

Class 12:  
The Foreign-Language Effect: Thinking in a  
Foreign Tongue Reduces Decision Biases

Keysar, Hayakawa, & An 2012

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9.59J/24.905J

# Framing Risk

**Risk aversion** in the domain of gains:

Most people prefer a guaranteed \$20 over an even bet that would net them either \$40 or \$0.

But **risk-seeking** in the domain of losses:

Most people prefer a chance not to lose \$40 vs. a guarantee of losing only \$20

# Framing Risk

The asymmetry exists even when the same choice is simply framed differently, as a gain or as a loss.

Another example, in terms of lives:

People prefer to save the lives of 200 out of 600 people for sure than to take a chance of saving all of them or none.

However, if the choice is framed in terms of lives lost (400 out of 600), they become risk seeking (Kahneman & Tversky, 1979).

This effect violates *normative assumptions* that the willingness to accept risk should be independent of the description of a situation.

# Keysar et al: Are risk preferences affected by the use of a foreign language?

Two possibilities:

1. A foreign language is harder to use, which could increase cognitive load and lead to greater reliance on intuitive and affective processes: **reduced-systematicity**

If the **reduced-systematicity** account is correct, then using a foreign tongue would exacerbate this decision-making phenomenon and increase the asymmetry.

# Keysar et al: Are risk preferences affected by the use of a foreign language?

**2. Increased-systematicity:** The broad motivation for this hypothesis is the possibility that a foreign language provides a distancing mechanism that moves people from the immediate intuitive system to a more deliberate mode of thinking.

Even when people fully comprehend the meaning of taboo words, reprimands, expressions of love, and advertisement slogans, they react to them less emotionally in a foreign language, as demonstrated by subjective ratings as well as electrodermal responses. *This reduction in emotional response might diminish the influence of affective processes and allow people to rely more on analytic processes when they make decisions.*

Thus the **increased-systematicity** account predicts that the use of a foreign language should reduce the impact of framing on risk preferences.

# Original “Asian disease” problem (Kahneman & Tversky, 1979).

**Gain-frame** version of the problem from Experiment 1a:

*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.*

*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?*

# Original “Asian disease” problem (Kahneman & Tversky, 1979).

**Loss-frame** version of the problem from Experiment 1a:

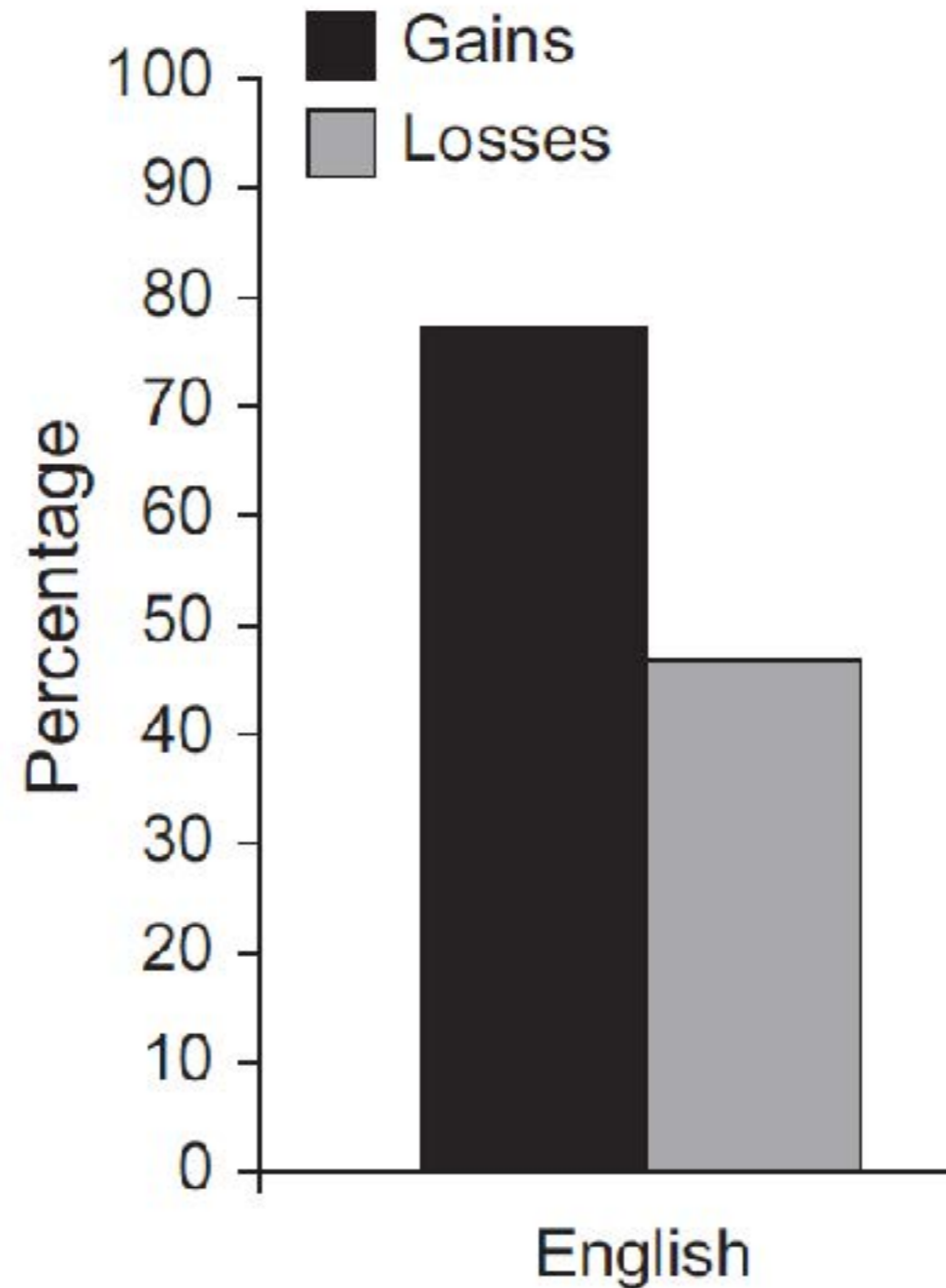
*Recently, a dangerous new disease has been going around. Without medicine, 600,000 people will die from it. In order to save these people, two types of medicine are being made.*

*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 people will die.*

*Which medicine do you choose?*

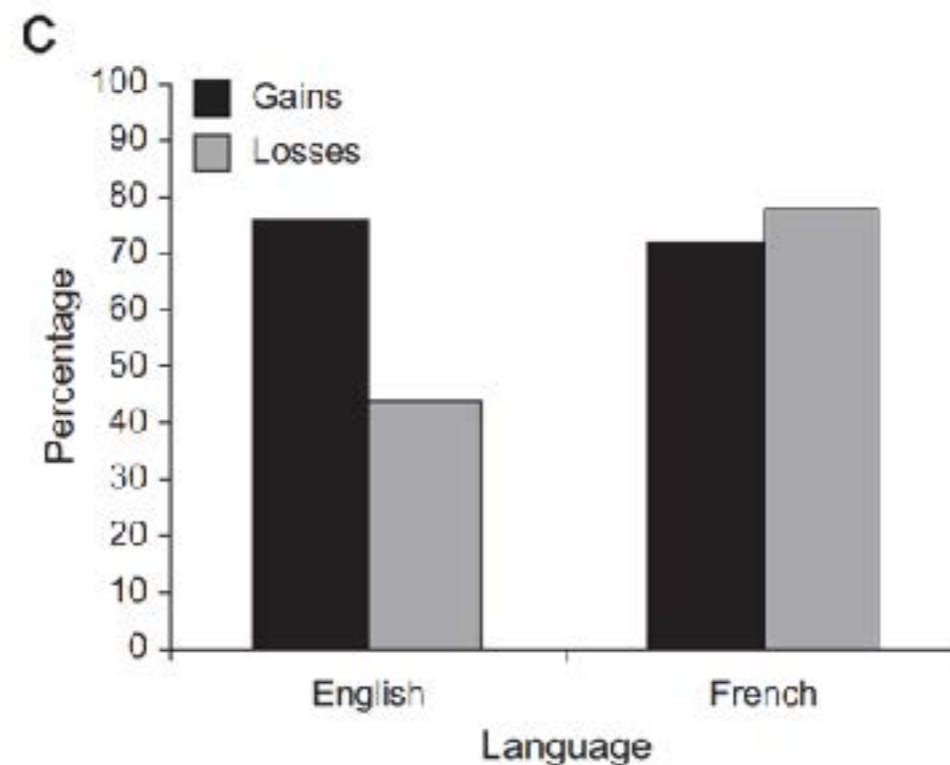
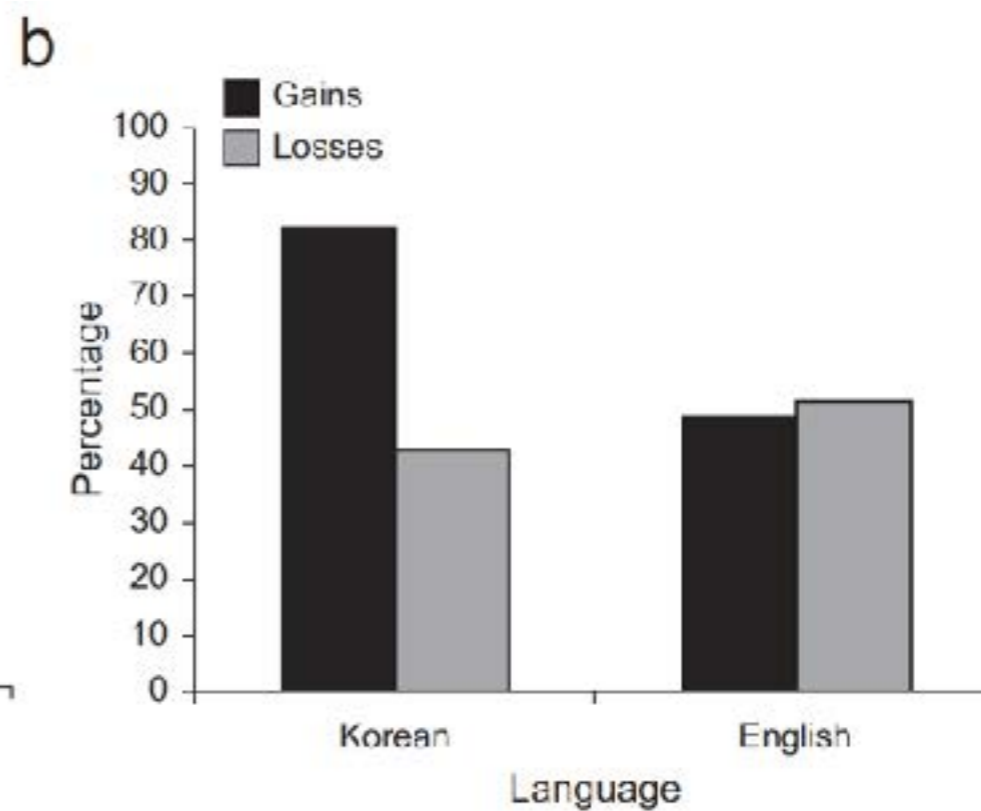
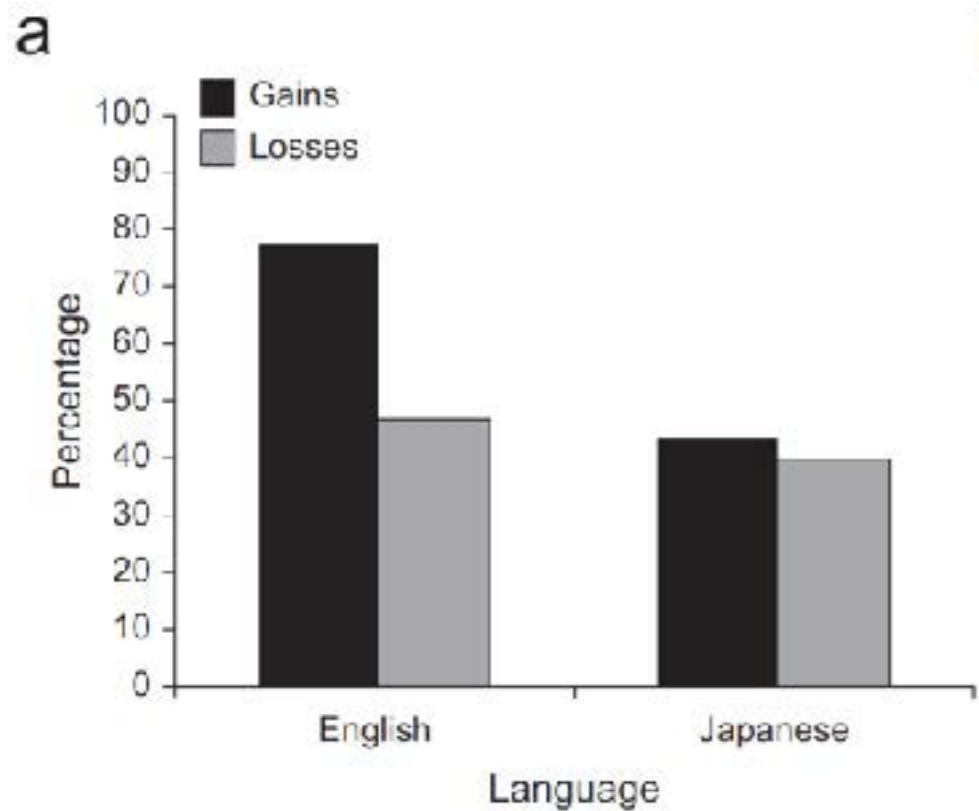
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Replication of the framing effect: e.g., in Expt 1a: 77% prefer the sure option for gain-frame, but only 47% prefer the same option in loss-frame. Similarly for Expt 1b, 1c





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The effect disappears for participants in their second language, across 3 experiments, with 3 second languages (Japanese, English, French) and 2 native languages (English, Korean)

*Control: Experiment 1d: “It is possible that participants did not bother to read the materials in the foreign language, and instead chose at random between the risky and the sure options. This strategy would eliminate the effect of frame, and could have yielded the observed pattern of results. Even the responses in the foreign-language condition of Experiment 1c could be explained as due to random choice with a bias toward the first option.”*

# Jobs version of problem from Ib, Ic

**Gain-frame** version of the problem from Experiment Ib:

*The economy is in difficulty. Without a government program, 600,000 people will lose their jobs. In order to save these jobs, two types of programs are being proposed:*

*If you choose program A, 200,000 jobs will be saved.*

*If you choose program B, there is a 33.3% chance that 600,000 jobs will be saved and a 66.6% chance that no jobs will be saved.*

*Which program do you choose?*

# Jobs version of problem from Ib, Ic

**Loss-frame** version of the problem from Experiment Ib:

*The economy is in difficulty. Without a government program, 600,000 people will lose their jobs. In order to save these jobs, two types of programs are being proposed:*

*If you choose program A, 400,000 jobs will be lost.*

*If you choose program B, there is a 33.3% chance that no jobs will be lost and a 66.6% chance that 600,000 jobs will be lost.*

*Which program do you choose?*

Control:

Extra condition in gain-frame version: strongly biased towards option B:

*If you choose program A, 1,000 jobs will be saved.*

*If you choose program B, there is a 33.3% chance that 600,000 jobs will be saved and a 66.7% chance that no jobs will be saved.*

*Which program do you choose?*

native English speakers, doing the task in Spanish in 3 conditions.

Replication of earlier results: no diff for the two equally good versions (29, 25%) but participants overwhelmingly choose B for the modified version (86%).

**Not random**

# Loss Aversion: Experiment 2

Most people would avoid a bet that offers an even chance of winning \$12 or losing \$10, despite its positive expected value:

The prospect of a larger gain is outweighed by the fear of the loss. (Kahneman & Tversky, 1979).

Experiment 2, presented people with a range of equal odds, positive-expected-value bets that could result in either a gain or a loss.

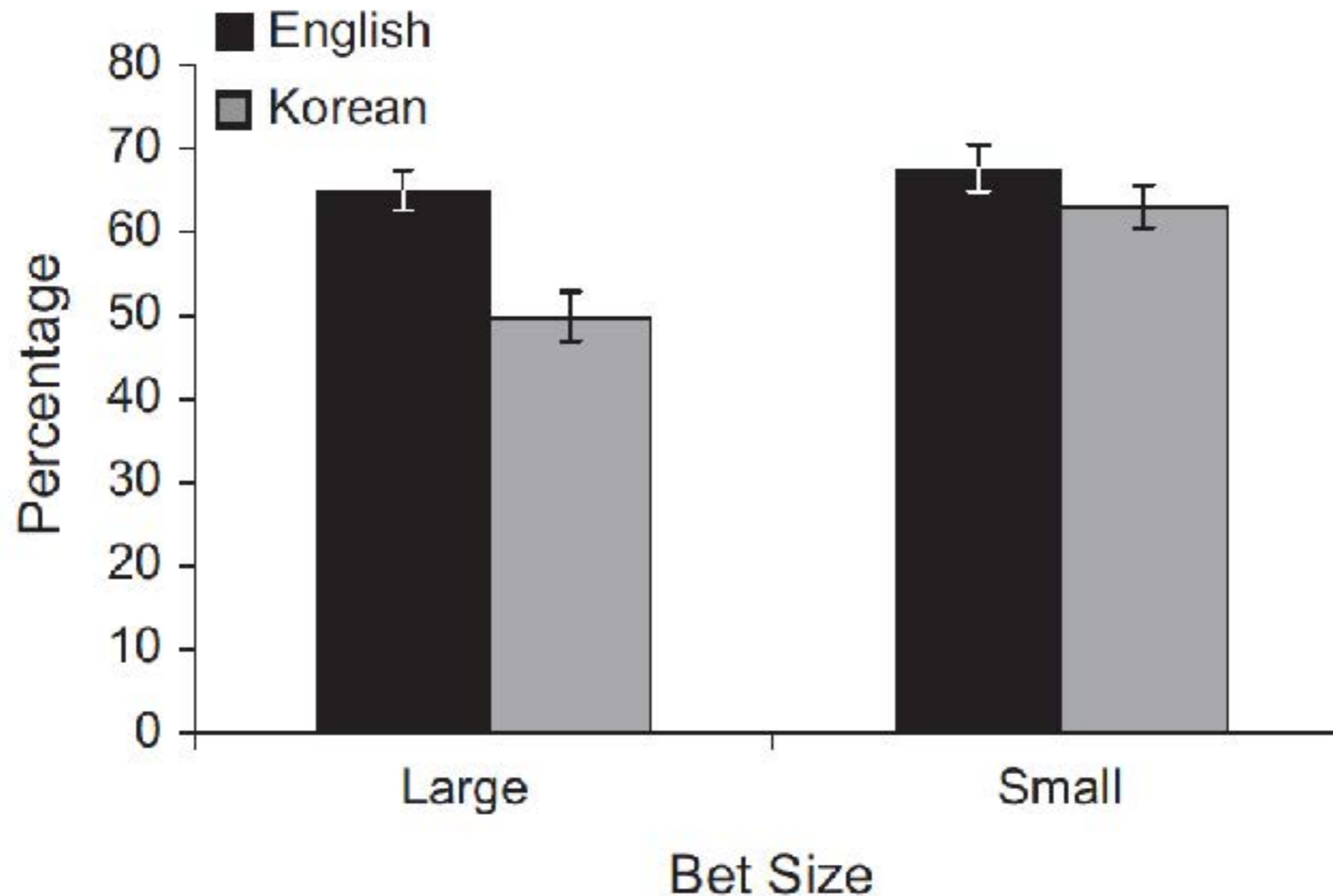
# Loss Aversion: Experiment 2

Half the bets had high stakes (e.g., lose W119,000 or win W170,000), and half had low stakes (e.g., lose W200 or win W500; W1,000 is roughly equal to \$1).

People routinely show loss aversion in situations involving large amounts, but there is evidence that they are not loss averse in the case of insignificant amounts (Harinck, Van Dijk, Van Beest, & Mersmann, 2007).

Therefore, Keysar et al. expected the language in which the bets were presented to affect decisions mainly in the case of the larger bets.

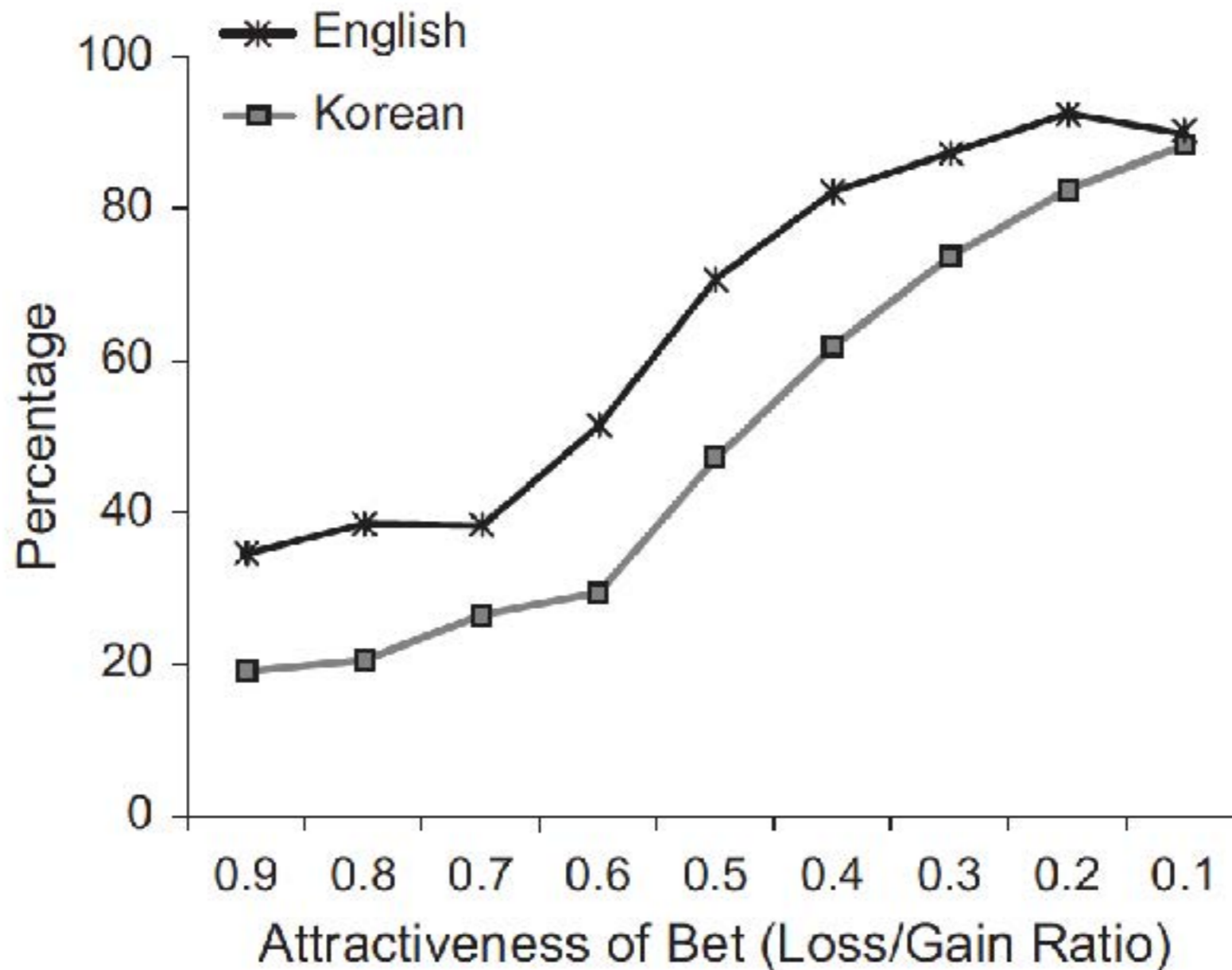
# Loss Aversion: Experiment 2



**Fig. 2.** Percentage of bets accepted in Experiment 2 as a function of the size of the bet and the language in which the bet was presented. In this experiment, Korean was the native language, and English was the foreign language. Error bars represent standard errors.



# Loss Aversion: Experiment 2



**Fig. 3.** Percentage of large bets accepted in Experiment 2 as a function of the attractiveness of the bet and the language in which the bet was presented. In this experiment, Korean was the native language, and English was the foreign language.

# Loss Aversion: Experiment 3

Experiment 2 demonstrates that people are less reluctant to take a series of positive-expected-value bets when using a foreign language than when using their native language. But given that these bets were hypothetical, the results might not reflect the actual impact of a foreign language.

Experiment 3: Participants received \$15 in \$1 bills, to place 15 separate bets. In each round, they could either keep a dollar or risk losing it in an even bet that could gain them \$2.50. Unlike in Experiment 2, participants kept the cash they accrued during the experiment. They performed the task either in their native tongue, English, or in a foreign language, Spanish.

# Loss Aversion: Experiment 3

For each bet, the experimenter flipped a coin in plain view while the participant called out “heads/cara” or “tails/cruz.” If the participant was correct, he or she kept the dollar and received an extra \$1.50. Otherwise, he or she lost the dollar. If the participant declined the bet, he or she kept the dollar and moved on to the next round. In each round, the expected value of taking the bet was \$1.25.

Results: participants who performed the task in Spanish took the bets more often than those who performed it in English ( $M_s = 71\%$  and  $54\%$ , respectively)  $t(52) = -2.04$ ,  $p < .05$ ,  $d = -0.55$ .

# Other applications

Ideas here:

dating apps?

terrorist negotiation?

tourist spending?

government / military policy?

investments, financial decisions, scams?

morality?

therapy?

# Costa et al 2014: Morality

Trolley dilemma, “footbridge” version:

One imagines standing on a footbridge overlooking a train track. A small on-coming train is about to kill five people and the only way to stop it is to push a heavy man off the footbridge in front of the train. This will kill him, but save the five people.

*A utilitarian analysis dictates sacrificing one to save five; but this would violate the moral prohibition against killing, and imagining physically pushing the man is emotionally difficult and therefore people routinely avoid that.*

If increased-systematicity is correct, then people would be more likely to opt for sacrificing one man to save five when dealing with such moral dilemmas in a second language than in their native language.

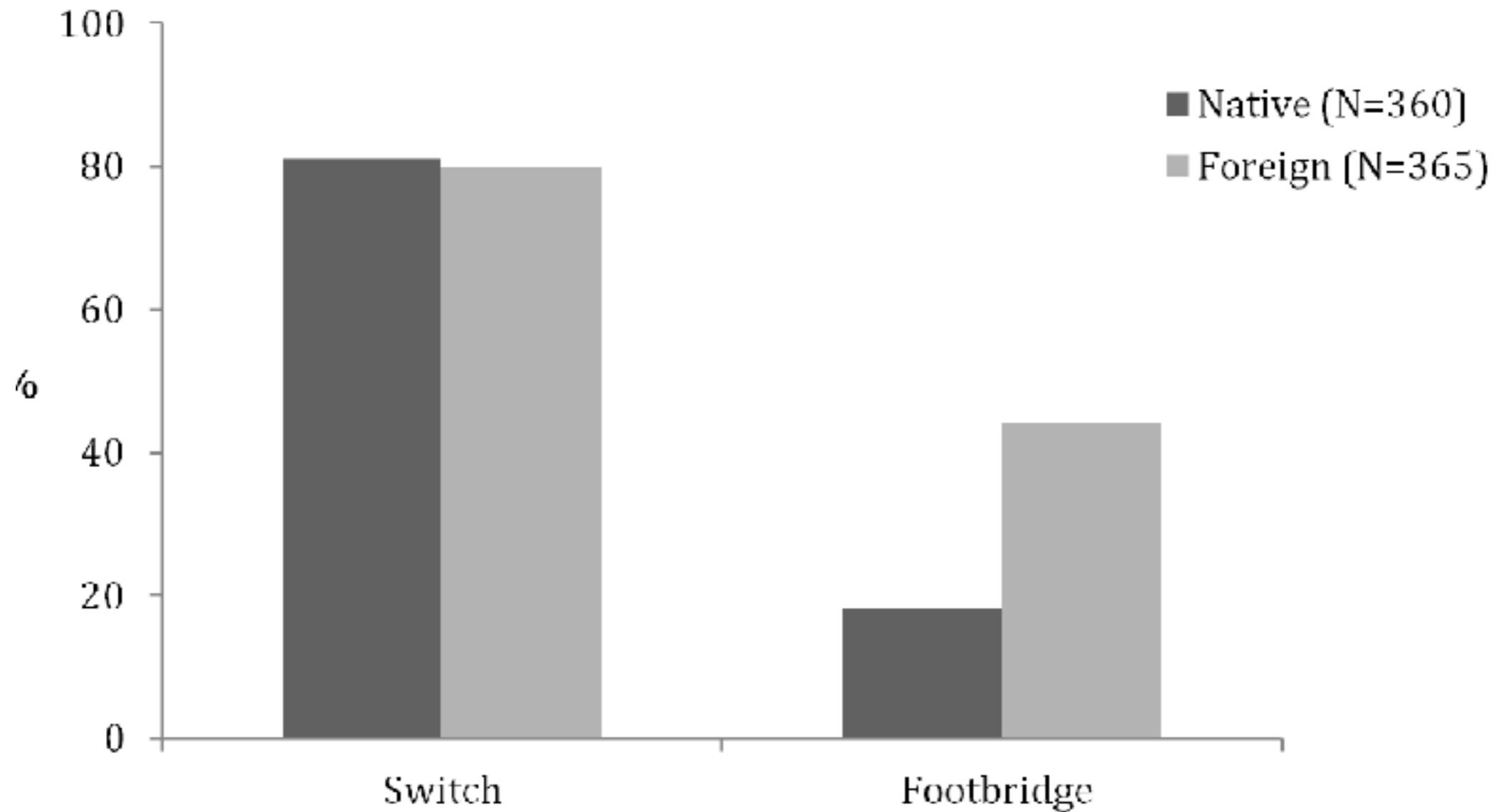
# Costa et al 2014: Morality

Another version of the “trolley” problem, without pushing a man onto the tracks: the “switch” version:

In this “switch” dilemma, the trolley is headed towards the five men, but you can switch it to another track where it would kill only one man.

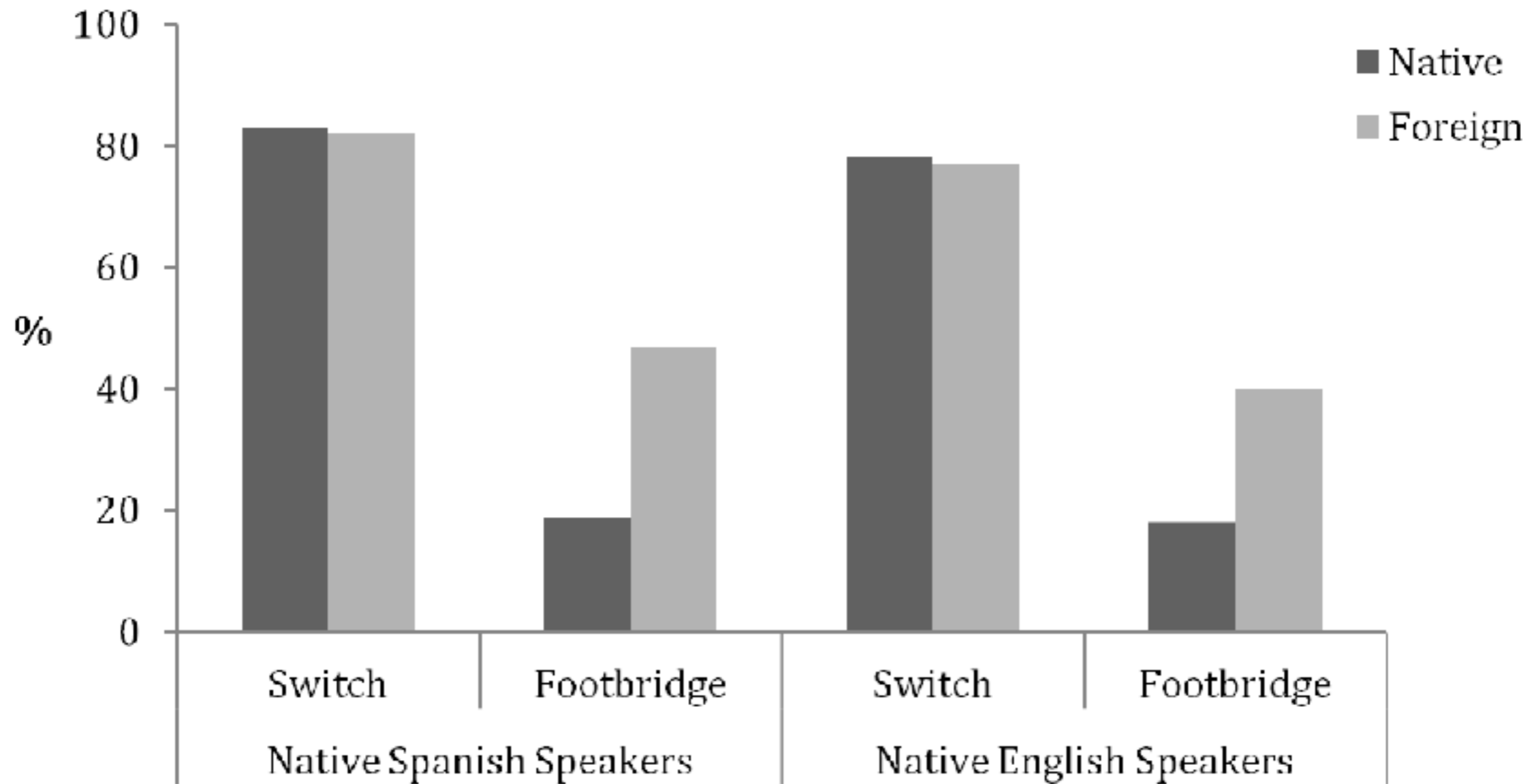
*People are more willing to sacrifice the one man by pulling the switch than by pushing him off the footbridge, and one of the primary reasons is that pulling the switch is less emotionally aversive.*

## Percentage of Utilitarian Choices



Data from 725 participants are included in the analyses, including 397 native speakers of Spanish with English as a foreign language, and 328 native speakers of English with Spanish as a foreign language. The study was conducted in classrooms.

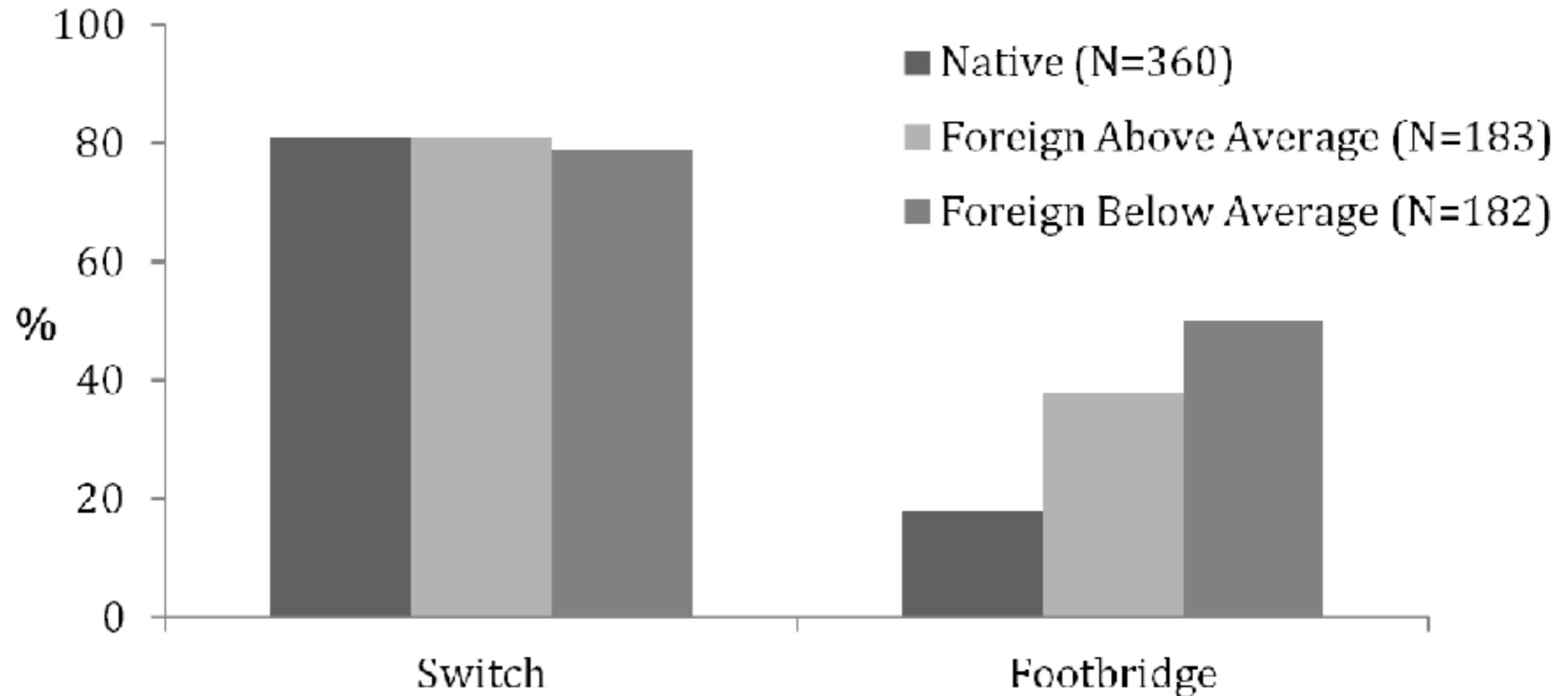
## Percentage of Utilitarian Choices by Language Group



Data from 725 participants are included in the analyses, including 397 native speakers of Spanish with English as a foreign language, and 328 native speakers of English with Spanish as a foreign language. The study was conducted in classrooms.



## Percentage of Utilitarian Choices by Proficiency



Data from 725 participants are included in the analyses, including 397 native speakers of Spanish with English as a foreign language, and 328 native speakers of English with Spanish as a foreign language. The study was conducted in classrooms.

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