How listeners process accentuation of referential utterances in visual and linguistic contexts: An ERP study

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Introduction

Question: Are listeners sensitive to accents marking contrasts in visual or linguistic contexts?

**Missing Accent Hypothesis:** listeners are sensitive to missing, but not superfluous accents

**ERPs:** A few comprehension studies found processing difficulties for accentuation that does not match the preceding linguistic context [1,2]. No ERP studies on accents in visual contexts.

Methods

- 24 participants: right-handed, native Dutch
- trial sequence:
  - 2 object display (1500 msec)
  - pause with fixation (500 msec)
  - auditory NP referring to one of the objects
- ERPs time-locked to NP onset
- factors: (for linguistic and visual context)
  - contrastive information (color, object)
  - accent: (on adjective: H*L-; neutral: H*L !H*L)

**Linguistic context**

**Object contrastive**

- “The red BALL” (neutral)
- “The red BALL” (contrastive)
- “The red BALL” (neutral)

**Color contrastive**

- “The red ball” (neutral)
- “The red ball” (contrastive)
- “The red ball” (neutral)

**Visual context**

**Object contrastive**

- “The red BALL” (neutral)
- “The red BALL” (contrastive)
- “The red BALL” (neutral)

**Color contrastive**

- “The red ball” (neutral)
- “The red ball” (contrastive)
- “The red ball” (neutral)

ERP results: Linguistic Context

- Early negativity (300-400 msec) for a missing accent on the adjective (“red”) relative to an expected contrastive accent (“RED”) or neutral accent.

- Later negativity (450-550 msec) for a missing accent on the noun (“ball”) or a neutral accent relative to an expected contrastive accent (“BALL”).

Discussion

**Linguistic context**

Support for the Missing Accent Hypothesis:
- a missing pitch accent on a contrastive element leads to processing difficulties right at the position of the missing accent
- superfluous accents on repeated information do not lead to on-line processing problems

Intermediate (‘neutral’) accentuation:
- interpreted as an expected contrastive accent on the adjective due to strongly constraining linguistic context
- interpreted as a missing accent on the noun in the context of the overall accentuation of the utterance

**Visual context**

Some support for the Missing Accent Hypothesis when color is contrastive relative to the context
- processing difficulty for missing and neutral accent on adjective

Different pattern when object is contrastive relative to the context
Speculation: related to overspecification of the color
- color is uninformative in this context
- some accent on adjective provides communicative reason for mentioning the color
- overspecification and deaccentuation lead to processing difficulty

No consistent pattern for the visual context but some support for the Missing Accent Hypothesis

References


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