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Information structure

of a different nominal and adjectival class, thus rendering both types of modification unnecessary for identifying the target. The target referent had one of four attributes (big, small, round, square) and three accompanying distracters represented one of the other attributes not shown by the target.

A video of a speaker appeared in the centre of the screen, with each referent in the surrounding quadrants. Participants were asked to C). Preliminary data show an additive speeding effect of redundant speech and gesture relative to the nonredundant control condition. We also see shorter latencies relative to the control condition for both single-modality redundant conditions (1 and 2), though there were no differences between these conditions.

References Davies, C. and Katsos, N. (2010). Over-informative children: Production/comprehension asymmetry or tolerance to pragmatic violations? *Lingua*, 120 (8), 1956-1972. • McNeil, N. M., Alibali, M. W., & Evans, J. L. (2001). The role of gesture in children's comprehension of spoken language: Now they need it, now they don't. *Journal of Nonverbal Behavior*, 24(2), 131-150. • Morisseau, T., Davies, C. and Matthews, D. (under review) *How do 3-and 5-year-olds respond to over-and under-informative utterances?* • Sonnenschein, S. (1982). The effects of redundant communication on listeners -when more is less. *Child Development*, 53(3), 717-729. • Sekine, K., Sowden, H. and Kita, S (under review) *Five-year-olds, but not three-year-olds, integrate information in speech and iconic gesture in comprehension*

Interface Constructions for Gestures Accompanying Verb Phrases

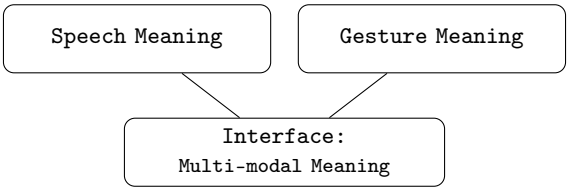
Insa Röpke, Florian Hahn, and Hannes Rieser / *U. Bielefeld*

Mittwoch, 13.3., 17.45–18.00

We currently focus on gestures accompanying verb phrases in route-descriptions aiming at the reconstruction of their semantics and pragmatics and showing how they interface with verbal meaning. Our research is based on a systematically annotated corpus, called SaGA, the Bielefeld Speech-and-Gesture Alignment-corpus (Luecking 2012). It consists of 25 dialogues of dyads engaged in a communication about a "bus ride" through a Virtual Reality town. One participant of each dyad has done this ride and describes the route and sights passed to the other participant. This taped conversation is annotated in a fine-grained way.

Especially due to our work with this corpus, we are aware of the fact that gesture use is bound to dialogue and interlinked with dynamic phenomena such as the use of anaphora. However, at present we abstract from these

things. Using interface methodology, we concentrate on the static semantics of speech-gesture occurrences. The idea for our interface construction is as shown below:



Compositional interface construction

Assuming that gesture and speech share the same aboutness, we aim at constructing a multi-modal proposition. We provide first a compositional semantics for the speech part and a compositional semantics for the gesture part. Both are extended for interfacing and subsequently fused into the interface proper, also built up compositionally. Here, the speech representation overrides gesture representation due to scopal considerations.

The interface provides the multi-modal meaning for the speech-gesture occurrence, hence, the idea of a "unified semantics" is maintained. However, due to the workings of the interface procedure, we also get independent semantics for the speech part, the gesture part and the function of the interface. The compositionality is modelled using typed lambda calculus and ideas from Combinatory Logics. We develop two routes to provide semantic representations for speech-gesture occurrences, one is a Montague-Parsons line based on event ontology and the other one a Montague-Reichenbach track exploiting higher order techniques. One of these will be exemplified in the talk. Depending on our example we will also tackle questions of formal pragmatics.

In our future research we will extend our descriptive tools and move on to Dynamic Semantics and dialogue theory since our corpus consists of dialogues.

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Identifying linguistic and neural levels of interaction between gesture and speech during comprehension using EEG and fMRI

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Mittwoch, 13.3., 18.00–18.30

AG11

Conversational gestures are hand movements that co-occur with speech but do not appear to be consciously produced by the speaker. The role that these gestures play in communication is disputed, with some arguing that gesture adds only little information over and above what is already transmitted by speech alone. My own work has provided strong evidence for the alternative view, namely that gestures add substantial information to the comprehension process. One level at which this interaction between gesture and speech takes place seems to be semantics, as indicated by the N400 of the Event Related Potential. I will also present findings from a more recent study that has provided evidence for a syntactic interaction between gesture and speech (as indexed by the P600 component). Finally, fMRI studies suggest that areas associated with the detection of semantic mismatches (left inferior frontal gyrus) and audiovisual integration (left posterior temporal lobe) are crucial components of the brain network for co-speech gesture comprehension.