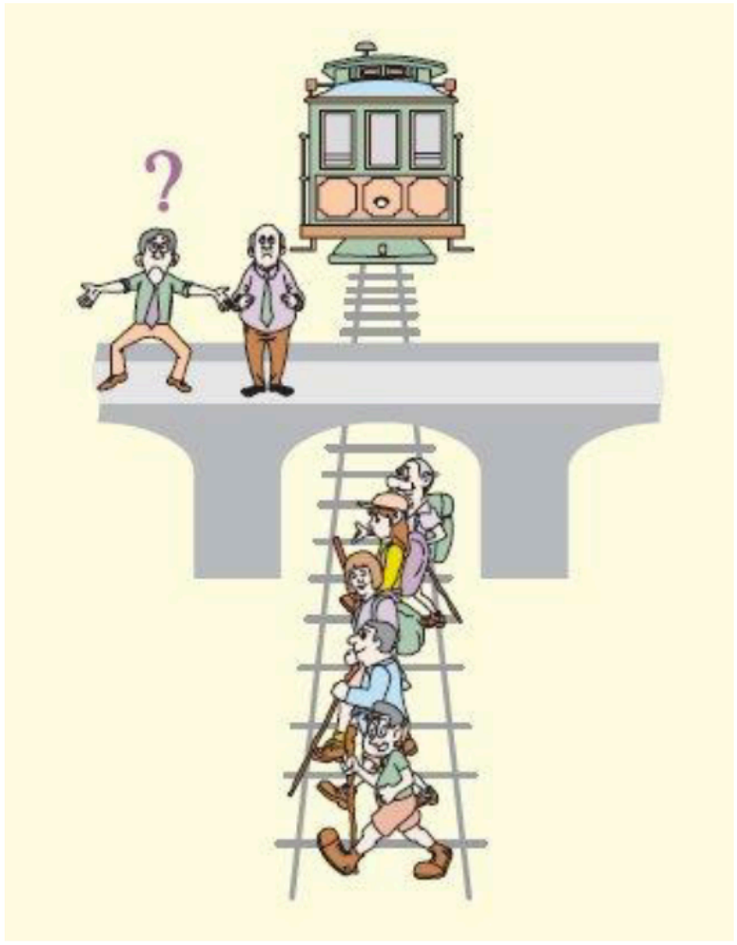
Bilingualism and Foreign Language Effect

Should you sacrifice one man to save five?

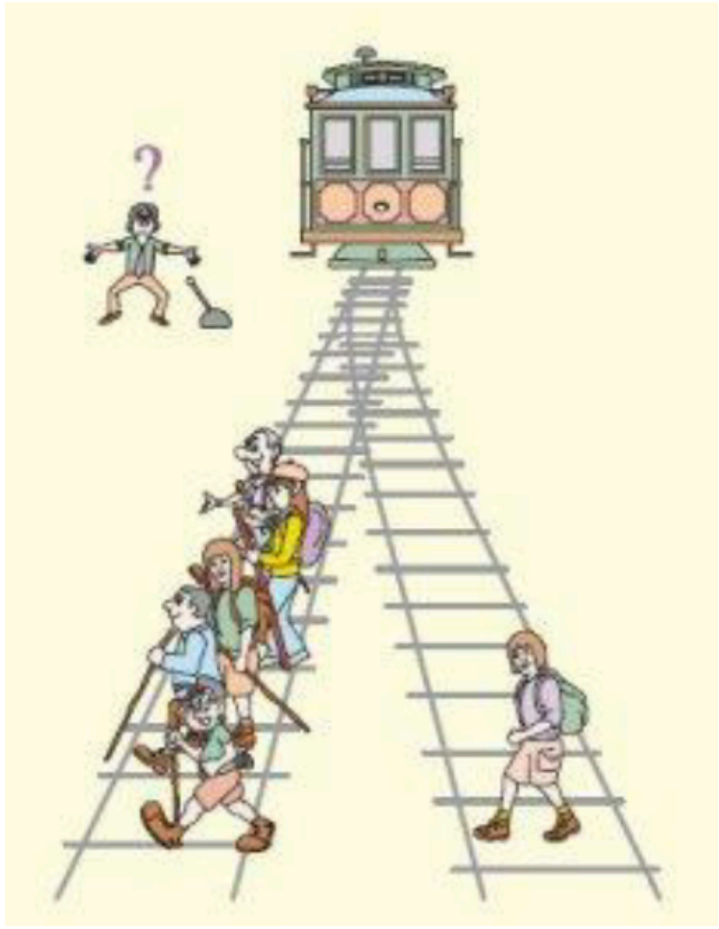


If you push the heavy man off the footbridge, you can save the lives of the five people who are about to be ran over by a train.

- *What would you do?*

(FOOTBRIDGE dilemma — more emotional reaction)

Language affecting moral decision?



The train is speeding towards the five people. If you push the lever, the train tracks will be switched, and the train will run towards the one person instead.

- *What would you do?*

(SWITCH dilemma — less emotional reaction)

Language affecting moral decision?

Research has shown that a foreign language elicits less intense emotional reactions than a native language (Keysar et al. 2012, and many others).

- Therefore, your moral judgments are less affected by emotions when making a moral judgment in a foreign language than in a native language.
- So, you make more practical judgment (i.e., utilitarian) in a foreign language than in a native language.

- *Is that the case?*

Language affecting moral decision?

Participants (bilinguals):
English/Spanish (N= 112)
Korean/English (N = 80)
English/French (N =107)
Spanish or English/Hebrew (N =18)

Costa et al. (2014a)

Exp. 1: Bilingual participants performed the FOOTBRIDGE dilemma

Half performed the task in a native language (NL)
Half performed the task in a foreign language (FL)

Results: significant difference between NL and FL

Table 2. Percentage of Utilitarian Decisions by Language Condition in Experiment 1.

Languages		Percent of utilitarian decisions	
Native	**Foreign**	**Native**	**Foreign**
Korean	English	0%	7.5%
English	Spanish	28%	44%
English/Spanish	Hebrew	10%	75%
English	French	20%	33%
Weighted Average		**20%**	**33%**

Costa, A., Foucart, A., Hayakawa, S., Aparici, M., Apesteguia, J., Heafner, J., & Keysar, B. (2014). Your morals depend on language. *PloS one*, *9*(4), e94842.

Language affecting moral decision?

Exp. 1:

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Weighted Average		**20%**	**33%**

Notice that,

- Zero Korean participants in the native language chose to push the man.

- East Asians are less likely to select the utilitarian choice with such dilemmas.
- But, 7.5 percentage points increasing of pushing the man in the foreign language.

Costa et al. (2014a)

Language affecting moral decision?

Costa et al. (2014a)

Exp. 1:

BUT, is this because there is less emotional reaction when performing in a foreign language?

- OR, is it because
  1) You respond at random in a foreign language because it is a more difficult language? (note that only 20% of all native language responses were utilitarian.

  2) there is a cultural difference?

- For instance, Spanish cultures are more collectivistic than English cultures, so those responding in Spanish as a foreign language might have ignored individual rights? (In Exp. 1, there were very few Spanish as a native language speakers.)

Language affecting moral decision?

Exp. 2:

Participants: Spanish/English (N=397) and English/Spanish (N= 328) bilinguals

Tasks: both FOOTBRIDGE and SWITCH dilemmas

Hypotheses and predictions:

- If the response is due to random response in a foreign language, then the response in SWITCH dilemma should be around 50-50.

- If it is related to cultural behavior, then responses in Spanish should be more utilitarian than responses in English.

Costa et al. (2014a)

Language affecting moral decision?

Costa et al. (2014a)

Exp. 2:

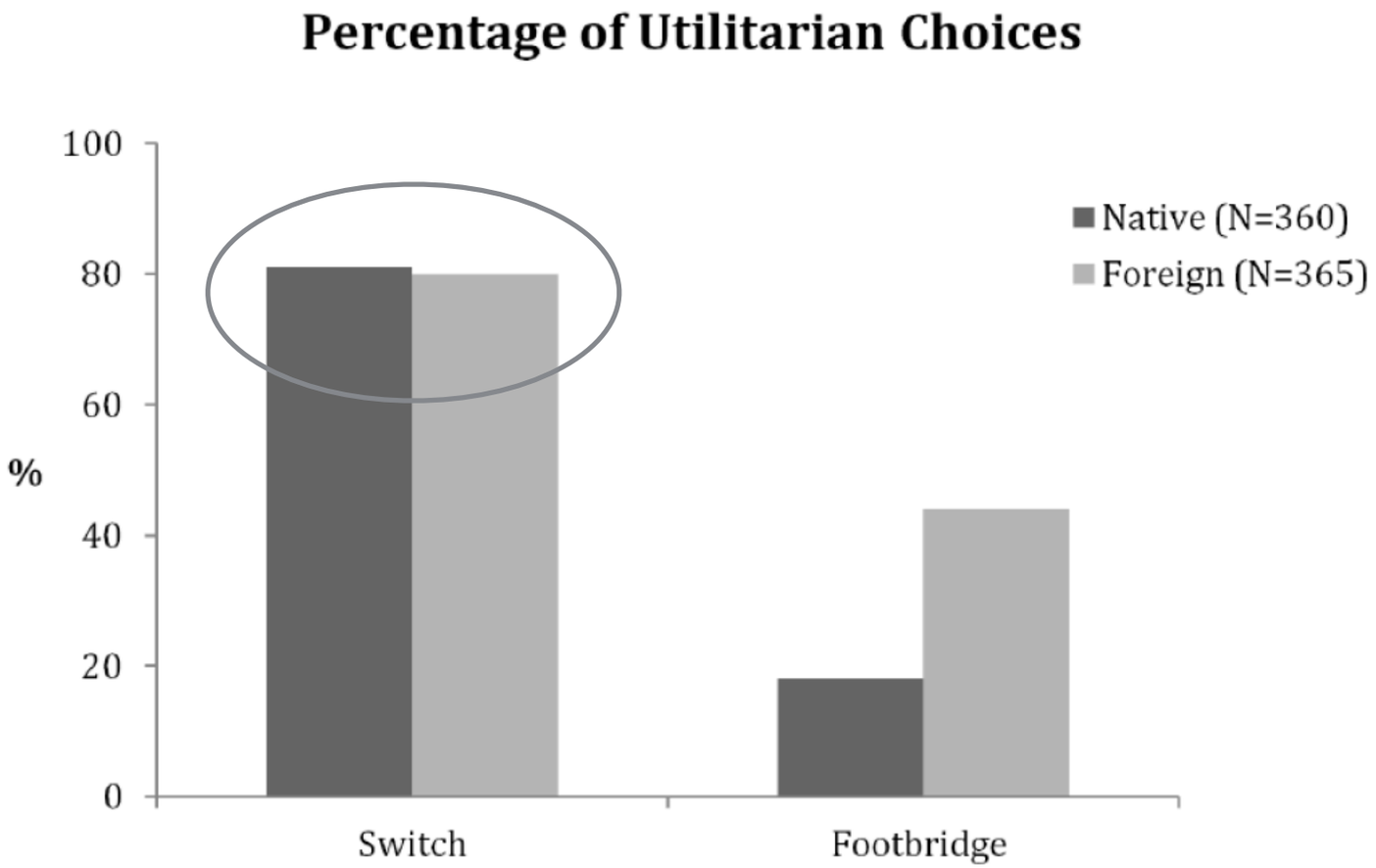


Figure 1. Percentage of utilitarian decisions (Experiment 2). Percentage of utilitarian decisions for the two versions of the trolley problem in the native language condition and the foreign language condition.

The SWITCH dilemma results show that L1 and L2 induce similar reaction.

- This is the less emotional one. So, in general, people are more likely to choose the utilitarian one.

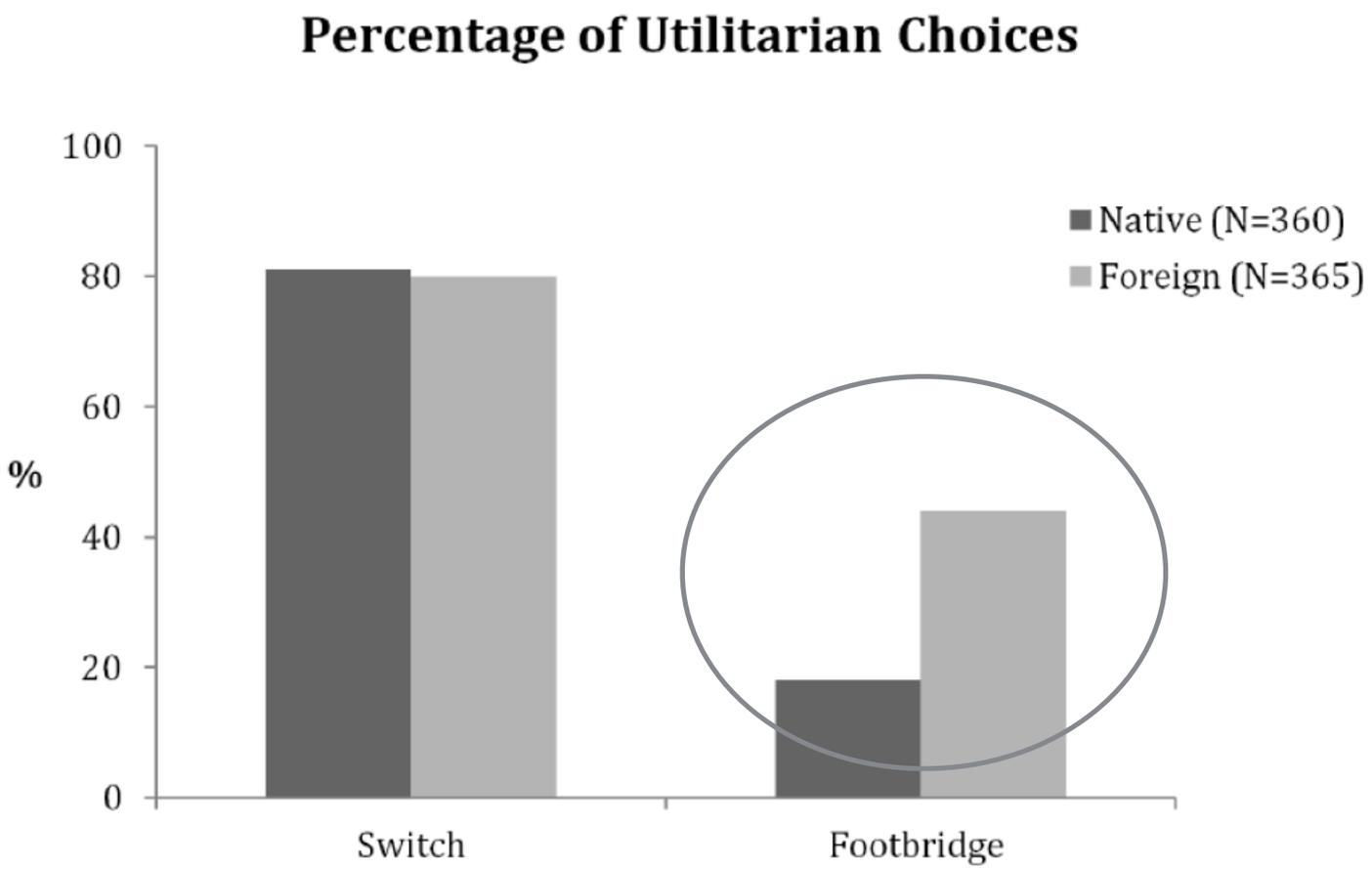
- It also shows that they are not responding at random.

Language affecting moral decision?

Costa et al. (2014a)

Exp. 2:

- The FOOTBRIDGE dilemma results show that generally, you are going to make ***less emotionally-based*** judgment in a foreign language.



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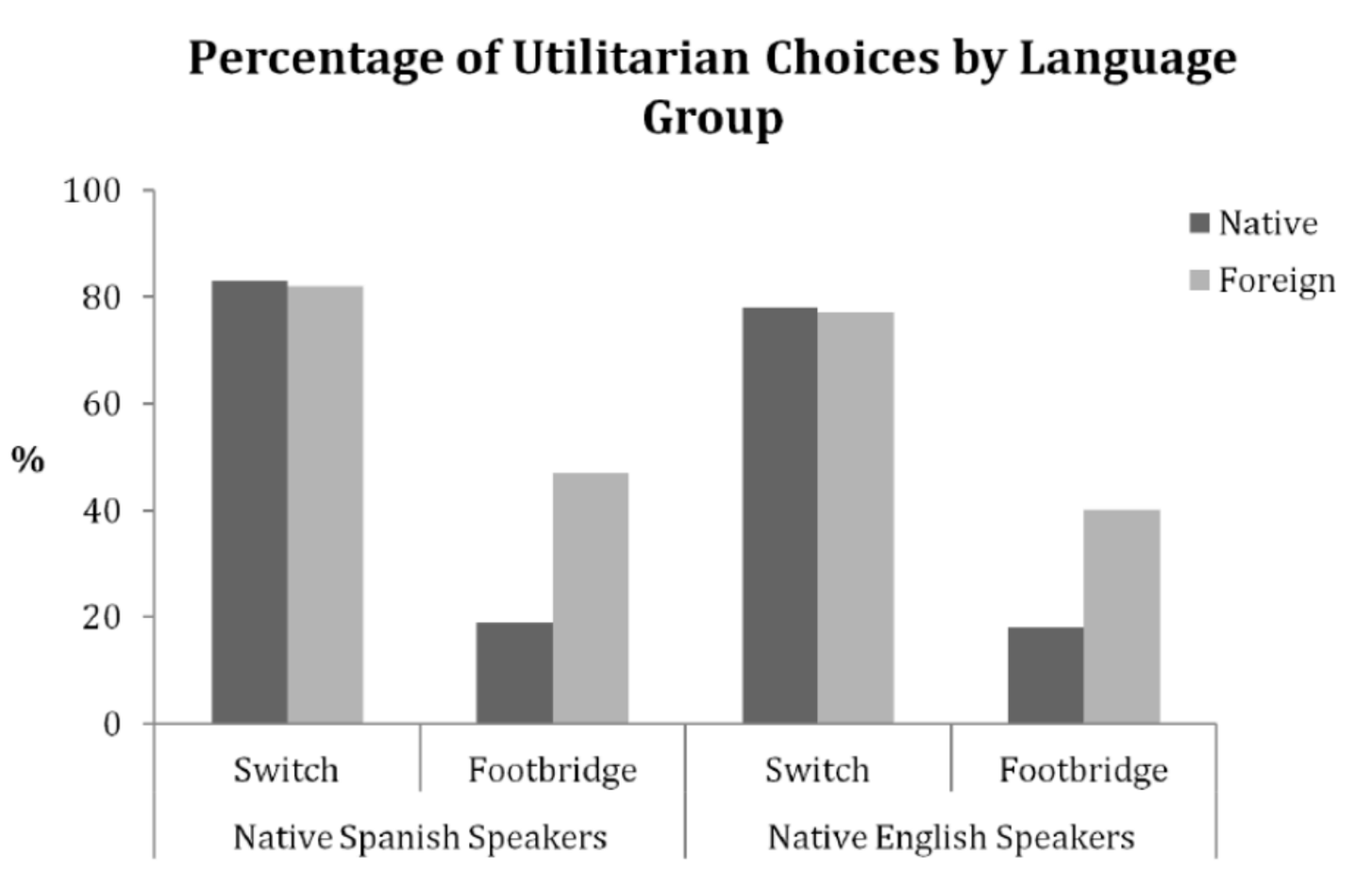
Language affecting moral decision?

Costa et al. (2014a)

Exp. 2:



No difference between Spanish and English

Figure 2. Percentage of utilitarian decisions by language group (Experiment 2). Percentage of utilitarian decisions for the two versions of the trolley problem in the native language condition and the foreign language condition, divided by native language group. Native Spanish speakers using Spanish (N = 200) or English (N = 197); native English speakers using English (N = 168) or Spanish (N = 160).
doi:10.1371/journal.pone.0094842.g002

Costa et al. (2014a)

Exp. 2:

The less proficient you are in a foreign language, the more utilitarian choice you have in the FOOTBRIDGE dilemma.

- More fluent, more native-like judgment
- More emotional reaction?

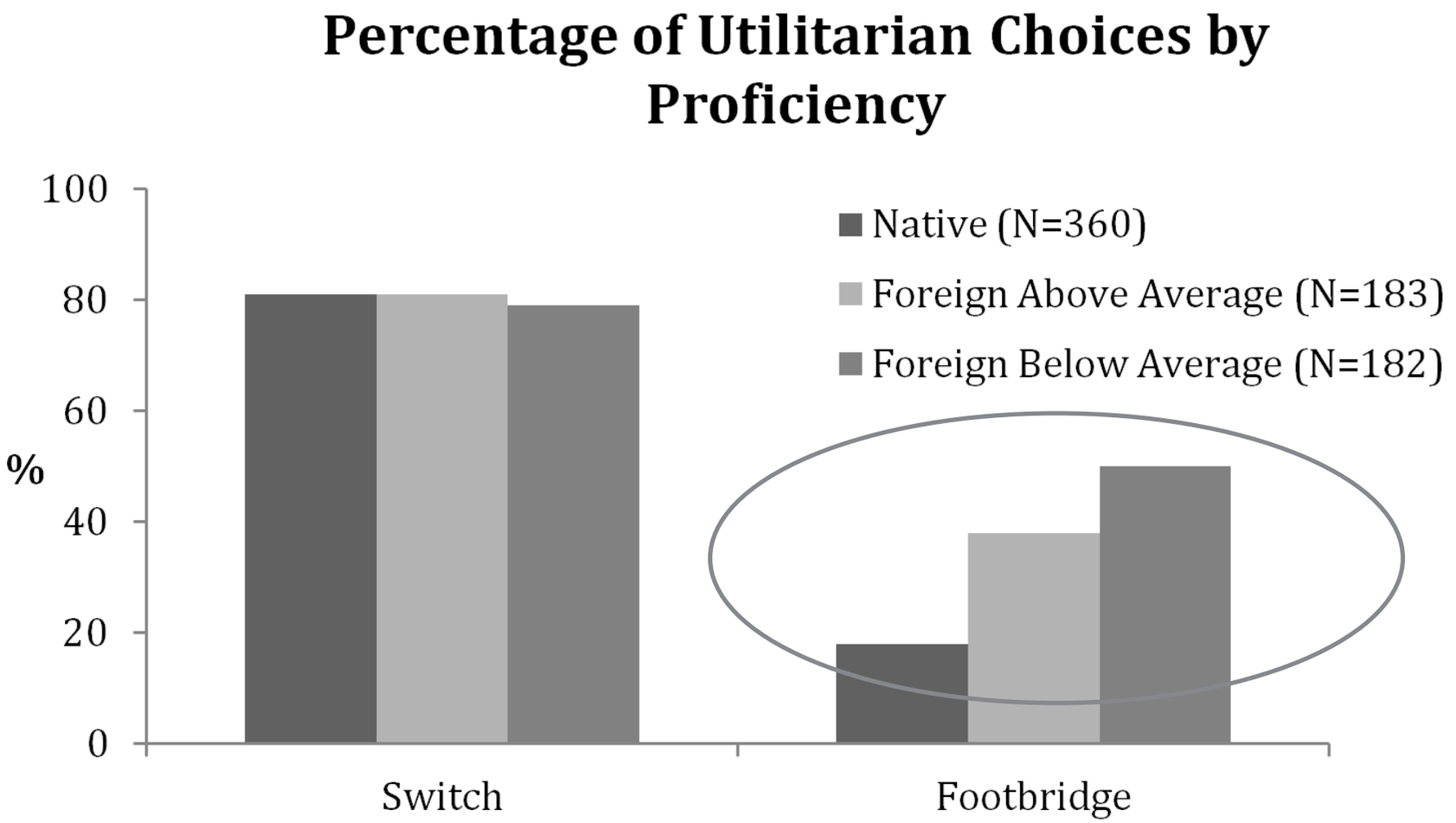


Figure 3. Percentage of utilitarian decisions by proficiency (Experiment 2). Percentage of utilitarian decisions for the two versions of the trolley problem in the native language condition and the foreign language condition, divided by self-rated proficiency level. https://doi.org/10.1371/journal.pone.0094842.g003

Language affecting moral decision?

Costa et al. (2014a)

So, why is there a difference in morality judgments depending on language?

- Psychological distance in a foreign language

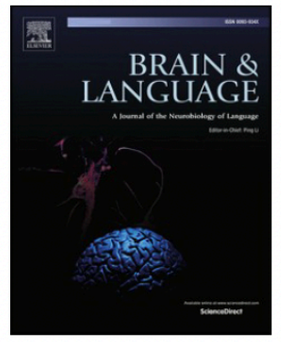
- Less cognitive fluency or slow down in making decisions takes away decision biases due to more deliberate response

Brain & Language 227 (2022) 105082

Contents lists available at ScienceDirect

Brain and Language

journal homepage: www.elsevier.com/locate/b&l



Not all bilinguals are the same: A *meta*-analysis of the moral foreign language effect

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ARTICLE INFO

Keywords:
Bilingualism
Foreign language
Moral judgement
Decision-making

ABSTRACT

Emerging evidence shows bilinguals employ different decision-making strategies in their foreign language compared to their native language (known as the Foreign Language Effect). When completing moral dilemmas, accumulating research findings indicate that bilinguals are more likely to endorse the utilitarian option. We conducted a *meta*-analysis to investigate whether linguistic variables (proficiency, immersion, and language similarity) moderate utilitarian responding to moral dilemmas in a foreign language. A systematic literature search extracted experiments comparing binary responses to moral dilemmas among bilingual participants. Analyses confirmed a moral Foreign Language Effect within personal dilemmas, though this effect was moderated by self-reported reading proficiency, whereby bilinguals with higher self-reported reading proficiency were less likely to make a utilitarian choice. Our findings suggest that not all bilinguals may experience a Foreign Language Effect, with low self-reported reading proficiency being the most likely indicator of whether their response tendencies to a moral dilemma change in the foreign language.

Stankovic, M., Biedermann, B., & Hamamura, T. (2022). Not all bilinguals are the same: a *meta*-analysis of the moral foreign language effect. *Brain and Language*, *227*, 1-13. [105082]. https://doi.org/10.1016/j.bandl.2022.105082

Language affecting other decision making situations?

Language affecting decision making?

Costa et al. (2014b)

Cognition 130 (2014) 236–254

Contents lists available at ScienceDirect

Cognition

journal homepage: www.elsevier.com/locate/COGNIT

“Piensa” twice: On the foreign language effect in decision making

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Costa, A., Foucart, A., Arnon, I., Aparici, M., & Apesteguia, J. (2014). “Piensa” twice: On the foreign language effect in decision making. *Cognition*, *130*(2), 236-254.

Language affecting decision making?

Costa et al. (2014b)

- Loss aversion
- Psychological accounting
- Risk and uncertainty
- Cognitive reflection test

- Four studies examine foreign language effect on a range of decision making situations and explore several potential factors that may underlie the FLe in decision making.
  - emotional content
  - cognitive fluency
  - cognitive load

ARTICLE INFO

Article history:
Received 12 April 2013
Revised 14 November 2013
Accepted 14 November 2013

Keywords:
Foreign language effect
Emotional resonance
Cognitive fluency

ABSTRACT

In this article, we assess to what extent decision making is affected by the language in which a given problem is presented (native vs. foreign). In particular, we aim to ask whether the impact of various heuristic biases in decision making is diminished when the problems are presented in a foreign language. To this end, we report four main studies in which more than 700 participants were tested on different types of individual decision making problems. In the first study, we replicated Keysar et al.'s (2012) recent observation regarding the foreign language effect on framing effects related to loss aversion. In the second section, we assessed whether the foreign language effect is present in other types of framing problems that involve psychological accounting biases rather than gain/loss dichotomies. In the third section, we studied the foreign language effect in several key aspects of the theory of decision making under risk and uncertainty. In the fourth study, we assessed the presence of a foreign language effect in the cognitive reflection test, a test that includes logical problems that do not carry emotional connotations. The absence of such an effect in this test suggests that foreign language leads to a reduction of heuristic biases in decision making across a range of decision making situations and provide also some evidence about the boundaries of the phenomenon. We explore several potential factors that may underlie the foreign language effect in decision making.

Study 1: replicating Keysar et al. (2012)

Task:

Asian disease problem

Findings:

- Native speakers: The safest option (**Medicine A**) is chosen more often when the problem is presented **in the gain frame** than in the loss frame version.

- Foreign language users:
No difference, esp. low-proficient speakers

Conclusion:

- NSs: People tend to **take more risks** (Medicine B) **when the problem is framed in terms of losses** than in terms of gains, revealing the loss aversion bias (Kahneman & Frederick, 2006)

1.1.1. Asian disease problem

Recently, a dangerous new disease has been going around. Without medicine, 600,000 people will die from it. In order to save these people, two types of medicine are being made.

Gain frame version

If you choose Medicine A, 200,000 people will be saved.
If you choose Medicine B, there is a 33.3% chance that 600,000 people will be saved and a 66.6% chance that no one will be saved.

Which medicine do you choose?

Loss frame version

If you choose Medicine A, 400,000 people will die.
If you choose Medicine B, there is a 33.3% chance that no one will die and a 66.6% chance that 600,000 will die.
Which medicine do you choose?

Costa et al. (2014b)

Study 1: replicating Keysar et al. (2012)

Table 1
Percentage of Safe Responses (option A) in the Asian disease problem for the Spanish/English group (AD 1, native condition, $N = 124$; foreign condition, $N = 123$), for the Arab/Hebrew group (AD 2, native $N = 69$, foreign $N = 60$), and for the Financial crisis problem (FC, native condition, $N = 140$; foreign condition, $N = 140$).

Study	Native condition					Foreign condition				
	Gain		Loss		Δ G–L	Gain		Loss		Δ G–L
Asian dis. (1)	42	68%	21	34%	34%**	41	67%	31	50%	17%*
Asian dis. (2)	26	76%	15	43%	33%**	22	73%	19	63%	10%
Fin. crisis	49	71%	40	56%	15%	47	67%	43	61%	6%
Mean		71%		44%	26%		69%		58%	11%

* $p < .05$.
** $p < .005$.

Task #1: Asian disease problem, 247 Spanish-English bilinguals
Task #2: Asian disease problem, 129 Arab-Hebrew bilinguals
Task #3: Financial crisis problem (ticket/money loss problem, less emotional than disease problem), 280 Spanish-English bilinguals

Costa et al. (2014b)

Recently, a serious financial crisis has started. Without any action, the company you manage will lose 600,000 euros. In order to save this money, two types of actions are possible.

Gain version:

If you choose Action A, 200,000 euros will be saved.
If you choose Action B, there is a 33.3% chance that 600,000 euros will be saved and a 66.6% chance that no money will be saved.
Which action do you choose?

Loss version:

If you choose Action A, 400,000 euros will be lost.
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Combined responses from these three tasks:

- Native language: a clear framing effect
- Foreign language: a reduced effect (no significant difference)

Costa et al. (2014b)

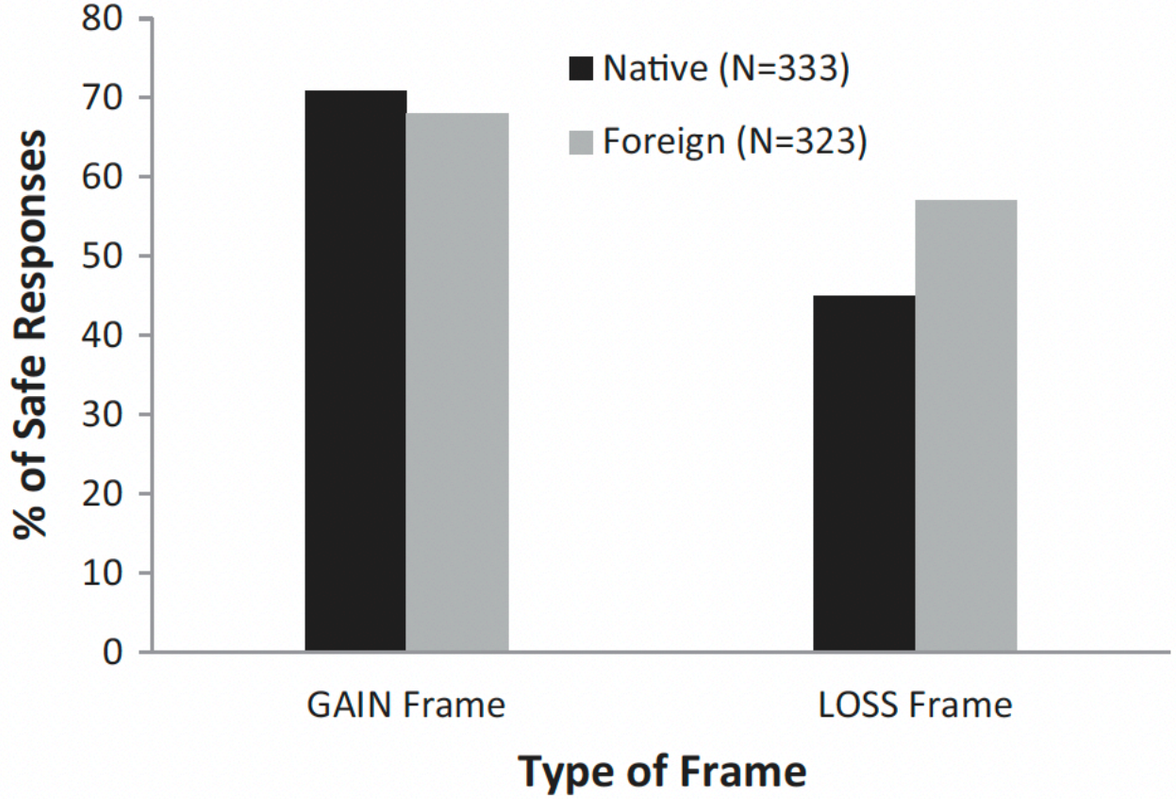
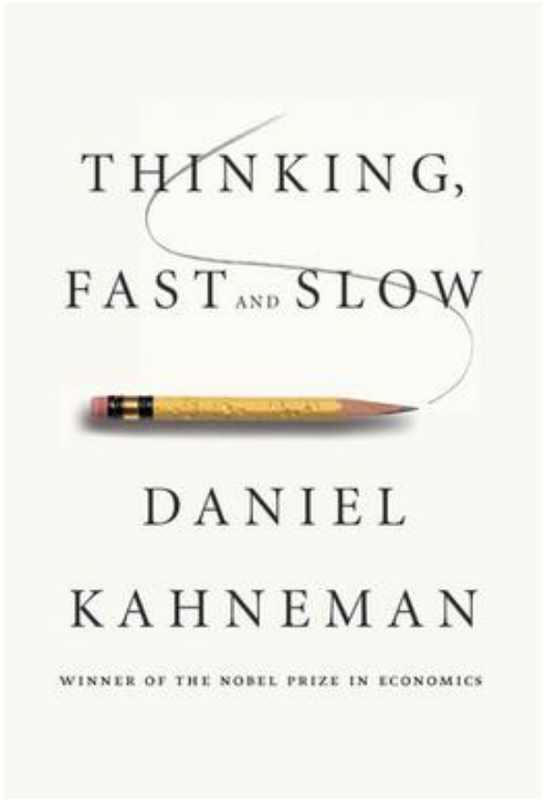


Fig. 1. Percentage of responses for the different versions and languages of the three groups of participants combined.

Language affecting decision making?

- emotional content,
- cognitive fluency
- cognitive load

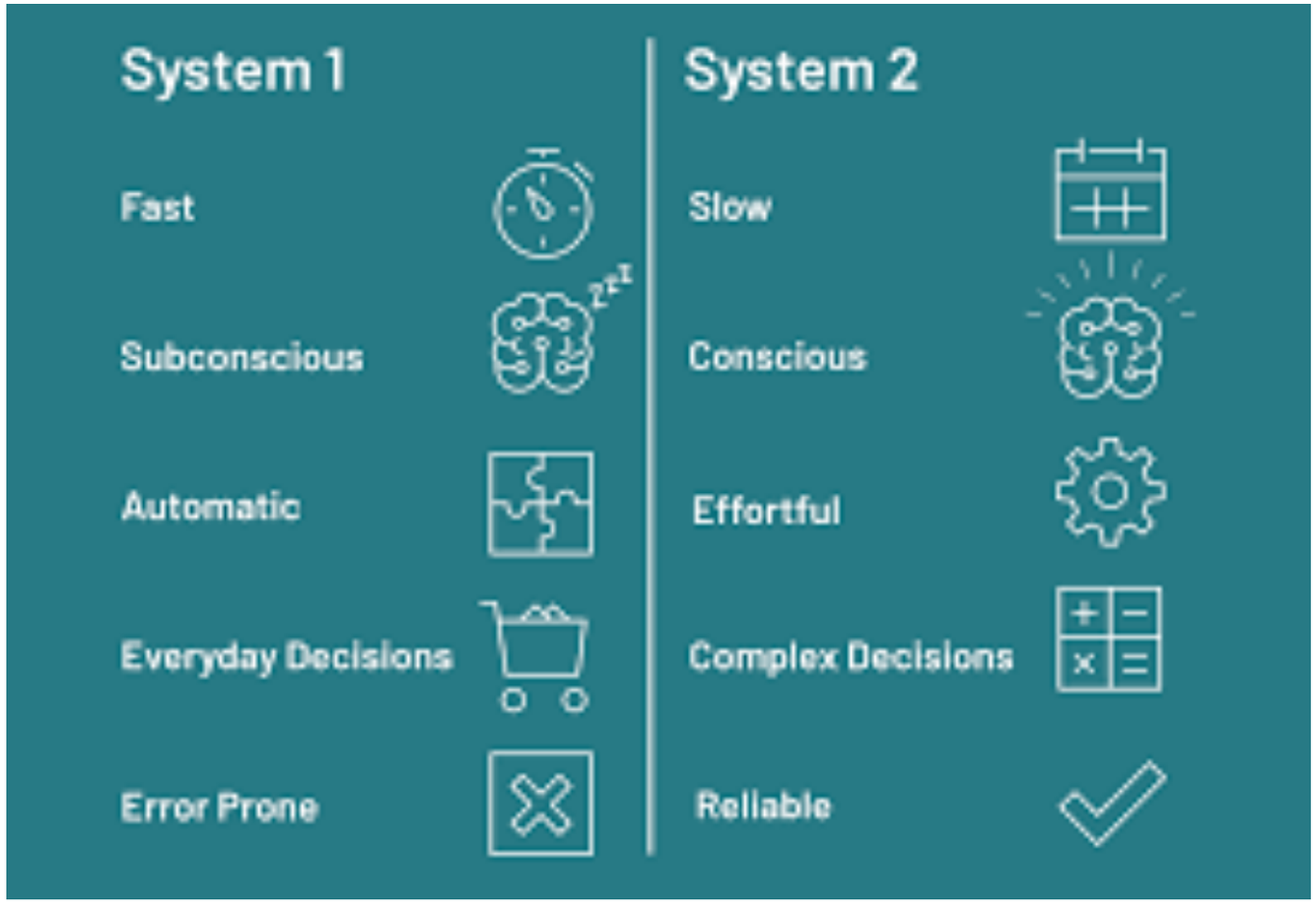


Kahneman (2011) two modes of thought:

System 1: fast, instinctive and emotional;
System 2: slower, more deliberative, and more logical.

Kahneman (2011) to argue that any factor, whatever its origin, that increases cognitive tension and therefore reduces cognitive fluency, would prompt the processes of System 2 and reduce the impact of the fast and quick response provided by System 1.

Prediction: System 2 will have more of an effect on decision making when problems are presented in a FL compared to a native one.



Costa et al. (2014b)

Language affecting tolerance of ambiguity?

The Foreign Language Effect on Tolerance of Ambiguity

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Abstract

Previous research has shown that bilingual speakers may be more tolerant to ambiguity, they might perceive situations of ambiguity more interesting, challenging and desirable (e.g., Dewaele & Li, 2013). To our knowledge, no data are available addressing the question whether the language in use can have an effect on the personality trait of tolerance of ambiguity (ToA). This study investigated whether and how reading statements in a second language (L2), as opposed to the native language (L1), affects ToA. 387 Italian–English bilingual adults completed a questionnaire measuring levels of ToA either in English or Italian. Results revealed that processing information in L2 promoted higher scores of ToA overall and in sentences that were related to challenging perspectives and change. Age, gender and L2 proficiency were significant predictors of higher ToA scores. This study offers new evidence that processing information in a L2 can affect tolerance of ambiguous situations.

Purpuri, S., Vasta, N., Filippi, R., Wei, L., & Mulatti, C. (2024). The Foreign Language Effect on Tolerance of Ambiguity. *Bilingualism: Language and Cognition*, 27,16–24. https://doi.org/10.1017/S1366728923000469

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