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The effect of foreign language and psychological distance on moral judgment in Turkish–English bilinguals

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Abstract

People's judgements differ systematically while reading moral dilemmas in their native or their foreign language. This so-called *Foreign Language Effect (FLE)* has been found in many language pairs when tested with artificial, sacrificial moral dilemmas (i.e., Trolley and Footbridge). In Experiment 1, we investigated whether the FLE can be replicated in Turkish (native) – English (foreign) bilinguals using the same dilemmas ($N = 203$). These unrealistic and decontextualized dilemmas have been criticized for providing low external validity. Therefore, in Experiment 2, we (1) tested bilinguals with realistic scenarios which included the protagonist's age as a source of identity (child, adult, neutral), and (2) investigated the FLE in these scenarios ($N = 467$). Our results revealed that the FLE was not present in Turkish–English bilinguals, tested either on sacrificial dilemmas or realistic scenarios. Psychological distance of the scenarios, protagonists' age and the perceived age similarity with the protagonist affected moral judgments.

Introduction

Imagine that a woman with a baby gets on the bus while you are on your way back home after a busy workday. You think you should offer your seat to the woman with the baby, but you do not want to remain standing all the way home. Would you offer your seat?

Almost every day, people encounter such situations in which they have to make moral judgments. How people arrive at moral judgments has long been of interest to philosophers and psychologists (Cao et al., 2017). The Dual Process theory has been widely used to explain how moral judgments can be either deontological or utilitarian (Greene, 2007; Kahneman, 2003). Deontological judgments are driven by automatic processes and made in accordance with norms. In contrast, utilitarian judgments are driven by controlled processes and made by evaluating the consequences of an action. Previous research with bilingual participants has shown that moral judgments are affected by the language people use. Namely, using a native or a non-native language systematically alters judgments both in moral and non-moral contexts (Li, 2017). This effect, known as the FOREIGN LANGUAGE EFFECT (FLE), revealed that people are more likely to make utilitarian judgments in a foreign language when compared to their judgments in a native language (e.g., Costa et al., 2014; Geipel et al., 2015a). In addition to deontological vs. utilitarian dilemmas, FLE was investigated with norms vs. self-interested moral scenarios (Caldwell-Harris & Ayçiçeği-Dinn, 2020). Although the FLE has been tested in several native-foreign language pairs, this study is the first, to our knowledge, to examine whether the FLE generalizes to the Turkish (native) – English (foreign) pair in moral judgment research with sacrificial moral dilemmas.

Research on moral judgments and the FLE have typically employed two moral dilemmas; the Trolley and the Footbridge dilemma (Foot, 1967; Thomson, 1976). However, the validity and generalizability of these so-called sacrificial dilemmas have been questioned by several researchers. First, sacrificial dilemmas typically lack information about the identity of the protagonist, i.e., the leading character in a moral scenario (Bloom, 2011; Hester & Gray, 2020; Schein, 2020). Secondly, sacrificial dilemmas are criticized as unrealistic, which again leads to questions about their validity (Bauman et al., 2014; Hester & Gray, 2020; Kahane et al., 2018). Realism of dilemmas might further influence moral judgments by changing their perceived psychological distance in the hypothetical dimension (i.e., probability of occurrence; Körner & Volk, 2014; Trope & Liberman, 2010). According to the Construal Level Theory (CLT; Trope & Liberman, 2010), people's judgments become less harsh as the perceived psychological distance of the moral transgression decreases (Agerström & Björklund, 2013), thus

increasing the tendency to make judgments driven by controlled cognitive processes (Eyal et al., 2008).

To alleviate these shortcomings, the aim of the present study was threefold: (1) to investigate how information about the protagonist's identity, in this case age, may change people's moral judgments, (2) to assess the effects of psychological distance on moral judgments by developing novel realistic moral scenarios, and (3) to examine the FLE to investigate whether it holds for the sacrificial, and the novel, contextualized and more realistic scenarios by presenting them in the native (Turkish) and a foreign language (English).

Moral judgments and dual process theory

Moral judgments are defined as evaluations about who/what is good or bad based on virtues held obligatory (Cohen, 2015). There have been debates on the nature of moral judgments in various domains such as philosophy and psychology. These debates have been mainly centered on the role of emotions in moral judgments (Gill, 2007; Maibom, 2010). On the one hand, Kantian rationalists argue that moral judgments are driven by rational processes that do not involve emotions (e.g., Galotti, 1989; Kohlberg, 1971). On the other hand, sentimentalists who are the heirs of the philosopher David Hume argue that emotions play an essential role in moral judgments (e.g., Haidt, 2001).

The debates gave birth to different perspectives on moral philosophy and psychology, the two salient perspectives being deontological ethics and consequentialism. Deontological ethics states that the morality of an action is determined by the adherence to universal moral principles, regardless of the outcomes or consequences (Greene, 2008). Conversely, consequentialism embraces the idea that the only thing that eventually matters is the consequences of actions. A common type of consequentialism, which is utilitarian ethics, distinctively aims to maximize the overall happiness for the greatest number of people, and is often mentioned in moral psychology research (Bentham, 1789/1961; Walsh, 2015).

Greene (2007) brought the two distinct views, deontological and utilitarian ethics, together and proposed a DUAL PROCESS THEORY for moral judgments. This theory suggests that moral judgments are driven both by cognitive and affective processes, which lead people to make either deontological or utilitarian judgments. DEONTOLOGICAL JUDGMENTS are prompted by automatic, affective processes, and they fundamentally rely on intrinsic beliefs about moral norms. That is, a judgment is regarded as deontological if it is made to be consistent with the moral norms. UTILITARIAN JUDGMENTS, by contrast, are prompted by controlled cognitive processes. Since controlled cognitive processes are characterized by consciously evaluating the possible outcomes of a given situation, utilitarian judgments are the ones that are made based on the evaluations of the consequences of actions (Hayakawa et al., 2017). The process which is more likely to be dominant while making a judgment could differ depending on various variables such as the language one uses (Costa et al., 2014), the content of the dilemma (Geipel et al., 2015a), or the perceived psychological distance of the action in question (Barque-Duran et al., 2017).

Typically, in moral judgment research, moral dilemmas are offered to participants (Christensen et al., 2014). They can be described as hypothetical scenarios in which a situation with two conflicting but relevant moral reasons are described. Participants are first presented with a dilemma and then asked to choose one of two conflicting options. These conflicting moral options can be, for example, to save or to kill someone. One of the most used dilemmas in morality research is the TROLLEY DILEMMA introduced by Foot (1967). In the classic version of the Trolley dilemma, there is an out-of-control train heading towards five workers who are working on a track. There is also a sidetrack in which there is only one worker. The participant in this scenario is in charge of a lever to make a decision. If the person decides to pull the lever, the train will switch to the sidetrack and kill the one worker (i.e., utilitarian decision). If the lever is not pulled, the train will kill the five workers on the main track (i.e., deontological decision). The FOOTBRIDGE DILEMMA, which is another highly used scenario, is a modified version of the Trolley dilemma. There is again an out-of-control train which is headed to kill five workers. However, in this dilemma, the only way to save the five workers is to push a large man off a footbridge in order to stop the train. This action will kill the large man (i.e., utilitarian decision).

The dilemmas mentioned above are termed as 'sacrificial dilemmas' where you need to choose whether you would sacrifice one person to save more people (Crone & Laham, 2017; Kahane et al., 2018). In making a moral judgment, either deontological or utilitarian responses might be more dominant depending on the content of the moral dilemma (Geipel et al., 2015a). For instance, for actions that are high in emotional salience, people are more likely to make deontological judgments via automatic processes. However, less emotional actions are mostly answered via controlled processes by making utilitarian judgments. These dilemmas are therefore commonly divided into being more personal or impersonal. More specifically, if a moral dilemma includes acts that involve direct physical contact with the victim which changes the consequence of the situation, it is referred to as a personal dilemma (Greene et al., 2009). Among the commonly used sacrificial dilemmas, the Footbridge dilemma is a personal dilemma. This dilemma promotes deontological judgments (i.e., do not kill) by possibly leading to an increase in emotional arousal (Chan et al., 2016). On the other hand, the Trolley dilemma is an impersonal dilemma since the potential harm is conducted by using a lever rather than direct contact with the victim. The lack of direct contact reduces the emotional salience of the scenario; thereby promoting utilitarian judgments (i.e., sacrifice one to save five; Greene et al., 2004).

Foreign Language Effect and the underlying mechanisms

The first study on the FLE in moral judgment tested several native-foreign language pairs (i.e., English–Spanish, Korean–English, English–French, English/Spanish–Hebrew, Spanish–English; Costa et al., 2014). It was found that when people are presented with the Footbridge dilemma in their foreign language, they make more utilitarian judgments than when the same dilemma was presented in their native language. However, this effect was absent for the Trolley dilemma which implies that the presence of the effect varies depending on the context. These findings have been replicated with different native-foreign language pairs such as Italian-English/German (Geipel et al., 2015a), Chinese–English (Chan et al., 2016; Geipel et al., 2015a), English–German (and vice versa; Hayakawa et al., 2017), English–Spanish (and vice versa; Cipolletti et al., 2016; Hayakawa et al., 2017), Arabic–English (Andrade, 2021), and Dutch–English (Brouwer, 2020; but see Brouwer, 2019; Čavar & Tytus, 2018; Dylman & Champoux-Larsson, 2020 for a failure to replicate the FLE).

There have been several explanations for the FLE in moral judgment. Firstly, the most prominent explanation has been that using a foreign language leads to emotional attenuation (e.g., Chan et al., 2016; Costa et al., 2014; Harris et al., 2003). Therefore, people are more likely to make utilitarian judgments when presented with moral dilemmas in a foreign language. This would then especially hold for personal dilemmas which are typically rated as more emotional than impersonal dilemmas (Koenigs et al., 2007). Secondly, native and foreign languages are typically acquired in different contexts; while a native language is acquired in natural settings and through real-life experiences, a foreign language is often learned in classroom settings which are typically poor in such experiences (Hayakawa et al., 2016; Keysar et al., 2012). Consequently, it has been argued that foreign language decreases the cognitive accessibility of moral rules and norms (e.g., Białek et al., 2019; Geipel et al., 2015a; Li, 2017).

Norms versus self-interest moral scenarios

Moral judgments are often biased towards the self-interest of the person. People tend to perceive transgressions as morally acceptable if the result of the counter-normative behavior is beneficial to themselves, regardless of whether the behavior is carried out by themselves or by someone else (Bocian & Wojciszke, 2014; Liu et al., 2022). These self-interest judgments are found to be driven by controlled cognitive processes as they diminish under conditions of cognitive constraint (Liang et al., 2021; Valdesolo & DeSteno, 2008; but see Epley & Caruso, 2004, for a counterargument). When two moral choices, favoring norms or self-interest, are pitted against each other, the self-interest judgments are made more frequently when deciding under stress (Singer et al., 2017), with a rational thinking style (Liang et al., 2021), and for a near future event (vs. distant future event; Agerström & Björklund, 2009a). To this end, research to date implies that norms versus self-interest moral judgments share a similar mechanism to the deontological versus utilitarian judgments proposed by the Dual Process theory (Greene, 2007; Kahneman, 2003). Specifically, deontological and norm judgments are driven primarily by automatic processes, whereas utilitarian and self-interest judgments are driven by controlled cognitive processes.

Although not extensively, norms versus self-interest moral judgments have also been investigated in regard to the FLE. In a recent study by Caldwell-Harris and Ayçiçeği-Dinn (2020), participants were presented with moral scenarios offering a judgment between ethical (i.e., norms) and selfish choices. Their results showed that the type of language had an effect on moral judgments; self-interest judgments being made more often in the foreign language (English) and ethical judgments being made more often in the native language (Turkish). The authors explained this pattern on the basis of emotional blunting in participants' foreign language, caused by a higher cognitive load, which was also supported by physiological measures (i.e., skin conductance responses). We therefore expected to find similar results in our study.

Protagonist identity and psychological distance in moral scenarios

Protagonist identity

Social psychological research has long established that people's judgments and attitudes are shaped by the identity of the person who is being judged (Hester & Gray, 2020), and age is a source of stereotyping in that one's age can shape expectations about that person (Hummert, 1999). For example, a study by Kwong See and Heller (2004) revealed that people set different standards for people of different ages in terms of their capabilities and performances in tasks. Similarly, previous studies have found that social categories such as ethnic background (Krings & Olivares, 2007), gender (Lunsford, 2000), immigration status (Costello & Hodson, 2010), and socioeconomic status (Qi et al., 2018) shape people's judgments and attitudes.

Although there are studies that include information on the protagonist's identity, such information is often lacking in moral judgment research. In recent years, decontextualized methods of morality research have been criticized by questioning the validity of the moral dilemmas and the generalizability of research findings that draw upon these dilemmas (Bloom, 2011; Hester & Gray, 2020; Schein, 2020). In these well-attested sacrificial moral dilemmas, the protagonist is often the participant themselves, and they are given broad characteristics of the potential victims such as 'the large man' in the Footbridge dilemma. As such, participants have no information regarding who the victims are. While the identity of the protagonist can shape the judgments made in a moral scenario, it is worth noting that this information is also often missing in studies where the participant is the protagonist. Both components, identity of the protagonist and the possible victims, are important in terms of the judgments that will be made in a moral scenario (Hester & Gray, 2020). Our focus in this study is on the *who* component of the protagonist.

Among the limited amount of research on the influence of the protagonist's identity on moral judgment, Chu and Grühn (2017) investigated how moral judgments are influenced by the age and gender of the protagonist. They found that when people are presented with moral scenarios including moral transgressions, people's judgments were perceived as less acceptable if the protagonist was old or female compared to when they were young or male. A study by Cikara et al. (2010) demonstrated that saving ingroup members and sacrificing outgroup members is perceived as more acceptable, revealing the effect of social categories in moral judgments. Additionally, White and Schaller (2018) investigated whether children as opposed to adults are judged differently in cases of moral transgressions. Their results suggested that children are judged less harshly as they are perceived to have less intentionality in their transgressions compared to adults. The argument regarding the intentionality and innocence is further supported by other research which also manipulated the age of the transgressor (preadolescent vs. adult; Maftei et al., 2021).

In real life, people usually know the protagonist's identity (the *who* component) while making moral judgments about them, and shape their judgments accordingly (Bloom, 2011). Therefore, lack of information about the *who* component in the majority of moral dilemmas has led to a validity problem in morality research. Taking into account these criticisms, we aimed to address them by creating contextualized scenarios in terms of protagonists' age.

Another criticism of decontextualized dilemmas concerns the generalizability of research involving these dilemmas. Hester and Gray (2020) argued that when moral dilemmas do not involve any information about the protagonist's identity, people tend to imagine white, middle aged males which limits the results of moral judgment research. Thus, information regarding these characteristics might alter the results typically found in moral judgment research.

Psychological distance

Sacrificial dilemmas were also recently criticized for describing events that are not likely to be encountered in our everyday lives (Bauman et al., 2014; Hester & Gray, 2020; Kahane et al., 2018; Körner & Deutsch, 2023). This issue led researchers to question the ecological validity of these sacrificial dilemmas and suggest further moral judgment research to construct their moral scenarios accordingly. In light of this criticism, several researchers investigated moral decision making in daily life situations instead of life-or-death dilemmas. These daily life situations typically require individuals to choose between fulfilling a moral or social obligation (i.e., altruistic or ethical) and engaging in self-oriented behavior that would not cause harm or legal issues (i.e., egoistic or selfish; Singer et al., 2019). Such studies investigated whether the FLE can be found in such scenarios (Caldwell-Harris & Ayçiçeği-Dinn, 2020; Geipel et al., 2015b) and the role of stress in everyday moral-decision making (Singer et al., 2017; Starcke et al., 2011).

The present study uses new moral scenarios as mentioned in the section above (i.e., contextualized scenarios in terms of protagonists' age), aiming to address the criticism of moral dilemmas being not realistic. These scenarios were created to refer to events which are more likely to happen in daily life and offer a decision between two options; aligning with the norm vs. favoring self-interest, hereinafter referred to as norm and self-interested judgments, respectively.

We approach the criticism of the dilemmas being unrealistic from the perspective of the CONSTRUAL LEVEL THEORY (CLT; Trope & Liberman, 2010). According to the CLT, when the self and the presence (i.e., here and now) are taken as reference points, the dimensions of psychological distance can be divided into four as temporal (near vs. distant future), spatial (near vs. distant place), social (self vs. other), and hypothetical (likely vs. unlikely event). CLT argues that the psychological distance of information changes its processing; psychologically more distant construals are perceived as more abstract whereas psychologically less distant construals are perceived as more concrete. Although the distance of the construals is argued to affect the type of moral judgments people make (Körner & Volk, 2014), the limited amount of research concerning moral judgments suggests two possible patterns. First, judgments driven by controlled cognitive processes (i.e., utilitarian and self-interested) are promoted MORE with increased distance (Aguilar et al., 2013; Amit & Greene, 2012; Gong & Medin, 2012), because the mind focuses more on the outcomes than the means due to an abstract mindset (Aguilar et al., 2013). Second, judgments driven by controlled cognitive processes are promoted LESS with increased distance (Agerström & Björklund, 2009a, 2009b; Eyal et al., 2008; Eyal et al., 2009; Fujita et al., 2008; Körner & Volk, 2014). In this approach, the mind focuses more on the means than the outcomes due to a concrete mindset. This explanation is more consistent with the CLT because it also suggests that the focus on contextual details, thus making cognitively controlled judgments, is promoted more with a concrete mindset (Alper, 2020; Trope & Liberman, 2010). These assumptions have been confirmed through research conducted using deontological vs. utilitarian dilemmas (e.g., Körner & Volk, 2014) as well as norm vs. self-interested scenarios (Agerström & Björklund, 2009a).

In this study, we test the hypothetical dimension which corresponds to the probability of an event's occurrence. It has been argued that events are regarded as part of one's direct experience

as they are perceived to be likely to occur in one's life (Wakslak et al., 2006). Although studies using realistic scenarios exist (e.g., Champoux-Larsson & Knežević Cvelbar, 2021; Kyriakou & Mavrou, 2023), the hypothetical dimension has not been investigated extensively in moral judgment research (but see Carron et al., 2022; Körner et al., 2019, for exceptions). However, based on the arguments of the CLT, we would expect events with higher probability to be perceived as psychologically less distant, thereby promoting self-interested judgments more.

The present study

The first aim of this study was to investigate the extension of the FLE to the Turkish (native) – English (foreign) language pair in relation to two well-attested sacrificial moral dilemmas (i.e., Trolley, Footbridge). Secondly, it was examined whether the FLE can be found in novel, contextualized and more realistic scenarios. With the use of such scenarios, it was investigated whether having information about the identity of a protagonist, the person who is being judged, alters people's judgments. More specifically, the focus was on the age of the protagonist. Moreover, by making the scenarios more realistic, we aimed to address the validity issues of unrealistic dilemmas while also examining the role of psychological distance on moral judgments.

In Experiment 1, the aim was to test if the FLE can be found in Turkish–English bilinguals. Given that the FLE was found in the Footbridge dilemma in a wide variety of language pairs (e.g., Andrade, 2021; Brouwer, 2020; Costa et al., 2014; but see Brouwer, 2019; Čavar & Tytus, 2018), we expected a similar effect for Turkish–English bilinguals. The two options presented in the dilemmas represented a deontological choice, based on moral principles, and a utilitarian choice, based on the pursuit of the greatest good for the greatest number of people. We also added a question assessing the perceived psychological distance of the dilemmas to address the criticisms regarding the unrealistic nature of these dilemmas.

In Experiment 2, we tested the FLE by using novel, more realistic scenarios in which we also manipulated the protagonist's age (i.e., child vs. adult vs. age-neutral). Participants were presented with two options in each scenario: norms vs self-interested. To assess psychological distance, we asked participants to rate the probability of the event happening in their own lives. Participants were further asked to rate the perceived similarities with the protagonist regarding age to measure how much they identify themselves with the protagonist. In terms of age, we expected that adult protagonists would be perceived as the most similar since our participants were adults; hence they would relate more to the adult protagonist. However, it was complex to have a certain expectation among child and age-neutral protagonists. If we follow the assumptions of the CLT (Liberman & Trope, 1998), it would be more appropriate to expect child protagonists to be perceived as more similar to the participants than age-neutral protagonists. That is because the child category is more concrete than the age-neutral category as CLT also suggests that contextualizing details decreases distance. On the other hand, not receiving information about the protagonists' age leads people to imagine them as adults (Hester & Gray, 2020); thus, age-neutral protagonists could also be perceived as more similar. Another point worth being aware of in terms of the age categories is that children might be considered as morally exceptional by adults as they may consider children as more vulnerable and in need of protection, which may ultimately influence their moral

judgments. In other words, children are typically not held up to the same moral standards as adults (e.g., Chu & Grühn, 2017; Maftei et al., 2021; White & Schaller, 2018).

Overall, based on the arguments of the CLT, we expected that when the dilemmas and scenarios are rated as psychologically less distant by the participants, more self-interested judgments will be made compared to when they are rated as psychologically more distant. Additionally, we hypothesized that the age of the protagonists will have an effect on moral judgments. This effect could potentially go in both directions.

Experiment 1: replication of the FLE

Method

Participants[1]

217 people participated in the study. Each participant was asked to answer demographic questions about their gender, age, countries of origin and residence, and native language(s). 14 participants, who reported that their native language was not Turkish, were excluded. Thus, 203 participants who were native speakers of Turkish with English as a foreign language were included in the analyses (65.5% females 34.5% males; age range = 18–53, $M_{age} = 21.03$, $SD = 3.22$). 95.1% of the participants were Koç University students, and each received an extra credit for a course. The study was approved by the IRB of Koç University Committee on Human Research.

102 of the participants were randomly assigned to the native group and 101 to the foreign group. The subjective scores of participants' self-reported English reading, listening, writing, and speaking abilities (measured on a 7-point Likert scale, out of 28) were on average 22.55 $(SD = 3.82)$ for the native group and 23.11 $(SD = 3.34)$ for the foreign group. For the objective language scores as measured with LEXICAL TEST FOR ADVANCED LEARNERS OF ENGLISH (LexTALE; Lemhöfer & Broersma, 2012), participants in the native group scored on average 70.7 $(SD = 12.88)$ and the foreign group scored 71.31 $(SD = 13.17)$. Some of the participants left the study without completing the objective and/or subjective language assessment tests. This resulted in different numbers in the measurement groups. Independent sample t-tests showed that participants in the native group were comparable to those in the foreign group, both in terms of subjective $(t(188) = -1.079, p = .67, d = .16)$, and objective language assessment scores $(t(193) = -.331, p = .99, d = .05)$. More details regarding the English background information of the participants (i.e., age of acquisition, ways of acquiring/learning) can be found in Table 1.

Materials

The Trolley and Footbridge dilemmas were used as stimuli. The English versions of the dilemmas were adapted from Costa et al. (2014) and translated into Turkish by a Turkish–English bilingual, and checked by another Turkish–English bilingual.

Procedure and design

The study was conducted online using Qualtrics (Qualtrics, Provo, UT). Participants were randomly assigned either to the native or the foreign condition (between-subjects). They then received all the instructions and the materials in a written format and in the respective language based on their assigned condition. Each participant was presented both with the Trolley and the Footbridge dilemma in a counterbalanced order (within-subjects).

Table 1. English Background Information of Participants in Experiment 1 and Experiment 2

		Experiment 1	Experiment 2
Age of acquisition	Mean	8.57	9.14
	SD	3.83	4.11
	Age range[2]	0–20	0–30
Ways of learning/ acquiring	Classroom instruction	48.3%	44.2%
	Immersion	1.5%	1.8%
	Self-learning	2.5%	2.3%
	Classroom instruction & Self-learning	21.7%	28.9%
	Classroom instruction & Immersion	5.9%	6.8%
	Immersion & Self-learning	1%	0%
	Classroom instruction & Immersion & Self-learning	12.3%	16.1%

Note. Linguistic profiles of participants regarding English. The remaining values in the percentages correspond to the missing values.

Following each dilemma, participants were first asked to make a choice to decide whether or not they will pull the lever or push the man off the bridge in the Trolley and Footbridge dilemma, respectively. Sacrificing one person to save five corresponds to the utilitarian judgment whereas tolerating the death of five people corresponds to the deontological judgment. After this, participants were asked about the extent to which they evaluated the probability of the event happening in their lives on a 5-point Likert scale (1 = unlikely, 5 = very likely) after each dilemma to assess whether the dilemmas are perceived as realistic or not.

After providing answers to the questions for both dilemmas, participants filled out the demographic and English assessment questions. To assess their English proficiency levels, each participant filled out three questions adapted from the LANGUAGE HISTORY QUESTIONNAIRE (LHQ3; Li et al., 2019) to indicate the way they learned/acquired their non-native languages; the age at which they started using each language; and their listening, speaking, reading, writing abilities on a 7-point Likert scale (1 = very poor, 7 = excellent; a maximum score of 28 in total). In addition, participants were assessed on the LexTALE (Lemhöfer & Broersma, 2012; a maximum score of 100) as an objective measure of English proficiency. The experiment was self-paced and took approximately 10 minutes to complete.

Results

Foreign Language Effect

Table 2 shows the percentage of utilitarian judgments by language and dilemma type. Data were analyzed using a mixed-effects logistic regression model (Jaeger, 2008) with moral judgment as the binary dependent variable (0 = deontological, no; 1 = utilitarian,

Table 2. Percentages of Utilitarian Judgments by Language and Dilemma Type in Experiment 1

	Native	Foreign
Trolley	67.6	64.4
Footbridge	21.6	31.7

yes). To assess the first hypothesis – an increase in utilitarian judgments in the foreign language on the Footbridge dilemma only – the model included the direct interaction between Language (native (−½) vs. foreign (½)) and Dilemma Type (Trolley (−½) vs. Footbridge (½)) as contrast-coded fixed effects. Participants were entered as a random effect. The most parsimonious model included a random intercept only and no random slopes.

The results demonstrated an effect of Dilemma Type ($\beta = -2.51$; $SE = .39$; z-value = −6.52; $p < .001$), but no effect of Language ($\beta = .24$; $SE = .34$; z-value = .73; $p = .47$) nor an interaction effect between Language and Dilemma Type ($\beta = .92$; $SE = .54$; z-value = 1.69; $p = .09$) on Moral Judgment.[3] To quantify evidence for the null-hypothesis, we conducted a Bayesian analysis to examine the interaction between Language and Dilemma Type more stringently. This analysis found no significant difference in utilitarian responses between the native and the foreign language condition for either the Trolley dilemma ($t(203) = .21$, 95% CI [−0.72, 1.15], $BF = .074$) or the Footbridge dilemma ($t(203) = −.76$, 95% CI [−1.79, 0.20], $BF = .227$).

Explorative analyses

The perceived psychological distance of the Trolley dilemma was rated on average as 1.40 ($SD = .77$) and the Footbridge dilemma as 1.39 ($SD = .84$) on a scale from 1 to 5. A dependent samples t-test demonstrated no significant difference between these scores across dilemmas ($t(202) = .397$, $p = .69$, $d = .03$).

In addition, with a mixed-effects logistic regression, a significant effect of Psychological Distance ($\beta = .33$; $SE = .15$; z-value = 2.15; $p = .03$) and an interaction effect between Psychological Distance and Language on moral judgment ($\beta = .81$; $SE = .31$;

z-value = 2.64; $p = .01$) were found, showing that participants responded more utilitarian as the dilemmas were perceived as psychologically less distant when they were presented in the foreign language but not the native language (Fig. 1).

Finally, for the participants in the foreign language condition, subjective ($\beta = 1.20$; $SE = .62$; z-value = 1.94; $p = .05$), but not objective ($\beta = −.22$; $SE = .15$; z-value = −1.44; $p = .15$) language scores predicted moral judgment. More specifically, the odds of making a utilitarian judgment increased as the subjective language proficiency increased.

Discussion

The results of Experiment 1 showed four main findings. First, people make more utilitarian judgments in the Trolley dilemma than in the Footbridge dilemma. This finding is in line with previous studies which have shown that impersonal dilemmas promote utilitarian judgments (e.g., Geipel et al., 2015a; Greene et al., 2004). Secondly, following previous studies (Andrade, 2021; Brouwer, 2020; Cipolletti et al., 2016; Costa et al., 2014; Geipel et al., 2015a), we hypothesized that participants would choose utilitarian judgments more in the foreign than in the native language in the Footbridge dilemma (i.e., FLE). Although the descriptive pattern clearly was in line with our hypothesis, our results did not reach statistical significance, suggesting that we could not replicate the FLE with this Turkish–English sample.

Thirdly, to assess how psychological distance affects moral judgments, we instructed participants to rate how likely the dilemmas are to happen in real life. Participants were overall more likely to make utilitarian judgments as they rated the dilemmas as psychologically less distant, which supports the hypothesis of the CLT (Trope & Liberman, 2010). More specifically, the interaction between psychological distance and language showed that the hypothesis of the CLT only holds in the foreign language condition.
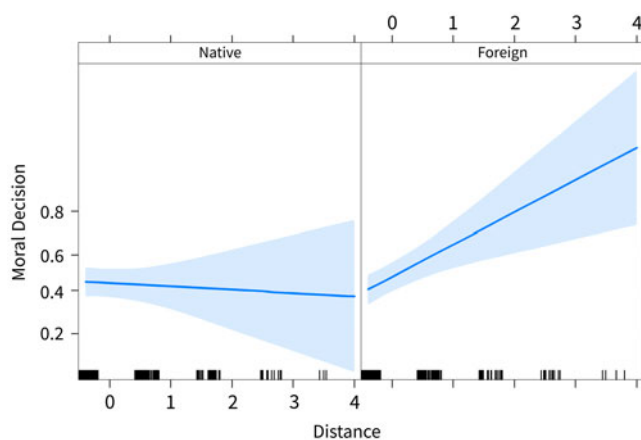
Lastly, subjective assessments of foreign language proficiency showed that participants became more utilitarian in their responses as they rated themselves as more proficient in the foreign language, which indicates an increased FLE for highly proficient bilinguals.

Experiment 2: FLE, psychological distance and age effects in realistic moral scenarios

Method

Participants

499 people participated in the study. After excluding people who reported that their native language was a language other than Turkish (n = 32), data from 467 Turkish–English bilinguals (73.7% females, 25.1% males, 1.2% other, age range = 18-57, $M_{age} = 22.07$, $SD = 4.53$) were analyzed in Experiment 2. 68.5% of the participants were Koç University students and they received an extra credit for a course for their participation. The study was approved by the IRB of Koç University Committee on Human Research. The average reported subjective scores of English reading, listening, writing and speaking abilities (measured on a 7-point Likert scale, out of 28) was 22.07 ($SD = 4.41$). Participants' average objective language scores were 69.23 ($SD = 12.83$) out of 100 points as measured by LexTALE (Lemhöfer & Broersma, 2012). 258 of the participants were randomly assigned to the native group and 209 to the foreign group. As in

Figure 1. Interaction Effect Between Psychological Distance and Language on Moral Decision (% of Utilitarian Decisions)
Note. The percentage of utilitarian decisions increased as the dilemmas were perceived as psychologically close (4) than distant (0) in the foreign language, but this pattern remained stable in the native language.

A child playing a card game with a group of strangers would love to win the prize for the winner. The child who thinks s/he cannot win the game this way realizes that s/he can win if s/he cheats.

- If the child cheats, s/he will be unfair to the other players, but s/he will win the prize s/he sought.

- If the child does not cheat, s/he will not be unfair to the other players, but s/he will not be able to win the prize s/he sought.

What should the child do in this situation?

A. The child should cheat.

B. The child should not cheat.

Figure 2. Example scenario in Experiment 2

Experiment 1, some participants did not complete the objective and/or subjective language assessment tests, resulting in different numbers in the measurement groups. The results of the independent sample t-tests demonstrated that the participants in Turkish (L1) and English (L2) groups were comparable in terms of their total subjective language assessment scores ($t(442) = -.722$, $p = .47$, $d = .06$) and objective language assessment scores ($t(463) = .919$, $p = .36$, $d = .09$). Further information on the linguistic profile of participants can be found in Table 1.

Materials
Nine new more realistic moral scenarios were developed for this experiment. The scenarios were originally written in Turkish. They were then translated into English by a Turkish–English bilingual and checked by another bilingual. Each scenario addressed a different moral norm which was identified by previous research (Aharoni et al., 2012; Clifford et al., 2015). Each scenario consisted of three different versions in which the protagonist's age was stated either as a child, an adult or age-neutral. Scenarios were then followed by the question "What should the child/adult/person do in this situation?". We did not use yes/no questions as we did in Experiment 1 since yes/no questions were argued to lead to a framing bias (Chan et al., 2016). Two options corresponding to norms and favoring self-interest responses were given. For example, the child version of the dilemma addressing the norm "do not cheat" is illustrated in Figure 2.

Procedure
Data were collected online via Qualtrics (Qualtrics, Provo, UT). Participants were randomly assigned either to the Turkish (L1) or the English (L2) condition (between-subjects). Each participant was randomly presented with one version of each scenario (e.g., either child, adult or age-neutral, within-subjects). A participant responded to each scenario when the protagonist was either a child, an adult, or age-neutral. In total, therefore, each participant read nine scenarios. The scenarios were counterbalanced and randomized across participants.

To assess the perceived psychological distance of the scenarios to the participants, they were asked two questions; "*How would you evaluate the probability of this event happening in your life?*" and "*How would you rate your similarity with the hero of the story in terms of age?*". After answering these questions, participants filled out the same demographic and the language assessment questions as in Experiment 1. The experiment lasted approximately 20 minutes.

Results
Data were analyzed using a mixed-effects logistic regression model (Jaeger, 2008) with moral judgment as the binary dependent variable (0 = norm; 1 = self-interested). To investigate the presence of the FLE and the effects of age on moral judgment, the model included Language (native ($-\frac{1}{2}$) vs. foreign ($\frac{1}{2}$)) and Age Category (1 = child, 2 = adult, 3 = neutral) as fixed effects. Adult was set at the reference level as it was perceived as psychologically the least distant category by the participants. This resulted in two contrasts: (1) adult versus child protagonists and (2) adult versus age-neutral protagonists. Participants and Scenario were entered as random effects. The most parsimonious model included a random intercept only and no random slopes.

Foreign language effect and age category
The percentage of self-interested judgments in the native condition (54.5%) was higher than in the foreign condition (45.5%). This finding contradicts the expected direction of the FLE, where self-interested judgments are anticipated to be more prevalent in the foreign language condition due to their association with controlled processes. This result is also contrary to the results reported in Caldwell-Harris and Ayçiçeği-Dinn (2020), where the same language pair and moral scenario types were employed. In addition, there was no effect of Language on moral judgment, indicating that the FLE was not found ($\beta = .03$; $SE = .10$; z-value $= .22$; $p = .83$).

Table 3 illustrates the percentage of self-interested judgments by language and age category. The results demonstrated an effect of Age Category on moral judgment. More specifically, scenarios with a child protagonist compared to an adult protagonist increased the odds of making a self-interested judgment ($\beta_{CONTRAST1} = .24$; $SE = .10$; z-value = 2.40; $p = .02$), whereas scenarios with an age-neutral protagonist compared to an adult protagonist did not affect participants' moral judgment ($\beta_{CONTRAST2} = -.07$; $SE = .10$; z-value = $-.65$; $p = .52$).

Finally, no interaction between Language and Age Category on moral judgment was found ($\beta = -.02$; $SE = .20$; z-value = $-.12$; $p = .90$).

Age similarity[4]
Age category had a significant effect on how distant age categories were rated ($F(2, 4191) = 162.01$, $p < .001$, $\eta^2 = .072$). Participants rated adult protagonists as most similar to themselves age-wise ($M = 3.29$, $SD = 1.22$), followed by age-neutral protagonists ($M = 3.23$, $SD = 1.24$), and then child protagonists ($M = 2.53$, $SD = 1.30$). Adult protagonists were not significantly rated less distant than age-neutral protagonists ($p = .38$, $M_{diff} = .063$, 95% CI = $[-.05, .17]$), but both adult ($p < .001$, $M_{diff} = .768$, 95% CI =

Table 3. Percentages of Consequentialist Judgments by Language and Age Category in Experiment 2

	Native	Foreign
Child	36.9	37.1
Adult	32.2	30.9
Age-Neutral	30.9	32.0

[.66, .88]) and age-neutral protagonists ($p < .001$, $M_{diff} = .705$, 95% CI = [.59, .82]) were rated as less distant than child protagonists.

The effect of Age Similarity on moral judgment showed that as participants rated the protagonists as more similar to themselves, they were more likely to make a self-interested judgment ($\beta = .10$; $SE = .03$; z-value = 2.76; $p = .01$).

Psychological distance and language measures

Participants rated the psychological distance of the scenarios in Experiment 2 on average as 3.12 ($SD = 1.39$) on a scale from 1 to 5. Psychological Distance had an effect on moral judgment ($\beta = .15$; $SE = .03$; z-value = 4.26; $p = .01$), as in Experiment 1, indicating that the odds of making self-interested judgments increased as the scenarios are perceived as psychologically less distant. This finding is in line with the CLT. Psychological Distance did not interact with Language ($\beta=.02$; $SE = .06$; z-value = .25; $p = .81$), unlike in Experiment 1.

In addition, subjective ($\beta = .39$; $SE = .20$; z-value = 1.97; $p = .048$), but not objective ($\beta = -.09$; $SE = .06$; z-value = -1.41; $p = .16$), language scores predicted participants' moral judgments. More specifically, the odds of making a self-interested judgment increased as the subjective language proficiency increased.

General discussion

The first aim of this study was to investigate whether we could replicate the previous studies showing a Foreign Language Effect (FLE) in sacrificial moral dilemmas (e.g., Andrade, 2021; Brouwer, 2020; Costa et al., 2014; Geipel et al., 2015a) with a Turkish (native) – English (foreign) language pair. In Experiment 1, the Trolley and Footbridge dilemmas were presented to Turkish–English bilinguals either in their native or foreign language. Our results did not show the FLE, although there was a numeric trend in the expected direction. Absence of the FLE provides support for other studies which did not find a FLE either (Brouwer, 2019; Čavar & Tytus, 2018; Dylman & Champoux-Larsson, 2020). In Experiment 2, we further explored whether the FLE could be found with the Turkish–English pair in more realistic scenarios that were pitting against norm vs. self-interested choices. Our results again did not show a FLE.

Several reasons could be given why the FLE was not present for the sacrificial moral dilemmas in Experiment 1. First, our participants were highly proficient in English, as measured by subjective and objective measures. Previous studies showed that a high self-rated foreign language proficiency may reduce the FLE (Brouwer, 2019; Čavar & Tytus, 2018; Costa et al., 2014), possibly leading people to experience a similar emotional distance in the foreign language as in the native language. Second, most of our participants were using the foreign language regularly, mainly because their studies were in the tested foreign language. The frequent use of a foreign language in daily life has been argued as another factor that potentially reduces the FLE (Circi et al., 2021; Dylman & Champoux-Larsson, 2020). Finally, the Turkish–English pair has not been tested before for the FLE with sacrificial dilemmas. It is possible that the effect is not present for this language pair when it concerns such dilemmas. However, this needs to be investigated further with different samples, especially with people who are less highly proficient in English as a foreign language.

The lack of a FLE effect in Experiment 2 can also be explained with the reasons given above. In addition, characteristics of the scenarios could have affected the FLE. Previous studies on the FLE have used artificial and highly emotional dilemmas in which lives are at stake. It is possible that the FLE typically exists for such dilemmas, but not for the less emotional, lower cost, and non-life and death scenarios as used in Experiment 2 (but see Champoux-Larsson & Knežević Cvelbar, 2021). Moreover, the characteristics of the decision-making options (norm vs. self-interested) might have influenced the absence of the FLE. Our results do not align with those of Caldwell-Harris and Ayçiçeği-Dinn (2020)'s who have found the effect with the same type of choices and the language pair. This may again be due to the English level of our samples. In their study, participants were selected from a university where the language of instruction was Turkish, whereas a high proportion of the participants in our study were studying at an English-medium university. Apart from this, the differences in the scenarios used may also have had an effect. At this point, it would be more reliable to test the FLE with standardized scenarios and further studies.

Additionally, cultural differences could have played a role. For example, the moral norms used in Experiment 2 (e.g., "swearing", "lying") were different from those used in Experiment 1 (e.g., "do not kill"). The norm concerning not to kill is perhaps universal, whereas the importance given to the norms in Experiment 2 might be more culturally-dependent. Previous research has shown that norms in one culture may elicit different degrees of importance in another culture depending on factors such as religiosity (Graham & Haidt, 2010), individualist–collectivist distinction (Henrich et al., 2010), the degree of threat (Roos et al., 2015), and ecological factors (Van Leeuwen et al., 2012). Turkish culture was found to lie in the middle of the American and Chinese cultures, which are the two main comparison points in cultural psychology (Muthukrishna et al., 2020). Different results might, therefore, be obtained in cultures differing from the Turkish culture.

Both experiments showed an increase in judgments driven by controlled cognitive processes (i.e., utilitarian and self-interested) as self-rated proficiency in English increased. Typically, we would anticipate a contrasting pattern based on previous research showing higher proficiency reduces utilitarian/self-interested judgments in the foreign language condition (e.g., Brouwer, 2019; Čavar & Tytus, 2018; Costa et al., 2014). In our sample, however, subjective language assessments of foreign languages could be inaccurate because they might not represent actual proficiency levels as people might lack the foundation for self-assessment and overestimate/underestimate their capabilities (Brantmeier, 2006; Sitzmann et al., 2010). This could potentially explain the contradictory finding regarding the relationship between subjective proficiency levels and the FLE.

As our second aim, we addressed the criticisms regarding the use of sacrificial dilemmas as not being realistic (Bauman et al., 2014; Hester & Gray, 2020; Körner & Deutsch, 2023). We therefore developed more realistic moral scenarios for Experiment 2, which test the hypothetical dimension of the CLT (Trope & Liberman, 2010). In line with the criticisms, sacrificial dilemmas in Experiment 1 were descriptively rated as less realistic, thus more distant, than the scenarios in Experiment 2. More importantly, we found that participants tended to be more self-interested as the scenarios were rated as less distant. This finding is in line with previous research (Agerström & Björklund, 2009a; Körner & Volk, 2014) and supports the rationale of the CLT that people are more likely to rely on the consequences of their actions (e.g., make a self-interested judgment) when they are faced with psychologically less distant situations (e.g., Eyal et al., 2009).

Notwithstanding, in Experiment 1, this response trend was found to prevail only in the foreign language condition, while there was no effect of language in Experiment 2. We suggest that the underlying reason might be the increased active thinking in the foreign language which promotes cognitively controlled judgements. Previous research has suggested that a foreign language, compared to a native language, leads to systematic thinking due to more deliberate processing in a foreign language (Keysar et al., 2012). However, in Experiment 2, language did not affect participants' response trend based on psychological distance. The reason behind these differing results regarding the effect of language might be the more realistic and contextualized nature of the scenarios in Experiment 2. With the details provided in those realistic scenarios, active thinking might have been promoted in general, eliminating the effect of language itself.

Addressing another criticism regarding decontextualized moral dilemmas, we manipulated the age category of the protagonists in Experiment 2. We found that providing age information of the protagonists in moral scenarios altered moral judgments. Participants responded with more self-interested judgments when faced with scenarios where the protagonist was a child compared to an adult. As the child category was rated as the most distant age category, our finding supports one line of research (e.g., Aguilar et al., 2013; Amit & Greene, 2012; Gong & Medin, 2012), whereas it contradicts the predictions of the CLT (Trope & Liberman, 2010). The reason may be that the distant category selected for this study was the CHILD category. It is possible that children and their moral transgressions are considered as morally exceptional, because previous research has shown that children and adults tend to be judged differently in cases of moral transgressions (Chu & Grühn, 2017; Maftei et al., 2021). In particular, children are often judged less harshly than adults when they do not comply with the moral rule (White & Schaller, 2018). The inclusion of age categories that are by nature perceived as more vulnerable might have made our results regarding the distance manipulation difficult to interpret. It might thus be possible that our results are better explained by moral exceptionalism of the child category than by psychological distance. Future research could choose different age categories to investigate the effect of psychological distance on moral judgments. For instance, a comparison between a young adult category (adults in their twenties; i.e., close) and an older adult category (adults in their fifties; i.e., distant) may be a better way to test this directly.

Another aspect important to be mentioned is that we manipulated the age of the protagonist, but we did not give any age information regarding other people involved in the scenarios. It is possible that moral judgments could differ according to the identities of those who will be affected by the act of the protagonist. For instance, an act could be judged more harshly if the person to be affected is a child or an elderly compared to an adult as the former groups are relatively perceived as more vulnerable. Similarly, although people tend to choose sacrificing one person to save five in the Trolley dilemma (Haidt, 2001), they could let the other five die if that one person to be sacrificed was a baby, an elderly or someone they know. How the age of the victims and/or the survivors affect moral judgments is therefore another aspect for further research.

A key difference between the two experiments in this study was that Experiment 1 involved making judgments for oneself, while Experiment 2 required participants to make judgments for other people. People are argued to have self-interest (Bocian & Wojciszke, 2014; Weiss et al., 2018) and egocentric biases

(Epley & Caruso, 2004) in moral judgments leading them to make moral judgments based on their egocentric evaluations. It is therefore likely that moral judgments for one's own actions vs. someone else's actions could differ by setting different moral standards. When making decisions for themselves, people may be more likely to prioritize their own self-interest, while when making decisions for others, they may be more likely to consider moral norms. While the dilemmas used in Experiment 1 did not inherently provide opportunities for prioritizing self-interest, the more realistic scenarios used in Experiment 2 might have allowed for such considerations. The effects of the identity of the actor performing the action, whether it is the participant or someone else, may lead to different outcomes. A comparison using scenarios in which the participant is the protagonist would also contribute to gaining insight into the effect of psychological distance. This could be investigated by future research.

Our results further showed that people's moral judgments of others change based on how related they perceive themselves to be with the protagonist. Notably, self-interested judgments increased as participants rated the protagonists' age as more similar to theirs. Participants rated adult and age-neutral protagonists as the most similar to themselves, with no statistical difference between the two age categories. This indifference confirms Hester and Gray's (2020) argument that people mostly imagine adults as the protagonists when they do not have any age information available. Moreover, the finding that both the adult category and the age-neutral category were rated as more similar than the child category confirmed our hypothesis and the assumption of the CLT.

Age similarity in our study also tests the social dimension of the CLT; the protagonist is perceived as closer to oneself as the age is rated as more similar. This closeness, in turn, increased the tendency to engage in cognitively controlled judgments rather than choosing to conform to the moral norm. If we look from another perspective, we can interpret the results in the context of self-interest biases people have in moral judgments. Following research suggesting that people tend to favor moral transgressions more if the consequences are beneficial for them (Bocian & Wojciszke, 2014), participants in our study might have adopted this self-interest bias more as they perceived the protagonist as closer to themselves. Consequently, their tendency to make self-interested judgments might have been increased due to their orientation towards choosing the option that would benefit them the most.

Both experiments produced similar results overall: there was no FLE on the artificial (Exp. 1) nor on the realistic scenarios (Exp. 2), but there was a trend in the expected direction for the artificial scenarios. However, it was not possible to directly compare the results of the two experiments statistically because of the differences in experimental designs. A within-subjects design in which both types of scenarios are presented would be interesting for future research. We could now only speculate that realism of the scenarios may not have a crucial impact on whether or not there will be a FLE. At the same time, we did observe an effect of realism in both experiments. In Experiment 1, there was an increase in utilitarian decisions when the dilemmas were rated as more realistic (i.e., psychologically close) in the foreign language only. In Experiment 2, we found the same increase in self-interested decisions irrespective of language. So overall, realism might affect the FLE when the scenarios are artificial, but not when the scenarios are realistic.

This study has three limitations. First, we did not ask participants to explicitly state whether they have experienced the events

in their own lives before. It has been previously shown that people's moral concerns could differ depending on whether they have experienced a similar event before (Carpendale & Krebs, 1995). Depending on the subjective experience of the person with the particular event, their judgments might become subject to response biases. This might be an important question to consider asking in the future, mainly for more realistic scenarios.

Secondly, we collected our data online due to the COVID-19 pandemic. The inability to collect offline data may have had a significant impact, especially in the absence of the FLE, by preventing us from conducting a sufficiently controlled experiment. It is possible that the participants in the foreign language condition might have used dictionaries or translation devices if they had difficulty in understanding the scenarios. The use of these tools may have in turn caused the FLE to be absent by eliminating the differences in processing type between the native and the foreign language.

Thirdly, we did not ask participants in the foreign language condition whether they understood the scenarios. Note, however, that we did not expect this to be a concern as their English proficiency level was high.

In conclusion, our experiments contribute to the literature on the FLE, and more specifically, tested the role of the hypothetical and the social dimension of the CLT on moral judgments. Our findings demonstrated no FLE for Turkish–English bilinguals which was in line with some of the previous research (Brouwer, 2019; Čavar & Tytus, 2018; Dylman & Champoux-Larsson, 2020).

However, we did find two pieces of evidence in line with the CLT (Trope & Liberman, 2010). First, psychological distance was found to affect moral judgments across our two experiments, showing that psychologically less distant construals are more likely to promote cognitively controlled (i.e., utilitarian and self-interested) judgments. Secondly, the perception of increased similarity between the protagonist's age and oneself promoted self-interested judgments. At the same time, providing age information of the protagonists in moral dilemmas affected moral judgments, but in the opposite direction of the CLT, which could be due to the special moral status of children in the view of our adult participants.

Data availability statement. The materials, data and analyses that support the findings of this study are openly available in Open Science Framework at https://osf.io/qxr7p/?view_only = ce873cc1ceb74296a0acea21a5a48e1c [View-Only link]

Notes

1 A post-hoc power analysis on the first 20 "pilot" participants was conducted to determine an appropriate sample size for each experiment (but see Brysbaert, 2019, for the drawbacks of running power analyses on relatively small sample sizes). The mixedpower function from the mixedpower package was used for the analysis (Kumle et al., 2021). The effects of a glmer and an lmer model on both datasets were similar, so we could continue fitting an lmer model on our data. The code for this analysis is publicly available at OSF.

For Experiment 1, a linear mixed effects model was fitted on the data with Language, Dilemma Type and their interaction as fixed effects and with participants as random effect. Power was estimated over three different sample sizes (150, 200, 250). A t-value of 2 was determined as the significance threshold. The analysis showed that 200 participants would allow for 96% power to measure a plausibly-sized interaction between Language and Dilemma Type. We tested 203 participants in our final sample.

For Experiment 2, a linear mixed effects model was fitted for the data with Language, Age Category and their interaction as fixed effects and with participants as random effect. Power was estimated over three different

sample sizes (400, 450, 500). A t-value of 2 was determined as the significance threshold. The analysis showed that 450 participants would allow for 99% power to measure a plausibly-sized effect of Language and for 100% power to measure a plausibly-sized interaction between Language and Age Category$_{\text{NEUTRALvsCHILD}}$. We tested 467 in our final sample.

2 Excluding three participants in Experiment 1 and six participants in Experiment 2, whose ages of acquisition of English were below the cut-off point (age 3; Unsworth, 2013) for considering English as a native language, did not have any impact on the results.

3 The results of a Pearson's Chi-square test, conducted with IBM SPSS Statistics (Version 28; IBM Corp, 2021) revealed no significant Foreign Language effect for either the Trolley ($\chi2(1, \text{N} = 203) = .245, p = .658$) nor the Footbridge dilemma ($\chi2(1, \text{N} = 203) = 2.659, p = .114$).

4 Age similarity between the protagonist and the participant had an effect on how participants rated the psychological distance of the scenarios ($\beta = 0.38, SE = 0.01$; t-value = 26.87, $p < .001$), indicating that when the participants rated protagonist's age as more similar to their own age, they were more likely to rate the probability of the event occurring as higher. However, the interaction effect between protagonist's age and psychological distance on participant's decisions to our moral scenarios was not significant ($\beta = -0.01, SE = 0.02$; z-value = −0.61, $p = .54$).

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