How do we decide what to mention?
Distractor homogeneity and referring expression generation

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Introduction
REG algorithms incrementally select features to incorporate into referring expressions, but do not account for speakers’ decisions between multiple features when each feature uniquely identifies the target. Given that visual accessibility has been shown to exert influence over human reference, REG algorithms should take this information into account.
Clutter and salience affect search times and reference. Search is also affected by the visual homogeneity of the distractors. This effect is hypothesized to extend to reference, such that a feature which varies heterogeneously among distractors is harder to find and less likely to be mentioned than one which is homogeneous among distractors.

Homogeneity
Visual search is more efficient when the distractors are more homogeneous. Does this extend to more complex stimuli?

Does more homogeneity of a feature among the distractors lead to speakers using that feature more often in referring expressions?

The current study
Experiment 1: Visual Search
Pictorial cue depicting a single feature; participants click on the cued image

Experiment 2: Referential Communication
Spatial cue; participants describe the cued image for a hypothetical listener

Results
Search and reference were unaffected by homogeneity. Multi-level models specifying random effects for participants and images were not improved by specifying a fixed effect of homogeneity.

Future research
Refine stimuli and examine effects on visual search
- If a visual effect is found, re-run referential communication.
Include a real listener and compare referential behaviours
Examine listener’s behaviour
- Do listeners perform better in a visual search when speakers use less variable features in their referring expressions?
- Do participants direct gaze to competitors more often when there is low variability or high variability?

References

Feature that speaker is expected to mention

Example trials
Visual Search
1000ms

Referential Communication
750ms

Delaware