Talking Topically
to the Artificial Agent Max

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How do we recognize a topic in dialog? How can we detect topic shifts? How do we know whether a topic is closed or still ongoing? In the context of our Bielefeld KnowCIT[1] project we are building an artificial agent that can do such things!

Topic awareness in spoken dialogs is based on cognitive and interactive processes taking place unconsciously during conversation. Bublitz [1] defined a dialog topic to be a category subordinating and enclosing a sequence of associated dialog utterances. We pick up this idea in the context of recent research on social networks by making use of Wikipedia which provides huge amounts of categories subordinating object knowledge by means of natural language articles [2].

Adapting the tasks of the Topic Detection and Tracking research program [3] to spontaneous dialogs, our model implements six tasks essential for automatic topic awareness on the basis of a graphical representation of the Wikipedia category system. Thereby the processes completing the several tasks operate online to handle (dialog) streams of ever-changing topical threads in real-time. Eventually transferring these tasks to our conversational agent Max means transferring human-like topic awareness to the artificial dialog partner and thus facilitates talking topically to him.

References

[1] Bublitz, Wolfram. 1989. Topical coherence in spoken discourse. *Studia Anglica Posnaniensia* (22).

[2] Breuing, Alexa. 2010. Improving Human-Agent Conversations by Accessing Contextual Knowledge from Wikipedia. *Proceedings of the WI-IAT 2010*. Toronto, Canada. 2010 IEEE.

[3] Allan, James (Ed.). 2002. *Topic Detection and Tracking: Event-based Information Organization*. Kluwer Academic Publishers.

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[1]"Knowledge Enhanced Embodied Cognitive Interaction Technologies"