

SMART MEETING SYSTEM: AN APPROACH TO RECOGNIZE PATTERNS USING TREE BASED MINING

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ABSTRACT: - Mining Human Interaction in meetings is useful to identify how someone reacts in several things. Behavior represents the nature of the person and mining helps to analyze, how the person categorize their opinion in meeting. For this, study of linguistics knowledge is very important. Human interactions in meeting square measure categorized as propose, comment, acknowledgement, ask opinion, positive opinion and negative opinion. The sequence of human interactions is diagrammatical as a Tree. Tree structure is employed to represent the Human Interaction flow in meeting. Interaction flow helps to assure the chance of another style of interaction. Tree pattern mining and sub tree pattern mining algorithms square measure automatic to analyze the structure of the tree and to extract interaction flow patterns. The extracted patterns square measure interpreted from human interactions. The frequent patterns square measure used as associate classification tool to access a particular semantics, and that patterns square measure clustered to see the behavior of the person.

Keywords: Human interaction, Interaction flow, Interaction Pattern, Meeting, Tree based mining

I.INTRODUCTION

Human Interaction is a very important event to grasp communicative information. Understanding human behavior is essential in varied applications such as, automatic police work, video archival/retrieval, & the advantage of smart meeting system is that, it mechanically records a gathering and analyzes the generated audio-visual content for future viewing. While most of the current smart meeting systems analyze the meeting content for understanding what conclusion was created, as an example, did all members agree on the outcome? UN agency spoke somewhat or a lot? etc., such

kind of group social dynamics may be helpful for determinative whether meeting was well organized and whether the conclusion was rational. Human interaction plays a very important role in understanding this communicative information. The human interactions here square measure defined as behaviors among meeting participants with relation to the current topic, such as proposing a concept, giving some comments, expressing positive opinion, and requesting information which shows the user intention or perspective towards a current topic. Interactions square measure additional meaning in understanding conclusion drawing and meeting organization. The context information is gathered through multiple sensors e.g. video cameras, microphones, and motion sensors. From that information, the categorizations of the human interactions are: propose, comment, acknowledgement, request Info, askOpinion, posOpinion, and negOpinion. The elaborated meanings square measure described as: propose – a user proposes a concept with relation to a topic; comment – a user gives comments on a proposal; acknowledgement – a user confirms someone else’s comment or explanation, e.g. yeah and OK; request Info – a user requests informational few proposal; ask Opinion – a user asks someone else’s opinion a few proposal; posOpinion – a user expresses positive opinion, i.e. follow a proposal; and negOpinion – a user expresses negative

opinion, i.e. against a proposal. When a user puts forward a proposal, it usually takes relatively lasting. But it takes short time when he gives associate acknowledgement or asks a question. The interaction occasion has two values: spontaneous and reactive. The former suggests that the interaction is initiated by the person ad labium. The latter denotes the interaction is triggered as response to another interaction. It's intuitive that there square measure sure patterns or flows of times appear in meeting discussion. As an example propose and request info square measure usually followed by the interaction of comment.

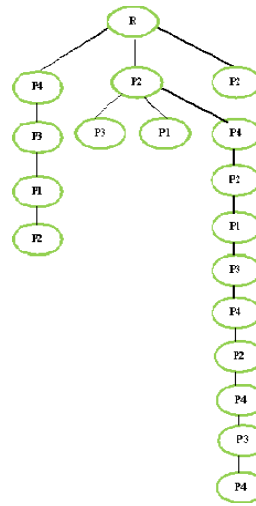


Fig 1. Representation of Tree

II.INTERACTION CAPTURE

Human Interactions in meeting square measure captured. Where, 1st have to determine the "Roles" i.e. what percentage persons concerned in that meeting then Human Interaction of meeting square measure categorized. Such as, Propose Positive Opinion, Negative Opinion, Acknowledgement and Comment. The suitable scenes were extracted from the viewpoints of individual users by agglomeration events having spatial and temporal relationships. "R" denotes Root and "P" denote the persons UN agency participated within the meeting. Collaborating persons square measure numbered from P1 to P4 (E.g.P1 denotes Persons1). Root denoting the one that organizes the interaction. Figure 1 specifies Root, person four and Person a pair of square measure initiating the new statement with propose based on the person4's comment person3, person1, person2 were exhibits their comment. Tree Hierarchy represents the flow during which the person represents their views.

Figure 2 represents the Interaction Tree during which, "R" represents the basis, "PRO" represents propose, "POS" represents positive opinion, "ACK" represents Acknowledgement, "NEG" represents Negative Opinion, "COM" represents comment. Within the following Interaction Tree Hierarchy POS positive opinions spoken half-dozen times, professional Proposing comes 3 times, ACK acknowledgements comes a pair of times, COM comments come four times and NEG a negative opinion comes 2 times. Based on the interaction defined and recognized, currently describe the notion of interaction flow and its construction. Associate interaction flow is a list of all interactions in a very discussion session with triggering relationship between them. Firstly, the definition of a session in a very meeting discussion is: A session is a unit of a gathering that begins with a spontaneous interaction associated concludes with an interaction that's not followed by any reactive interactions.

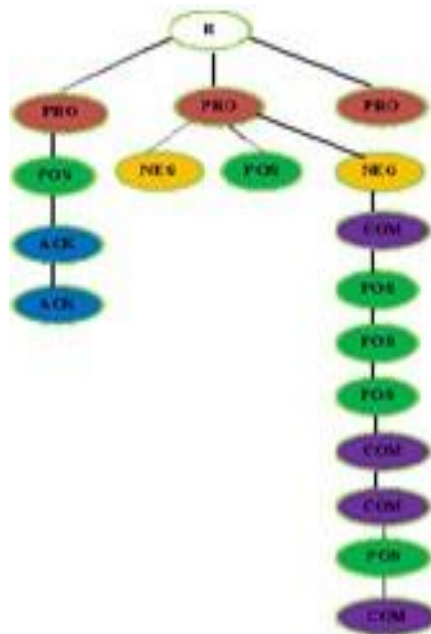


Fig 2. Representation of Interaction Tree

Here, spontaneous interactions square measure those that square measure initiated by someone ad labium and reactive interactions square measure triggered in response to another interaction. as an example, propose and ask Opinion is typically spontaneous interactions, while acknowledgement is usually a reactive interaction. Whether associate interaction is spontaneous or reactive is not determined by its type (e.g., propose, ask Opinion, or acknowledgement), but interaction type for nodes labeled by the commentator manually. Hence, a session contains at least one interaction (i.e., a spontaneous interaction). a gathering discussion consists of a sequence of sessions, during which participants discuss topics unendingly. The Nodes represents interactions within the meeting. Nodes within the interaction tree aren't sorted; as a result of the sides reflect temporal relationship between the siblings. Hence, sorting, e.g., alphabetically, would probably break this relationship. A string committal to writing techniques employed

for the economical process of the interaction trees.

III.PATTERN DISCOVERY

Patterns square measure frequent trees or sub trees within the tree information. TD denotes of Interaction trees.ITD denotes the total set of isomorphic trees to TD. t denotes a tree.tk denotes a sub tree with k nodes, Ck denotes a group of candidates with k nodes. Fk denotes a group of frequent k-sub plait. σ denotes a support threshold of minimum support. Support is with given a tree or sub tree T and a data set of trees TD.

$$\text{Support} = \frac{\text{Number of occurrences of T}}{\text{Total no. of trees in TD}}$$

If price|the worth} of $\text{supp}(T)$ is quite a threshold value Minimum support T is termed a frequent tree or frequent sub tree. From a data set of interaction trees TD and given minimum support σ , find all trees and sub trees that appear at least $\sigma \times |TD|$ times within the data set. If the brinkvalue is about to 0.135 then, $\text{supp}(t)$ get as 0.2352, from which $\text{supp}(t)$ is larger than threshold value. It suggests that frequent trees will get. Tree structure is employed to represent associate interaction flow then adopt a string for cryptography the tree formally. Isomorphic tree definition is to find a similar tree structure by exploiting temporal independence within the original interaction trees.

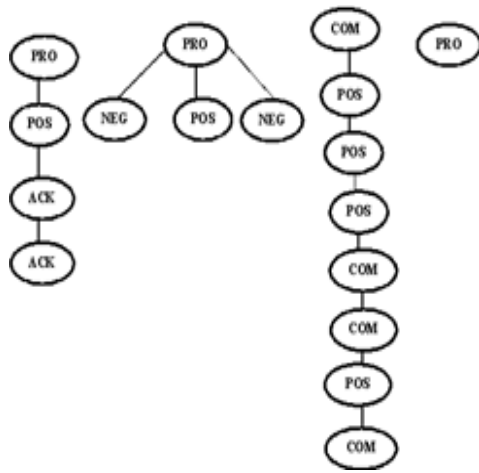


Fig 3. Representation of Sub tree

I. A. Construction of frequent trees

The siblings of a tree square measure a similar (e.g. PRO-COM-COM), this process may be omitted. The purpose of generating isomorphic trees (exchanges the places of siblings to generate the total set of isomorphic trees.) is to ease string matching. It then calculates the support of every tree. Then, for each sub tree of t , it generates its isomorphic trees and compares their string codes therewith of st . Embedded tree mining for hidden interaction pattern discovery [4].

B. Procedure for frequent interaction treepattern mining

Algorithm : $fpm(TD, \sigma)$ (Frequent pattern mining)

Input: a tree database TD and a support threshold σ

Output: all frequent tree patterns with respect to σ

Procedure:

1. scan database TD , generate its full set of isomorphic trees, ITD
2. scan database ITD , count the number of occurrences for each tree t
3. calculate the support of each tree
4. select the trees whose supports are larger than σ and detect isomorphic trees; if m trees are isomorphic, select one of them and discard the others
5. output the frequent trees

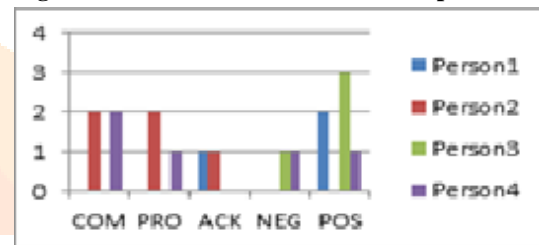
III. RESULT

In this, everybody interaction within the meeting is calculated as 1 for COM, ACK, POS, PRO, and NEG. The person's interaction magnitude relation is shown within the following table. Where, it specifies the interaction measures of every person. Each Interaction type is taken as 1, if it arises within the meeting with regard of every person.

Table 1: Interaction type measures

Interaction Type	No. of Person's			
	P1	P2	P3	P4
COM	0	2	0	2
PRO	0	2	0	1
ACK	1	1	0	0
NEG	0	0	1	1
POS	2	0	3	1

Fig. 3: Interaction measure of distinct person



Using this analysis, it may be possible to find each collaborating person's interest level within the meetings. The Interaction live of distinct persons explores however so much one person involves in meetings in-depth. So the proportion of interest of persons in proposes, acknowledge, comment, positive opinion and negative opinion may be evaluated. Person's square measure clustered based on their interaction proportion level, for each person's COM, ACK, POS, PRO, and NEG square measure evaluated and clustered. Each cluster specifies completely different characteristics of a people. From the cluster analysis behavior of the person is identified

to some extent. Within the higher than table, the support count for POS positive Opinion is highest among all interaction. So, the frequent pattern will be POS Positive Opinion. If one person's professional level is high in all meetings then that person will typically have passion in proposing new concepts within the improvement of the organization. If one person's ACK level is high in all meetings then that person will typically have passion in exposing opinion concerning each person's comment and inspiring others. Likewise each person's interaction type proportion was analyzed.

Eighth IEEE Int'l Conf. Pervasive Computing and Comm. (PerCom'10), pp.107-115, Mar.-Apr.2010

IV. CONCLUSION

Here, proposing associate Interaction based mostly tree mining technique for locating frequent interaction. It determines frequent interactions, typical interaction flows, and relationships between different types of interactions. The mining results would be helpful for summarization, indexing, and comparison of meeting records. They will also be used for interpretation of human interaction in meetings. And person's behavior evaluated from the Interaction based mostly agglomeration analysis.

V. REFERENCES

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