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[PS-3.1]

(In)congruent scenes: eye movements and language production

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In this study we want to know how visual and semantic properties of scenes determine linguistic production. We prepared an experiment with two factors: scene type (photograph vs. drawing) and semantic consistency (congruent vs. incongruent), resulting in four experimental conditions. 24 pictures representing natural scenes were created, each one in the four conditions. 24 children (8 y/o), native speakers of European Portuguese, without visual or attentional deficits or language disorders, were given a picture viewing task, followed by 2 questions. Participants' eye-movements and linguistic production were recorded with an SMI IVIEW X HI-SPEED system and with a Logitech® Webcam Pro 9000. First fixation, fixation duration and gaze were taken from two Aol (heads and (in)congruent objet). Produced speech was computerized with TEITOK and measures of fluency and linguistic complexity were extracted. Preliminary results show a main effect of scene type on first fixation ($p=0,010$), and of scene congruency on gaze ($p=0,006$). Scene type and congruency also impact on fluency and on production of Nouns referring represented or inferred entities: 60% of words in response to photographs; 53% Nouns to incongruent photos. As expected, results show a relationship between visual scene properties and congruency, and visual behavior and produced speech.

[PS-3.2]

A cognitively plausible model for anaphora resolution

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Anaphora resolution is a complex problem, as it deals with syntax, semantics and discourse. The subject is well studied in field of psycholinguistics, where multiple preferences were discovered, and in the field of computational linguistics, where many systems have been developed to perform anaphora resolution in documents. Nevertheless, the work done in the two fields remains disconnected. We investigate how we can bridge the gap by exploiting the options for making a cognitively plausible model for anaphora resolution. Such model can be beneficent for both fields as it can inspire computational linguistics with findings about how humans process anaphora, and help the psycholinguistic community developing large coverage, incremental models simulating the human processing of anaphora. Inspired by the surprisal framework that uses incremental probabilistic parsing to predict processing cost coming from syntax for each word in a corpus, we focus on incremental probabilistic systems of anaphora resolution from the field of computational linguistics, for example the largely spread pair-wise model, and turn them into a cognitive model of processing of anaphora. We will present some preliminary results on the measures of processing cost of anaphora we developed and the perspective of evaluating the model on eye-tracking data.