摘要

违实语义是与客观现实或主观现实相违背的意义（蒋严，2000：257；雍茜，2014：59），例如“要不是小王看了足够多的文献，他就不会写出来论文”。而时间指示词被认为是汉语违实条件句中表达违实语义最基本的词汇手段，如“昨天”、“当时”、“那时”、“当初”等（Li & Thompson，1988）。以往印欧语系的相关实证研究表明，条件句语义理解加工会涉及到时间距离和时间顺序两个语言因素。然而汉语的不同之处在于其缺乏时间变化的形态和句法标记，更依赖于语境和语用推理。基于此，研究一直接探究了时间距离和时间顺序的不同是否会对违实语义理解带来不同的影响。实验一通过事件相关电位技术（N=40），操纵汉语违实条件句中前项条件小句和后项结果小句时间指示词之间的时间距离（远距离 VS 近距离）以及时间顺序（顺时序 VS 逆时序）的变化，采用快速视觉呈现范式进行实验材料的呈现。研究一结果清晰地表明被试相较于时间顺序为顺时序的条件，在逆时序的条件下需要更多的认知加工负荷，如在 300-500ms 的时间窗（N400）内产生更大的负波以及 500-800ms 的时间窗内（P600）产生更大的正波。但实验一中时间距离的主效应是不显著的，时间距离和时间顺序的交互效应仅在以时间词为关键词的 P600 的时间窗内是显著的，表明被试对于时间距离变化的感知可能受到其它因素的影响。

为进一步探究实验一中被试在语义理解过程中对于时间距离变化感知不显著的原因，本研究设计了实验研究二。基于 Zack 等人提出的事件情景模型理论，时间维度的变化对带来事件情景模型的更新 (Zacks et al., 2007; 2009)，读者对于时间信息变化的感知在不同的事件表征下也会有所差异。基于此实验二通过操纵时间距离的变化（远距离 VS 近距离）以及不同事件困难程度（高困难程度 VS 低困难程度），来尝试探究时间距离是否会在不同事件表征条件下对于违实语义影响有所差异。实验二和实验一采用了相同的实验流程和实验任务（N=40），实验二结果发现了被试在事件困难程度为高困难程度的条件下，对条件句前后项时间距离为近距离的条件，相较于远距离的条件会产生更大的认知负荷，如在 P200 的时间窗内产生更大的正波以及在 N400 的时间窗内产生更大的负波。同时发现了在条件句前后项时间距离为近距离的条件下，被试相较于事件困难程度较低的条件，对事件困难程度高的条件进行语义理解会更加困

难，如在N400的时间窗内产生更大的负波。这一结果表明被试在高困难程度事件的预期下会加速对时间距离为远距离条件的语义理解认知过程，反之低困难程度事件下被试会加速对于时间距离为近距离条件的语义理解提取过程。

两个实验的结果共同说明了在违实条件句中，当条件小句和结果小句的时间指示词之间的时间顺序符合事件情景模型会加速被试语义理解的认知过程，而被试对于时间距离的语义理解过程会受到条件句所描述的事件本身的影响。本研究一定程度上拓展了汉语违实句的研究范围，并为事件情景模型理论提供了新的证据。但同时在目前的研究中，实验选择汉语违实条件句的句式结构仍然比较单一，同时缺少汉语违实条件句与印欧语系的违实句中时间指示词对条件句语义理解认知加工的对比，在后续的相关研究中可以进行进一步的探索。

关键词：时间指示词；违实语义；事件相关电位技术；时间顺序；时间距离

Abstract

Counterfactual language comprehension referred that contradicts objective reality or subjective reality (Jiang, 2000: 257; Yong, 2014: 59). In terms of the many influential factors affecting the understanding of counterfactual conditional sentences, temporal indicators were considered to be the most basic means of expressing counterfactual meaning in Chinese counterfactual conditional sentences, such as "*zuó tiān*" (yesterday), "*dāng shí" (at that time), "nà shí" (then), " dāng chū*" (in the first place), etc (Li & Thompson, 1988). Empirical studies on Indo-European languages showed two linguistic factors underlying the understanding of conditional sentences: temporal distance (the distance of past or future time about the present time) and temporal sequence (the relative sequence of the events described in the conditional clause and those in the result clause). However, the significant difference between Chinese and Indo-European languages was that Chinese counterfactuals had no grammatical markers. Therefore, the language comprehension of Chinese counterfactuals relied more on linguistic components such as temporal indicators. Experiment 1 manipulated the temporal distance (long vs. short) and temporal sequence (chronological vs. inverse chronological) between the temporal indicators of the conditional clause and the result clause in the Chinese counterfactual conditionals through the event-related potential technique (N=40). This study used a rapid visual presentation paradigm for the presentation of the experimental material. The results of the experiment 1 clearly showed that subjects required more cognitive processing load in the reverse chronological condition compared to chronological condition, which performed as larger negative waves in the 300-500 ms time window (N400) and larger positive waves in the 500-800 ms time window (P600). Meanwhile, the main effect of temporal distance was insignificant, and the interaction effect of temporal distance and temporal sequence was significant only in the time window of P600 with temporal indicators as keywords.

According to the event model theory proposed by Zack, changes in the temporal information could bring updates to the event model (Zacks et al., 2007; 2009). To further investigate whether the subjects' insignificant perception of temporal distance

changes during semantic comprehension in Experiment 1 was due to the influence of the event itself, the Experiment 2 used the same experimental procedure and experimental task as Experiment 1 (N=40) by manipulating temporal distance changes (long vs. short) and different event difficulty levels (high difficulty vs. low difficulty). The results of Experiment 2 revealed that subjects in the high difficulty condition produced greater cognitive load in the short-distance condition compared to the long-distance condition, such as greater positive waves in the P200 time window and larger negative waves in the N400 time window. It was also found that in the short-distance condition, subjects had more difficulty in counterfactual language comprehension for the condition with high event difficulty compared to the condition with low event difficulty, such as producing a larger negative wave in the time window of N400.

The results of the two studies illustrated that in the counterfactual language comprehension, if the temporal sequence between the temporal indicators of the conditional and result clauses conformed to the event model, the process of subjects' counterfactual language comprehension would accelerate. Meantime, the counterfactual language comprehension of temporal distance could be influenced by the event itself described in the conditionals. In more difficult events, participants would accelerate the cognitive process of language comprehension for the condition of long temporal distance. In contrasts, subjects accelerate the extraction process of language comprehension for the condition of short temporal distance in low difficulty events.

The present study may provide some evidence for the effect of temporal factors on the language comprehension of counterfactual sentences, but at the same time, the syntactic structure of the Chinese counterfactual sentences selected in the present study is still relatively homogeneous, and there is a lack of comparison between Chinese counterfactual sentences and Indo-European counterfactual sentences in terms of the cognitive processing of temporal indicators on the semantic understanding of conditional sentences, which can be further explored in subsequent related studies.

Keywords: temporal indicator; counterfactual conditionals; temporal sequence; temporal distance; ERPs