Categorization and the Sapir-Whorf Hypothesis in Relation to Japanese and English

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Abstract:

Recent work by Ji et al.(2004) has attempted to split the fine hairs of language and culture when examining the effects of either on human thought, particularly categorization. The Sapir-Whorf Hypothesis is a hotly-contested topic within academia, and while research like Ji's purports its validity, there remains a sizable body of critiques against it. This paper examines whether an enforced categorization task performed by Japanese and English speakers will yield any significant difference in word pairings when word structure differs between the two language; I stake the claim that it will.

The work of Ji (2004) shed light not only on the potentially different categorization processes between speakers of different languages, but also controlled for inter-cultural variation that might have skewed such data. Chinese speakers from different cultural contexts (Singapore and Hong Kong, in this case) both demonstrated more thematic categorization of words when compared against English speakers and English-Chinese bilinguals. Furthermore, Boroditsky's (2001) studies also considered English-Chinese discrepancies, but in this case with respect to perceptions of time. This work also drew the a similar conclusion; language structure, although not the sole factor in shaping thought, does have implications in how thoughts are shaped, and habitual thoughts are exceptionally suspect to this.

While the aforementioned work vouches for the weak Sapir-Whorf hypothesis, each paper also makes the careful claim that the correlations are significant, but also not all-encompassing. The canonical example of Sapir-Whorf is color categorization across languages, and Boroditsky (2007) has also examined this claim as it pertains to Russian and various tones of blue; Perlovsky's (2009) work dissected this domain with relation to emotional states and language. The conclusions are largely similar – the way in which a is language is structured does exert a force on the mental process of its speakers, but that pressure is also an amalgamation of intersecting non-language factors, including priming effects, emotional state, and cultural background, to name a few.

With this in mind, I then strive to take a step in the work of "Eastern versus Western" cross-language categorization examinations akin to Ji and Boroditsky. While the two former scholars focused on Chinese-English differences, I will take a slight turn to instead consider Japanese and English. The two hypotheses of this paper will be as follows: Hypothesis A states that there will be a statistically significant difference in the way that native Japanese speakers

categorize words when compared to native English speakers when both are made to do a word categorization task. Because the words will have no readily-apparent similarities to each other, this difference will be correlated to the thematic categorization of Japanese kanji that leads to a more consistent selection of categories, while English speakers exhibit more arbitrary and random decision-making, because these characteristics are not exhibited in English. Hypothesis B is the negation of the significance of Hypothesis A, which is to say that both Japanese and English speakers will categorize words with similar choices, and these choices will reflect more arbitrary decisions.

To preface the outline of the experiment, a brief explanation of Japanese language structure is necessary to contextualize the hypothetical categorization that could take place in the word association tasks. Written Japanese is composed of three scripts: hiragana, katakana, and kanji. The first two are purely phonetic in nature and more akin to an alphabet. Kanji, conversely, is a borrowed script using Chinese characters, which is to say that it is an ideographic script. Individual pieces (radicals) are arranged to form a character, which itself represents a word or idea, and can be paired with other kanji to form words. For example, 日 is the character for “day” (*nichi)*, but also “sun” (*hi*), and 月 is the character for “moon” (*tsuki*), but also “month” (*getsu*). By using a combination of the two, we arrive at 明日”tomorrow” (*ashita*). While there is an arguably understandable semantic construction of this word (sun-moon-sun as a representation of a full day cycle), more complex words will use the same basic kanji in less obvious ways. 電気 “electricity” (*denki*) shares the same first kanji as 電話 “phone” (*denwa*).

The experiment, then, is as follows. Native Japanese speakers and native English speakers will be presented with the same word pairing task (administered in the speaker’s

language). In a similar manner to Ji (2004), participants will be presented with a series of word triplets and, for each triplet, asked to provide which two words go together. The words will be carefully selected such that their Japanese versions will always have two words who share a kanji, for example: 電気、電話、針金 (electricity, phone, wire). Participants from each language (adults, Japanese-born and American-born respectively, of even gender ratios, 150 subjects for each language, and aged 20 – 50) will be given around thirty triplets and their word pairings will be recorded and compiled.

Because I am placing my expectations in favor of *some* degree of validity for the weak Sapir-Whorf hypothesis, I believe that Hypothesis A will prove to be more plausible than Hypothesis B. The basis of Japanese as a primarily ideographic written language lends itself to a mental connection between the visually identical and semantically similar kanji, even when spread across words that are not immediately closely linked. Furthermore, because the construction of any non-rudimentary Japanese word almost always necessitates stringing together more basic characters, the process by which Japanese speakers learn a larger vocabulary is tied to establishing connections between these building-block-esque characters.

For this prediction to prove true, this would then mean that the results of the word pairing task would reveal a statistically-demonstrated consistency in the way that Japanese speakers pair words, and more importantly, that English speakers did *not* exhibit the same consistency of choices when presented with the same words. This discrepancy in results is what would give credence to my predicted success of Hypothesis A. If both Japanese and English speakers pair up the same words on average, then that would be indicative of a more universal semantic or functional similarity between those words, and the Sapir-Whorf component of the experiment would be invalidated. Furthermore, the basis of selection for Japanese speakers must be

specifically linked to the reappearance of kanji between words. It is entirely possible that Japanese speakers exhibit consistent choices separate from those of English speakers, but because of some other cultural/semantic understanding not traceable to the kanji patterns. While this could still give evidence for a Sapir-Whorf effect, my hypothesis deals explicitly with the pattern of character representation, so the significance of categorization must be linked to this aspect of the words. Because of the multitude of factors outlined above, it is much more unlikely that Hypothesis B is true because, assuming the participants have similar impressions of the words presented to them, there would not likely be a uniformly random and arbitrary distribution of choices for either Japanese or English speakers.

Indeed, Ji (2004) demonstrated that the relation-based nature of East Asian languages leads to East Asians attending more to the way in which things relate to one another, but this is a trait that has been linked to both linguistic and socio-cultural factors. Furthermore, criticisms of weak Sapir-Whorf point out that the linguistically-based factors are malleable when subjected to priming, emotional states, cultural variation, and a host of other factors. It would be interesting to conduct another Japanese-exclusive study as a tangential study to this, but with the new study looking exclusively at Japanese citizens performing the same word association, but eliminating cultural variation by engaging people from all parts of the country. That said, the body of evidence demonstrating the correlational effects of language structure on thought continue to spur the debate, but give strength to the notion that language must at least guide the way in which we think, rather than constrain it entirely.

References

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