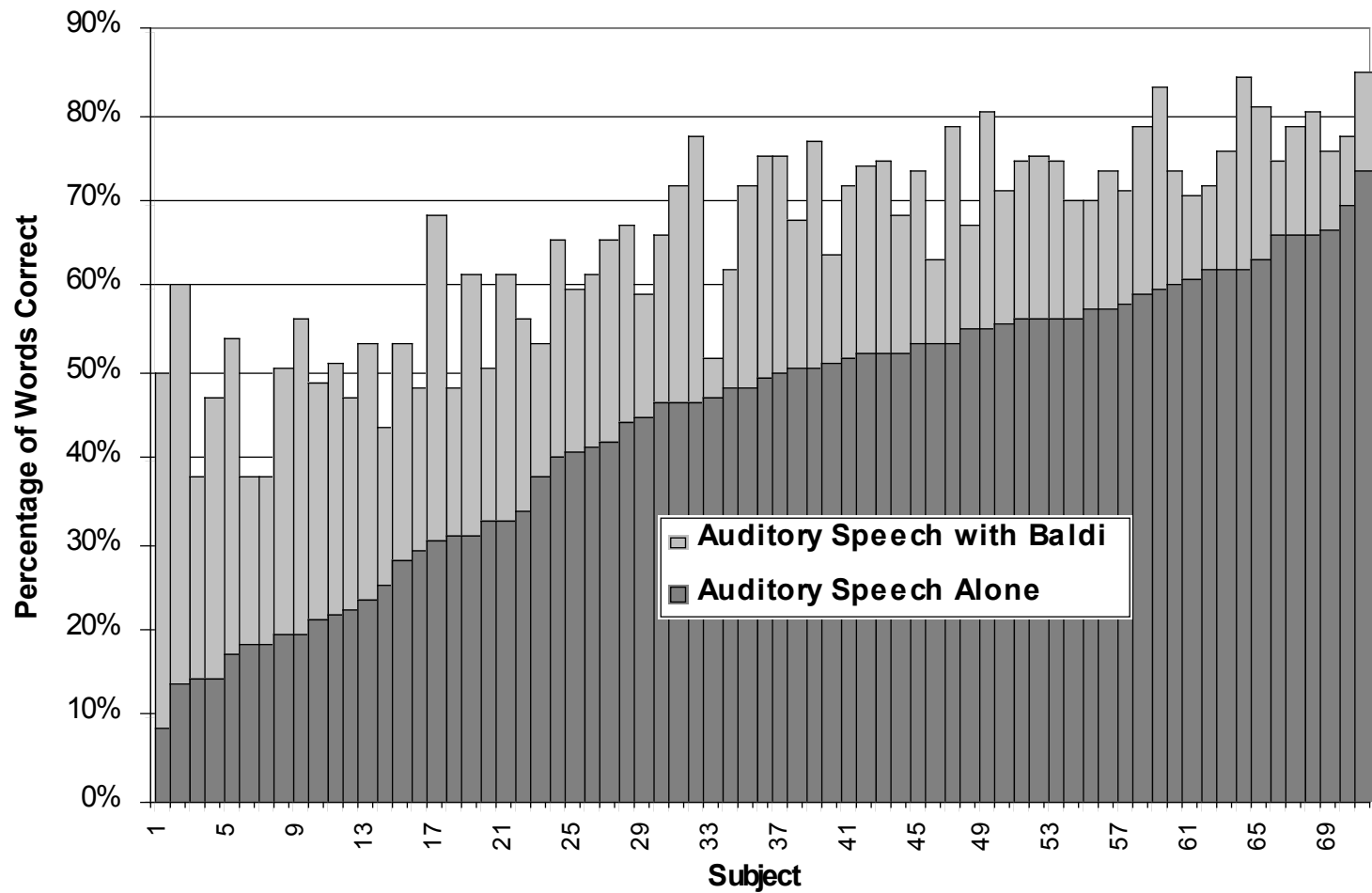
^ s t uw ^



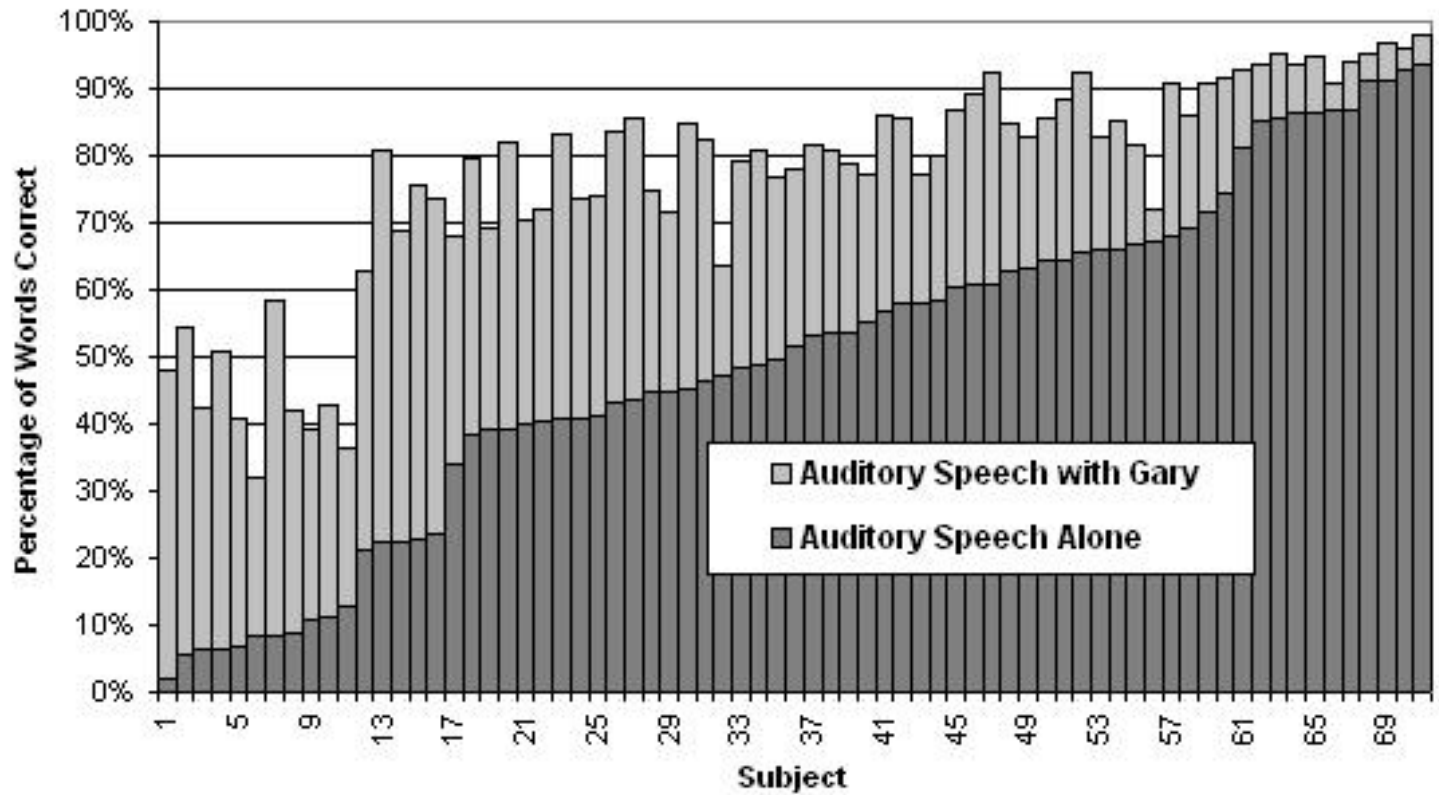
Recognizing Words in Short Sentences



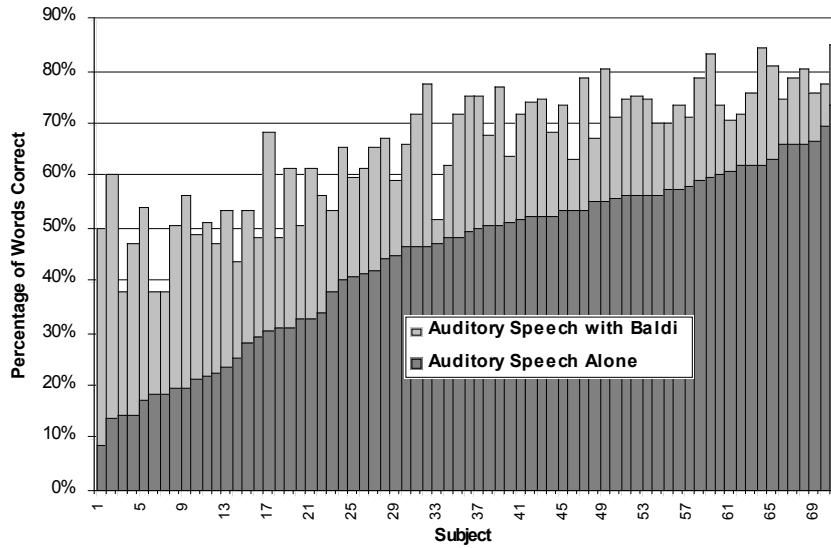
Speech "Visibility" Improves Comprehension



Speech "Visibility" Improves Comprehension

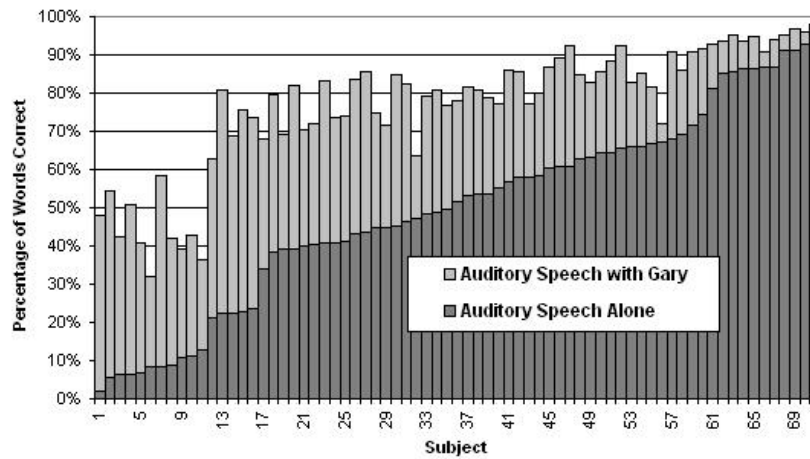


Speech "Visibility" Improves Comprehension



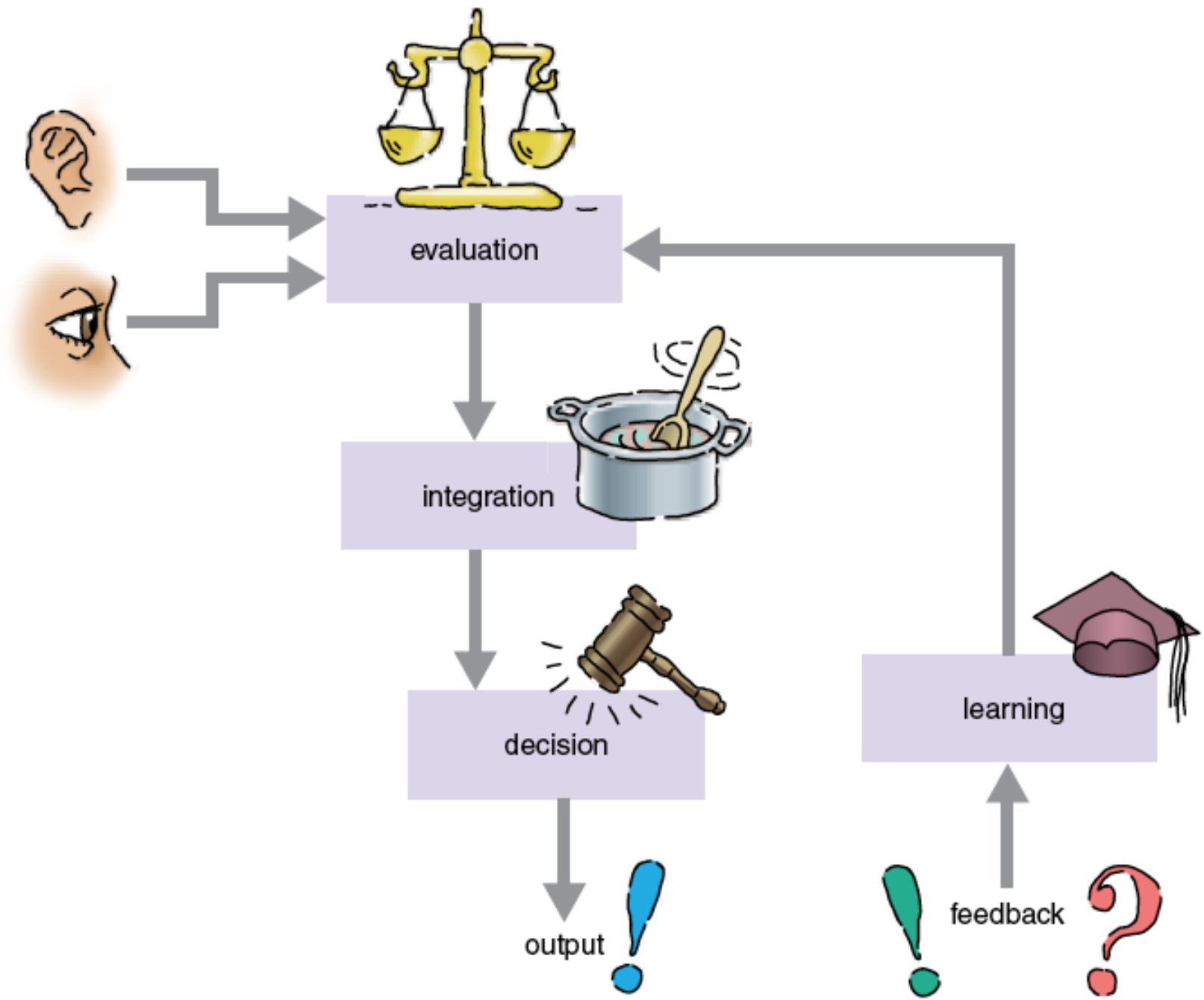
27% Natural vs.
21% Synthetic

Speech "Visibility" Improves Comprehension

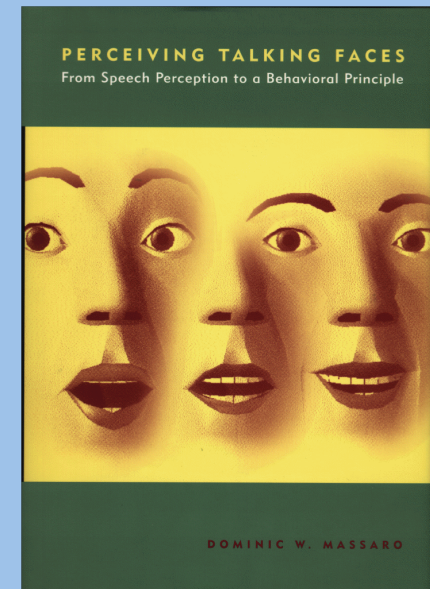
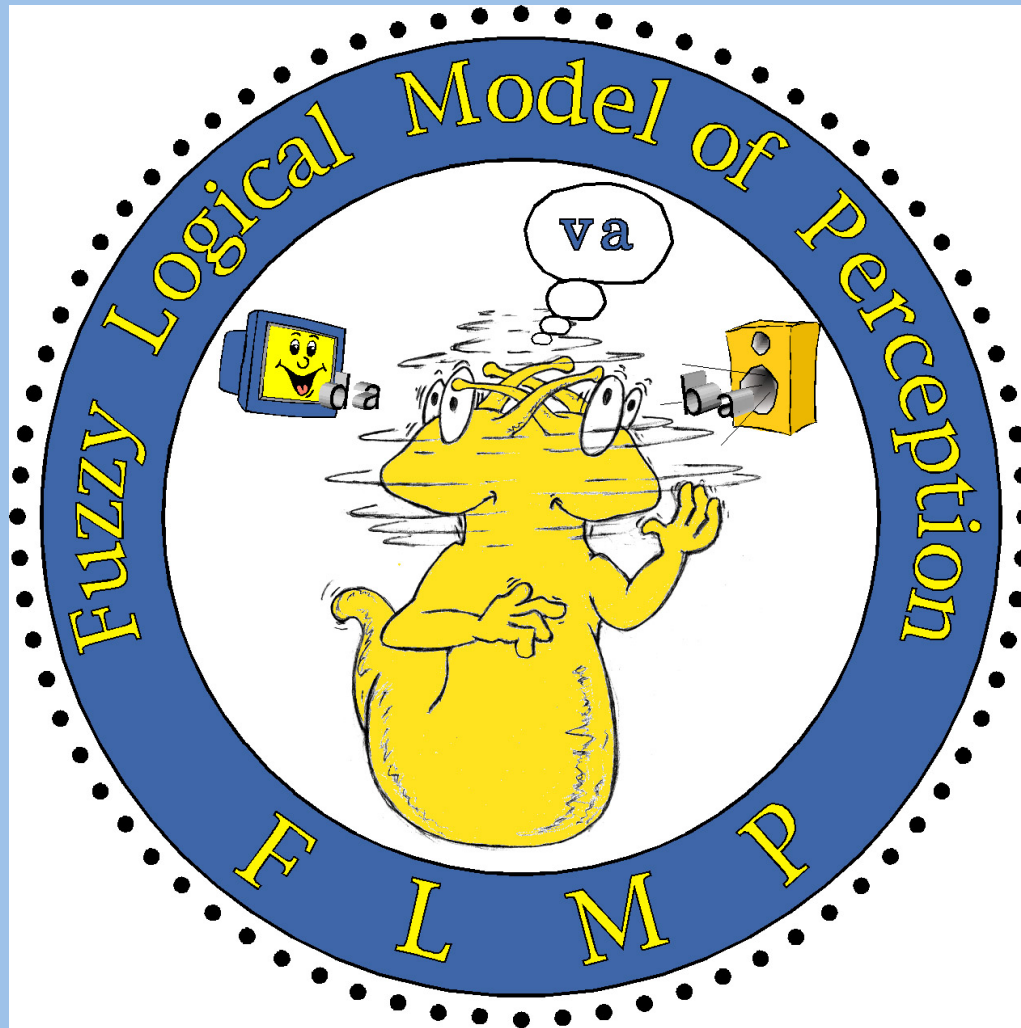


See What I'm Saying



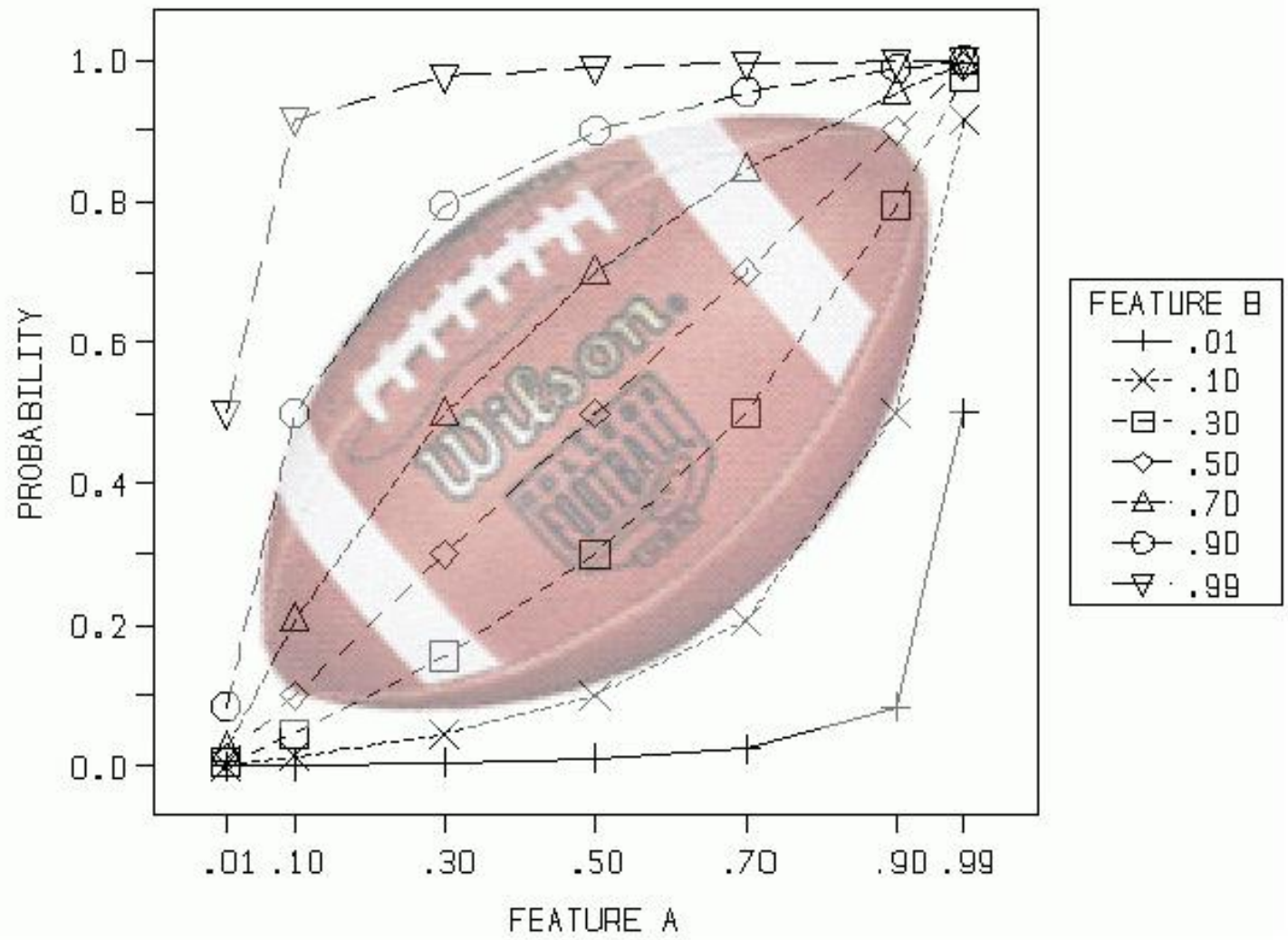


Multi-Sensory Pattern Recognition



BA 2 3 A 4 DA none

BA						
2						
V 3						
4						
DA						
none						



FLMP

