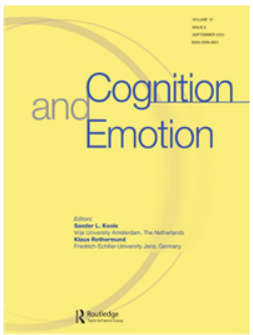

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What language does your heart speak? The influence of foreign language on moral judgements and emotions related to unrealistic and realistic moral dilemmas

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ABSTRACT

Emotional attenuation in a second language is believed to be one of the main causes of the Moral Foreign Language effect (MFLe). However, evidence on the mediating role of emotion in the relationship between language and moral judgements is limited and mainly derives from unrealistic moral dilemmas. We conducted two studies to investigate (1) whether the MFLe is present in both unrealistic (Study 1) and realistic (Study 2) moral dilemmas, and (2) whether this effect can be attributed to reduced emotionality. In Study 1, the MFLe was found in the moral judgements made by Spanish-English bilinguals. However, the same pattern was not observed in Greek Cypriot-English bilinguals' moral judgements, and this result was attributed to the prominent role of English in Cyprus. In Study 2, the MFLe extended to realistic moral dilemmas when the outcome of the action entailed the violation of a social norm. Study 1 and Study 2 also revealed that these bilinguals experienced a wide range of emotions in their L1 and L2, which did not differ significantly across languages. Mediation analyses further indicated that the MFLe was not mediated by emotional blunting, which made us consider alternative explanations for the MFLe.

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Decision making is an integral part of our daily lives. We encounter different types of dilemmas every day, the resolution of which can affect both ourselves and the people around us positively or negatively. These decisions vary widely, from the easy and less important that give answers to questions such as "What shirt should I wear today?" or "Do I have time for breakfast?" to those involving difficult and complex trade-offs and choices, such as "Should I quit my job and move to another country for love?" or "Should I leave an abusive marriage?". Decision making is influenced by cognitive biases (Fennema & Perkins, 2008; Stanovich & West, 2008), life experiences (Liu & Aaker, 2007), and individual differences (Dewberry et al., 2013; Scheres & Sanfey, 2006); however, an increasing number of recent studies have suggested that linguistic factors, such as the language context in which decision making takes place (Costa, Foucart, Arnon, et al., 2014; Keysar et al., 2012; Vives et al., 2018), also play a crucial role. Similarly, studies of moral judgements and reasoning have shown that the use of a second language (L2) leads bilinguals to make moral decisions in a more deliberative and thus less emotional way than when using their first language (L1) (Białek et al., 2019; Brouwer, 2019, 2021; Cipolletti et al., 2016; Costa, Foucart, Hayakawa, et al., 2014; Dylman & Champoux-Larsson, 2020; Geipel et al., 2015a, 2015b; Hayakawa et al., 2017; Kyriakou et al., 2022; Muda et al., 2018).

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This phenomenon, which is known as the Moral Foreign Language effect (MFLe), has been explained according to three hypotheses. The cognitive enhancement hypothesis posits that the additional cognitive load resulting from a low L2 proficiency level encourages bilinguals to think more carefully and deeply when they are confronted with high-conflict moral dilemmas in their L2. Such a deliberative mode of processing may lead to less intuitive and thus more rational moral choices (Costa, Foucart, Hayakawa, et al., 2014; Vives et al., 2018). However, studies that applied a process-dissociation analysis to disentangle consciously harm-rejection and consequence-maximisation moral judgements (see Conway & Gawronski, 2013) found null associations between L2 and heightened utilitarian concerns (Hayakawa et al., 2017; Muda et al., 2018). A second hypothesis states that people create psychological distance from an event (e.g. a dilemmatic situation) depending on the language they use (Costa, Foucart, Hayakawa, et al., 2014; Hayakawa et al., 2016). Indeed, some studies demonstrated that the processing of abstract event representations could enhance utilitarian decisions, whereas the processing of proximal and concrete event representations was related to greater emotional reactivity, leading to more deontological choices (Aguilar et al., 2013; Amit & Greene, 2012; but see Eyal et al., 2008). The third hypothesis, which is known as the reduced emotionality hypothesis, claims that bilinguals are more likely to make rational choices when responding to moral dilemmas in their L2 due to the increased emotional detachment that bilinguals have to languages that acquired later in life in emotionally neutral contexts (e.g. Costa, Foucart, Hayakawa, et al., 2014; Hayakawa et al., 2017), but empirical support for this hypothesis remains scarce.

These are the most commonly used hypotheses to interpret the MFLe in unrealistic moral dilemmas, that is, dilemmas that are unlikely to occur in people's daily lives (Brouwer, 2019; Cipolletti et al., 2016; Costa, Foucart, Hayakawa, et al., 2014; Driver, 2022; Hayakawa et al., 2017). Some of these studies also examined bilinguals' emotions after responding to moral dilemmas using forced-choice emotion tasks, which do not fully capture the variety of emotions that bilinguals may experience and subsequently report (e.g. Driver, 2022; Geipel et al., 2015b; but see Kyriakou et al., 2022). Even fewer studies empirically tested to what extent emotions mediate the link between language and moral judgements and yielded contradictory findings (Geipel et al., 2015b; Kyriakou et al., 2022). Furthermore, very few studies have considered factors that might influence bilinguals' moral judgements, such as the cultural influence of the L2 in the bilinguals' L1 society (Dylman & Champoux-Larsson, 2020). This study attempted to address the aforementioned shortcomings by examining (1) whether a widely studied population, namely, Spanish-English bilinguals, and an underrepresented but particularly interesting – both historically and linguistically – population, namely Greek Cypriot-English bilinguals, differed in their moral judgements and the emotions they experienced during or after reading unrealistic moral dilemmas in their L1 or L2 (Study 1); (2) whether the MFLe also emerged in realistic moral dilemmas responded to by Spanish-English bilinguals (Study 2); and (3) whether the effect of language on moral judgements was mediated by reduced emotionality (Study 1 and Study 2). A secondary goal was to investigate these bilinguals' self-reported emotions following moral decision making in their L1 and L2, as expressed freely by the participants themselves.

Emotions and moral judgements

Emotions are involved in many cognitive processes, including information processing, moral judgement and decision making (Bechara, 2004; Greene et al., 2001; Koenigs et al., 2007; Lerner & Keltner, 2000, among others). However, the relationship between emotions and moral judgements has been debated at length by philosophers and psychologists. Throughout the twentieth century, several psychologists (e.g. Colby et al., 1983; Kohlberg & Candee, 1984; Rest et al., 1999) argued that moral judgements were the product of moral reasoning and reflection through the application of moral rules that are known to individuals *a priori* (the rationalist approach). According to this approach, a moral dilemma can cause emotional arousal, but emotions cannot determine whether an action is morally acceptable or not (Helion & Pizarro, 2015). Other psychologists (e.g. Haidt, 2001; Reynolds, 2006) suggested that people's moral judgements are formed automatically and without conscious reasoning (the intuitionist approach). The intuitionist approach assumes that the moral judgement process is based on innate emotions that not only take precedence over reason but also drive individuals' moral reasoning. In Haidt's

(2001) words, "moral reasoning is usually an ex post facto process used to influence the intuitions (and hence judgments) of other people" (p. 814).

In order to determine the impact of cognitive and affective processes on moral judgements, Greene et al. (2001) measured participants' neuronal activity during their deliberations on personal (high-emotion) and impersonal (low-emotion) moral dilemmas using functional magnetic resonance imaging techniques. The personal dilemmas met the following criteria: agents must choose between inflicting or not inflicting direct physical harm on a person or on a member of a particular group of people, as long as the physical harm is not the result of a serious threat. For example, the *footbridge dilemma* (Foot, 1978) is a personal dilemma because individuals must choose between pushing (physical contact) a large man off a footbridge towards a train (thus killing him) in order to save five people who are tied to the train track, or not pushing the man and thus allowing the train to kill five people. By contrast, impersonal dilemmas entailed harm caused to a person that did not involve physical contact but was a collateral outcome (e.g. the *switch dilemma*). The results revealed that personal dilemmas elicited greater activation in the brain areas that are closely associated with emotions (the medial frontal gyrus, the posterior cingulate gyrus and the angular gyrus), as well as more deontological (emotional) choices, while impersonal dilemmas tended to elicit fewer emotional reactions, thus leading to more utilitarian decisions.

Based on the results of their study, Greene et al. (2001) developed the dual-process model of moral reasoning, which postulates that human moral behaviour is the product of two interacting processes, namely, the intuitive process (System 1) and the rational process (System 2). The cognitive operations performed by System 1 are usually implicit, automatic and require little mental effort, whereas System 2 is associated with analytical cognitive processes that involve conscious, deliberate and logical mental effort (see Kahneman, 2012, for a review). The judgements performed by System 2 are always intentional and explicit but are not always verbalised overtly (Kahneman, 2003). Greene and Haidt (2002) further claimed that different brain areas – rather than just one specific area – involved in cognitive and emotional behaviour appear to play a crucial role in moral judgements.

Language and moral judgements

Drawing on the dual-process theory of moral reasoning, Costa, Foucart, Hayakawa, et al. (2014) examined the role of language (L1 versus L2) in moral judgements. Participants from different countries (the US, Korea, France and Israel) and with various L1 (English, Korean and Spanish) and L2 (Spanish, English, French and Hebrew) responded to two moral dilemmas, one of which was personal (the *footbridge dilemma*) and the other impersonal (the *switch dilemma*). Regardless of the language in which these dilemmas were presented, the participants tended to opt for the utilitarian option in the personal dilemma in their L2 more often than they did in their L1. By contrast, the percentage of utilitarian decisions in the impersonal dilemma was similar in both language conditions. According to the authors, this finding indicates that highly emotional moral dilemmas induce less emotional reactivity in the bilinguals' L2. Nevertheless, an important shortcoming of the above study is that the authors did not empirically test participants' emotional intensity when reading the dilemmas and making their decision.

Additional evidence for the MFLe was presented by Geipel et al. (2015b), who used a greater number of moral dilemmas to examine the link between language (L1 versus L2) and the type of moral dilemma (personal versus impersonal). Of interest, the MFLe was absent in a highly emotional moral dilemma (the *crying baby dilemma*) but present in a low emotional and more realistic moral dilemma (the *lost wallet dilemma*). According to the authors, the MFLe emerged due to a weak adherence to social and cultural norms in the L2. Hence, bilingual participants were more likely to select the utilitarian option in their L2. For example, in the *lost wallet dilemma*, in which one must decide between keeping the money found in a lost wallet for themselves or returning the wallet with all the money in it to the owner, the participants were more willing to keep the money when the dilemma was presented in their L2.

Dylman and Champoux-Larsson (2020) examined whether the MFLe still occurred when the L2 was culturally influential in the origin country of the participants. They recruited a large number of Swedish people with English or French as their L2. As the authors explained, English plays an influential role in Swedish society, and the vast majority of Swedish people are frequently exposed to emotional

experiences in English through formal education and media such as films, music and television. By contrast, French is mainly acquired in educational settings by a limited number of Swedish students. Their results demonstrated a lack of the MFLe in the Swedish-English group. More specifically, in the *footbridge dilemma*, the participants showed a clear preference for the deontological option in both Swedish L1 (86%) and English L2 (85%). By contrast, in the Swedish-French group, the percentage of utilitarian decisions was increased up to 31% in French L2, whereas only 13% of the participants chose to push the man onto the tracks in their L1. Dylman and Champoux-Larsson (2020) argued that the important role of the L2 in the bilinguals' country of origin strengthened the emotional link between bilingual people and their L2. As the authors suggested, future studies focusing on bilinguals whose L2 has a strong presence in their L1 society are essential to confirm their findings. To address this issue, Study 1 examined moral judgements made by people living in Cyprus, a population that is highly proficient in English. The role of English in Greek Cypriot society is discussed in detail in the next section.

The role of English in Greek Cypriot society

The linguistic situation in Cyprus is a complex issue, and the English language spoken by the Greek-speaking community of Cyprus cannot be clearly classified into "English as a foreign language" (EFL) or "English as a second language" (ESL) (Bongartz & Buschfeld, 2011). English was the only official language spoken on the island during British colonial rule from 1878 to 1960, but this is no longer the case; therefore, while English does not have the status of an L2, it also does not play the traditional EFL role, as is usually the case in other countries (Bongartz & Buschfeld, 2011; Buschfeld, 2013; Yazgin, 2007). As Yazgin (2007) pointed out, unlike countries in which English is mainly spoken among subsets of the population (such as France or Italy), English is omnipresent in Cypriot daily life via social media, television and music, and the vast majority of Cypriots – regardless of their age, educational level, or social status – have the ability to express themselves and communicate with each other in English. In fact, English continues to play a prominent role on the island as the *lingua franca*. The use of English is widespread in various domains and sectors of Greek Cypriot society, including law, higher education, banking and tourism (Arvaniti, 2006–2010; Buschfeld, 2013), and the majority of Greek Cypriots associate the importance of speaking English fluently with professional and economic development. Accordingly, a large percentage of Cypriot children attend private English courses at language institutes in addition to being required to take English classes in schools (Yiakoumetti & Mina, 2011). The extensive presence of English in Cyprus is likely to have strengthened the emotional bond between Greek Cypriot-English bilinguals and their lexical repertoire in English. As Yazgin (2007) argued, the use of English is regarded as an indication of "modernisation" by a considerable proportion of the Greek Cypriot society, and English is considered to be a useful language by more than 70% of Greek Cypriot people. For all of these reasons, many scholars have attributed a hybrid status between EFL and ESL to the English language that is spoken in Cyprus (Armostis & Tsagari, 2022; Bongartz & Buschfeld, 2011; Buschfeld & Kautzsch, 2020), which makes Greek Cypriot-English bilinguals an interesting population from a methodological point of view. In Study 1, we recruited Greek Cypriot-English bilinguals and analysed their responses to unrealistic moral dilemmas in both their L1 (Greek) and their L2 (English). Following Dylman and Champoux-Larsson (2020), our hypothesis was that the effect of language on moral judgements would be null or insignificant.

Emotions involved in moral decision making

The type of emotions experienced by monolinguals or bilinguals when faced with different types of moral dilemmas have received scant attention. A seminal study of the specific emotions that people experience when making moral judgements was conducted by Szekely and Miu (2015), who explored the emotions most commonly felt by 65 participants in their L1 in response to several classic personal moral dilemmas. After making their moral choices (deontological versus utilitarian), the participants were invited to freely express the predominant emotion (only one) that was elicited during their moral decision making. These emotions were later classified into eight emotion categories, namely, *fear*, *sadness*, *guilt*, *compassion*, *disgust*, *regret*, *anger*, and *contempt*. The results revealed that the most intense emotion that the participants experienced was *fear*, followed by *sadness*, irrespective of the type of moral decision

(deontological versus utilitarian). The participants also reported having felt other emotions, such as *guilt*, *compassion*, *disgust* and *anger*, albeit to a lesser extent. Similarly, Tasso et al. (2017) asked 148 undergraduate students to rate the intensity with which they experienced six basic emotions (*fear*, *sadness*, *anger*, *disgust*, *surprise* and joy) after making a moral choice in their L1 and after having imagined themselves choosing the alternative option in both personal (*footbridge*-type) and impersonal (*switch*-type) moral dilemmas. The authors found that personal dilemmas evoked more intense negative emotions than did impersonal ones, and that *fear* and *sadness* were again the predominant emotions.

More recently, Driver (2022) focused on the predominant emotions experienced by bilingual people when responding to a personal (the *footbridge*) and an impersonal (the *switch*) moral dilemma. The participants were asked to make a moral judgement either in their L1 (English) or in their L2 (Spanish) and to indicate the emotions they experienced during the moral decision-making process by choosing among 20 basic emotions that were presented in the participants' L1. The results revealed that bilinguals were more utilitarian in their L2 in the highly emotional moral dilemma (the *footbridge dilemma*), but no differences were observed in the emotions they reported in their L1 and their L2 (for example, *anxiety* and *guilt* were the predominant emotions in both L1 and L2). Although Driver's (2022) findings are intriguing, it is important to note that the participants chose from a pre-established list of 20 basic emotions that were only provided in the participants' L1. Nevertheless, reading a moral dilemma in a specific language is likely to elicit specific emotions in that language, which may not have equivalents in other languages. For example, the English word *frustration* is not 100% equivalent to *frustración* in Spanish (Soriano & Ogarkova, 2015); similarly, the English word *sadness* can be described in Greek using various terms such as *λύπη*, *θλίψη* or *στεναχώρια* (see also Pavlenko, 2008). Accordingly, in Studies 1 and 2, we asked the participants to freely express their emotions in the language in which they read each dilemma after ensuring that all of them had at least an upper-intermediate proficiency level in the L2 that would allow them to express their emotions in the L2.

Study 1

In Study 1, we examined the MFLe and the predominant emotions reported by bilinguals after reading two unrealistic moral dilemmas and making their moral decision. We recruited bilinguals from two different nationalities, namely, participants from Spain (Spanish L1) who spoke English L2 and participants from Cyprus (Greek L1) who also spoke English L2. As mentioned previously, although English is no longer the official language of Cyprus, it still has a strong presence in Cypriot culture and society. This allowed us to explore whether the cultural influence of English in Cyprus could diminish the MFLe. To our knowledge, this is the first study to examine the MFLe among people who were born and raised in Cyprus.

Based on previous research (e.g. Cipolletti et al., 2016; Costa, Foucart, Hayakawa, et al., 2014; Hayakawa et al., 2017), we predicted more rational and less emotional moral judgements in English L2 from the Spanish-English bilingual group. As bilingual people often claim that they feel less emotionally reactive in their L2, as opposed to their L1 (Dewaele, 2010; Pavlenko, 2012), we also hypothesised that these participants would feel and report a wider spectrum of emotions in Spanish L1 than they would in English L2. In addition, we expected that the MFLe would be reduced or absent in the Greek Cypriot sample, and that these bilinguals would experience similar emotions in their L1 and L2 due to the influential role of English in Cypriot society.

Method

All the experiments reported in this paper received prior approval from the Research Ethics Committee of Nebrija University <Details omitted for blind review> and followed the principles expressed in the Declaration of Helsinki (Reference no: UNNE-2020-006 and UNNE-2021-001 <Details omitted for blind review>).

Participants

One hundred and forty-one Spanish L1 speakers from Spain and 123 Greek L1 speakers from Cyprus participated in Study 1. All the participants were recruited via social media platforms, and all of them reported having an upper-intermediate or advanced level of English L2, as assessed using a 7-point Likert scale (1 = very poor, 7 = native-like). The participants' demographic and language data per language condition are presented in Table 1. No statistically significant differences were observed among the

participants in the four language conditions regarding their age or L2 reading ability. Moreover, Spanish-English bilinguals ($n = 141$) and Greek Cypriot-English bilinguals ($n = 123$) did not significantly differ in their L2 reading ability; only a slight difference was found in mean age, but it is important to note that the majority of the participants were young adults ($Median_{Spanish} = 32$, $Median_{Greek\ Cypriot} = 30$). Differences in the English L2 proficiency between Spanish and Greek Cypriot speakers who were assigned to the L2 condition did not attain statistical significance ($p_{bonf} = .085$).

Materials

We used two classic, high-conflict, emotionally charged moral dilemmas: the *crying baby dilemma* and the *Sophie's choice dilemma*. In the *crying baby dilemma*, one must decide whether or not to smother their child in order to save themselves and other people. In the *Sophie's choice dilemma*, one can avoid the death of one of their two children by condemning the other to endure painful laboratory experiments until they die. Both dilemmas were originally written in English and were taken from the study of Koenigs et al. (2007). The two dilemmas were translated into Spanish and Greek by two native speakers of Spanish and Greek, respectively, each of whom had an advanced level of English (C2 level). Back translations were also conducted by two bilingual speakers (Spanish-English and Greek-English) to ensure the accuracy of the translation process. The slight discrepancies found after applying the back-translation method mainly concerned synonyms (for example, large/big, search/seek, baby/child, starts crying/begins to cry, take to his lab/bring to his laboratory) and did not compromise the equivalence of meaning.

Procedure

The experiment was presented online using the QuestionPro survey platform (Bhaskaran, 2002). Participation was voluntary and did not entail compensation. Participants completed either the L1 or the L2 version of the dilemmas, without knowing *a priori* which version they were about to complete. After reading the instructions and giving their consent, the participants were invited to read the two dilemmas and to choose between the utilitarian and deontological options using a dichotomous yes/no scale. They were then asked to indicate whether they experienced any emotions during or after reading the moral dilemmas and making their moral decisions using again a dichotomous yes/no scale. If they did, they were asked to write down all the emotions they felt. Finally, the participants responded to some questions about their demographic and language backgrounds. The completion of the questionnaire took approximately 15 min.

Emotion Analysis

The analysis of self-reported emotions following the participants' moral judgements was conducted independently by the two authors of this study. Reliability analysis showed a high degree of inter-rater agreement (Spanish L1 sample: Cohen's $\kappa_{Crying\ baby} = .93$; Cohen's $\kappa_{Sophie's\ choice} = .88$; Greek Cypriot L1 sample: Cohen's $\kappa_{Crying\ baby} = .91$; Cohen's $\kappa_{Sophie's\ choice} = .93$). The emotional labels reported by the participants were grouped according to seven emotion categories (*fear*, *sadness*, *anger*, *guilt*, *disgust*, *compassion* and *contempt*) based on their etymological meanings. For example, *despair* and *depression* were grouped together into the same emotional category of *sadness* (see also Szekely & Miu, 2015). Pain-related words were also considered to be expression of *sadness* (Linder & Hooke, 2019), whereas anxiety-related words formed part of the *fear* category (Storm & Storm, 1987). To ensure linguistic equivalence, these emotion categories were translated into Spanish and Greek using the classification of emotional vocabulary in English by Storm and Storm (1987), in Spanish by Marina and Penas (2000) and in Greek by Tsantila (2005). It is also worth noting that the translation equivalents of several words related to these emotions are included in the Spanish (Redondo et al., 2007) and Greek (Palogiannidi et al., 2016) adaptations of the Affective Norms for English Words (ANEW; Bradley & Lang, 1999). Words that did not refer directly to emotional states or processes (see Pavlenko, 2008) were excluded from the analysis.

Results and discussion

Moral judgements

In the *crying baby dilemma*, the percentage of deontological decisions was 78.57% for the Spanish and 85.24% for the Greek Cypriot participants who read the dilemma in their L1, while 53.52% and 79.03% of

Table 1. Participants' demographic and language data per language condition in Study 1.

	Spanish L1	English L2	Greek L1	English L2
Sample size	70	71	61	62
Females	29	27	41	42
Mean age	33.97 (7.14)	33.26 (8.33)	31.03 (4.85)	30.53 (8.37)
Self-perceived L2 reading ability	5.64 (0.99)	5.67 (0.82)	5.83 (0.93)	5.91 (0.89)
Self-perceived L2 writing ability	5.01 (1.43)	5.02 (0.91)	5.50 (1.13)	5.61 (1.09)
Self-perceived L2 speaking ability	4.88 (1.18)	5.12 (0.98)	5.54 (1.16)	5.54 (1.01)
Self-perceived L2 listening ability	5.54 (1.18)	5.66 (0.95)	5.80 (1.19)	5.91 (1.09)
Self-perceived overall L2 proficiency	5.27 (0.98)	5.37 (0.71)	5.68 (0.94)	5.75 (0.87)

Note: Standard deviations are indicated in brackets.

the Spanish and Greek Cypriot participants, respectively, chose the same option when the dilemma was presented in their L2. In the *Sophie's choice dilemma*, 75.72% of the Spanish participants in the L1 condition and 47.89% of them in the L2 condition opted for the deontological option, while in the Greek Cypriot group, these percentages were 72.18% and 74.19% in the L1 and L2 conditions, respectively.

In order to examine the influence of the L1 group (Spanish versus Greek Cypriot), the language condition (L1 versus L2), and the dilemma (*crying baby dilemma* versus *Sophie's choice dilemma*) on moral judgements (yes/no) and self-reported emotions (yes/no responses), mixed-effects logistic regression models were computed in RStudio 2022.02.3 (Posit team, 2023) using the *glmer* function in the *lme4* package (Bates et al., 2015), the optimising function *control = glmerControl(optimizer = "bobyqa")* (Linck & Cunnings, 2015), and the Akaike Information Criterion (AIC) to select the best-fit model (Bozdogan, 1987). The results revealed a statistically significant interaction between group and language condition, thus suggesting that the likelihood that the Spanish L1 participants would opt for the utilitarian option when the dilemma was presented in their L2 was greater than it was for the Greek Cypriot L1 participants (see Table 2).

These findings are consistent with previous studies demonstrating the MFLe in unrealistic emotionally charged moral dilemmas, such as the *footbridge dilemma* (Costa, Foucart, Hayakawa, et al., 2014; Geipel et al., 2015b; Hayakawa et al., 2017) or the *crying baby dilemma* (Brouwer, 2021). By contrast, the lack of this effect in the Greek Cypriot group can be attributed to the prominent role of the English language in Cyprus (Bongartz & Buschfeld, 2011; Buschfeld, 2013; Yazgin, 2007).

Emotions (yes/no)

In the Spanish group, the percentage of Spanish participants who reported having felt an emotion while or after reading the *crying baby dilemma* was similar in the L1 and L2 conditions (95.71% and 90.14%, respectively). In the *Sophie's choice dilemma*, 91.4% of the Spanish participants reported having felt an emotion in their L1, while 67.6% did so in their L2. In the Greek Cypriot group, most of the Greek Cypriot participants reported having felt an emotion while or after reading both the *crying baby dilemma* (91.8% in L1 and 87.1% in L2) and the *Sophie's choice dilemma* (75.4% in L1 and 77.4% in L2).

The participants' emotions (yes/no responses) were examined as a function of moral judgement, group, language condition, and dilemma (Table 3). The results revealed a main effect of dilemma; that is, a greater number of participants reported having felt an emotion while or after reading the *crying baby dilemma* as compared to the *Sophie's choice dilemma*. This could be explained by the fact that the *crying baby dilemma* is slightly more emotional (mean emotion rating = 6.8) than is the *Sophie's choice moral dilemma* (mean emotion rating = 6.6), as reported by Koenigs et al. (2007). Contrary to expectations (e.g. Costa, Foucart, Hayakawa, et al., 2014; Hayakawa et al., 2017), no statistically significant effect of language on emotions (yes/no responses) was found (see Driver, 2022; Geipel et al., 2015b, for similar evidence).

Self-reported emotions

The predominant emotions reported by the Spanish and the Greek Cypriot participants in their L1 (Spanish and Greek, respectively) and in their L2 (English) are summarised in Table 4 (see also Appendix 1). No interaction between the language condition and the specific emotions of *fear*, *sadness*, *anger* and *guilt* was found. Nonetheless, in the *crying baby dilemma*, the participants reported having felt *fear* and *sadness* more often than they did in the *Sophie's choice dilemma* ($B = -1.434$, $SE = 0.256$, $z = -5.605$, $p < .001$, for *fear*; $B = -1.126$, $SE = 0.238$, $z = -4.726$, p

Table 2. Glmer model for moral judgements (Yes/No responses) in Study 1.

Fixed effects	B	SE	*z*	Pr(>|*z*|)
(Intercept)	−2.169	0.462	−4.687	2.77e-06***
Group (Spanish)	0.051	0.370	0.138	.890
Condition (L2)	0.139	0.378	0.368	.713
Dilemma (Sophie's choice)	0.393	0.218	1.806	.071
Group*Condition	1.389	0.518	2.680	.007**
Random effects	Variance	SD		
Participant (Intercept)	0.944	0.972		
R^2 (cond.)	.304			
R^2 (marg.)	.104			

Note: Model fit: Moral judgements ~ Group + Condition + Dilemma + Group*Condition + (1|Participant).
**$p < .01$, ***$p < .001$. AIC = 608.6.

< .001, for *sadness*). No main effect of dilemma was observed with regard to *anger*; however, we found that the Spanish-English bilinguals reported having felt anger less often than did the Greek Cypriot-English bilinguals ($B = -0.996$, $SE = 0.337$, $z = -2.948$, $p = .003$). These results fit well with previous evidence suggesting that individuals experience various emotions during or after moral decision making, both in their L1 (Horne & Powell, 2016; Szekely & Miu, 2015; Tasso et al., 2017) and in their L2 (Driver, 2022).

Mediation analysis

To investigate whether emotion mediated the link between language and moral judgements, three mediation models were computed, one with the entire sample of Study 1, and the other two with the Spanish and the Greek Cypriot samples, respectively (see Table 5). As the mediator variable was dichotomous (i.e. our participants had to report whether they experienced any emotion using a dichotomous yes/no scale), we employed the *lavaan* package (v.0.6.15; Rosseel, 2012), which uses structural equation modelling to build models with binary and categorical variables, and the optimiser implemented in the *numina* function (Gay, 1990). As can be seen in Table 5, none of the indirect effects reached statistical significance. We therefore concluded that the influence of language on moral judgements in the case of our Spanish-English bilingual participants could not be explained by the reduced emotionality hypothesis.

Study 2

Study 1 confirmed the occurrence of the MFLe in unrealistic moral dilemmas other than the footbridge dilemma but only among the Spanish-English participants for whom English is not a culturally influential language in their country of origin. However, Study 1 only employed moral dilemmas that entailed very low realism (i.e. they are very distant from people's experiences). Therefore, the main goal of Study 2 was to examine whether the MFLe would emerge in realistic moral dilemmas, and to this end a different sample of Spanish-English bilinguals was recruited.

As mentioned previously, the link between language and moral decisions appears to be limited to sacrificial *footbridge*-type moral dilemmas that involve extreme conflict situations, such as sacrificing the life of one innocent person in order to save many others, which are unlikely to occur in real life (Kahane

Table 3. Glmer model for emotions (Yes/No responses) in Study 1.

Fixed effects	B	SE	*z*	Pr(>|*z*|)
(Intercept)	11.832	1.600	7.395	1.43e-13***
Moral judgements (Yes)	2.042	1.491	1.369	.171
Group (Spanish)	0.481	0.859	0.560	.575
Condition (L2)	−0.235	0.959	−0.245	.807
Dilemma (Sophie's choice)	−4.741	0.844	−5.620	1.91e-08***
Moral judgements*Condition	−2.669	1.735	−1.539	.124
Random effects	Variance	SD		
Participant (Intercept)	114	10.68		
R^2 (cond.)	.973			
R^2 (marg.)	.050			

Note: Model fit: Emotions ~ Moral judgements + Group + Condition + Dilemma + Moral judgements*Condition + (1|Participant).
***$p < .001$. AIC = 405.4.

Table 4. Predominant self-reported emotions by the Spanish-English and Greek Cypriot-English bilinguals (Study 1).

Emotions	*Crying baby dilemma*				*Sophie's choice dilemma*			
	Spanish-English		Greek Cypriot-English		Spanish-English		Greek Cypriot-English	
	Spanish	English	Greek	English	Spanish	English	Greek	English
Fear ("miedo"/"φόβος")	68.57%	49.29%	67.21%	62.9%	48.57%	29.58%	36.06%	33.87%
Sadness ("tristeza"/"λύπη")	40%	47.89%	36.06%	41.93%	25.71%	22.53%	21.31%	22.58%
Anger ("rabia"/"θυμός")	15.71%	14.08%	19.67%	20.97%	15.71%	14.08%	31.14%	32.26%
Guilt ("culpa"/"ενοχή")	10%	12.68%	3.27%	16.13%	20%	5.63%	11.47%	8.06%

et al., 2015; Singer et al., 2019; Sommer et al., 2010). As Bauman et al. (2014) pointed out, various unrealistic moral dilemmas are based on unusual and even absurd situations. These artificial contexts might not activate the same moral decision-making processes that individuals normally use to judge dilemmatic situations and make moral decisions in real life. Therefore, they lack external and ecological validity (Bauman et al., 2014; FeldmanHall et al., 2012) because the actions presented in these dilemmas do not reflect reality, nor can they be generalised to a larger population (Sommer et al., 2010). This is why an increasing number of recent studies (e.g. Rosen et al., 2015; Singer et al., 2019; Starcke et al., 2011) have employed everyday moral dilemmas, that is, hypothetical dilemmas based on everyday occurrences. In realistic moral dilemmas, responders are asked to choose between fulfilling a moral standard (deontological choice) or behaving egoistically (selfish choice) (Caldwell-Harris & Ayçiçeği-Dinn, 2021; Singer et al., 2017, 2019; Starcke et al., 2011), but the selfish choice does not involve causing bodily harm to others, as often occurs in unrealistic moral dilemmas (Sommer et al., 2010). For example, in a realistic scenario, responders may need to choose between leaving their partner who is suicidal and who made them feel uncomfortable (a selfish choice) or staying with them (a deontological choice) (Starcke et al., 2011). Thus, realistic moral dilemmas appear to increase participants' engagement, as they are based on situations associated with one's personal background, experiences and views (Knutson et al., 2010; Körner & Deutsch, 2022).

In light of the above, we recruited a new sample of Spanish-English bilinguals for Study 2, asked them to make a moral decision and to retrospectively report the emotions they felt during or after reading two moral dilemmas based on real-life situations. As in Study 1, we hypothesised that the MFLe would emerge in emotionally charged moral dilemmas involving more realistic situations (Geipel et al., 2015b).

Table 5. Mediation analyses for the effect of emotion on the link between language and moral judgements (Study 1).

		Estimate	SE	*z*-value	*P*(>|*z*|)
Entire sample	Indirect effect	0.016	0.033	0.473	.636
	Total effect	0.464	0.117	3.973	<.001
Spanish group	Indirect effect	0.159	0.097	1.642	.101
	Total effect	0.767	0.158	4.844	<.001
Greek-Cypriot group	Indirect effect	−0.011	0.038	−0.275	.783
	Total effect	0.070	0.178	0.390	.697

Participants

One hundred and sixty Spanish L1 speakers from various Spanish-speaking countries (Argentina, Cuba, Colombia, Dominican Republic, Ecuador, Mexico, Peru, Spain, and Venezuela) participated in Study 2. All the participants were recruited via social media platforms, and all reported having an intermediate or advanced level of English L2 as assessed using a 7-point Likert scale (1 = very poor, 7 = native-like). The participants' demographic and language data are summarised in Table 6.

Materials

In Study 2, we used two highly emotional moral dilemmas that are likely to occur in real life (realistic

Table 6. Participants' demographic and language data in Study 2.

	Spanish L1	English L2
Sample size	80	80
Females	21	18
Mean age	33.98 (8.29)	33.3 (7.69)
Self-perceived L2 reading ability	5.43 (1.18)	5.88 (0.81)
Self-perceived L2 writing ability	4.87 (1.25)	5.17 (1.06)
Self-perceived L2 speaking ability	4.70 (1.44)	5.31 (1.07)
Self-perceived L2 listening ability	5.22 (1.33)	5.78 (1.00)
Self-perceived overall L2 proficiency	5.11 (1.17)	5.56 (0.83)

Note: Standard deviations are indicated in brackets.

dilemmas), namely, the *cheater's dilemma* adapted from Starcke et al. (2011), and the *A friend's choice dilemma* adapted from Jenkins (2003). In the first dilemma, one must decide whether to tell their partner they cheated on them. In the second dilemma, one must decide whether to go to the police and report that their best friend committed a crime in order to help an innocent person who has been accused of this crime (see Appendix 2). Similar to Study 1, both dilemmas were translated into Spanish by two native speakers of Spanish who had an advanced proficiency level in English (C2 level), and back translations were conducted by two bilingual speakers (Spanish-English) to ensure the accuracy of the translation process.

Procedure

The procedure was identical to that of Study 1. The inter-rater reliability for the emotion analysis was also high (Cohen's $\kappa_{\text{Cheater's}} = .94$; Cohen's $\kappa_{\text{A friend's choice}} = .91$)

Results and discussion

Moral judgements

In the *cheater's dilemma*, 52.5% of the participants decided to tell their partner that they had cheated on them in the L1 condition, while 47.5% opted for the same choice in the L2 condition. In the *A friend's choice dilemma*, 93.75% of the participants reported that they would be willing to go to the police and report what they knew about the crime in the L1 condition, whilst only 62.5% indicated the same in the L2 condition.

The participants' moral judgements were analysed as a function of language condition (L1 versus L2) and dilemma (the *cheater's dilemma* versus the *A friends's choice dilemma*). The results revealed a main effect of the dilemma, as well as an interaction effect of language condition and dilemma, which were statistically significant (Table 7). These results indicate that, in the *A friend's choice dilemma*, the participants were more willing to go to the police and report what they knew about the crime when the dilemma was presented in their L1.

Emotions (yes/no)

In the *cheater's dilemma*, 75% of the participants indicated that they experienced an emotion in their L1 and 61.25% reported the same in their L2. In the *A friend's choice dilemma*, the participants appeared to have slightly fewer emotional reactions regardless of the language of the dilemma: 58.75% of them reported having felt an emotion in their L1 and 43.75% reported the same in their L2.

Mixed-effects logistic regression models revealed a main effect of moral judgement, condition, and dilemma, in addition to an interaction effect of moral judgement and condition (Table 8). Specifically, the participants who opted for the deontological option reported having felt emotion(s) more often than did those who opted for the selfish option in the L1 condition, whereas the participants who chose the selfish option reported having felt emotion(s) more often in the L2 condition. In addition, the participants reported having felt one or more emotions more often in the *cheater's dilemma* than they did in the *A friend's choice dilemma*.

Self-reported emotions

The predominant emotions reported by the participants in their L1 (Spanish) and L2 (English) are summarised in Table 9 (see also Appendix 1). The results revealed that, in the *cheater's dilemma*, the participants reported having felt *fear* ($B = -0.672$, $SE = 0.312$, $z = -2.150$, $p = .032$), *sadness* ($B = -0.858$, $SE = 0.370$, $z = -2.318$, $p = .020$), and *guilt* ($B = -0.825$, $SE = 0.343$, $z = -2.406$, $p = .016$) more often than they did in the *A friend's choice dilemma*. However, no main effects of language condition (L1 versus L2) and moral judgements (yes/no) on these self-reported emotions were found.

Mediation analysis

We run a mediation model with language as the independent variable, moral judgements (yes/no responses) as the dependent variable and emotions (yes/no responses) as the mediator variable using the *lavaan* package (v.0.6.15; Rosseel, 2012). According to the results, the indirect effect did not reach statistical significance ($B = -0.203$, $SE = 0.108$, $z = -1.886$, $p = .059$).

General discussion

The current studies investigated the MFLe and the specific emotions experienced by bilingual speakers during or after responding to unrealistic and realistic moral dilemmas. To this end, we analysed three different languages: English, Greek and Spanish. In Study 1, Spanish-English and Greek Cypriot-English bilinguals were presented with two unrealistic dilemmas – the *crying baby dilemma* and the *Sophie's choice*

Table 7. Glmer model for moral judgements (Yes/No responses) in Study 2.

Fixed effects	B	SE	*z*	Pr(>|*z*|)
(Intercept)	0.109	0.243	0.448	.654
Condition (L2)	−0.273	0.345	−0.792	.428
Dilemma (A friend's choice)	2.744	0.542	5.064	4.1e-07***
Condition*Dilemma	−2.023	0.625	−3.237	.001**
Random effects	Variance	SD		
Participant (Intercept)	0.351	0.592		
R^2 (cond.)	.350			
R^2 (marg.)	.281			

Note: Model fit: Moral judgements ~ Condition + Dilemma + Condition*Dilemma + (1|Participant).
**$p < .01$, ***$p < .001$. AIC = 373.4.

dilemma – in their L1 or L2. In Study 2, Spanish-English bilinguals were presented with two highly emotional moral dilemmas that are likely to occur in real life (realistic dilemmas) – the *cheater's dilemma* and the *A friend's choice dilemma* – in their L1 or L2. In Study 1, we hypothesised that the MFLe would emerge among the Spanish-English bilinguals (Costa, Foucart, Hayakawa, et al., 2014; Hayakawa et al., 2017) due to the reduced emotionality in their L2 but would be absent or decreased in the case of Greek Cypriot-English bilinguals due to the influential role of English in Cyprus (Bongartz & Buschfeld, 2011; Buschfeld, 2013; Yazgin, 2007). We also predicted that Spanish-English bilinguals would experience more emotions in their L1 than they would in their L2, whereas Greek Cypriot-English bilinguals would report similar emotions in similar proportions in their L1 and L2. In Study 2, our hypothesis was that the MFLe would extend to realistic moral dilemmas (Geipel et al., 2015b).

As expected, evidence for the MFLe in the Greek Cypriot group was not found. The absence of the MFLe in this group indicates that the effect of language on bilinguals' moral judgements may be decreased substantially when the L2 has a strong presence in the bilinguals' L1 society (see Dylman & Champoux-Larsson, 2020, for similar evidence in a different language context). Positive attitudes towards the English language and culture on the part of the Greek Cypriot population in Cyprus (Yazgin, 2007) might also have played a role, as previous evidence suggests that positive attitudes towards the L2 are linked to more deontological choices in highly emotional moral dilemmas (Wong & Ng, 2018).

In addition, our results revealed that emotions following Greek Cypriot-English bilinguals' moral judgements patterned similarly in both language conditions, which might have been due to the influence of English words on daily vocabulary used in Cyprus (Arvaniti, 2006–2010). Many English loanwords are incorporated into Greek Cypriots' daily speech and writing; of note, some of these loanwords describe feelings and emotions (such as *shock* and *relax*) and usually replace existing native words (Varela, 2006). Similar evidence was encountered in our study. For example, one participant used the emotional word *shock* to express her emotions in the *crying baby dilemma* instead of the Greek words *ταραχή* or *συγκλονισμός*, while a different participant used the English word *stress* as a substitute for the Greek word *άγχος*.

By contrast, in the Spanish L1 group the MFLe emerged in both unrealistic moral dilemmas used in Study 1. In other words, Spanish-English bilinguals showed a clear preference for the utilitarian option in their L2, as opposed to in their L1, both in the *crying baby* and in the *Sophie's choice* dilemmas. This finding supports the view that *footbridge*-type moral dilemmas can elicit different moral decisions depending on the language used (e.g. Cipolletti et al., 2016; Costa, Foucart, Hayakawa, et al., 2014) as long as the L2 is not culturally influential in the bilinguals' L1 society. Study 2 further revealed that language had an effect on moral judgements in the *A friend's choice dilemma* but not in the *cheater's dilemma*. With regard to the *cheater's dilemma*, Study 2 replicated previous findings based on the same realistic moral dilemma but involving a different language group, namely, English-Spanish bilinguals (Kyriakou & Mavrou, 2023). As Kyriakou and Mavrou (2023) argued, the lack of the MFLe in the *cheater's dilemma* could be attributed to the dilemma itself, since both the deontological and the selfish choices in this dilemma are considered to be emotionally charged (i.e. hiding your infidelity from your partner could be a burden on your mind, but if you tell them the truth, they may leave you). This

Table 8. Glmer model for emotions (Yes/No responses) in Study 2.

Fixed effects	B	SE	*z*	Pr(>|*z*|)
(Intercept)	−2.509	0.599	−4.183	2.88e-05***
Moral Judgements (Yes)	4.246	0.673	6.313	2.74e-10***
Condition (L2)	1.504	0.672	2.240	.025*
Dilemma (A friend's choice)	−1.026	0.307	−3.340	.0008***
Moral judgements*Condition	−1.966	0.745	−2.639	.008**
Random effects	Variance	SD		
Participant (Intercept)	3.805e-14	1.951e-07		
R^2 (marg.)	.398			

Note: Model fit: Emotions ~ Moral judgements + Condition + Dilemma + Moral judgements*Condition + (1|Participant).
*$p < .05$, **$p < .01$, ***$p < .001$. AIC = 343.

interpretation is also supported by the fact that the Spanish-English bilinguals reported having felt similar negative emotions during or after reading the *cheater's dilemma* regardless of their moral judgements and the language condition.

However, an interaction between language and moral dilemma was observed in the *A friend's choice dilemma*; that is, the Spanish-English bilinguals were more willing to let an innocent person go to prison when the dilemma was presented in their L2. This finding is particularly relevant because it provides further evidence in favour of the assumption that language plays a role in decisions about realistic moral dilemmas that do not involve sacrificial situations (for example, the *lost wallet dilemma*; see Geipel et al., 2015b).

Furthermore, mediation analysis in both Study 1 and Study 2 revealed that the effect of language on moral judgements was not mediated by emotion. In fact, bilinguals reported various negative emotions, such as *fear*, *sadness*, *anger* and *guilt*, in both unrealistic and realistic moral dilemmas, and these emotions were almost identical in both language conditions. However, it is worth noting that the Spanish-English bilinguals in Study 2 experienced more *fear*, *sadness* and *guilt* in *the cheater's dilemma* than they did in t*he A friend's choice dilemma* regardless of the language condition. In the *cheater's dilemma*, our participants may have put themselves in the protagonist's shoes, whereas they were observers of an immoral action committed by a third person in the *A friend's choice dilemma*. According to previous research, the participants' perspective taking appears to have an influence on their moral judgements (Royzman & Baron, 2002), and the neural activity in emotion-processing brain areas may differ depending on the perspective an individual adopts when responding to a moral dilemma (e.g. Christensen & Gomila, 2012; Moll et al., 2008). For example, responders adopting the protagonist's perspective are more likely to experience *guilt* and *fear* (two predominant emotions in the *cheater's dilemma*, as our Study 2 suggests) than when they judge others' im (moral) actions (Finger et al., 2006; Moll et al., 2008; Tangney et al., 2007).

Table 9. Predominant self-reported emotions by Spanish-English bilinguals in Study 2.

Emotions	*Cheater's dilemma*		*A friend's choice dilemma*	
	Spanish L1	English L2	Spanish L1	English L2
Fear ("miedo")	35%	16.25%	22.5%	8.75%
Guilt ("culpa")	32.5%	30%	15%	15%
Sadness ("tristeza")	22.5%	17.5%	12.5%	10%

The above results do not align with the reduced emotionality hypothesis but could be explained based on the psychological distance hypothesis. According to this hypothesis, psychological distance allows people to mentally detach themselves from other people, objects, events, or time (Trope & Liberman, 2003) and therefore, to take a broader perspective on a situation or evaluate it with an eye to long-term goals (Bar-Anan et al., 2006; Trope et al., 2007; Trope & Liberman, 2003). Several studies have suggested that psychological distance influences the levels of construal during moral decision making (Aguilar et al., 2013; Amit & Greene, 2012; Chang & Tuan Pham, 2013): a high construal level (i.e. to focus on long-term goals) leads people to adopt a more rational mindset, while a low construal level (i.e. to focus on means) is related to more intuitive (emotional) processes. Recent studies (Ivaz et al., 2016, 2019; Shin & Kim, 2017) have found that the self-bias effect (i.e. self-related stimuli are associated with faster and more accurate responses than stimuli related to other people) can be modulated depending on the language we use. As Shin and

Kim (2017) pointed out, the distancing mechanism when using an L2 could be responsible for separating people from themselves and making them emphasise on maximising the overall good when responding to moral dilemmas.

The presence of the MFLe among the Spanish-English bilinguals who participated in Study 1 and Study 2 could further be explained by the reduced activation of social norms in L2 (Gawinkowska et al., 2013). For example, in the *A friend's choice dilemma*, most of our bilingual participants were willing to lie to the police without worrying about the social consequences of their decision. According to Geipel et al. (2015b), people have various autobiographical memories related to the violation of socio-moral norms in their L1 because these norms are usually acquired in childhood via social interactions. These autobiographical memories make bilinguals more sensitive to these norms when they read about social and moral transgressions in their L1, and therefore more prone to breaking the law in their L2 (see also Białek et al., 2019). It is also worth mentioning that reduced sensitivity to moral and sociocultural norms in the L2 extends to other domains, such as superstition (Hadjichristidis et al., 2019).

Limitations and future directions

Several limitations of this study should be acknowledged and addressed in future work. Firstly, we used a small number of moral dilemmas. Future studies should employ a greater number of both unrealistic and realistic moral dilemmas to thoroughly examine whether and how language is involved in different types of dilemmas. Moral dilemmas based on real-life situations deserve further attention, as previous research has mainly focused on sacrificial moral situations (e.g. the *footbridge dilemma*). Secondly, the participants in the present study were not randomly assigned to the unrealistic and realistic scenarios, since independent studies were conducted for each type of moral dilemma. Future studies need to address potential interactions between the type of dilemma (unrealistic versus realistic) and language (L1 versus L2) using different language populations. Thirdly, the proportion of male and female participants across the samples (Spanish versus Greek Cypriot in Study 1) was slightly unbalanced because the participants were recruited via social media platforms. Specifically, the Spanish group had a relatively smaller proportion of women than did the Greek Cypriot group. Previous evidence suggests that men and women differ considerably in the way in which they respond to moral dilemmas (Arutyunova et al., 2016; Atari et al., 2020; Capraro & Sippel, 2017). For example, it has been argued that men are more oriented towards utilitarian solutions than are women (e.g. Bartels & Pizarro, 2011; Fumagalli et al., 2010; but see Friesdorf et al., 2015). In light of the above, we cannot rule out the possibility that our findings could be partly attributed to the asymmetric gender composition across the Spanish and the Greek Cypriot groups in Study 1. Therefore, future research on moral decision making should address this issue carefully by recruiting more balanced samples in terms of gender.

Another limitation concerns the participants' proficiency level in English, which was measured via a subjective self-reported scale. As L2 proficiency might alter bilinguals' moral judgements (see Stankovic et al., 2022), future studies should ideally employ standardised and validated measures to assess bilinguals' L2 proficiency. In addition, we used self-reported measures of emotions to investigate their role in bilinguals' moral judgements. Self-reported emotional labels expressed freely by the participants required them to be aware of their emotions and to express them retrospectively (i.e. after they had made their moral decision). Therefore, future work should examine the relationship between emotions and bilinguals' moral judgements using more precise and sensitive measurements, such as eye-tracking techniques, heart rate monitoring and facial electromyography (see Caldwell-Harris & Ayçiçeği-Dinn, 2021; Harris et al., 2003; Iacozza et al., 2017).

Conclusion

This study suggests that the MFLe may not be such a robust phenomenon. It may apply to highly emotional situations, either realistic or unrealistic ones, but cultural influences, such as the prominent role of the L2 in the bilinguals' society, appear to mitigate this effect. These findings have important implications for L2 instruction, as greater exposure to L2 culture through authentic materials, such as online videos, films, social media posts and podcasts, will eventually allow L2 learners to reflect upon dilemmatic situations and make moral judgements in the same way as they do in their L1. Additionally, our results revealed that emotions do not always mediate the link between language and moral judgements and, therefore,

further research is warranted to achieve an in-depth understanding of the wide range of factors that could moderate the magnitude of the MFLe.

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Appendices

Appendix 1: Categories for the emotional labels in Study 1 and Study 2

Spanish group (Study 1) Spanish L1 condition.

Emotions	Synonyms	*Crying baby dilemma* *f*	*Sophie's choice dilemma* *f*
Miedo	agobio, angustia, ansiedad, estrés, horror, preocupación, terror	48	34
Tristeza	depresión, dolor, pena, sufrimiento	28	18
Rabia	coraje, enfado, enojo, indignación, ira, nervios	11	11
Culpa	culpabilidad, remordimiento	7	14
Desprecio	aversión, repulsión, rechazo	4	3
Compasión	empatía	4	1
Hostilidad	crueldad, inhumanidad	2	–

Spanish group (Study 1) English L2 condition.

Emotions	Synonyms	*Crying baby dilemma f*	*Sophie's choice dilemma f*
Fear	affliction, anxiety, distress, horror, panic, shock, stress, suffocation, terror	35	20
Sadness	anguish, depression, despair, discomfort, grief, helplessness, pain, sorrow, suffer	34	16
Anger	annoyance, rage, frustration	10	10
Guilt	–	9	4
Disgust	revulsion, oppresion	3	4
Compassion	empathy	5	–
Contempt	hatred, cruelty	2	3

Greek Cypriot group (Study 1) Greek L1 condition.

Emotions	Synonyms	*Crying baby dilemma f*	*Sophie's choice dilemma f*
Φόβος	άγχος, αγωνία, αναστάτωση, ανησυχία, απελπισία, απόγνωση, δέος, νευρικότητα, πανικός, πίεση, σοκ, στρες, ταραχή, τρόμος, φρίκη	41	22
Λύπη	απογοήτευση, δυσφορία, θλίψη, οδύνη, πόνος, στεναχώρια	22	13
Θυμός	αγανάκτηση, οργή	12	19
Ενοχή	τύψεις	2	7
Αποστροφή	αηδία, ανατρίχιασμα, αποτροπιασμός	4	3
Συμπόνια	–	–	–
Απέχθεια	μίσος	–	1

Greek Cypriot group (Study 1) English L2 condition.

Emotions	Synonyms	*Crying baby dilemma f*	*Sophie's choice dilemma f*
Fear	agony, anxiety, panic, pressure, scary, shock, stress, terror, worried	39	21
Sadness	depression, despair, disappointment, grief, heartbreaking, pain, upset	26	14
Anger	annoyance, frustration	13	20
Guilt	–	10	5
Disgust	–	–	3
Compassion	empathy	1	–
Contempt	–	–	–

Spanish group (Study 2) Spanish L1 condition.

Emotions	Synonyms	*Cheater's dilemma f*	*A friend's choice dilemma f*
Miedo	agobio, angustia, ansiedad, nerviosismo, preocupación, terror	28	18
Tristeza	arrepentimiento, depresión, dolor, pena	18	10
Rabia	enfado	1	6
Culpa	culpabilidad, remordimiento	26	12
Desprecio	asco, disgusto, incomodidad	3	–
Compasión	empatía	3	9
Hostilidad	–	–	–

Spanish group (Study 2) English L2 condition.

Emotions	Synonyms	*Cheater's dilemma f*	*A friend's choice dilemma f*
Fear	anxiety, nervousness, scary, stress, uncomfortable, worried	13	7
Sadness	disappointment, pain	13	8
Anger	mad, rage	3	3
Guilt	culpability	24	12
Disgust	revulsion	2	–
Compassion	empathy, pity	3	6
Contempt	–	–	–

Appendix 2: Moral dilemmas in Study 2

The cheater's dilemma

You are married and in love with your partner. Your partner trusts you and you have no secrets from each other. You know that your partner is very emotional. During a business trip, you went out partying one night, got drunk, and had a one-night stand with an unknown person. When you return home, your partner asks you how the trip was and what kind of things you did.

Would you tell your partner that you cheated on him/her?

The A friend's choice dilemma

Your best friend tells you that he/she committed a crime. He/She explains that he/she is having trouble sleeping at night, he/she is afraid and feels you are the only one he/she can trust with his/her confession. A few days later, you read in the paper that someone else has been arrested for your friend's crime.

Discovering that an innocent person has been accused of the crime, you plead with your friend to give himself up. He refuses.

Would you go to the police and tell them what you know?