

Psychiatric Document Retrieval Using a Discourse-Aware Model

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In recent years, people in their daily life may suffer from negative or stressful life events, such as death of a family member, argument with a spouse and loss of a job, along with depressive symptoms, such as suicidal tendencies and anxiety. Individuals under these circumstances often search for help from psychiatric websites by describing their mental health problems using message boards and other services. Health professionals will try their best to respond with suggestions as soon as possible. However, the response time is generally several days, depending on both the processing time required by health professionals and the number of problems to be processed. With the increased incidence of depression-related disorders, many psychiatric websites have been developed to provide huge amounts of educational documents along with rich self-help information. Psychiatric document retrieval aims to assist individuals in locating documents relevant to their depressive problems efficiently and effectively.



In psychiatric document retrieval, the retrieval process begins with receiving a user's query about his depressive problems in natural language. The extracted discourse units are represented by the sets of negative life events, depressive symptoms, and semantic relations. Similarly, the query parts of consultation documents are represented in the same manner. The discourse-aware model then calculates the similarity between the input query and the query part of each consultation document by combining the similarities of the sets of events, symptoms, and relations within them. Finally, a list of consultation documents ranked in the descending order of similarities is returned to the user. The following figure presents the process of symptom identification based on an example sentence "*I often worry about some minor matters.*"

The main contributions of this work are as follows. First, we present a retrieval model that considers the discourse structure of texts for psychiatric document retrieval. The discourse information can improve understanding of users' depressive problems through an in-depth semantic analysis of both queries and documents. Second, we provide a detailed analysis of the effect of each discourse unit on retrieval precision and efficiency.

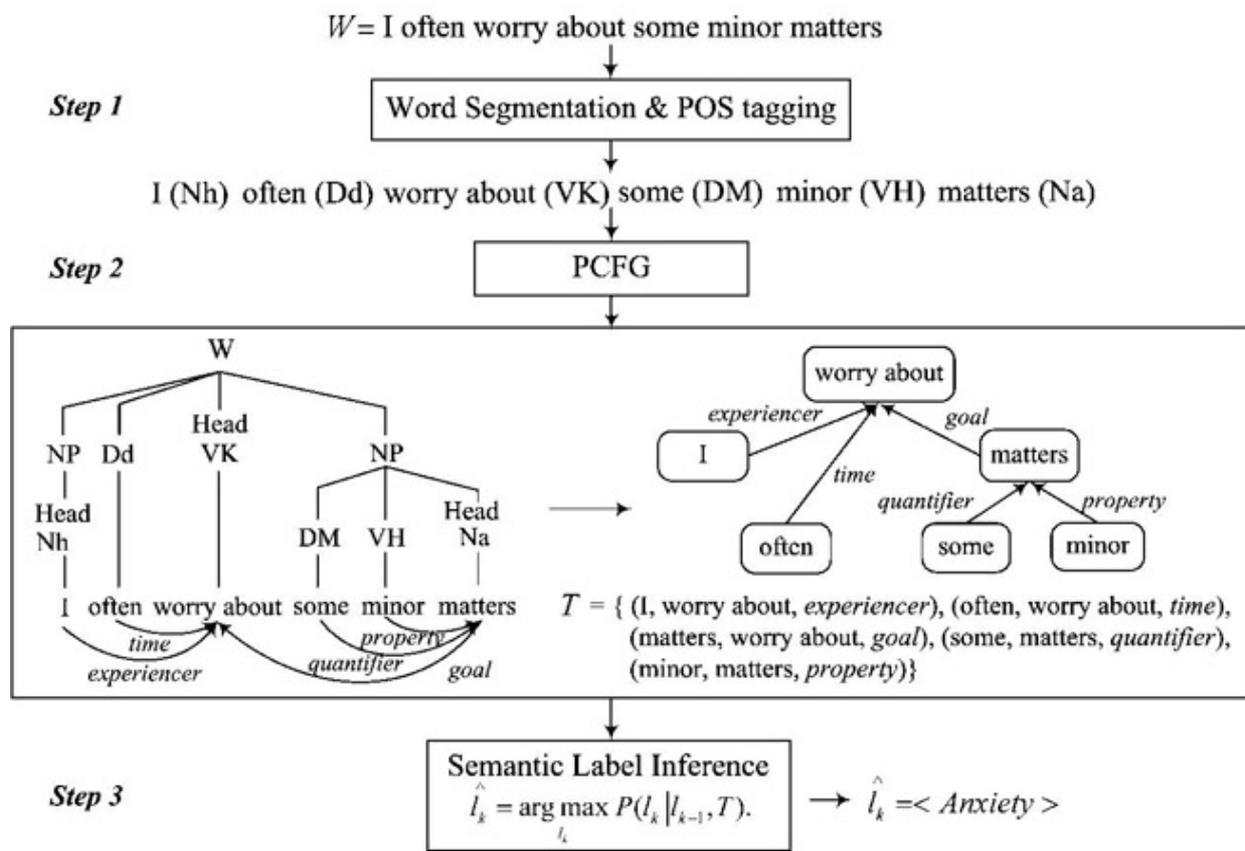


Fig. Main steps in identifying depressive symptoms