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1. Introduction

“To have another language is to possess a second soul.” Charlemagne († 814 A.D.)

Probably, speaking another language does not necessarily mean becoming another person. Still, it may change the way we think and act. The idea of a connection between language, thought and even behaviour has been popular in linguistics since the mid 20th century, when Benjamin Lee Whorf proposed his theory of linguistic relativity (Whorf, 1997), later known as the Sapir-Whorf hypothesis (Kay & Kempton, 1984). According to this radical theory, language not only influences, but determines how people view the world around them. That is, switching to another language does not change who we are but how we perceive reality. Whorf was primarily concerned with the way structural characteristics of different languages, like grammar and vocabulary, shape cognition. The distinction I am concerned with is related to this claim: the one between a native and a foreign language. Foreign languages often differ structurally from our native language(s). Consequently, foreign language use might alter our world views accordingly. Supposedly, most people use at least one foreign language in their everyday lives. But do we think and act differently in a foreign language than we would when using our native language?

1.1. The Foreign Language Effect

Research demonstrates that whether we use our native or a foreign language affects our choices in decision making. According to the foreign language effect (FLE; Keysar, Hayakawa, & An, 2012), people make less biased decisions when using a foreign language. One such bias is the framing effect, which states that the preference for one choice over another depends on the framing or formulation of the choice situation, although the outcomes are the same for both choices (Tversky & Kahneman, 1981). The framing effect is reduced, however, when the choice is formulated in a foreign language (Keysar et al., 2012).

Furthermore, people make more consistent choices when dealing with decisions with unknown probabilities if they make these choices in a foreign language (Costa, Foucart, Arnon, Aparici, & Apesteguia, 2014). Additionally, foreign language use changes the way people psychologically account or categorise economic outcomes (Costa, Foucart, Arnon, et al., 2014). Evidence comes from a discount problem by Tversky and Kahneman (1981). People imagined buying one expensive object (a jacket for 125 euros) along with a relatively cheap object (a calculator for 15 euros). They were told that they could get a discount of 5 euros in another shop. Depending on experimental condition, this discount was either on the expensive (5 on 125) or on the cheap (5 on 15) product. In both conditions, participants would save 5 euros out of 140 euros when travelling to the other shop. Usually, more people would take the trip if the discount is on the cheap object than when it is on the expensive object, although the monetary outcomes are the same. The reason is that they account the discount *locally* over the single product. Using a foreign language, however, people chose to travel for the discount on the expensive object more often than they did using their native language. That is, their decisions were more consistent across conditions. In that case, they rather accounted the discount *globally* over the overall price (Costa, Foucart, Arnon, et al., 2014). Taken together, these findings suggest that foreign language use to some extent promotes less biased and more rational decisions. It also seems to broaden peoples' perspective towards a given choice.

Another intriguing effect of foreign language use is its influence on moral judgement. In one study (Costa, Foucart, Hayakawa, et al., 2014) participants were faced with the “footbridge dilemma” (Thomson, 1985). They had to choose between killing one person in order to save five others or doing nothing, leaving the five people to die. When the problem was presented in a foreign language, more participants chose to kill a person which is considered the more utilitarian choice. There are similar other studies supporting the FLE in

moral choices (Cipolletti, McFarlane, & Weissglass, 2016; Corey et al., 2017; Geipel, Hadjichristidis, & Surian, 2015), suggesting that foreign language use increases people's willingness to sacrifice human lives for the greater good.

1.2. Construal Level Theory

Where does this foreign language effect come from? To date, there is no conclusive explanation, but there have been speculations about the underlying mechanism. One possible explanation proposed by prior research is that foreign language use increases psychological distance (Costa, Foucart, Hayakawa, et al., 2014; Costa, Foucart, Arnon, et al., 2014; Keysar et al., 2012).

Psychological distance is the perceived distance from the self to an object, a situation or a person. An object can be distant on multiple dimensions, including time (Liberman & Trope, 1998), space (Fujita, Henderson, Eng, Trope, & Liberman, 2006), the social dimension (Liviatan, Trope, & Liberman, 2008) and probability (Wakslak, Trope, Liberman, & Alony, 2006). That is, an event is psychologically distant if it belongs to the future or past, if it happens in a faraway place, if it happens to a dissimilar other person or if it is unlikely to happen.

Construal level theory (CLT; Trope & Liberman, 2010) claims that these different distance dimensions are part of a single construct for they are often intercorrelated. If people perceive an object to be distant on one dimension, they usually expect it to be distant on another dimension as well (Liberman & Trope, 2014). For example, when people imagine having a conversation with a person in the distant future, they tend to imagine the conversation to occur at a distant place and the person to be rather a stranger (Fiedler, Jung, Wänke, & Alexopoulos, 2012).

The level of construal is a degree of abstraction with which people think about objects, including situations or people (Liberman & Trope, 1998). According to CLT, people represent

psychologically distant objects in a more abstract way, focusing on their central features. In other words, people use a high level of construal. On the other hand, people represent psychologically near objects concretely in terms of their peripheral features. This type of representation is referred to as low level of construal. Conversely, a high level of construal evokes perceptions of psychological distance and a low level of construal evokes perceptions of psychological proximity (Trope & Liberman, 2010).

Put another way, a key feature of abstraction is to traverse psychological distance and the same holds true for language: we use language to refer to something that is distant in time or space, to verbalise what another person is or might be thinking or even to create alternative realities.

Taking it one step further, Language *is* abstraction. We can think of language as an abstract sign system relating to concrete concepts. Still, use of a foreign language could be associated with even stronger abstraction compared to use of a native language.

A native language is acquired during primary socialisation early in life. The learning process runs quite natural and undirected. However, we acquire a foreign language mostly in a structured classroom setting. The learning process is deliberate and conscious. Moreover, we tend to use different languages in different contexts. We usually use our native language(s) in familiar surroundings, talking to people we are close to, referring to personal events of our daily lives and communicating inner states and feelings. Supposedly, we use a foreign language mostly in foreign places, when travelling abroad for instance. Also, we might need it as a means of communication at work in talking to co-workers with whom we may be acquainted but not necessarily on intimate terms.

In terms of CLT, native languages are close to us, whereas foreign languages are distant. I propose that this difference of perceived or psychological distance changes the way we imagine and think about situations. By using a foreign language in a situation, we distance

ourselves from it. Consequently, we adopt a more global, abstract view of the situation, focusing primarily on its central features while omitting peripheral features and concrete details. Thence, the foreign language effect has been observed in the current research.

Psychological distance and the level of construal (low vs. high) have widespread effects on perception, thoughts, judgements and behaviour (e.g., Trope, Liberman, & Wakslak, 2007). Some of these effects are evocative of the ones found in studies on the FLE. Research findings suggest that manipulation of psychological distance and construal level leads to less biased decisions as well. For example, a high level of construal reduces temporal discounting, the tendency to prefer a small reward now to a comparably larger reward in the future (Malkoc, Zauberman, & Bettman, 2010; Rogers & Bazerman, 2008). Further, in purchase decisions under information overload, psychological distance helps people choose the optimal buying option (Fukukura, Ferguson, & Fujita, 2013).

1.3. Psychological distance and language

What can we say about the connection between language and psychological distance from an empirical standpoint? Two recent research papers tried to shed light on this connection (Geipel, Hadjichristidis, & Surian, 2016; Shin & Kim, 2017). In a set of studies (Geipel et al., 2016) participants judged the moral goodness of actions in either their native or a foreign language. In the first study, participants evaluated actions that led to positive outcomes but were motivated by dubious intentions. Participants using a foreign language rated the moral goodness of those actions significantly higher than participants using their native language. In the second study participants evaluated actions which led to negative outcomes but were motivated by good intentions. This time, participants using a foreign language rated the moral goodness of actions significantly lower than participants using their native language. The results indicate that foreign language use leads people to focus more on the outcomes of actions than the intentions behind them.

Psychological distance affects moral choices in a similar way as foreign language use. In one study (Aguilar, Brussino, & Fernández-Dols, 2013), participants primed with high psychological distance or construal level were more likely to defy their moral principles and made more consequentialist choices facing moral dilemma situations. That is, they were more willing to sacrifice one man in order to save the lives of many when the decision was described as distant in time. Moreover, participants were more willing to sacrifice their loved ones to achieve a higher goal after attending to an abstract compared to a concrete priming task. This finding probably stems from the fact that psychological distance and construal level shifts peoples' focus on the ends or consequences of actions rather than their concrete means (Liberman & Trope, 1998).

Further support for the connection between language and psychological distance comes from a study that used an experimental matching task (Shin & Kim, 2017). Participants did the task in either their native or a foreign language. They were presented with geometric shapes and labels. The labels were “me”, “friends” and “others”. The geometric forms were ellipses, rectangles and triangles. Each geometric form represented one of the labels, for example, ellipses represented the label “me” and triangles represented the label “friends”. There were matching trials in which a label appeared with its corresponding shape, for example participants saw the label “me” and an ellipse at the same time. Also, there were mismatching trials in which the label was presented with a non-corresponding shape, for example the label “me” was presented with a triangle (representing “friends”). For each trial, participants had to decide as fast as possible whether the label and the geometric shape matched or mismatched. Participants reacted faster to stimuli referring to themselves which is referred to as the self-bias effect (e.g. Kesebir & Oishi, 2010). However, this self-bias effect was diminished for people who did the task in a foreign language. In other words, people tend to think egocentrically but less so when using a foreign language.

Psychological distance also takes an egocentric reference point (Lieberman & Trope, 2014), that is me, here and now. By means of mental construal, we can traverse psychological distance, abstracting from ourselves in the here and now. The matching task experiment (Shin & Kim, 2017) demonstrated that foreign language use enables people to abstract from themselves in a similar way as psychological distance does.

1.4. Language as a dimension of psychological distance

We can assume a connection between foreign language use and the concept of psychological distance as they influence behaviour in similar ways. Past studies already suggested an increase of psychological distance as an explanation for the FLE (Costa, Foucart, Hayakawa, et al., 2014; Costa, Foucart, Arnon, et al., 2014; Keysar et al., 2012). Still, to my knowledge, there is no study exploring the effect of foreign language use on perceived psychological distance itself. When people think about a situation in a foreign language, will they imagine it as more distant than they would when using their native language? The present study addresses this question. Concretely, I investigated whether foreign language use leads to higher perceived psychological distance of imagined situations. If so, I would conclude that language is a dimension of psychological distance, thereby expanding CLT.

1.5. Gender differences of language and psychological distance

Additionally, this study explores whether there are gender differences regarding language and psychological distance. The literature on CLT does not report gender differences regarding psychological distance or construal level (e.g. Soderberg, Callahan, Kochersberger, Amit, & Ledgerwood, 2015). However, there exists a gender-linked language effect (Mulac, Incontro, & James, 1985; Mulac, 1998; Palomares, 2004). Men and women tend to use language in different ways, enabling classification of a communicator's gender based on their language use (Mulac, 1998). For example, men use directives (e.g. "Close the

window”) more often, whereas women use references to emotions (e.g. “I am happy”) more often. Therefore, I suspect gender to influence the relationship between language and psychological distance, although I have no concrete hypothesis as to the nature of that influence.

Moreover, there is a gender difference for perceptual abstraction (Scheuringer & Pletzer, 2016). That is, men and women seem to differ with regard to processing of visual stimuli. When looking at stimuli, people either focus on their overall gestalt, referred to as global processing. Alternatively, they focus on single elements or details, referred to as local processing.

Work in the field of CLT has demonstrated that visual processing mode is associated with psychological distance (Liberman & Förster, 2009). People adopt a more global processing mode when primed with high psychological distance and level of construal. Conversely, they adopt a more local processing mode when primed with low psychological distance and construal level. This makes sense, as from a distance we see the proverbial forest, whereas from up close, we rather see its individual trees.

In one study (Scheuringer & Pletzer, 2016), men reacted faster to global stimuli than women. This suggests a tendency for global processing in men and a tendency for local processing in women. Given the notion that visual processing is associated with psychological distance and construal level, I expect men to imagine situations as more distant than women, with regard to time, space, probability and social distance.

2. Method

Participants were told that the study was about the perception of situations of everyday life. They went through the procedure in either German (L1 condition) or English (L2 condition), including conversation and instructions as well as the experimental task. Experimental sessions were randomly assigned to one of the conditions. Participants judged

the perceived distance of imagined situations of everyday life. Tasks were adapted from Fiedler et al. (2012). Afterwards, they filled out a questionnaire about their demographic and, in the L2 condition only, language background.

To select the items for the judgements tasks, I conducted an online pretest (in German). Participants viewed and imagined ten situations of everyday life and rated their frequency, pleasure and arousal. The aim was to find situations that are relatable, but not experienced too often and emotionally neutral, as people tend to distance themselves from unpleasant situations (Fiedler et al., 2012). Five items that fulfilled these criteria were used in the main study.

2.1. Participants

102 Psychology students from the University of Vienna participated in exchange for course credit via the university's Laboratory Administration System (LABS). Five participants had to be excluded, because they did not fulfil the predetermined criteria for English as a foreign language, as well as one participant who used German in the writing phase of the experimental task in the English condition. The final sample consisted of 96 participants (56 females, mean age = 21.65, $SD = 2.70$). All participants were German native speakers who spoke English as a second language. On average, they started studying English at age 10.24. Fifty-one participants were in the German/L1 group and 45 in the English/L2 group.

2.2. Materials

2.2.1. Language (L1 and L2). For the language manipulation, participants completed the study in either German (L1 condition) or English (L2 condition). This procedure included conversation, instructions, consent form and the distance judgement tasks. Experimental sessions were randomly assigned to one of the two conditions (L1 or L2). Study materials

were provided in German or English, according to condition. Only the demographic questionnaire at the end of the study was in German for both groups.

English was defined as a person's L2 if they acquired it at age 4 or older, if it was not the native language of a parent and the person had not spent more than 10 months at a time in an English-speaking country (following Costa, Foucart, Arnon, et al. 2014). Participants in the English/L2 condition answered questions about their language background at the end of the study. German/L1 use was supposed to decrease psychological distance, whereas English/L2 use was supposed to increase psychological distance.

2.2.2. Distance judgement tasks. To assess perceptions of psychological distance, I used tasks inspired by Fiedler et al. (2012). Participants completed a questionnaire on a PC containing five judgement tasks. Each task consisted of two phases. In the first phase, participants were asked to imagine themselves in a given social situation and write for two minutes about what kind of situation they were thinking of. The situations were “to participate in a family gathering”, “to visit a concert with someone”, “to do sports together with someone”, “to visit a birthday party” and “to go to the theatre with someone”. In the second phase, participants judged the perceived distance of the imagined situations, on the dimensions of time, space, probability and social distance. They were asked, when and where the imagined situation takes place, who the other person/people involved is/are and how likely the situation is to occur. They gave their answers on numerical scales ranging from 1 – 6. The scale's left and right poles, respectively, were labelled “Rather in the near future” – “Rather in the distant future”, “Rather at a distant place” – “Rather at a near place”, “Rather (an) acquaintance(s)” – “Rather (a) stranger(s)” and “Rather likely” – “Rather unlikely”. Low scores indicated low psychological distance and high scores indicated high psychological distance, except for the spatial distance dimension where the numerical scale was reversed.

2.3 Procedure

Data collection took place from the 9th of May 2018 to the 17th of May 2018 in the department of Social Psychology of the University of Vienna. Experimental sessions were randomly assigned to the English (L2) or German (L1) condition. Participants were seated at a desk in front of a computer screen on which the questionnaire was prepared in the respective language. After giving their consent to participate they worked on the questionnaire at their own pace. First, they attended to the five judgement tasks in random order, each consisting of an imagery phase and a rating phase.

2.3.1. Imagery phase. First, participants imagined themselves in the given situation. They were asked to briefly write about what kind of situation they were thinking of. The instruction did not specify in what language the writing should be. Nevertheless, participants in the German (L1) condition wrote in German and participants in the English (L2) condition wrote in English, except for one participant, who was therefore excluded from the analyses. They could take as much time as they needed, but they had to wait at least two minutes before they could continue with the task to encourage participants to engage in thinking and writing about each situation.

2.3.2. Rating phase. After the Imagery phase, participants rated the distance of the imagined situation on the dimensions of temporal, spatial, social and hypothetical distance.

2.3.3. Language background. After the judgement tasks, participants in the English (L2) group answered questions about their language background (Costa, Foucart, Hayakawa, et al., 2014). They were asked at what age they started studying English, whether they had an English-speaking parent and whether they had ever spent more than 10 months at a time in an English-speaking country. Participants who had started studying English at age younger than 4, reported an English speaking parent or continuous stay of more than 10 months in an

English speaking country, were excluded from the analyses, because English could not be considered a foreign language for them (Costa, Foucart, Hayakawa, et al., 2014).

Additionally, they rated their English language proficiency in written and oral comprehension/production on a scale ranging from 1 = least fluent to 5 = most fluent. Ratings were aggregated to create an overall English proficiency score (Cronbach's $\alpha = .85$).

Prior studies investigating the foreign language effect on moral judgements reported a connection between self-rated proficiency in the foreign language and the number of utilitarian choices. The lower participants' proficiency in the foreign language, the more often did they make utilitarian choices when faced with a moral dilemma (Costa, Foucart, Hayakawa, et al., 2014; Shin & Kim, 2017). Possibly, the lower the proficiency in a foreign language, the more the language increases psychological distance. On the other hand, high proficiency may represent a better knowledge of or familiarity with the language, thus decreasing psychological distance. Therefore, I expected a negative correlation between English language proficiency and distance judgements in the English (L2) group. On average, participants rated their English language proficiency very high ($M = 3.98$; $SD = 0.86$).

At the end of the study, participants of both conditions filled in a demographic questionnaire in German and were probed for suspicions concerning the purpose of the study. None of the participants guessed the research question or hypotheses. The session concluded with a written thanks and debriefing on the last page of the questionnaire. One session took approximately 20 minutes.

3. Results

3.1. Effects of gender, situation and distance dimension

The main hypothesis was that participants in the English (L2) group rate distances in the judgement task as larger compared to participants in the German group. Additionally, I expected men to rate distances higher compared to women in both languages.

According to reliability analyses, participants' ratings of the four distance dimensions for each situation were only moderately correlated (Cronbach's $\alpha < .70$). Also, correlations between distance ratings of the separate dimensions across situations were rather low (Cronbach's $\alpha < .60$). For this reason, I suspected distance judgements to vary within participants, depending on type of situation and distance dimension.

I conducted a 2 x 2 x 5 x 4 mixed ANOVA to test my main hypotheses and to detect possible effects of situation and distance dimension. Language (German, English) and gender (male, female) were the between subjects-factors and situation and distance dimension were the within subjects-factors. The power of the analysis, calculated with G*power (Faul, Erdfelder, Lang, & Buchner, 2007), was .80, given a moderate expected effect-size.

There was no significant effect of language, but there was a significant effect of gender, $F(1, 92) = 5.77, p = .018$, partial $\eta^2 = .06$. In line with the hypothesis, men ($M = 2.34, SD = 0.45$) judged distances overall higher than women ($M = 2.11, SD = 0.45$).

Furthermore, the analysis revealed a significant effect of situation, $F(4, 368) = 9.08, p < .001$, partial $\eta^2 = .09$. In the "Sports" situation, distance ratings ($M = 1.84, SD = 0.74$) were significantly lower compared to the situations "Concert" ($M = 2.39, SD = 0.86, p < .001$), "Theatre visit" ($M = 2.34, SD = 0.98, p < .001$) and "Family gathering" ($M = 2.30, SD = 0.82; p = .001$). They were also lower compared to the situation "Birthday party" ($M = 2.13, SD = 0.81; p = .085$), but not significantly.

The effect of distance dimension, determined with Greenhouse-Geisser correction, was also significant, $F(2.438, 224.313) = 83.92, p < .001$, partial $\eta^2 = .48$. Ratings of each distance dimension differed significantly from every other dimension ($p < .001$), except for temporal and spatial distance ($p = .156$) which did not differ significantly from each other. Across situations, participants rated social distance rather low ($M = 1.44, SD = 0.47$) and

spatial distance rather high ($M = 2.79$, $SD = 0.91$), with temporal ($M = 1.55$, $SD = 0.75$) and hypothetical ($M = 2.03$, $SD = 0.65$) distance in between.

Moreover, there was a significant interaction, determined with Greenhouse-Geisser correction, between situation and distance dimension, $F(9.200, 846.405) = 20.35$, $p < .001$, partial $\eta^2 = .18$. I conducted pairwise comparisons of means to analyse differences between all pairs of distance dimensions within each of the five situations and vice versa. The findings are summarised in Tables 7 and 8 (see Appendix 2, pp. 38).

Also, there was a significant interaction between situation and gender, $F(4, 368) = 4.01$, $p = .003$, partial $\eta^2 = .04$.

3.2. Effects of gender and language within situations and dimensions

The first analysis did not show an effect of language on distance ratings, but there was a significant gender difference. Also, distance ratings varied with situation and distance dimension. Moreover, there were significant interactions between situation and distance dimension as well as between situation and gender. For that reason, I analysed effects of language and gender on distance ratings separately for each situation across the four distance dimensions as well as for each distance dimension across the five situations.

I therefore conducted two 2 x 2 MANOVAs, with language (German/English) and gender (male/female) as fixed factors. The dependant variables (DVs) were participants' mean distance ratings. In the first analysis, I aggregated ratings for each situation across distance dimensions, yielding five DVs. In the second analysis, I aggregated ratings for each distance dimension across situations, yielding four DVs.

3.2.1. Distance of situations across dimensions. First, I examined whether mean distance ratings for the five different situations, across the four distance dimensions (time, space, probability, social distance) differed between the English and the German group as well as between men and women. Therefore, I aggregated distance ratings on the four

dimensions to create a mean distance score for each situation, “Family gathering” (Cronbach’s $\alpha = .52$), “Concert” (Cronbach’s $\alpha = .50$), “Sports” (Cronbach’s $\alpha = .47$), “Birthday party” (Cronbach’s $\alpha = .43$), and “Theatre visit” (Cronbach’s $\alpha = .60$). The moderate internal consistency of the distance ratings is inconsistent with prior research, which found high correlations between distance dimensions (Fiedler et al., 2012).

I conducted a 2 x 2 MANOVA with language and gender as fixed factors and mean distance ratings for the five situations as DVs. There were no multivariate outliers and linearity, absence of multicollinearity and equality of covariance matrices were met.

There was no significant effect of language on distance ratings (see Table 1), but there were significant gender differences in the situations “Family gathering”, “Concert” and “Theatre visit” (see Table 2). Also, there was a marginally significant interaction between language and gender for the situation “Family gathering”. For better understanding, I report the significant findings per situation in more detail.

Table 1

Mean distance ratings of situations for language groups

Situation	Mean distance German (<i>SD</i>)	Mean distance English (<i>SD</i>)	<i>F</i> (1, 92)	<i>p</i>
To participate in a family gathering	2.31 (0.85)	2.29 (0.79)	0.40	.530
To visit a concert with someone	2.39 (0.89)	2.40 (0.83)	< 0.01	.991
To do sports together with someone	1.75 (0.75)	1.96 (0.72)	2.00	.161
To visit a birthday party	2.08 (0.79)	2.18 (0.83)	0.40	.529
To go to the theatre with someone	2.41 (1.06)	2.27 (0.87)	1.34	.249

Table 2

Mean distance ratings of situations for men and women (significant p-values are marked with an asterisk)

Situation	Mean distance men (<i>SD</i>)	Mean distance women (<i>SD</i>)	<i>F</i> (1, 92)	<i>p</i>
To participate in a family gathering	2.51 (0.94)	2.16 (0.69)	4.51	.036*
To visit a concert with someone	2.61 (0.86)	2.24 (0.83)	4.43	.038*
To do sports together with someone	1.79 (0.72)	1.88 (0.76)	0.48	.490
To visit a birthday party	2.07 (0.70)	2.17 (0.88)	0.45	.505
To go to the theatre with someone	2.70 (1.12)	2.09 (0.78)	10.33	.002*

In the situation “Family gathering”, there was a significant main effect of gender on distance ratings $F(1, 92) = 4.52, p = .036$, partial $\eta^2 = .05$. Men rated distances in this situation significantly higher ($M = 2.51, SD = 0.94$) than women ($M = 2.16, SD = 0.67$). Also, there was a marginally significant interaction between language and gender, $F(1, 92) = 3.82, p = .054$, partial $\eta^2 = .04$. Follow up analyses revealed a significant gender difference in the German (L1) group only, $F(1, 92) = 8.59, p = .004$, partial $\eta^2 = .09$. In the German (L1) group, men’s distance ratings of the situation “Family gathering” were significantly higher ($M = 2.74, SD = 0.98$) than women’s ($M = 2.06, SD = 0.66$). However, in the English (L2) group, men’s ($M = 2.31, SD = 0.87$) and women’s ($M = 2.28, SD = 0.72$) distance ratings did not differ significantly. There was no significant difference between language groups within men and women. The interaction is depicted in Figure 1.

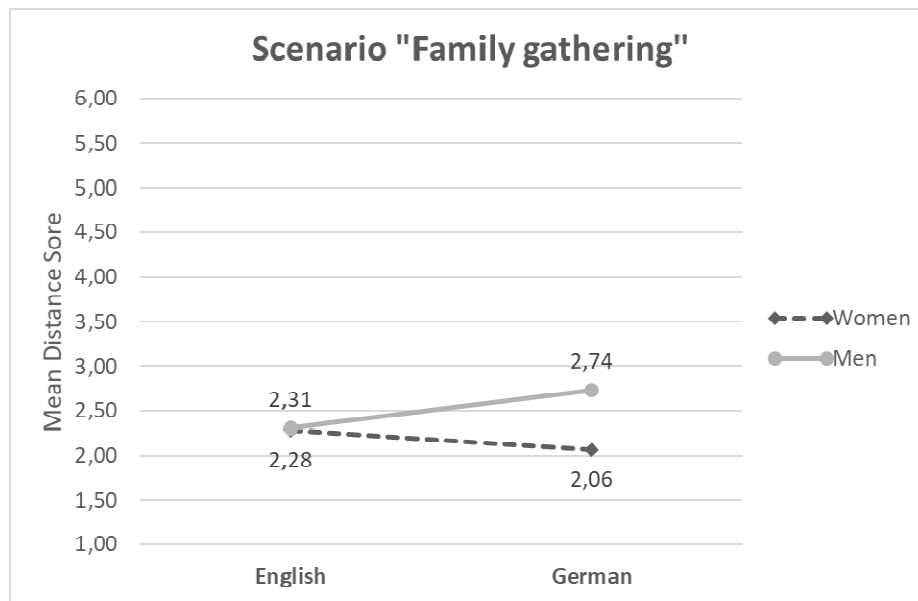


Figure 1. Mean distance ratings of the scenario "Family gathering" for men and women in the German and English group

In the situation "Concert" as well, men ($M = 2.61$, $SD = 0.86$) rated distances significantly higher than women ($M = 2.24$, $SD = 0.83$), $F(1, 92) = 4.43$, $p = .038$, partial $\eta^2 = .046$. There was no significant interaction between gender and language.

Also in the situation "Theatre visit", men ($M = 2.70$, $SD = 1.12$) rated distances significantly higher than women ($M = 2.09$, $SD = .78$), $F(1, 92) = 10.33$, $p = .002$ partial $\eta^2 = .10$. The interaction between gender and language was not significant.

3.2.2. Distance of dimensions across situations. Next, I examined whether mean distance ratings for the four different distance dimensions, across the five situations ("Family gathering", "Concert", "Sports", "Birthday party" and "Theatre visit") differed between the English and the German group as well as between men and women. This time, I aggregated distance ratings of the five situations to create a mean distance score for each distance dimension, temporal (Cronbach's $\alpha = .37$), spatial (Cronbach's $\alpha = .51$), hypothetical (Cronbach's $\alpha = .20$), and social distance (Cronbach's $\alpha = .33$).

I conducted a 2 x 2 MANOVA with language and gender as fixed factors, this time with mean distance ratings for the four dimensions as DVs. Linearity, absence of multicollinearity and equality of covariance matrices were met. One multivariate outlier, determined by Mahalanobis distance, was excluded from the analysis.

Language had no significant effect on distance ratings across situations (see Table 3). There was no significant interaction between language and gender.

Table 3

Mean distance ratings of dimensions for language groups

Distance Dimension	Mean distance German (<i>SD</i>)	Mean distance English (<i>SD</i>)	$F(1, 91)$	p
Temporal	2.55 (0.77)	2.60 (0.73)	0.06	.813
Spatial	2.79 (0.93)	2.72 (0.76)	0.37	.543
Hypothetical	2.06 (0.65)	2.02 (0.64)	0.63	.431
Social	1.35 (0.45)	1.55 (0.48)	2.88	.093

Between men and women, distance ratings differed significantly, but only in the hypothetical distance dimension, $F(1, 91) = 14.44$, $p < .001$, partial $\eta^2 = .14$ (see Table 4). Men rated the hypothetical distance of the different situations higher ($M = 2.32$, $SD = 0.65$) than women ($M = 1.84$, $SD = 0.57$). Note, that high distance scores indicate *low* probability estimations in this dimension, meaning that men judged the five situations as more unlikely to occur than women.

Table 4

Mean distance ratings of dimensions for men and women (significant p-values are marked with an asterisk)

Distance Dimension	Mean distance men (SD)	Mean distance women (SD)	$F(1, 91)$	p
Temporal	2.67 (0.71)	2.50 (0.75)	1.17	.282
Spatial	2.84 (0.74)	2.70 (0.93)	0.60	.439
Hypothetical	2.32 (0.65)	1.84 (0.57)	14.44	> .001*
Social	1.53 (0.52)	1.38 (0.43)	1.53	.219

3.3. Language proficiency

The second hypothesis was that distance ratings of participants in the English (L2) group negatively correlate with their self-rated English language proficiency. Therefore, I conducted Pearson correlations between the English group's overall English language proficiency scores and the aggregated distance ratings for the five situations across distance dimensions. None of the correlations was significant (see Table 5).

Table 5

Correlations between distance of situations and overall English proficiency

Situation	n	r	p
To participate in a family gathering	45	-.01	.951
To visit a concert with someone	45	-.08	.611
To do sports together with someone	45	.08	.616
To visit a birthday party	45	.19	.202
To go to the theatre with someone	45	.17	.265

Also, I conducted Pearson correlations between the English group's overall English language proficiency scores and aggregated distance ratings for the four dimensions across situations. Again, there was no significant correlation (see Table 6).

Table 6

Correlations between distance of dimensions and overall English proficiency

Distance Dimension	<i>n</i>	<i>r</i>	<i>p</i>
Temporal	45	.15	.335
Spatial	45	– .10	.528
Hypothetical	45	.21	.163
Social	45	.15	.317

4. Discussion

4.1. Language and psychological distance

This study investigated the question whether foreign language use increases psychological distance compared to native language use. Participants imagined and wrote about situations of everyday life in either German, their native language, or English, a foreign language. Afterwards, they rated the psychological distance of the imagined situations on the four dimensions time, space, probability and social distance. The situations were “to participate in a family gathering”, “to visit a concert with someone”, “to do sports together with someone”, “to visit a birthday party”, “to go to the theatre with someone”. Contrary to my hypothesis, distance ratings did not differ between the two language groups.

Prior research demonstrated that foreign language use to some extent influences people’s decisions (Costa, Foucart, Arnon, et al., 2014; Hayakawa, Costa, Foucart, & Keysar, 2016; Keysar et al., 2012). It also suggests that high proficiency in the foreign language attenuates this effect, leading people to act more in line with the way they would when using their native language (Costa, Foucart, Hayakawa, et al., 2014; Shin & Kim, 2017). To check whether proficiency in the foreign language influences perceptions of psychological distance, participants in the English group rated their English language proficiency on the dimensions of oral and written comprehension and production. I expected a negative correlation between the two: the higher participants’ English proficiency, the lower their ratings of psychological distance. There was no correlation between English proficiency and distance ratings. Overall, participants rated their English proficiency rather high ($M = 3.98$; $SD = 0.86$) with little variance. This is not surprising, as the sample consisted mainly of Psychology students, who all use English on a regular basis. The high English proficiency in the sample could account for the absence of a correlation with psychological distance. It could also account for the absence of an effect of foreign language use on perceived psychological distance.

Maybe English was just “not foreign enough” to the participants of this study, to increase psychological distance. Then again, English proficiency was assessed with self-ratings and therefore might not appropriately represent participants’ proficiency in the first place.

4.2. Gender and psychological distance

The second question of the study was, whether men and women imagine situations of everyday life differently regarding psychological distance. Congruent with my hypothesis, men rated distances higher than women. Prior research on psychological distance has not found any gender differences (e.g. Soderberg, Callahan, Kochersberger, Amit, & Ledgerwood, 2015) but in one study, men reacted faster to global shapes of visual stimuli compared to women (Scheuringer & Pletzer, 2016). Global processing mode is associated with high construal level and increased psychological distance (Liberian & Förster, 2009). If there really is a tendency for global processing in men, it makes sense, that they also tend to imagine situations as more psychologically distant.

However, distance ratings between men and women across dimensions differed only in the situations “Family gathering”, “Concert” and “Theatre visit”. Across situations, they differed only in the hypothetical distance dimension. Men judged all the five situations as less likely to occur than women, which suggests that they experience them less often. This could yield an alternative explanation for the finding. Possibly, men rated distances of the situations higher not because of a general tendency for psychological distance, but because they rarely experience those types of situations.

In the situation „Family gathering”, there was a marginally significant interaction between language and gender. In the German group, men indicated higher distance ratings for this situation than women. In the English group, however, distance ratings between women and men did not differ significantly.

Descriptively, their ratings converged, that is, women rated distances higher when using a foreign language, whereas men rated distances lower. Yet, distance ratings did not differ significantly between language conditions within men and women. Still, foreign language use diminished the gender difference in the situation “Family gathering”. This finding is especially interesting, because it suggests that foreign language use may indeed function as a distancing mechanism.

4.3. Limitations

A major limitation of the design is the choice of the stimuli. I tried to contrive situations of everyday life that are commonly but not too frequently experienced and emotionally neutral; but this surely is hard to achieve, if at all possible. Participants’ distance ratings were overall rather low, ($M < 3$). This could mean that they perceived the situations as frequently experienced and altogether proximal. It could also explain why there was no effect of language.

Also, there were discrepancies in the instruction for the judgement tasks. I asked participants to imagine a situation such as prompted by the stimuli, but I did not specify whether they should think of a situation that they had actually experienced or one that they might experience in the future. In fact, most participants understood the instructions according to the former and wrote about a concrete event or series of events from their personal experience. However, the questions about the distance of the situation referred to possible future situations. This was most explicit in the question regarding temporal distance, where the labels of the answer scales referred to the near or distant future. I received feedback from three participants that they explicitly thought about a situation from their past and afterwards were confused by being asked about the future.

I had rather wanted participants to imagine a prototypical, abstract situation which might occur at some point in the future, prompted by the stimulus. But I did not point this out

in the instruction. If participants wrote about specific events that they really experienced, this might also explain the low psychological distance ratings. According to Construal Level Theory (Trope & Liberman, 2010), people perceive a situation as more proximal, if they think about it in a concrete and detailed manner. On the other hand, they perceive it as more distant, if they think about it in a rather abstract manner.

An additional limitation is the homogeneous sample. As mentioned before, all participants were Psychology students, aged around 20 and overall highly proficient in English. Also, English proficiency was assessed via self-ratings which might not represent participants' actual knowledge of the language.

4.4. Suggestions for future research

The distance judgement tasks in this study focused mainly on the participants. They imagined and wrote about themselves experiencing concrete situations and rated the distance of these very situations themselves.

Future studies could let participants judge the distance of fictitious stories rather than of situations of their own everyday lives. Also, participants might be asked to think about the situation as happening to someone else rather than themselves. Probably, such a procedure would yield higher distance ratings, as participants think about made-up situations happening to other people. Still, it might also result in more variance, enabling to discover an effect of language on psychological distance. A possible procedure might be to let one group of participants contrive short scenarios in either their native or a foreign language and let another group of participants rate the distance of these scenarios.

The approach of this study was to assess the subjective distance of situations, when participants think and write about them in a foreign language. Future studies might use a different, more linguistic approach. Instead of letting participants rate the perceived distance of written scenarios, they might analyse the writings themselves. Psychological distance

changes the way people talk and write about situations (Bhatia & Walasek, 2016; Snefjella & Kuperman, 2015). People use more abstract language when talking about psychologically distant events and they use more concrete language when talking about psychologically near events.

A potential tool for the assessment of participants' language productions is the Linguistic Category Model (Semin & Fiedler, 1991). It is a framework for classifying verbs and adjectives regarding their concreteness or abstractness. Adjectives represent the most abstract category, as they refer to permanent, context-independent traits (e.g. honest, helpful). On the other hand, descriptive action verbs constitute the most concrete category, as they refer to a concrete behaviour, tied to a specific context and a particular person (e.g. meet, call).

So, future studies could use the Linguistic Category Model to analyse and compare the writings of people using their native or a foreign language. If foreign language use increases psychological distance, people might write about events using more abstract words in a foreign language than in their native language. But then as well, language proficiency might influence the results. In acquiring a first language, children learn to use concrete words first, whereas they use abstract words more frequently as proficiency increases (e.g. Tribushinina et al., 2014).

4.5. Conclusion

The aim of this research was to investigate whether foreign language use increases psychological distance and whether there is a gender difference of psychological distance. According to data analyses, distance ratings varied mainly with the type of situation and distance dimension that was evaluated. The data did not support the idea of language affecting psychological distance, but they supported gender differences of psychological distance. However, the absence of a significant language effect might be due to flaws in the research design. Gender differences might be due to men and women experiencing those types of

situations with different frequencies. Still, the interaction between language and gender in one situation (“Family gathering”) suggests that language somehow does influence perceptions of distance.

It is quite certain that foreign language use changes our thoughts and behaviours in some way, as demonstrated by previous research (e.g. Costa, Foucart, Hayakawa, et al., 2014; Costa, Foucart, Arnon, et al., 2014; Geipel et al., 2016; Keysar et al., 2012). We just do not know yet, how and why. Therefore, future research should further explore the mechanisms behind this effect, be it psychological distance, some partial aspect of it or a completely different phenomenon.

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Appendix 1: Abstract

This study explored the effect of foreign language use on psychological distance. Also, it explored gender differences of psychological distance. Participants imagined and wrote about situations of everyday life in either German, their native language, or English, a foreign language. Afterwards, they rated the perceived distance of each event regarding time, space, probability and social distance. Those are the dimensions of psychological distance as stated by Construal Level Theory. I hypothesised that foreign language use leads to higher ratings of psychological distance compared to native language use and that men rate distances higher than women. Language had no influence on distance ratings. However, men rated distances higher than women. Also, distance ratings differed between types of situation and distance dimensions. The results may be due to participants thinking about concrete situations from their past experience.

Diese Studie untersuchte den Effekt von Fremdsprachengebrauch auf die psychologische Distanz. Außerdem untersuchte sie Geschlechtsunterschiede bei psychologischer Distanz. Die TeilnehmerInnen stellten sich Alltagssituationen vor und schrieben einen kurzen Text darüber, entweder auf Deutsch, ihrer Erstsprache, oder Englisch, einer Fremdsprache. Anschließend beurteilten sie die wahrgenommene Distanz jeder Situation, hinsichtlich Zeit, Raum, Wahrscheinlichkeit und sozialer Distanz. Dies sind die Dimensionen psychologischer Distanz, welche die Construal Level Theory postuliert. Meine Hypothesen lauteten, dass Fremdsprachengebrauch zu höheren Distanzschätzungen führt als Erstsprachengebrauch und dass Männer Distanzen höher beurteilen als Frauen. Die Sprache hatte keinen Einfluss auf die Distanzschätzungen, jedoch beurteilten Männer Distanzen höher als Frauen. Außerdem unterschieden sich die Distanzschätzungen je nach Art der Situation und Distanzdimension. Die Ergebnisse könnten darauf zurückzuführen sein, dass die TeilnehmerInnen sich konkrete Situationen vorstellten, die sie in der Vergangenheit erlebt hatten.

Appendix 2: Supplementary materials

Table 7:

Pairwise comparisons between mean distance of dimensions within each situation (significant p-values are marked with an asterisk)

Situation	Family gathering			Concert		
Distance Dimension Pairs	Mean distance (SD)	T(95)	p	Mean distance (SD)	T(95)	p
1	Social- 1.19 (0.48)	3.608	< .001*	Social- 1.31 (0.72)	6.358	< .001*
	Hypothetical 1.56 (1.01)			Hypothetical 2.26 (1.38)		
2	Social- 1.19 (0.48)	14.429	< .001*	Social- 1.31 (0.72)	10.923	< .001*
	Spatial 3.82 (1.77)			Spatial 3.14 (1.63)		
3	Hypothetical- 1.56 (1.01)	11.910	< .001*	Hypothetical- 2.26 (1.38)	4.413	< .001*
	Spatial 3.82 (1.77)			Spatial 3.14 (1.63)		
4	Social- 1.19 (0.48)	9.707	< .001*	Social- 1.31 (0.72)	9.654	< .001*
	Temporal 2.65 (1.44)			Temporal 2.86 (1.51)		
5	Hypothetical- 1.56 (1.01)	8.046	< .001*	Hypothetical- 2.26 (1.38)	3.954	< .001*
	Temporal 2.65 (1.44)			Temporal 2.86 (1.51)		
6	Spatial- 3.82 (1.77)	- 5.975	< .001*	Spatial- 3.14 (1.63)	- 1.273	.206
	Temporal 2.65 (1.44)			Temporal 2.86 (1.51)		

Situation	Sports	Birthday Party		Theatre visit			
Distance Pairs	Dimension	Mean distance (SD)	T(95)	p	Mean distance (SD)	T(95)	p
1	Social-	1.38 (0.98)	3.32	.001*	1.93 (1.21)	-2.14	.035
	Hypothetical	1.94 (1.29)			1.61 (1.10)		
2	Social-	1.38 (0.98)	4.20	< .001*	1.93 (1.21)	3.61	< .001*
	Spatial	2.07 (1.39)			2.70 (1.62)		
3	Hypothetical-	1.94 (1.29)	.74	.460	1.61 (1.10)	6.00	< .001*
	Spatial	2.07 (1.39)			2.70 (1.62)		
4	Social-	1.38 (0.98)	4.27	< .001*	1.93 (1.21)	1.94	.055
	Temporal	1.99 (1.09)			2.27 (1.34)		
5	Hypothetical-	1.94 (1.29)	.46	.649	1.61 (1.10)	4.90	< .001*
	Temporal	1.99 (1.09)			2.27 (1.34)		
6	Spatial-	2.07 (1.39)	-.55	.587	2.70 (1.62)	-2.21	.029*
	Temporal	1.99 (1.09)			2.27 (1.34)		

Table 8:

Pairwise comparisons between mean distance of situations within each distance dimension
(significant p-values are marked with an asterisk)

Distance Dimension		Temporal		Spatial	
Situation Pairs		Mean distance (SD)	T(95) p	Mean distance (SD)	T(95) p
1	Family gathering-	2.56 (1.44)	- 1.08 .293	3.82 (1.77)	3.00 .003*
	Concert	2.86 (1.51)		3.14 (1.63)	
2	Family gathering-	2.56 (1.44)	3.49 .001*	3.82 (1.77)	7.81 < .001*
	Sports	1.99 (1.09)		2.07 (1.39)	
3	Family gathering-	2.56 (1.44)	1.90 .061	3.82 (1.77)	4.77 < .001*
	Birthday party	2.27 (1.34)		2.70 (1.62)	
4	Family gathering-	2.56 (1.44)	- 1.81 .073	3.82 (1.77)	7.30 < .001*
	Theatre	3.00 (1.57)		2.22 (1.39)	
5	Concert-	2.86 (1.51)	4.79 < .001*	3.14 (1.63)	5.66 < .001*
	Sports	1.99 (1.09)		2.07 (1.39)	
6	Concert-	2.86 (1.51)	3.23 .002*	3.14 (1.63)	1.98 .051
	Birthday party	2.27 (1.34)		2.70 (1.62)	
7	Concert-	2.86 (1.51)	- .67 .504	3.14 (1.63)	4.87 < .001*
	Theatre	3.00 (1.57)		2.22 (1.39)	
8	Sports-	1.99 (1.09)	- 1.64 .105	2.07 (1.39)	- 3.42 .001*
	Birthday party	2.27 (1.34)		2.70 (1.62)	
9	Sports-	1.99 (1.09)	- 5.72 < .001*	2.07 (1.39)	- .89 .375
	Theatre	3.00 (1.57)		2.22 (1.39)	
10	Birthday party-	2.27 (1.34)	- 3.56 .001*	2.70 (1.62)	2.45 .016*
	Theatre	3.00 (1.57)		2.22 (1.39)	

Distance Dimension		Hypothetical			Social		
Situation Pairs		Mean distance (SD)	T(95)	p	Mean distance (SD)	T(95)	p
1	Family gathering-	1.56 (1.01)	- 4.20	< .001*	3.82 (1.77)	- 1.44	.153
	Concert	2.26 (1.38)			3.14 (1.63)		
2	Family gathering-	1.56 (1.01)	- 2.22	.029*	3.82 (1.77)	- 1.70	.092
	Sports	1.94 (1.29)			2.07 (1.39)		
3	Family gathering-	1.56 (1.01)	- 0.34	.735	3.82 (1.77)	- 5.92	< .001*
	Birthday party	1.61 (1.10)			2.70 (1.62)		
4	Family gathering-	1.56 (1.01)	- 6.28	< .001*	3.82 (1.77)	- 1.84	.069
	Theatre	2.77 (1.76)			2.22 (1.39)		
5	Concert-	2.26 (1.38)	1.60	.114	3.14 (1.63)	- 0.54	.590
	Sports	1.94 (1.29)			2.07 (1.39)		
6	Concert-	2.26 (1.38)	3.44	.001*	3.14 (1.63)	- 4.27	< .001*
	Birthday party	1.61 (1.10)			2.70 (1.62)		
7	Concert-	2.26 (1.38)	- 2.62	.010*	3.14 (1.63)	- 0.60	.553
	Theatre	2.77 (1.76)			2.22 (1.39)		
8	Sports-	1.94 (1.29)	1.92	.058	2.07 (1.39)	- 3.43	.001*
	Birthday party	1.61 (1.10)			2.70 (1.62)		
9	Sports-	1.94 (1.29)	- 4.01	< .001*	2.07 (1.39)	- 0.08	.938
	Theatre	2.77 (1.76)			2.22 (1.39)		
10	Birthday party-	1.61 (1.10)	- 5.11	< .001*	2.70 (1.62)	4.31	< .001*
	Theatre	2.77 (1.76)			2.22 (1.39)		