

The effect of communicative social context on object perception

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Humans, uniquely among animals, learn from each other by receiving semantic information via communication. We hypothesized that such tendency is supported by perceptual biases that would make people more likely to extract semantically relevant features of a scene in a communicative context. For example, when people observe an object in an ambiguous communicative context, they should be biased encode the permanent features of the object (such as its colour or shape) in the expense of its transient features (such as location).

To test whether the context can influence object perception, we used a paradigm based on the phenomenon of change blindness. Change blindness refers to people's inability to detect changes of complex scenes when the visual input is disrupted. Three groups of 24 people saw brief movies of 5 objects either in a non-communicative "reaching context" or in a communicative "pointing context". The movies were followed by a still picture of the objects, with either the location or the identity of an object altered. The participants' task was to try to detect these changes.

Our results revealed that change detection for location was better than for identity when the objects appeared in the reaching context. In contrast, when they saw the objects in the pointing context, change detection for location was more difficult than for identity. In fact, compared to a baseline performance, where objects were presented without any action, change detection performance became worse for location changes in the pointing context. These results support the hypothesis that communicative actions both weaken the encoding of transient location information about the objects and direct the attention towards the permanent identity-relevant features of an object-referent, and, as a result, they help the future recognition of the object. Social environment, when it involves communicative actions, has a shaping role in the perception of objects.