The Linguistic Saving Hypothesis with the Perception of the Future: Comparing Mandarin Speakers and English Speakers

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Abstract: According to Jaggi's experiment, there is no significant difference in future perception between two cultures with different future-time references. The proposed study will use the same procedure and measurement as Jaggi's experiment to provide a different perspective that for cultures that vary a lot in future-time references, there might be a significant difference between future perceptions. We hypothesize that cultures that have a weak future-time reference will perceive that the future is closer to the present and that cultures have a strong future-time reference.

Keywords: Cognition, Future-time Reference, Future Perception

1. Introduction

Languages are built to a common pattern, as cognitive scientists believe, given talk of linguistic universals. It is undeniable that language exhibits relatively few universals in the direct sense that they are exhibited by all languages. Instead, diversity can be found at almost every level of linguistic organization, which fundamentally changes the object of inquiry from a cognitive science perspective [1]. Among all linguistic organizations, grammatical structures enable languages to display specific aspects, such as grammatical gender. We mentally represent our environment differently in different languages because of these structures.

Essentially, Jaggi argued that thinking about the future is an activity we engage in regularly at a rate of 16 minutes a day and that it can have different effects on mental health, depending on the thinking frequency [2]. Accordingly, we believe that it is essential to study how cultural representations of the future are influenced by grammatical representations.

Despite the inherent uncertainty of speaking about the future or the present, talking about the future is different from discussing the past or present. In European languages, there are several levels of certainty, denoted by the likelihood that an event will happen in the future [3]. When faced with uncertainty in a predictive context, linguistic devices vary in terms of how they mark the future. When referring to very likely future events, most European languages use the present tense, but when faced with uncertainty in a prediction context, the linguistic device is used differently [3]. Future Time Reference (FTR) can refer to an event that will take place in the future and has the capability to use

a variety of linguistic devices to refer to the event. For speakers of future-time reference languages to distinguish between the present (I am doing it) and future (I will be doing it), they must grammatically distinguish between the present (I am) and future (I will be doing it). Conversely, Mandarin speakers recite their verb forms identically regardless of the context of the conversation, regardless of whether they are speaking about a current event or one that is about to occur [4]. A contextual or lexicalized form, such as today or tomorrow, allows them to distinguish between temporal information and other types of information. As Chen hypothesized, strong-FTR speakers have a greater sense of the future than weak-FTR speakers [4]. They therefore perceive the future as being more distant and have more precise beliefs about it.

1.1. The Linguistic Saving Hypothesis with the Perception of the Future: Comparing Mandarin Speakers and English Speakers

As proposed by Chen, the Linguistic Savings Hypothesis (LSH) analyzes the differences in degrees of FTR among languages and intertemporal choices (saving money, acquiring retirement assets, or adopting healthy behaviors) [4]. Jaggi derived from that hypothesis and suggested that speakers of languages with a high degree of future-oriented behaviors (like French) have a lower likelihood of engaging in such actions than speakers of languages with a low degree of future-oriented behaviors (like German) [2]. According to this hypothesis, speakers of languages with a high degree of FTR perceive future events as being further away and more concrete than speakers of languages with a low degree of FTR. When the future is referred to in the present tense, it is perceived as if it is occurring in the present (or at least much closer to the present). As reported, Dahl's observations about the obligatory use of future tense in prediction contexts were analyzed to categorize languages with a high or low degree of future tense use [5]. Accordingly, languages that do not use verb tenses to mark the future, such as Mandarin, have a low level of future tense use, while languages that do, such as English, have a high level of future tense usage.

1.2. Purpose of the Present Study

In the work, we replicate Jaggi's study, but with Mandarin and English as the two comparison languages. The proposed study addresses the hypothesis proposed in Jaggi's experiment that people with different FTR will perceive the future differently. The series of experiments presented in Jaggi's experiment investigated how different degrees of future tense representations within languages affected grounded representations of future events [2]. Jaggi compared French and German, which are the two most popular languages in Switzerland, to determine whether readers ground sentences with lower degrees of FTR as being spatially closer to the left, representing the present, than those sentences with higher degrees of FTR within a language [2]. However, their experiment result rejects their hypothesis.

The rejections may be attributed to the fact that, despite incorporating two different languages and conducting a post-hoc between-language analysis, they did not follow the usual cross-linguistic paradigm, which compares speakers of languages that differ more drastically [2]. We choose to duplicate Jaggi's experiment by comparing two languages at the endpoint of formal grammatical future marking (e.g., English with mandatory grammatical future marking versus Mandarin without formal grammatical future marking). We proposed that this comparison may provide greater insight, as those differences may produce a more categorically distinct mental representation of the future. We hypothesize that the grammaticalization of the future should influence how we construct grounded representations of future events when comparing Mandarin and English since mental representations have a perceptual basis and grammatical structures can enhance certain aspects of our visual perception.

2. Method

2.1. Participants

In our experiment, we will recruit 100 participants aged from 18 to 30 years old: 50 native English speakers (American) and 50 native Mandarin speakers (local Chinese students). Moreover, we divided them into two groups according to their language. Compared to Jaggi's experiment, we changed French and German into Mandarin and English, which have a significant difference in future-time reference. We eliminate Bilinguals by using the Language Experience and Proficiency Questionnaire since bilinguals might be influenced by both languages causing low internal validity.

2.2. Visual Analogue Scale

In this experiment, we used the 48 sentences in Jaggi's study to test the participants, all the sentences with a similar pattern, such as a person starting an event at a given time. For the 48 sentences used in this experiment, we divide them into fourteen levels: at the moment, these days, this afternoon, this morning, this evening, today, in six months, in seven months, in eight months, in nine months, in ten months, in eleven months, month, season. The purpose of doing this is to make the result clear and unambiguously predict the next stage. A professional translator translated the 48 items into Mandarin. In order to ensure consistency and semantic accuracy, the first author translated the items back to French, and the same translation process was applied to the English translations. For the visual analog scale, we chose to use the visual analog scale on Jaggi's study to find the spatial representation of time. Scales represent a timeline from left to right, a numerical scale from 0 to 100 when analyzed (i.e., the numerical scale was not visible for participants), with poles representing the present time and much later in the future, and it will be measured in centimeters. In addition to the sentences, the continuous timeline was presented at the same time, and participants were instructed to place the events outlined in the sentence on the continuous timeline for each sentence. We told participants, when they placed their marks on scales, that there were no right or wrong answers but that we wanted to learn about their spontaneous viewpoints. Following the placement of all 48 events on the timeline, participants were notified that the experiment had come to an end. Furthermore, we compare two groups of the consequences with the mean value at different time levels.

2.3. Predictions

Figure 1 presents that there is a great difference in the average score on time levels related to the future indication. Mandarin speakers will obtain a lower score on the visual analog scale than English speakers, indicating the difference in FTR (Future-Tense Reference) can be related to the differences in future perception. To sum up, we can state that Mandarin speakers perceive the future as closer to the present than English speakers, which supports our hypothesis. *Figure 2* presents that there is no significant difference between each level on the time scale, no matter the present or future indications. The average scores obtained by the English and Mandarin speakers have no major differences, showing that the people speaking with different FTR levels may have no influence on how they perceive the distance between present and future.

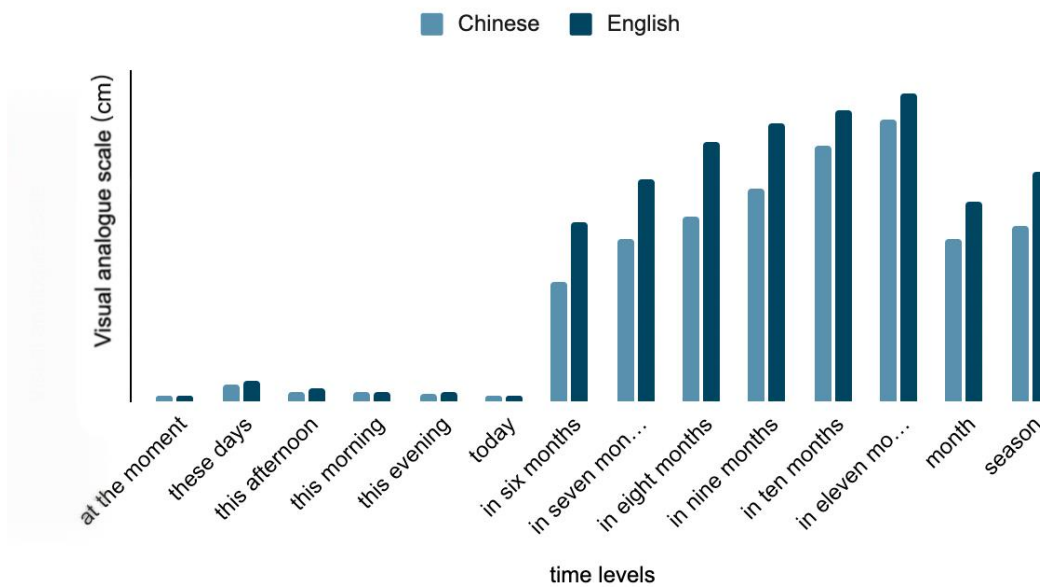The average score on visual analogue scale

Figure 1: The anticipated result that if the future perception can be influenced by different FTR.
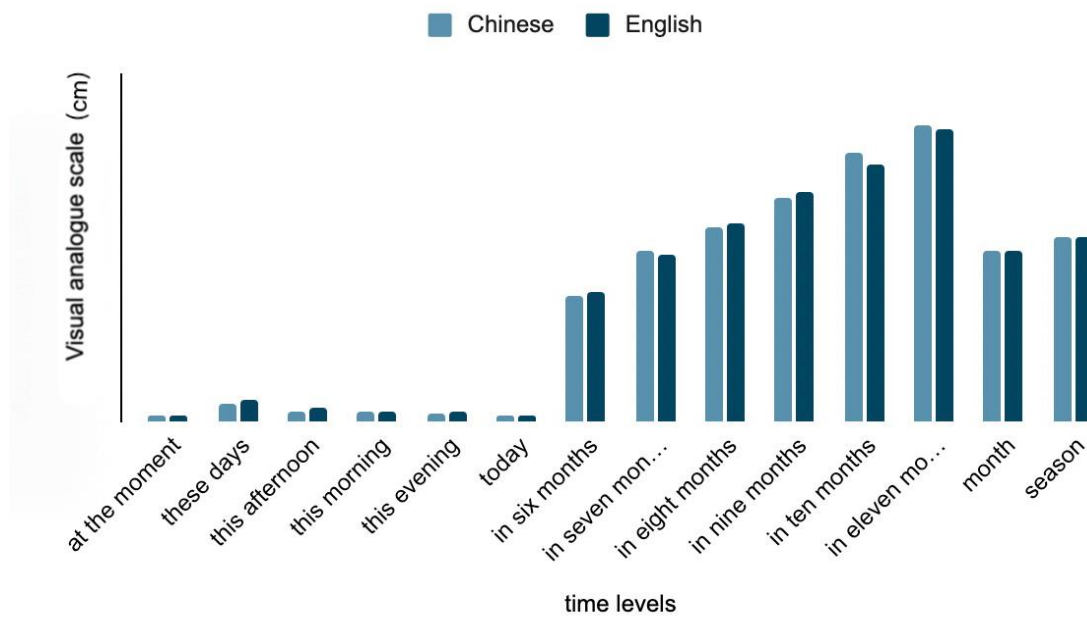
The average score on visual analogue scale

Figure 2: the anticipated result that the different FTR have no impact on future perception.

3. Discussion

Suppose our experiment tests the hypothesis that different FTR language speakers will perceive the future differently, and our result supports it that weak FTR language speakers (Mandarin speakers) will perceive the future closer than strong FTR language speakers (English speakers). Strong FTR language speakers think future events are farther. They are not willing to put effort into things. They

cannot see a clear result in the short term. But for weak FTR speakers, it's worthwhile to work for the future.

Furthermore, if the result doesn't support our hypothesis, we need to reconsider that other cultural variables, such as writing conventions and social norms, may influence people's perceptions about time [6]. In most cities of China, working overtime is a general phenomenon. They spend all their time earning money to "survive," which mainly means having their own house and car. The cultural variables may explain this phenomenon. In Areas that farm rice, people are less independent. Those people started domestic life earlier than others. They find themselves more comfortable in a settled life. This will cause the dependency of the house on the rice area. Mandarin people, who mostly are in rice areas, work so hard in order to have a cozy life in the future. Moreover, because of different lifestyles, strong FTR language-speaking countries have higher immigration rates. Nowadays, people pursue a comfortable balance between work and life. Less working pressure and more entertainment are two characteristics of western countries in Asians' minds. This motivates more people to have the idea of immigrating to countries that have a great work-life balance.

4. Conclusion

The proposed study tests the influences brought by different FTR in people's perceptions, which will contribute to the various areas, such as saving strategy and consumer service. As we discussed above, if the data support our hypothesis that different FTR can lead to different future perception. This affects how people spend their money. For example, according to Chen, Mandarin people will save more than half of their wages for future expenditures such as buying a car or a house [4]. But western people will use most of their wages to enjoy their life right now. Also, weak FTR speakers are more willing to spend time investing in programs that might not be successful in the short term. They are more willing to invest in programs that can keep making profits for a long time. Understanding the differences in time perception will affect the consumer market. Because strong FTR speakers are focused on the present, they will spend more money on entertainment. Businesses will target products that can bring their customers happiness, such as toys and video games. However, weak FTR speakers will consider more when they are shopping. They will consider the durability, price, practicability of products, and whether they really need these products. So the market will focus more on the quality and durability of products. The future study needs to pay more attention to eliminating the cultural variable and aiming to design a random sampling since the proposed study is a quasi-experiment.

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