Background

Difficulties recognizing contextual ambiguity often arise because individuals are burdened with contextual and environmental complexity (e.g., foreground and background information; Broadbent, 1958; Chun, 2000; Liberman & Whalen, 2003; and Wolpert, Doya & Kawato, 2003).

Kraljic and Brennan (2005) found that speakers in these contexts are often not aware of the ambiguity at all.

Cognitive load can be reduced when a speaker’s productions are egocentric, though they may be ambiguous for a listener (Rayner, Carlson, & Fraizer, 1983).

Horton and Keysar (1996) suggest that revision through monitoring and adjustment aids interlocutors in avoiding miscommunication.

Goal: to determine the effects of cognitive load on disambiguation behavior in the presence of communication breakdown.

Method

Participants

17 undergraduate students with no diagnosed hearing, visual or speech impairments (12 females, mean age: 22.8 years).

Stimuli

Auditory: 3 types of pre-recorded statements.
1. Container + Object: “Put the paperclip in the cauldron on the stop sign.”
2. Container: “Put the flowerpot on the circle.”
3. Object: “Put the hammer on the rectangle.”

Picture Images:
Container + Object, Object, Container, & Geometric Shapes

Video:
Correct: Correct object was moved.
Incorrect: Incorrect objects were moved.

Imposed time constraint (7 sec). Production time < 7 sec = + point, > 7 sec = - point

Procedure

4 Conditions:
2 (Speeded or Unhurried) x 2 (Mistake or Correct)

Results

Mixed fixed/random effects model: Pseudo-Confederate Response x Statement Type interaction: F(1, 685) = 5.672, p < .05

Mixed fixed repeated measures model: Task Speed x Pseudo-Confederate Response interaction: F(1, 23) = 10.925, p < .005

Discussion

When interlocutors are constrained cognitively, they may revert to an “ease of production” strategy because it prevents the cognitive system from becoming overtaxed (Horton & Gerrig, 2005; Roßnagel, 2000).

Evidence from the Unhurried Condition shows, at the time of and during production, a disambiguation strategy may be found or turned “on”, thus decreasing production time.

These results provide a theoretical reconciliation between a Monitoring & Adjustment model (Horton & Keysar, 1996) and a “one-bit” model (Brennan, Galati & Kulen, 2010; Galati & Brennan, 2010) of language production.

If interlocutors have the time, they may find the most efficient disambiguating strategy, through trial and error (Monitoring & Adjustment). Once the best strategy is formulated, it should persist.

Current work in our lab supports this notion, via a split speeded/unspeeded task.

References


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