Internship: Studying the influence of strategy elaboration on collaborative task success in restricted communication settings.

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Context:
A big scientific challenge is to investigate the processes of human interactional flexibility. Humans are able to communicate and understand each other even in unfamiliar situations or situations rich in ambiguity. Their behavior is highly adaptive, but the variability and dynamic of natural human interaction make communicative behavior difficult to study. Recent experimental work has developed methods with which it is possible to investigate the emergence and evolution of communication systems in controlled laboratory settings (cf. Experimental Semiotics, Galantucci 2009, De Ruiter et al. 2010). Generally, two participants are seated in different rooms and are asked to play a game together, communicating over a computer interface. This allows creating a setting, in which communication is only possible in a very controlled way, making the study of the interaction feasible. In prior work, we have created an experimental setup where the meanings of signals from one partner to the other are unknown as they have not been defined before (see Vollmer et al. 2014). Without having time to elaborate on a strategy beforehand, players have to complete a construction task together and assume asymmetric roles. What we observe is an initial phase of chaos and confusion. Then a coupling takes place between participants, after which follows a more regular phase of completion in which signal meanings have been constituted. Whereas this phase of chaos in the beginning has also been reported in the context of other settings and the noise that characterizes this phase has been hypothesized to actually be a feature helping the communication system to transit to coherence, its role, function, and cause have so far not been investigated. Additionally, even though participants at the beginning of the game are skeptical if it is even possible to successfully complete the task, most pairs do succeed. However, when asked about how they managed to succeed, they are unable to answer. These facts hint at the importance of spontaneity and flexibility (enabling contingency and chance) for the coupling process. With a previously cognitively planned strategy, these mechanisms might not take effect or at least be inhibited.

Goal:
Investigating the influence of strategy elaboration on success in this task would support a theory of communication where noise and ambiguity are essential features for the negotiation of meaning and thus communicative success. In this internship, we will work on extending the work presented in (Vollmer et al., 2014) by for example adding a time period at the beginning of a game for participants to think about a strategy they want to pursue. In particular, we will:

1. Devise and test the experimental design.
2. Conduct the experiment.
3. Analyze the acquired data.

Required Knowledge and background:
Good knowledge of methods in experimental psychology. Confidence in using computer programs in experimental setups. Good knowledge of SPSS, R or similar is not necessary, but a strong plus. Good basic technical understanding (Linux, python, technical setup: monitors, computers, cables) is a plus.
References: