

# Toward collaborative LLMs: Investigating Proactivity in Task-Oriented Dialogues

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Large Language Models (LLMs) promise a huge impact on dialogue generation, including the capacity to mimic human-like collaborative behaviors. However, current data-driven dialogue models present a significant lack of some fundamental properties of collaborative human interaction, such as grounding, clarifying questions, and proactive behavior. Obtaining human-like collaborative behaviors from LLMs reveals itself more complex than expected. In addition, such collaborative phenomena are also poorly investigated from a theoretical point of view, and there is a general need of empirical data, both quantitative and qualitative. In the talk, we focus on proactivity, a characteristic phenomenon of collaborative human-human interaction, where a participant in the dialogue offers the addressee some useful and not explicitly requested information. We report an extensive analysis of proactivity in several task-oriented dialogic corpora, selected with different characteristics. There are several findings from our empirical investigation of proactivity. We found that about 20% of turns in our corpus are proactive turns, showing that this is a very diffused and relevant phenomenon. We collected evidence confirming the non-reactive nature of proactivity, highlighting the presence of a pattern where a turn triggers a reaction in a following turn and a proactive utterance is then added to the turn. Finally, we empirically confirmed that proactivity has a crucial role in recovering from goal-failure situations, contributing to the whole dialogue effectiveness.