# Proposal

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Speech turns and alignment of speech turns can be an avenue of exploration. We understand the usefulness (maybe even intuitively if not demonstrated from the paper already) regarding speech turns and alignment of these turns, and how they can be used to foster collaboration. Speech “turns” can perhaps be thought about as critical points, re-write rules, and alignment of turns can be thought about in regards to automation or confluence/termination.

Keywords: speech turns, alignment of speech turns, modeling speech turns, rewriting properties of confluence/termination since there are a non-zero way of reaching a “convergence” in a collaboration environment.

There seems to be an overlap perhaps in the way that I’m thinking about the requirements of this project with the project called “ReForm” on the gitlab?

What can happen in these models? (We need to be able to express in terms of a language, action, how can we create a word) Temporal logic will work on words (determine them as actions), assign a semantics, semantics of the actions.

Content vs abstraction of intent (when we try and move away from ReForm)

\*We need to generate good questions about actions, and get a good sense of the possibility of actions, relations, things we can assume, causal relations. Be sure about understanding of the model of interaction (that impacts the way we can analyze it in the post).

### Specificity

From what I understand, the two papers are regarding the research of using computer tools (sensors, modeling, etc) in order to better understand/manage emotional feedback during collaborative processes in order to improve performance.

There’s a section regarding “speech turns” and alignment of “speech turns” which from what I understand from the brief talk with Professor Chanel is about how two individuals in a collaborative process could interact, and how that interaction can change over the course of the interaction.

I am most interested in this part of the work, and am interested in modeling this speech turn, and this may yield insight on alignment of speech turns, which could assist in the work that the department is currently doing, which would be, very cool.

Questions to Sunny, from the Psych department side of the current research work:

1. What specifics are the psych department looking for (quantifiable metrics preferably) during their research?

2. Speech turns -> are we talking about physical words, or simply intention, and if it is intention, how are they categorized? (are they the markers we already seen like grounding, co-constructing of knowledge, etc) and if so, how does the research mark a “turn” in speech

3. How does the research maybe think about how speech turns and alignment of speech turns could assist in forming a better assessment of collaboration?

### Useful Snippets

#### Treating the user (or collective user)’s state of minds, which is part of the identified key processes, mutual modeling, that involves speech turns and alignment of turns (perhaps automatically) will provide additional help in assessments.

Guillaume Chanel, Mireille Bétrancourt, Thierry Pun, Donato Cereghetti, Gaëlle Molinari, 2013 (“Assessment of Computer-Supported Collaborative Processes using Interpersonal Physiological and Eye- Movement Coupling” :)

“Results show that the two coupling measures can be used to predict collaborative processes such as emotion management and convergence.”

“a machine should be able to understand nonverbal behaviors such as smiles and emblematic gestures (e.g. the “peace and love” finger gesture), and to infer user’s state of mind.”

“Several processes have been identified as playing a key role in successful collaboration such as: sustaining mutual understanding (grounding); building a representation of the collaborative partners (mutual modeling); information pooling; confronting points of view; co-constructing knowledge; building upon partner’s reasoning (transactivity); elaborating and resolving conflicts; reaching consensus and convergence; coordinating the joint efforts; regulating the interaction, etc.”

“Results showed the importance of coupling features for the assessment of collaborative processes, thus validating our hypothesis.”

“The computation of facial expression coupling as well as speech turns and alignment of turns will certainly provide interesting features for a better assessment of collaboration.”

Gaëlle Molinari, Distance Learning University Switzerland & TECFA/University of Geneva, Sierre & Geneva, Switzerland, gaelle.molinari@unidistance.ch, Guillaume Chanel, Swiss Center for Affective Sciences, Geneva, Switzerland, Guillaume.Chanel@unige.ch Mireille Bétrancourt, TECFA/University of Geneva, Geneva, Switzerland, Mireille.Betrancourt@unige.ch Thierry Pun, Computer Science Department/University of Geneva, Switzerland, Thierry.Pun@unige.ch Christelle Bozelle, Swiss Center for Affective Sciences, Geneva, Switzerland, [Christelle.Bozelle@unige.ch](mailto:Christelle.Bozelle@unige.ch), 2013 (“Emotion Feedback during Computer-Mediated Collaboration: Effects on Self-Reported Emotions and Perceived Interaction”, :)

“mutual modeling process through which collaborators build a representation of what their partners know, believe and intend to do.”

“The EAT had a positive effect on the perceived amount of time spent by the dyad confronting and arguing points of view, building up on the other’s ideas – or in other words, on the perceived degree of transactivity”

### Goals for the next meeting

Talk to the psych department

### Goals for the next week

Formalize the name of the project, and thus solidify what area of the topic that we are looking at. Aka, come up with the “goal” of the project so that the objective is clear for us to work towards.