

# Assessing single word comprehension

## Auditory comprehension at the word level

The Logogen Model of single word auditory comprehension proposes 3 stages of processing (Morton 1969; Morton & Patterson 1980).

<b>Logogen Model Levels of processing</b>	<b>Activity at each level</b>	<b>Impairment at each level</b>
1. Auditory phonological analysis	Identifies individual speech sounds	Word sound deafness
2. Phonological input lexicon	Determines if the word is known or new	Word form deafness
3. Semantic system	Attaches meaning	Word meaning deafness

## Step 1: Assess single word comprehension

- Standardized assessment tools like the Boston Diagnostic Aphasia Examination often have a spoken word to picture matching task.
  - Clinician verbalizes the target word.
  - Patient points to the named picture from among four pictures:
    - Target picture.
    - Phonological distractor.
    - Semantic distractor.
    - Unrelated foil.

## Step 2: Assess phonology or semantics

Look at errors from Step 1.

- Phonological in nature? Assess with the SAPA (see below).
- Semantic in nature? Assess with the Pyramids and Palm Trees or Kissing & Dancing Test (see below).
- Unclear pattern? Use your clinical judgement.

## Option A: Assess phonological processing

- Standardized Assessment of Phonology in Aphasia (SAPA - open access; Kendall et al., 2010)

<b>SAPA Subtest 2</b>	<b>Purpose</b>	<b>Comments</b>
Task 1: Real word rhyme decision	Useful to compare with nonword rhyme decision task	Equal difficulty = word sound deafness
Task 2: Nonword rhyme decision	Test for word sound deafness	Real word > Nonword = word sound deafness, but person is tapping into word form knowledge to assist.
Task 3: Lexical decision	Test for word form deafness	
Task 4: Minimal pairs decision	Test for word sound deafness	
<b>SAPA Subtest 3</b>	<b>Purpose</b>	<b>Comments</b>
Task 1: Real word repetition	Useful to compare with nonword repetition	Equal difficulty = word sound deafness
Task 2: Nonword repetition	Test for word sound deafness	Real word > Nonword = word sound deafness, but person is tapping into word form or semantic knowledge to assist.

If our patient has trouble with minimal pair discrimination, we can also compare performance on minimal pairs versus maximal pairs.

- Minimal pairs - differ by one distinctive feature, like “tight - kite” or “bud - bug”
- Maximal pairs - differ by maximal number of features, like “face - lace” or “bud - bus”.

Patients who have trouble with both types of pairs are more severely impaired than patients who only have trouble discriminating between minimal pairs.

### Option B: Assess semantic processing

- Assess semantic processing with a test such as one of these:
  - Pyramids and Palm Trees (from Pearson Assessments).
  - Kissing & Dancing Test (APA PsycNet subscription).
  - Kissing & Dancing Test (short form available from SCORE Lab at Johns Hopkins, <https://score.jhmi.edu/downloads.html>).

## Step 3: Decide whether to assess the other domain

- Patients may have impairment at more than one level of single word auditory processing.
- Use clinical judgement to decide whether to assess the other domain or to begin treatment.
- If we only assess one domain (phonology or semantics) and our patient does not respond to treatment as we expect, we can assess the other domain.

## Factors to consider

- Hearing status - best practice is to perform a hearing screening or refer the patient to an audiologist.
- Assess in a quiet, well-lit setting. Ensure the patient is alert and wearing glasses and hearing aids as needed.
- On repetition tasks, keep in mind that our patient may have impaired verbal expression skills as well.

## Learn more about assessing and treating auditory comprehension

- The information presented here is based on a small subset of Brett McCardel's continuing education course "Auditory Comprehension in Aphasia: Theoretical Perspectives, Assessment, and Treatment". The recording is freely available on the MedSLP Collective Podcast: <https://medslpcollective.com/podcast/> (exact link in references below).

## References

- Bak, T. H., & Hodges, J. R. (2003). *Kissing and Dancing Test (KDT)* [Database record]. APA PsycTests. <https://doi.org/10.1037/t41470-000>
- Kendall, D. L., del Toro, C., Nadeau, S. E., Johnson, J., Rosenbek, J., & Velozo, C. (2010, June). The development of a standardized assessment of phonology in aphasia. Paper presented at the Clinical Aphasiology Conference, Isle of Palm, SC. <https://aphasiology.pitt.edu/2112/>
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