language and thought

via Sapir-Whorf and code-switching

Psycholinguistics

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timleffel@uchicago.edu
lefft.xyz/psycholingAU16

question:

what is the relationship (if any) between the language you speak and the way you think?

the "Sapir-Whorf" hypothesis

1. **strong version**: the way people think is **determined** by the language that they speak (natively)

2. **weak version**: the way people think **can be affected** by properties of the language they speak

I Structural differences between language systems will, in general, be paralleled by nonlinguistic cognitive differences, of an unspecified sort, in the native speakers of the two languages.

II The structure of anyone's native language strongly influences or fully determines the world-view he will acquire as he learns the language." [Brown 1976:128]

nb: many, many variations of these. can you imagine some plausible ones?!

the "Sapir-Whorf" hypothesis

Both simple and complex types of language of an indefinite number of varieties may be found spoken at any desired level of cultural advance. When it comes to linguistic form, Plato walks with the Macedonian swineherd, Confucius with the headhunting savage of Assam. [Sapir 1921:219]

a very old controversy indeed!

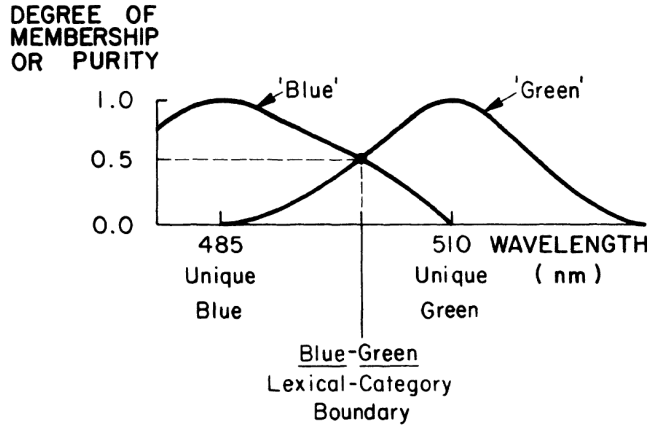
Abstract

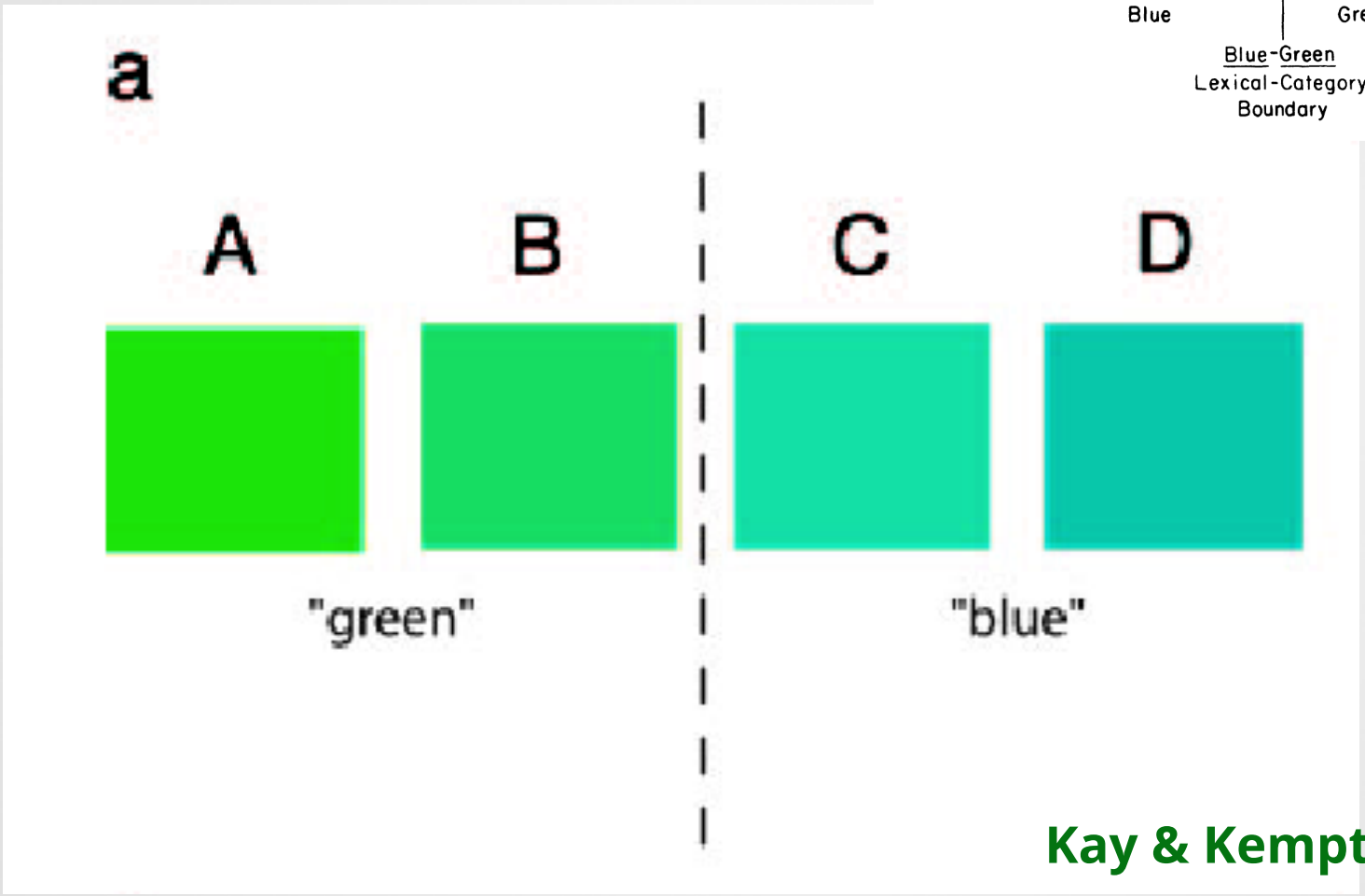
Bloom (1981) found that Chinese speakers were less likely than English speakers to give counterfactual interpretations to a counterfactual story. These findings, together with the presence of a distinct counterfactual marker (the subjunctive) in English, but not in Chinese, were interpreted as evidence for the weak form of the Sapir–Whorf hypothesis. A series of five studies was designed to replicate these findings, using both Chinese and English versions of a new counterfactual story as well as the story used by Bloom. In these studies, bilingual Chinese showed little difficulty in understanding either story in either language, insofar as the English and Chinese were idiomatic. For one story, the Chinese bilinguals performed better in Chinese than American subjects did in English. Nearly monolingual Chinese who did not know the English subjunctive also gave mostly counterfactual responses. These findings suggest that the mastery of the English subjunctive is probably quite tangential to counterfactual reasoning in Chinese. In short, the present research yielded no support for the Sapir–Whorf hypothesis.

Kit-Fong Au (1983) from Cognition

The categories and types that we isolate from the world of phenomena we do not find there because they stare every observer in the face. On the contrary the world is presented in a kaleidoscopic flux of impressions which have to be organized in our minds. This means, largely, by the linguistic system in our minds. [Whorf 1956 (1940):212ff]

colors!





Kay & Kempton (1984)

K&K 1984: design

Probably the simplest way to elicit subjective distance among n stimuli (here $n = 8$) is the triad technique. In this technique the experimenter presents 3 items (a "triad") from

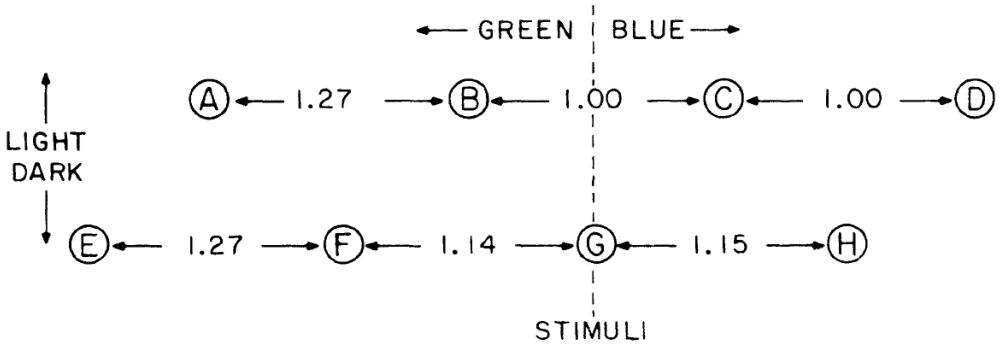


Figure 2. Hue distances among color chips used in the experiments. The indicated relative distances are proportional to the discrimination distance (jnd) between chips B and C.

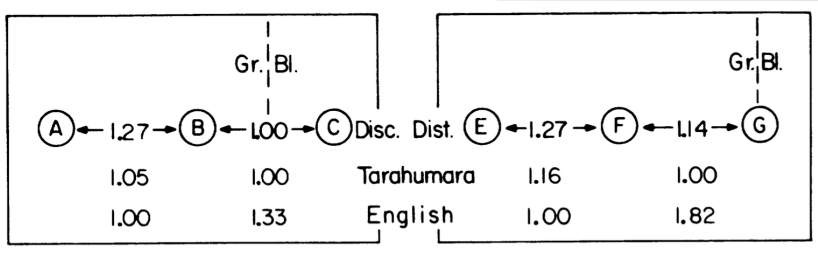
the set of n stimuli, and asks the subject which of the 3 is most different from the other 2. This is repeated for each possible triad. In the present case there are 8 color stimuli (A, B, . . ., H) and therefore 56 possible triads: (A, B, C), (A, B, D), . . . , (F, G, H). The presentation order of triads and of stimuli within each triad was randomized for each interview.

K&K 84: results

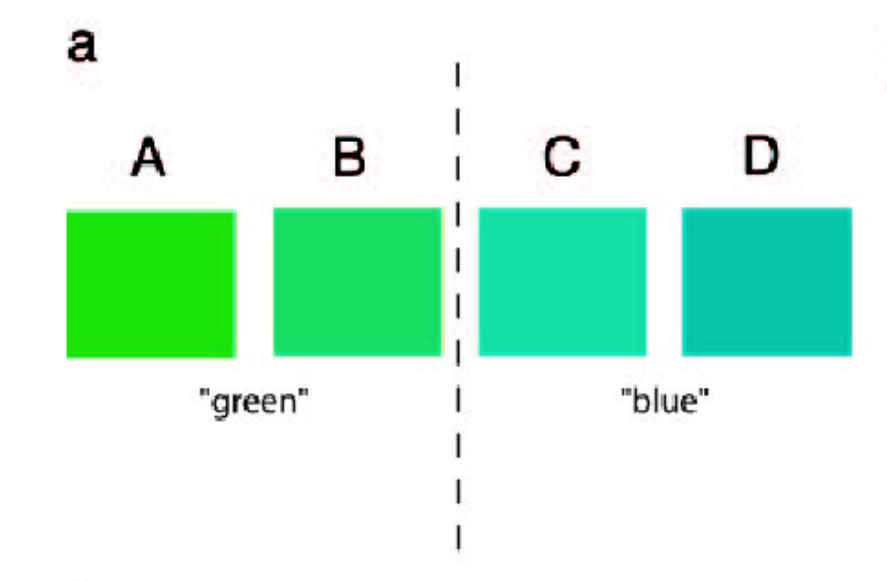
The results are summarized in Figure 3, where the triads distances obtained from the English- and Tarahumara-speaking subjects are compared with each other and with the nature of the stimuli as regards both discrimination distances and lexical boundary location. For each pair of triads distances compared, the numbers shown are normalized on the smaller difference of that pair. Hence in each pair of Tarahumara-English triads distances, the smaller is always given as "1.00."

In the upper left cell of Figure 3 we find the comparison of the (A, B) and (B, C) distances. It may be noted that chips B and C are closer to each other in discrimination distance than are chips A and B, while the *blue-green* lexical category boundary passes between chips B and C. We see that while the Tarahumara put a bigger triads distance between A and B than between B and C—which agrees with the discrimination distances—the English speakers exaggerate the (B, C) subjective (triad) distance, making it bigger than the (A, B) distance. This is the distortion predicted by the Sapir-Whorf hypothesis I: exaggeration of subjective differences that cross a lexical category boundary.

The second (upper right) block of Figure 3, comprising the (E, F) and (F, G) triads distances, has the same logic as the block just considered, and shows the same result. The (F, G) pair is adjacent to the lexical category boundary, but has the smaller discrimination distance than the (E, F) pair. The Whorfian prediction is that the Tarahumara speakers will judge E more distant from F than F is from G, following the discrimination distances, while English speakers will make the opposite choice, biased by the lexical category boundary to ignore the greater discrimination distance between E and F. Once again the numbers bear out the Whorfian prediction.



K&K 1984: interpretation



The stimuli employed in experiment 1 were similar enough to each other that intuitively a triad like (A, B, C) presented a difficult judgment to make. When one is shown the triad (A, B, C), it is obvious only that B is not the most different. We propose that faced with this situation the English-speaking subject reasons unconsciously as follows: "It's hard to decide here which one looks the most different. Are there any other kinds of clues I might use? Aha! A and B are both CALLED *green* while C is CALLED *blue*. That solves my problem; I'll pick C as most different." Of course this cognitive strategy, which we will call the "name strategy," is not available to the Tarahumara speaker precisely because he or she doesn't have ready lexical labels for the concepts green and blue.

thoughts?

what do the results indicate, assuming that they can be generalized??

specific to color perception?!

beyond colors!

(1) SPACE

māo shàng shù
cats climb trees

TIME

shàng ge yuè
last (or previous) month

(2) SPACE

tā xià le shān méi yǒu
has she descended the mountain or not?

TIME

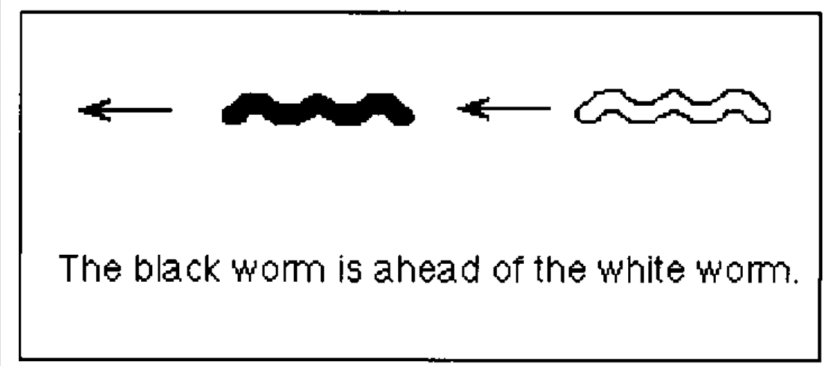
xià ge yuè
next (or following) month

Boroditsky (2002)

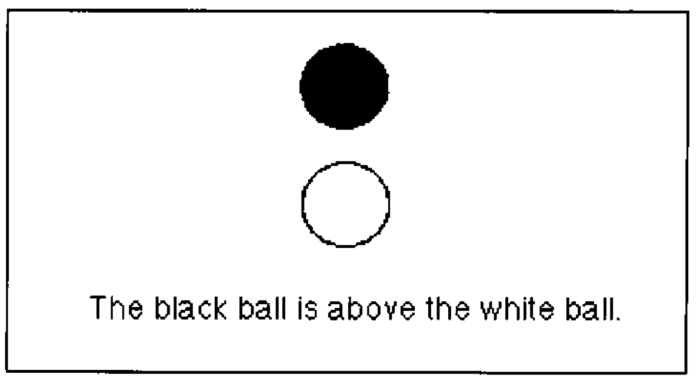
In summary, both Mandarin and English speakers use horizontal terms to talk about time. In addition, Mandarin speakers commonly use the vertical terms *shàng* and *xià*.[1]

Boroditsky02 expts 1, 3

horizontal prime



vertical prime



true or false?

May is [*before/after*] **OR** [*earlier/later* than] July

true or false?

before/after = "spatio-temporal"

earlier/later = purely temporal

spatio-temporal targets (*before/after*)

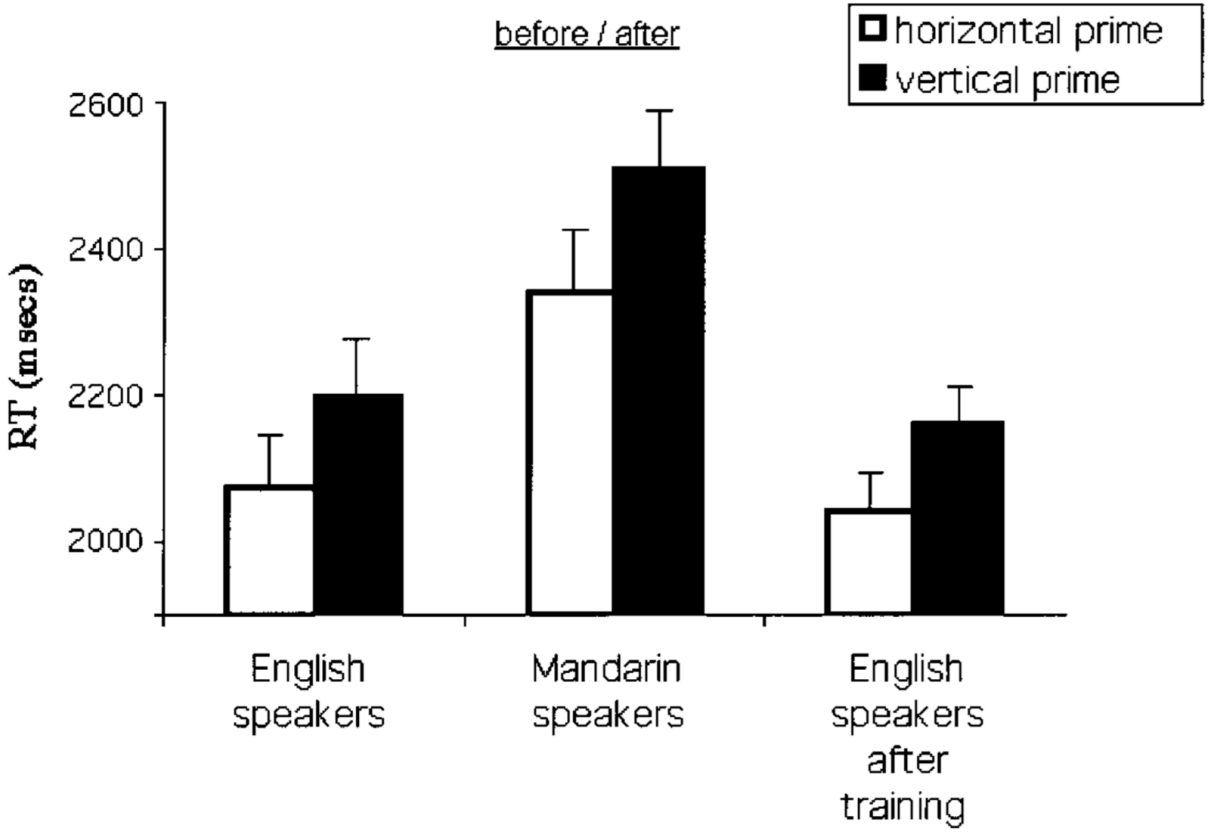


FIG. 4a. Experiments 1 and 3: Response times to spatiotemporal *before/after* questions about time following either a horizontal or a vertical prime are plotted for English speakers, Mandarin speakers, and English speakers who had been trained to talk about time vertically.

(reminder)

In summary, both Mandarin and English speakers use horizontal terms to talk about time. In addition, Mandarin speakers commonly use the vertical terms *shàng* and *xià*.[1]

purely temporal targets (*earlier/later*)

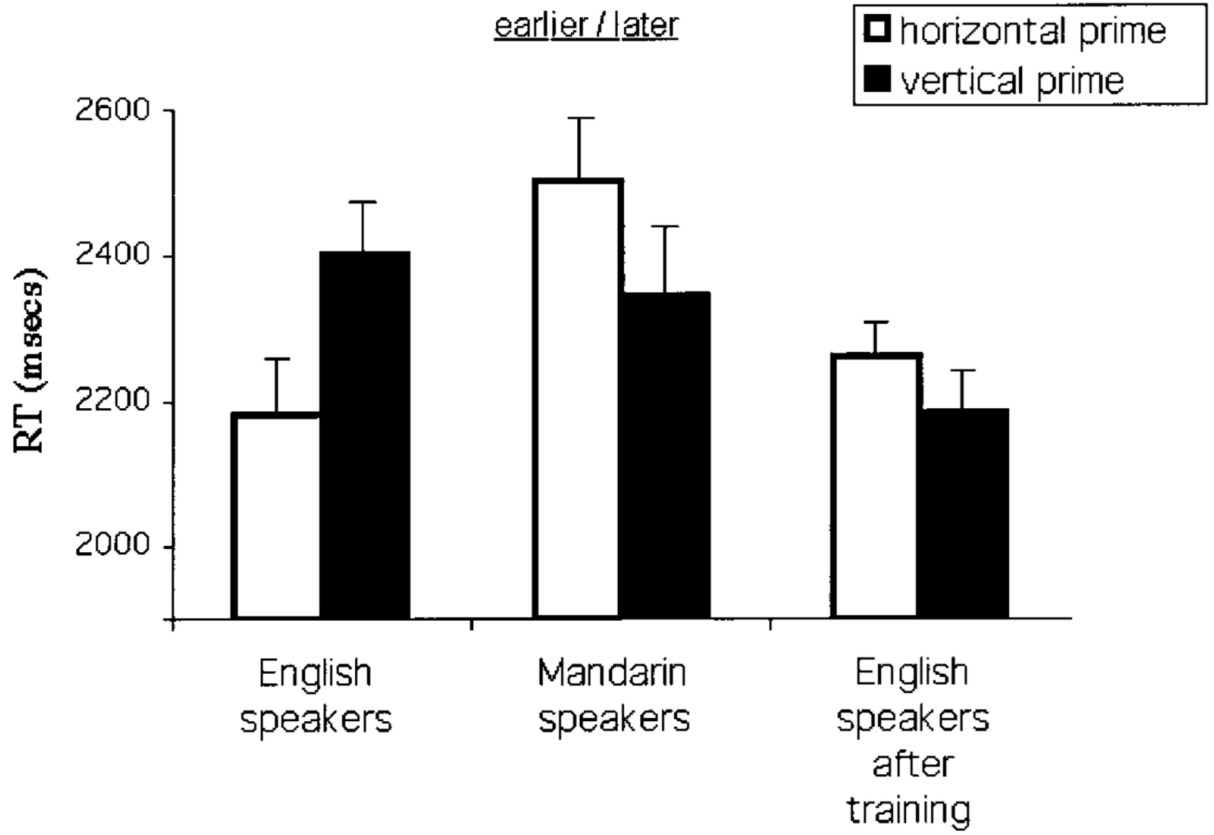


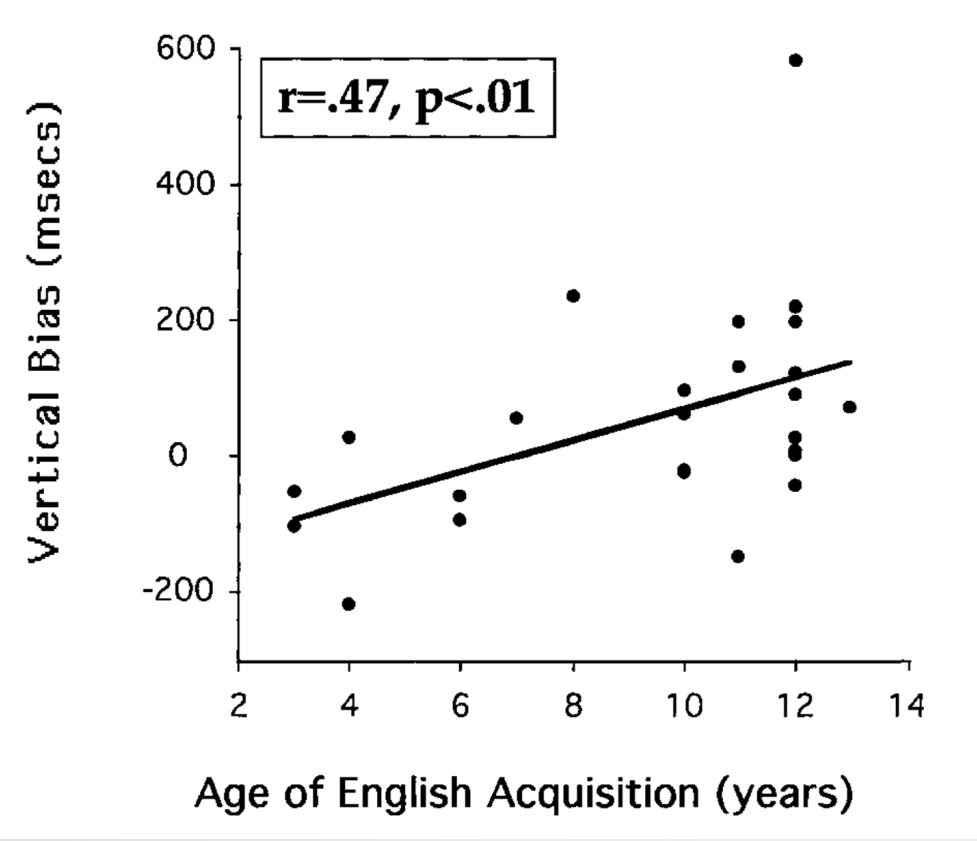
FIG. 4b. Experiments 1 and 3: Response times to purely temporal *earlier/later* questions about time following either a horizontal or a vertical prime are plotted for English speakers, Mandarin speakers, and English speakers who had been trained to talk about time vertically.

(reminder)

In summary, both Mandarin and English speakers use horizontal terms to talk about time. In addition, Mandarin speakers commonly use the vertical terms *shàng* and *xià*.[1]

interesting...

what should we make of all this?!



seems relevant too...

seems like language can't *completely* determine how we think

...

after all, people often speak more than one language natively

...

and people often speak more than one language **at a time!**

code-switching

the phenomenon of multi-lingual dialogues or utterances is called **code-switching**

and it's *a lot* more systematic than you might think!

code-switching

"Snow White and the Seven Dwarfs"/'*Blancanieves y los Siete Enanitos*'

Érase una vez una linda princesita blanca como la nieve. Su madrastra, la reina, tenía un mágico mirror on the wall. The queen often asked, "Who is the *más hermosa del valle?*" *Y un día el* mirror answered, "Snow White is the fairest one of all!" Very envious and evil, the *reina mandó a un criado que matara a la princesa. El criado la llevó al bosque y* out of compassion abandoned *la allí.* A squirrel took pity on the princess and led her to a *pequeña cabina en el monte. En la cabina, vivían siete enanitos que* returned to find Snow White asleep in their beds. Back at the palace, the stepmother again asked the *espejo*: "*Y ahora, ¿quién es la más bella?*" *El espejo otra vez le* answered, without hesitation, "Snow White!" The queen was very angry and set out to find the *casita de los enanitos. Disfrazada de vieja, la reina le ofreció a Blancanieves una manzana que había* laced with poison. When Snow White bit into the apple, she *calló desvanecida al suelo. Por la noche, los enanitos la* found, seemingly dead …

some help from the Spanish speakers, pls!

code-switching

"The Beggar Prince"/'*El Príncipe Pordiosero*'

El rey Arnulfo tenía una hija muy hermosa que se llamaba Graciela. Al cumplir ella los veinte años, el rey invitó many neighboring princes to a party. Since she was unmarried, he wanted her to choose *un buen esposo*. Princess Grace was sweet *y cariñosa con todos. Tenía solamente un defecto*: she was indecisive. Surrounded by twelve suitors, she could not decide and the king *se enojó. Gritó, "¡Juro por Dios que te casaré con el primer hombre* that enters this room!" At that exact moment, a beggar, who had evaded *a los porteros, entró en la sala. Exclamó, "¡Acabo de oír lo que dijo usted! ¡Juró por Dios!* The princess is mine!" There was no going back on such a solemn oath *y el pordiosero se preparó para la boda*. Everyone was surprised to see *lo bien que se veía* in his borrowed clothes. *Después de algunas semanas*, the beggar made an announcement to the princess. *El nuevo esposo le dijo a la princesa* that the time had come to leave the palace. They had to return to his meager work and a house *que era muy humilde* …

some help from the Spanish speakers, pls!

code-switching

what are some differences between the two passages...

- grammatically? (in terms of syntactic structure)
  - *where do the switches happen in each passage?*
  - *what regularities do they have?*
    (e.g. sentence boundary vs middle of phrase)

- grammaticality-ly (in terms of "how good" they sound?!)
  - *which one sounds more natural?*

- stylistically?

- etc

some help from the Spanish speakers, pls!