

An Experimental Results on Meetings to Develop Software Specifications

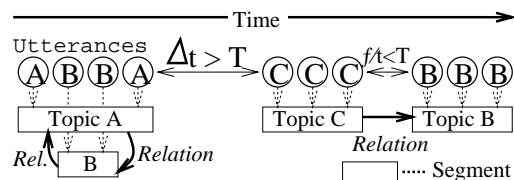
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Almost all activities in a software development process are usually cooperative, and largely influenced by the human factors. To support the software development processes effectively, we should observe and analyze the cooperative activities in the actual processes. Our research focus on software specification phases in the development processes. Cooperative specification processes are usually performed by a face-to-face session, such as meetings. In this paper, we clarify the characteristics of meetings from the observations of two different kinds of meetings, meetings to specify familiar systems and meetings to specify unfamiliar systems.

In the meetings to specify software systems, topics on the specification appeared several times in participants' utterances during the meeting. We group the utterances referring to the same topic into a segment. Intuitively, each segment denotes a sequence of utterances semantically related with each other. We define temporal adjacency relation between the segments as follows:



If two segments have temporal distance

(< T), we have the relation between them.

From this relation, we define the topic changes in the meetings and a value which denotes the degree of the topic changes as follows. let "N" be the number of topic categories :

$$\frac{\text{number of topic changes}}{N^2 - N}$$

For example, suppose that three kinds of topics(A, B, C) and the following two patterns of segments, the values are as follows:

pattern	value
A-A-B-B-C-C	$2/(3^2 - 3) = 0.33$
A-B-A-C-B-A	$4/(3^2 - 3) = 0.67$

In the first pattern, A-A, B-B and C-C can be omit because they have no topic changes. In the second one, the last occurrence of B-A can be omit because it already appears in this pattern.

We have calculated the values of two experimental meetings recorded with a video camera. The results are shown in the following table:

Target System	# of topic	value(%)
familiar	21	8.8
unfamiliar	23	26.5

From this results, the degree of topic changes reflects participants' familiarity on the target system of the meetings.