Development and evaluation of a test for the assessment of syllabic parsing ability in children
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Background
The Parsing Syllable Envelopes test (ParSE) was developed to investigate whether some children have a deficit in their ability to detect syllable boundaries.

Method
Participants: 138 6-12-year-olds (test and retest); 12 adults
Stimuli: 1, 2, & 3 synthetic [a:] syllables
Modulation depths: [0, 10, 20, 30, 40, 50, 60, 70, 80, 90, 100]%
Part 1: Non-adaptive
Part 2: Adaptive based on Part 1 responses

ParSE GUI

Results
• Average modulation depth at which the syllables can be parsed with 88% accuracy (UBUR) was 47% overall.
• No significant difference between test and retest (mean modulation depths of 48.4 and 40.4% respectively, $p = 0.14$). Test and retest correlation was strong ($r = 0.7$).

Child (8 years 2 months)
UBUR = 50.7
UBUR Z-Score = 0.00

Adult
UBUR = 25.7
UBUR Z-Score = -0.16

Age Effects
Effect of age was significant ($p = 0.0001$), with performance not significantly different to adults by age 9.

Distribution of Z-Scores
Z-scores were calculated to account for age effects. A skewed distribution towards negative performance occurred, with 5% of participants having scores poorer than 3 standard deviations below the age-adjusted mean.

Conclusions
The ParSE normative data shows that the ability to identify syllable boundaries based on changes in amplitude modulation improves with age, and that some children in the general population have performance much worse than their peers. The test is suitable for use in planned studies in a clinical population.

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