Extracting Temporal and Causal Relations between Events

**Introduction**

**英文原文**

With the rapid growth of information available on the world wide web, especially in the form of unstructured and natural texts, information extraction (IE) becomes one of the most prominent fields in NLP research. IE aims to provide ways to automatically extract the available information and store them in a structured representation of knowledge. The stored knowledge can then be useful for many

NLP applications, such as question answering, textual entailment, summarization, and focused information retrieval systems.

There are several subtasks within information extraction related to the type of knowledge one wishes to extract from the text, event extraction being one of them. Event extraction is considered to be a non-trivial task, due to the fact that mentions of an event in text could be highly varied in terms of sentence construction, and that the attributes describing an event are usually mentioned in several sentences. However, the most challenging problem in the context of event extraction is identifying the relationship between events.

Events are usually anchored to temporal expressions. The temporal attribute of an event can be used to determine the temporal relationship between events. This information can be useful for the ordering of event sequence in a timeline, e.g. for the better presentation of news or history texts. Moreover, in multi-document summarization of news articles, the relative order of events is important to merge and present information from multiple sources correctly.

**中文译文**

随着互联网中有用信息特别是非结构化的自然语言文本的迅速增长，信息抽取成为了自然语言处理中最主要的研究领域之一。信息抽取致力于能够提供方法去自动化地抽取有用信息，并且将这些信息以结构化的知识表示存储下来。这些存储下来的信息能够被用来做很多方面的自然语言处理的研究，例如知识问答、文本蕴含、概要总结及重点信息检索系统。

在从文本中要抽取特定的知识类型的信息抽取任务中有几个子任务，事件抽取就是其中之一。因为在文本中一个事件中的提及在句子结构上有很大差异，以及描述事件的参数通常被多个句子提及，事件抽取被认为是非平凡任务。然而，在文本的事件抽取中最具挑战性的任务是识别文本中各个事件之间的相互关系。

事件通常都是被绑定在时间表达上面。事件的时间属性被用来决定事件之间的时序关系。时间信息在对时间轴中对事件进行排序非常有用，比如能够好的表达新闻和过去的文本之间的差异。而且，在新闻文章的多文档摘要中，对应的时间顺序对于正确地合并并显示多个来源的信息非常重要。