Event role biases in language and cognition
JCoLE 2022

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Program

Introduction by Arrate Isasi-Isasmendi

1. **Vanessa Wilson, University of Neuchatel**

Evolutionary origins of semantic role attribution

To decompose the structure of an event requires one to identify the semantic roles, that is, the event protagonists (e.g. the dog and the cat) and the causal relationship between them (e.g. dog chases cat). Event decomposition is something that people automatically do when communicating about events, but also when viewing events. That is, people tend to emphasise agents (the action doer, e.g. dog) in syntactical structure, and exhibit visual bias towards agents over patients (the action recipient, e.g. cat) in event scenarios. These findings suggest that event processing may be key to understanding the evolution of event-related syntax. In this talk, I will discuss whether semantic role attribution is a unique cognitive capacity in humans, or something we share with other extant primates. By examining research in nonhuman primates, I will address the origins of event decomposition, through capacities for processing physical causality and forming social representations, as well as more complex aspects of causal processing such as psychological causality and agency attributions. I will present evidence that argues in favour of pre-linguistic origins of semantic role attribution, and discuss how a comparative approach to linguistics can help us to understand the origins of syntax.

2. **Alon Hafri, University of Delaware**

Role-filler independence in automatic visual processing

When we observe a cat on a mat, or a dog chasing a cat, we appreciate not only the objects and their features, but also the relations SUPPORT and CHASE, which abstract away from the particular objects involved. Independent representation of roles (e.g., figure/ground, agent/patient) and their "fillers" (e.g., cat, mat, dog) is a core principle of language and thought. But does such role-filler independence also arise in automatic visual processing, without requiring effort or reflection? Across several studies, I show that it does. First, visual processing of relations exhibits

abstraction, such that otherwise very different relational images (e.g., knife-in-cup, phone-in-basket) may be confused for one another in fast perceptual tasks. Second, visual processing rapidly and spontaneously extracts relational structure (e.g., man-as-Agent, woman-as-Patient), even when task-irrelevant. My findings suggest that automatic visual processing respects role-filler independence, in ways that may offer key insights into the representational roots of semantic roles in language.

3. Lilia Rissman, University of Wisconsin-Madison

Shared semantics, divergent syntax: representations of agency across languages

Event roles such as Agent and Patient have been argued to be cross-linguistically universal and crucial for language evolution. One challenge to this universal view is that different semantic categories are expressed through Agent-marking syntactic structures across languages. For example, in a nominative-accusative language like English, the Agent of a transitive verb (e.g., *eat*) is marked the same way as the argument of an intransitive verb (e.g., *arrive*). In an ergative-absolutive language like Basque, these two types of arguments receive different marking. We ask whether English and Basque speakers conceptualize event roles in similar ways despite these different syntactic systems. In a categorization task, participants learned to sort pictures of transitive events into Agent and Patient piles. At test, they were asked to categorize pictures of intransitive events as either Agents or Patients. English and Basque speakers sorted intransitive events in remarkably similar ways, suggesting shared semantic role representations that are not modulated by syntax.

4. Denis Tatone, Central European University

Asymmetries in event construction. The case of giving and taking.

Give and take verbs differ cross-culturally with respect to their syntactic requirements: the former requires the patient to be made explicit in the clause core, the latter does not. I will argue that this asymmetry is rooted in prelinguistic assumptions about the number of obligatory participants that each action concept entails. I will review three lines of evidence corroborating this claim: (1) preverbal infants interpret giving actions as patient-directed ('A gives X to B'), but taking events primarily as object-directed ('A takes X') in a looking-time task; (2) adults produce stronger alpha-band suppression (an electrophysiological correlate of the perceived interactivity of actions) when presented with giving compared to taking events in a passive-viewing task; (3) adults bind agent and patient together when exposed to giving, but not taking, events in a change-detection task. Taken together, these findings suggest that giving is constitutively encoded as a three-place event, whereas taking is only facultatively so, presumably because its

goal can be apprehended as directed to acquiring a resource irrespective of its distal social effects on the patient (i.e., the original possessor).

5. Ebru Ger, University of Bern

A crosslinguistic investigation on the interface between causal language and causal event construal in young children

There is great variation in how languages express causality: some dominantly use a formal marker to express causality while others use lexical means. As formal markers of causality are transparent at the surface level unlike causal meanings hidden in lexemes, we ask whether this transparency influences children's construal of events as causal. To investigate this, we examined children learning Turkish, as representative of having transparent verbal causal morphology (e.g., ye [*eat*] vs. yeDIr [*feed*]), and children learning Swiss-German, as representative of having less transparent lexical means (e.g., ässe [*eat*] vs. füettere [*feed*]). In two experiments, we showed that 2.5- to 4 year-old children learning either language extract causality in events using the representative linguistic cues. Yet, they do not seem to differ in the extent to which they do so. This may suggest that different typologies have evolved to function with similar efficiency in the processing of causal events.

6. Arrate Isasi-Isasmendi and Sebastian Sauppe, University of Zurich

Agent preference in incremental sentence processing

In incremental sentence processing, initial ambiguous noun phrases tend to be interpreted as the subject or agent of the sentence ("subject/agent preference"). This heuristics has been found to operate in a variety of languages. Yet, it is not known whether comprehenders' interpretations are based on a preference for the subject category or for the agent semantic role. Additionally, it's an open question whether this preference operates even under unfavourable conditions, i.e., when language-wide patterns of usage disfavour agent-initial interpretations. We conducted two EEG experiments with Basque and Aiwoo speakers to address these questions. We found that ambiguous noun phrases were interpreted as agents and that disambiguations to patient readings elicited a reanalysis (N400/LAN) in both languages. This was the case even though the grammatical category was controlled for (in Basque) and the most frequent word order in the language (patient-initial, in Aiwoo) is patient initial. These findings suggest that sentence processing is guided by a top-down cue to assign the agent semantic role, also in languages where grammatical features would disfavour it. This is possibly linked to the broader preference for agents in the human cognition.

Closing remarks by Vanessa Wilson