

# Translation and validation of the Moral Foundations Vignettes (MFVs) for the Portuguese language in a Brazilian sample

Lucas Murrins Marques\*   Scott Clifford†   Vijeth Iyengar‡   Graziela Vieira Bonato\*  
Patrícia Moraes Cabral\*   Rafaela Barreto dos Santos\*   Roberto Cabeza§  
Walter Sinnott-Armstrong¶   Paulo Sérgio Boggio||

## Abstract

The Moral Foundations Vignettes (MFVs) – a recently developed set of brief scenarios depicting violations of various moral foundations – enables investigators to directly examine differences in moral judgments about different topics. In the present study, we adapt the MFV instrument for use in the Portuguese language. To this end, the following steps were performed: 1) Translation of the MFV instrument from English to Portuguese language in Brazil; 2) Synthesis of translated versions; 3) Evaluation of the synthesis by expert judges; 4) Evaluation of the MFV instrument by university students from Sao Paulo City; 5) Back translation; and lastly, 6) Validation study, which used a sample of 494 (385f) university students from Sao Paulo city and a set of 68 vignettes, subdivided into seven factors. Exploratory analyses show that the relationships between the moral foundations and political ideology are similar to those found in previous studies, but the severity of moral judgment on individualizing foundations tended to be significantly higher in the Sao Paulo sample, compared to a sample from the USA. Overall, the present study provides a Portuguese version of the MFV that performs similarly to the original English version, enabling a broader examination of how the moral foundations operate.

Keywords: moral foundations theory, moral judgment, vignettes, moral violations, measure, validity.

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LMM, SC, and PSB contributed equally. LMM, SC, RC, WS-A and PSB developed the study concept and design. Data collection was performed by LMM, GVB, PMC and RBS. LMM, and SC performed the data analysis. All authors contributed to data interpretation. All authors contributed to manuscript writing and approved the final version of the manuscript for submission.

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\*Social and Cognitive Neuroscience Laboratory and Developmental Disorders Program, Center for Health and Biological Sciences, Mackenzie Presbyterian University.

†Department of Political Science, University of Houston, Houston, USA. Current Affiliation: Aging Services Program Specialist, Administration for Community Living/Administration on Aging, U.S. Department of Health and Human Services, Washington, DC, USA.

‡Department of Psychology and Neuroscience, Duke University,

## 1 Introduction

According to the Social Intuitionist Model (Haidt, 2001), moral judgment is substantially influenced by “intuitions”, which are understood as automatic affective reactions to social stimuli. These intuitions are theorized to have evolved as a way of solving situations that could compromise the integrity of animal (Boehm & Boehm, 2009) or human social structures (Haidt, 2003). According to Moral Foundations Theory (MFT) these moral intuitions can be divided into six “foundations” (Haidt & Joseph, 2004):

1. *Care/harm* – acts causing emotional or physical violation to another human or an animal (for example, physical aggression);

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Durham, USA. Current Affiliation: Aging Services Program Specialist, Administration for Community Living/Administration on Aging, U.S. Department of Health and Human Services, Washington, DC, USA.

§Center for Cognitive Neuroscience, Duke University, Durham, USA.

¶Center for Cognitive Neuroscience, Duke University, Durham, USA. Department of Philosophy, Duke University, USA. Kenan Institute for Ethics, Duke University, USA. Duke Institute for Brain Sciences, Duke University, USA.

||Corresponding author: Social and Cognitive Neuroscience Laboratory and Developmental Disorders Program, Center for Health and Biological Sciences, Mackenzie Presbyterian University, Rua Piauí, 181, 10º andar, Sao Paulo, SP, 01241–001. Email: boggio@mackenzie.br or psboggio@gmail.com.

2. *Fairness/cheating* – acts involving cheating (for example, use of public money for personal purposes);
3. *Liberty/oppression* – acts restricting the freedom of others (such as forcing others to do what you want them to do).
4. *Authority/subversion* – acts involving disrespect and disregard for an authority figure (for example, loud conversations during a religious ceremony);
5. *Loyalty/betrayal* – acts of disloyalty towards an individual or group (for example, an employee also works for the competing company);
6. *Purity/degradation* — acts involving impurity (such as incest or cannibalism);

Research on moral foundations has primarily relied on the Moral Foundations Questionnaire (MFQ), characterized by two sets of questions that ask respondents to make abstract moral judgments and to report on the relevance of each foundation to their moral decision-making (Graham et al., 2011). This instrument has proved to be very useful for the evaluation of variations in moral judgment according to liberal vs. conservative self-identification (Graham, Haidt & Nosek, 2009), left vs. right self-identification (Graham, Nosek & Haidt, 2012), and sex differences (Graham et al., 2011). However, this instrument captures abstract moral concerns, rather than moral judgments about specific behaviors (Wagemans, Brandt & Zeelenberg, 2018). According to the Social Intuitionism Model, people may not have good introspective access to the causes of their moral judgments, and thus their reports about abstract moral concerns may not perfectly reflect how they actually form moral judgments. Additionally, instruments based on abstract values may suffer from ambiguity, leading different respondents to interpret the questions differently.

In response to these concerns, a variety of other instruments have been developed that either present moral and immoral sets of images (Crone, Bode, Murawski & Laham, 2018) or text (Chadwick, Bromgard, Bromgard & Trafimow, 2006; Clifford, Iyengar, Cabeza & Sinnott-Armstrong, 2015; Knutson et al., 2010; Lotto, Manfrinati & Sarlo, 2014) in an attempt to more directly measure moral judgment. To our knowledge, only the Moral Foundations Vignettes (Clifford et al., 2015) present concrete situations that evaluate all six foundations of morality, thereby spanning the entire MFT framework

### 1.1 Moral Foundations Vignettes (MFV)

The Moral Foundations Vignettes (MFV) contain features that make them an important tool for the study of moral judgments, particularly research involving moral foundations theory. The instrument consists of 90 short vignettes, each of which briefly describes an individual committing a specific

moral violation. The behavior in each vignette is designed to represent a violation of one of the six moral foundations: i) Care (27 vignettes); ii) Fairness (12 vignettes); iii) Liberty (11 vignettes); iv) Authority (14 vignettes); v) Loyalty (16 vignettes); and vi) Purity (10 vignettes). The MFVs differ from the MFQ in that (a) they describe concrete behavior rather than abstract values, (b) they suggest a uniform perspective by starting with “You see [this agent do this act]”, and (c) they are shorter and closer to each other in length and complexity.

As a result, the MFVs have several other strengths as a research tool. First, the compact and standardized format of the vignettes makes them amenable to a range of experimental methods such as electrophysiology or functional magnetic resonance imaging employed across the domains of behavioral psychology to cognitive neuroscience. Second, the large number of vignettes allows for more complicated designs, such as within-subjects experiments, and enables researchers to select subsets of the vignettes that are matched on other features, such as wrongness or arousal.

Validation efforts demonstrate that the MFV scores correspond with the MFQ scores in expected ways, but the measures capture overlapping, but distinct content. Since the development and validation of the MFVs, the vignettes have been used in a variety of studies, either as an alternative or as a complement to the MFQ. For example, Dehghani et al. (2016) used the MFVs to demonstrate that moral disagreement predicts greater social distance, particularly for the Purity foundation. Clifford (2017) used both the MFQ and the MFVs to show that the moral foundation of Loyalty predicts partisan strength. Wagemans, Brandt, and Zeelenberg (2018) demonstrated that disgust sensitivity predicts harsher moral judgments, especially for the Purity foundation. These studies demonstrate the effectiveness of MFVs as a research instrument.

Despite the many uses of the MFV, it has yet to undergo any translation and validation process. Such translations are needed in order to study diverse sociopolitical environments, such as that found in Brazil. Studies published by Brazilian groups examining moral judgment fall under two general categories: those in which data acquisition was performed outside Brazil (Hannikainen, Machery & Cushman, 2018; Hannikainen, Miller & Cushman, 2017) and therefore did not use Brazilian instruments, or those that used other forms of measurement, such as moral/immoral sentences (Moll, de Oliveira-Souza, Bramati & Grafman, 2002; Moll et al., 2005), emotional images (Moll, de Oliveira-Souza, Eslinger, et al., 2002), and moral dilemmas (Haidt, Koller & Dias, 1993). Furthermore, some Brazilian research groups have sought to validate instruments such as MFQ (Silvino et al., 2016) or to evaluate aspects of moral emotions such as guilt and shame (Lima et al., 2015). However, the lack of development or creation of instruments capable of evaluating the moral judgment of moral situations representative

of each moral foundation makes it difficult to thoroughly examine this topic in Brazil.

Thus, the aim of the present study was to translate the MFVs into Brazilian Portuguese and validate the new instrument in a university sample from Sao Paulo city. We adopted all recommended procedures for translation, adaptation, and validation process (Beaton, Bombardier, Guillemin & Ferraz, 2002) and nationally (Borsa, Damásio & Bandeira, 2012). This study did not try to validate this instrument for the Brazilian population, considering all its different cultures, dialects, and socioeconomic levels. The sample evaluated here was characterized by university students, with an average socioeconomic level and from the city of Sao Paulo.

## 2 Method

### 2.1 Phase 1: Translation & Adaptation

As described by Beaton et al. (2002) and Borsa et al. (2012), six main steps were carried out in the process of translation and validation of the MFV: 1) Translation of the instrument from English to Brazilian Portuguese; 2) Synthesis of translated versions; 3) Evaluation of the synthesis by expert judges; 4) Evaluation of the instrument by the target audience; 5) Back translation; and 6) Validation. The first five steps seek to certify that the translation process has occurred in the best possible way, respecting the original content and ensuring that the version created is understandable to the target audience. Step six aimed to evaluate in a Brazilian sample of university students from Sao Paulo city whether the instrument effectively captured variation in moral judgment across the six foundations. The following paragraphs present the full description of these different steps.

**Vignettes translation.** The first step was translating from English to Portuguese by three bilingual teachers without pay. Each translator independently translated all 90 final vignettes from the original study (Table 1 — all tables are included in this supplement), and then they all came together as a group to decide on the best version of each vignette translation.

**Synthesis of translation.** The synthesized version was sent to six experts in the areas of Cognitive Sciences, Neurosciences or Philosophy. These experts were asked to evaluate whether the vignettes fit the context of the city of Sao Paulo (for example with contextualized sports, hobbies, and expressions), whether they are clear and objective, and whether their original moral violation magnitude is still preserved. All six experts had access to the original English version and also the translated synthesized version. The authors met and made any necessary adjustments. Finally, for each of

the 90 vignettes, a single version was created in light of the comments and modifications provided by the six experts.

**Back-translation** The final version of the translation was sent to two other bilingual English teachers to carry out the reverse translation process from Brazilian Portuguese back to English. As recommended by Beaton et al. (2002) and (Borsa et al., 2012), no translator in either direction had any knowledge of the function of the instrument, and no back translator had access to the original English version. This ensured the discovery of inconsistencies or conceptual changes between the two versions.

**Expert's synthesis.** In order to ensure greater compatibility between the original and Brazilian versions, both in relation to the contents of the vignette and in the intensity of moral violation, the synthesized version of the reverse translation was sent to the instrument's original authors (Clifford, Iyengar, Cabeza & Sinnott-Armstrong, 2015) for a final review. From this translation and adaptation step, four review rounds were conducted between all original authors and Brazilian authors, ending in a version considered adequate by all authors. In this stage, the adjustments primarily consisted of changes to improve fit with the Brazilian context.

Several vignettes have been revised in order to preserve the meaning of the original vignette. In a few cases (e.g. vignettes #110, #205, #302, #401, #406, #603, #605, #609, #701, #705, #707, #708, #714, and #810 from Table 1), the back-translated version had resulted in different terms from the original, effectively changing the meaning of the vignette. For example, vignettes #501 and #503 vignettes, which in the original version read “*You see a man telling his fiancée that she has to switch to his political party.*” and “*You see a man telling his girlfriend that she must convert to his religion*”, and their back-translated versions were “*You see a man saying to his fiancée that she should change to his political party.*” and “*You see a man telling his girlfriend that she should convert to his religion.*” During the reviews with the original authors, it was evident that in both cases, the term “should” would decrease the violation intensity. Accordingly, the translations of both vignettes were readjusted to “*You see a man saying to his fiancée that she has to change to his political party*” and “*You see a man telling his girlfriend that she has to convert to his religion*” increasing the intensity of the violation.

Other vignettes were altered to make the violation more understandable in the Brazilian context. Some adjustments related to sports, as when vignette #116 was modified to refer to soccer instead of softball, which is less well-known in Brazil. These changes were checked by the original authors (Clifford et al., 2015) and sometimes corrected. For example, vignette #108, which originally read “*You see a girl saying that another girl is too ugly to be a varsity cheerleader*”, was initially adapted as “*You see a girl saying that another girl*

is too ugly to be a model” given the role of a cheerleader is not characteristic of the Brazilian context. However, the original authors interpreted that such a change would lessen the described violation, so the translation was modified to read “*You see a girl saying that another girl is too ugly to get into a party.*”

Finally, adjustments relating to sports were made, as in the example of vignette #116, where, “*You see a man laughing at a disabled co-worker while at an office softball game*” was adapted to “*You see a man laughing at a physically disabled colleague during an office soccer game.*”

## 2.2 Phase 2: Psychometric Validation

### 2.2.1 Participants

Data from 505 individuals from Sao Paulo city were collected, but 11 were excluded due to incorrect/incomplete data recording, leaving 494 used for the synthesized and translated version of the 90 vignettes. The participants had a mean age of 22.65 (SD ± 6.51) and 385 were women.

The predominance of women in the sample may influenced the results of the present validation, since several studies demonstrate that sex can modulate moral judgement (Armstrong, Friesdorf & Conway, 2018; Baez et al., 2017; Bucciarelli, 2015; Friesdorf, Conway & Gawronski, 2015; Ward & King, 2018). While our data do suggest that women tend to make harsher moral judgments, it seems unlikely that the sex imbalance affected the correlations between the items and other measures. Thus, given our focus on validating the measures, we take up the question of gender elsewhere (manuscript under preparation).

Given that past work has consistently found relationships between ideology and moral foundations, respondents were asked two questions about their identification. The first question focused on the social dimension of ideology and asked participants: “*Do you generally consider yourself liberal or conservative in a social perspective (marriage equality, abortion)?*”, where responses ranged on a 10 points Likert scale (1 = “*Extremely Liberal*”; and 10 = “*Extremely Conservative*”). The second question focused on political self-identification and asked participants: “*Nowadays, when we are talking about political tendencies, we refer to people who sympathize to a greater degree with a left-wing or right-wing political viewpoint. According to the political meaning that the terms ‘left-wing’ and ‘right-wing’ carry, how do you identify yourself within this scale?*”, where responses ranged on a 10-points Likert scale (1 = “*Extremely Left*”; and 10 = “*Extremely Right*”). While certainly not capturing the full breadth of social or political self-identification, these two common measures capture distinct but related ways in which respondents identify their ideologies.

### 2.2.2 Procedure

Data were collected through online forms (via Google® form), with a randomized presentation of the sequence of vignettes and moral foundations. In addition to the measures presented in the previous sections, such as age, sex, and social and political self-identification, respondents were asked to make two judgments about each vignette: were performed: i) participants were asked “*How morally wrong is the situation?*” (Portuguese: “*Quanto a situação é moralmente errada?*”) on a five-point Likert scale, ranging from “*not at all wrong*” to “*extremely wrong*” (Portuguese: 1 = “*nada errado*”; 5 = “*extremamente errado*”); and ii) participants were asked “*Why is the situation morally wrong?*” (Portuguese: “*Qual o motivo da situação ser moralmente errada?*”). Respondents could pick from seven response options, six of which represented the moral foundations, for example, the Care foundation was represented with the option: “*It violates the norms of harm or care (e.g., unkindness, causing pain to another).*” We also included a seventh option indicating that “*It is not morally wrong and does not apply to any of the provided choices.*” To prepare respondents for this task, each of the moral foundations was described in detail at the beginning of the study in the ways mentioned in the introduction of this paper.

## 3 Results

### 3.1 Phase 2: Psychometric Validation

#### 3.1.1 Vignettes classification

Table 2 displays the frequencies with which each vignette was classified as violating each moral foundation or as not morally wrong. All 90 vignettes remaining were submitted to the factor analysis described below.

#### 3.1.2 Exploratory factor analysis

We examined the factor structure of the judgments of wrongness with an exploratory factor analysis using maximum likelihood estimation and promax rotation. Following the approach of Clifford et al. (2015), we specified that the analysis retain seven factors – one for each of the moral foundations and two for the Care foundation (physical and emotional).<sup>1</sup> The rotated factor loadings are displayed in Table 3. Factor loadings greater than or equal to .4 are shown in bold. Factor loadings less than .3 are shown in gray font.

<sup>1</sup>Although the vignettes of Physical Care are divided between those with violations committed in relation to humans and others in relation to animals, we did not allow three Care factors because there were too few vignettes involving physical harm to humans to distinguish between three different facets of harm (physical harm to animals, physical harm to humans, and emotional harm to humans).



The first factor captures emotional harm with the majority of the emotional harm vignettes receiving a factor loading greater than .4. These results may indicate that regardless of the level of moral wrongness (as presented in the topic “*Original results & Validation results*”), all emotional harm vignettes from both cultures (USA and Brazil) are representative of the same foundation, which suggest that emotional harm situations are seen in the same way between cultures. These results may also demonstrate that the MFVs, expressing moral violation situations, instead of moral abstract concern (MFQ), allows that cultural variations of what each moral situation violates appear, which would not possibly occur only by analyzing the judgment of moral abstract concern. Thus, in addition to considering certain important moral foundations generally, the MFVs allow the comparison of specific aspects of each foundation. For example, #706 represents a violation of Loyalty to one’s team committed by the coach’s wife while #716 represents a violation of a country’s political loyalty. Future studies may investigate the specificity of emotional care situations, when representing cultural variations. Interestingly, the only cases where Care vignettes did not load onto this first factor were vignettes judged as violating the Liberty foundation. This finding could be interpreted in light of the fact that a majority of Care vignettes do represent instances of bullying, which can be classified either as a Care violation or as a Liberty violation, even though no vignettes present the word “bullying”, only situations that refer to experiences of bullying.

The second identified factor captures the Loyalty foundation, with 12 of the 16 relevant vignettes loading on this factor. No other vignettes load on this factor at .4 or greater. The Loyalty vignettes posed a unique challenge because, although most of the vignettes were correctly loaded on this factor, several were not judged as wrong by at least 50% of the participants. The original MFVs also found lower levels of wrongness on the Loyalty foundation, but some aspect of the Brazilian cultural context may be driving these judgments down further still (see Discussion). However, among those who view the behaviors in these vignettes as morally wrong, there is clear agreement that these actions represent a violation of the loyalty foundation, making them appropriate for inclusion in the recommended set of vignettes for future studies (Table 2, all vignettes in bold).

The third identified factor corresponds with Fairness and 7 of the 12 scenarios strongly load on this factor, while 4 more have marginal loadings (>.3). Again, there is no evidence of other foundations cross-loading onto this factor.

Seven of the 10 Purity vignettes load on the fourth identified factor. There is again no evidence of cross-loading.

The fifth identified factor captures the Authority foundation, with 10 of the 14 relevant vignettes loading on it.

Seven of the eight vignettes involving physical harm to animals load on the sixth factor. Unsurprisingly, two of the

emotional harm vignettes also load on this factor, suggesting these aspects of harm are closely related.

Finally, the seventh identified factor represents Liberty, but only six of the 11 vignettes clearly load on this factor. Similar to the original set of MFVs, this factor seems to be the least well-developed, however, no other vignettes cross-load onto this factor.

Taken together, the exploratory factor analysis suggests that the translated MFVs are performing largely as expected. Correlations between the factors show they are related (for the full correlation matrix see Appendix 1), but not redundant (average  $r = .38$ ). The largest correlations were between Fairness and Care-Emotional ( $r = .57$ ) and between Purity and Loyalty ( $r = .57$ ).

As a further test, we followed Clifford et al. (2015) in estimating a series of confirmatory factor analyses (Full model details are shown in Appendix 2). Consistent with their findings, an eight-factor model (allowing for three dimensions of Care) provides an adequate fit to the data ( $RMSEA = .05$ ) and a better fit than simpler alternative models (e.g., individualizing and binding foundations).

We opted for the division into seven factors, dividing Care between vignettes presenting physical and emotional violations ( $RMSEA = .05$ ), since the number of vignettes presenting physical violations to humans was limited. Thus, we believe that the seven-factor division provides an instrument with a reasonable number of vignettes per factor (with the minimum of seven vignettes on the foundations of Liberty and Purity).

From the 90 vignettes used in the factorial analysis, two (#807 and #809) were classified 50% of the time as the seventh option (“*It is not morally wrong and does not apply to any of the provided choices*”), nine vignettes (#301, #302, #407, #508, #511, #606, #613, and #806) did not represent any of the seven factors, nine vignettes (#101, #106, #107, #115, #116, #401, #412, #607, and #609) were classified in two different factors, and three vignettes (#505, #506, and #708) were classified in a different factor compared to the original study. Thus, we constructed a recommended set of vignettes for future studies by excluding these 22 vignettes. The results are a set of all 68 vignettes for all seven factors: Factor1/emotional Care = 11 vignettes; Factor2/Loyalty = 15 vignettes; Factor3/Fairness = 9 vignettes; Factor4/Purity = 7 vignettes; Factor5/Authority = 10 vignettes; Factor6/physical Care = 9 vignettes; and Factor7/Liberty = 7 vignettes (Table 3, all vignettes in bold). Following Clifford et al. (2015), the recommended set included only vignettes i) with a factor loadings higher than .3 on the predicted factor (considering the original study); and ii) that did not have cross-loadings. We choose to exclude vignettes which loaded higher than .3 on a different factor, instead of the predicted factor, since we consider that future studies which may investigate differences between USA and

Brazilian samples, will not be able to use these vignettes for the same factor between samples.

Lastly, although the vignettes #101, #106, #107, and #116 were not included in the later analyzes of the present study, nor in the recommended set of vignettes, they presented significant factor loading for both physical and emotional Care, being characterized by a group of four vignettes that significantly represent the Care foundation independently of the violation type. Thus, the studies that seek to investigate the moral judgements related to the Care foundation comparing physical with emotional violations should make use of these four vignettes (all these four vignettes had factor loading higher than .3 in both physical and emotional violations as shown in Table 3).

Based on these considerations, we created a set of scales by averaging the judgment ratings for recommended vignettes from each category. The Cronbach's reliability for each of the scales are as follows: emotional Care = .85; physical Care = .84; Fairness = .71; Liberty = .83; Authority = .86; Loyalty = .89; and Purity = .79 (Figure 1). We use these scale scores for all of the analyses conducted below.

## 3.2 Phase 3: Relationship with Ideology

### 3.2.1 MFV & liberal vs. conservative

Past work has found consistent relationships between the moral foundations and political self-identification. Graham et al. (2009) found that Care and Fairness were related to more liberal self-identification, while Authority, Loyalty, and Purity were related to more conservative self-identification. Clifford et al. (2015) found similar results using the MFVs.

We now conduct an exploratory analysis of whether these patterns hold in the Brazilian context, using the average wrongness rating of each vignette within a foundation that passed the validation tests described above. Social self-identification is related to Physical Care (Spearman's  $r = -0.17$ ;  $p < 0.001$ ), Liberty ( $r = -0.15$ ;  $p = 0.001$ ), Authority ( $r = 0.26$ ;  $p < 0.001$ ), Loyalty ( $r = 0.21$ ;  $p < 0.001$ ), and Purity ( $r = 0.21$ ;  $p < 0.001$ ), but not with Emotional Care ( $r = 0.00$ ;  $p = 0.935$ ) or Fairness ( $r = 0.07$ ;  $p = 0.117$ ), as represented by Figure 2. These patterns very closely replicate the findings by Clifford et al. (2015).

### 3.2.2 MFV and left vs. right political ideology

We performed the same procedure as with left vs. right ideology. As represented by Figure 2, the results revealed a similar pattern. Left vs. right self-identification (where higher values indicate a right-wing self-identification) is related to physical Care ( $r = -0.13$ ;  $p = 0.003$ ), Liberty ( $r = -0.14$ ;  $p = 0.002$ ), Authority ( $r = 0.24$ ;  $p < 0.001$ ), Loyalty ( $r = 0.21$ ;  $p < 0.001$ ), and Purity ( $r = 0.14$ ;  $p = 0.002$ ) MFVs factors, but is not related to emotional Care ( $r = -0.06$ ;  $p = 0.215$ ) and Fairness ( $r = 0.07$ ;  $p = 0.135$ ).

In general, then, all five foundations that significantly correlate with both social and political ideologies, namely physical Care, Liberty, Authority, Loyalty, and Purity, seem to follow the same standard ranging from extremely liberal to extremely conservative and from extremely left to extremely right (Figure 2). The similarity in how these kinds of ideology are related to moral foundations should not be surprising, because left vs. right political self-identification and liberal vs. conservative social self-identification are positively correlated ( $r = 0.49$ ;  $p < 0.001$ ).

## 3.3 Phase 4: Comparing original and validation results

Finally, to explore the possible cultural differences between the MFVs in the USA and Brazilian contexts, we reanalyzed the original results from the Clifford et al. (2015) study to compare to the present results. The Clifford et al. sample consists of 510 respondents recruited from a national online panel by Qualtrics. Respondents were limited to the age range of 18–40 and a quota was placed on ideology to recruit an equal number of liberals, conservatives, and moderates. The study contains moral judgment ratings for the full set of scenarios described above.

We performed seven one-way ANOVAs to test whether the mean moral foundation scores differ between countries (again measuring the foundations using the average wrongness rating of each vignette that passed the validation tests). In the US sample, we constructed the same moral judgment scales using scores from the same 68 vignettes recommended here. The results revealed a significant main effect of sample for emotional Care ( $F_{1,908} = 97.87$ ;  $p < 0.001$ ;  $\eta_p^2 = 0.10$ ), physical Care ( $F_{1,908} = 226.35$ ;  $p < 0.001$ ;  $\eta_p^2 = 0.20$ ), Fairness ( $F_{1,908} = 202.02$ ;  $p < 0.001$ ;  $\eta_p^2 = 0.18$ ), Liberty ( $F_{1,908} = 368.65$ ;  $p < 0.001$ ;  $\eta_p^2 = 0.29$ ), and Purity ( $F_{1,908} = 57.05$ ;  $p < 0.001$ ;  $\eta_p^2 = 0.06$ ), but not for Authority ( $F_{1,908} = 3.01$ ;  $p < 0.083$ ;  $\eta_p^2 = 0.00$ ) or Loyalty ( $F_{1,908} = 0.02$ ;  $p < 0.880$ ;  $\eta_p^2 = 0.00$ ). As a significant main effect was observed for emotional Care, physical Care, Fairness, Liberty, and Purity, Bonferroni *post hoc* test was performed which revealed significant differences ( $p < 0.001$ ) between Samples for emotional Care, physical Care, Fairness, Liberty, and Purity, but not for Authority and Loyalty ( $p = 1.000$ ). Interestingly for the foundations which differed between samples, only Purity presents lower levels for Brazilian validation (3.45; SE  $\pm 0.04$ ) compared to original study results (3.85; SE  $\pm 0.04$ ). Thus, the results showed that Care, Fairness, and Liberty are significantly judged as more wrong in the present validation compared to Clifford et al. (2015). Figure 3 shows these results.

Of course, we cannot be sure whether these findings are driven by differences in culture, stimuli, or sample com-

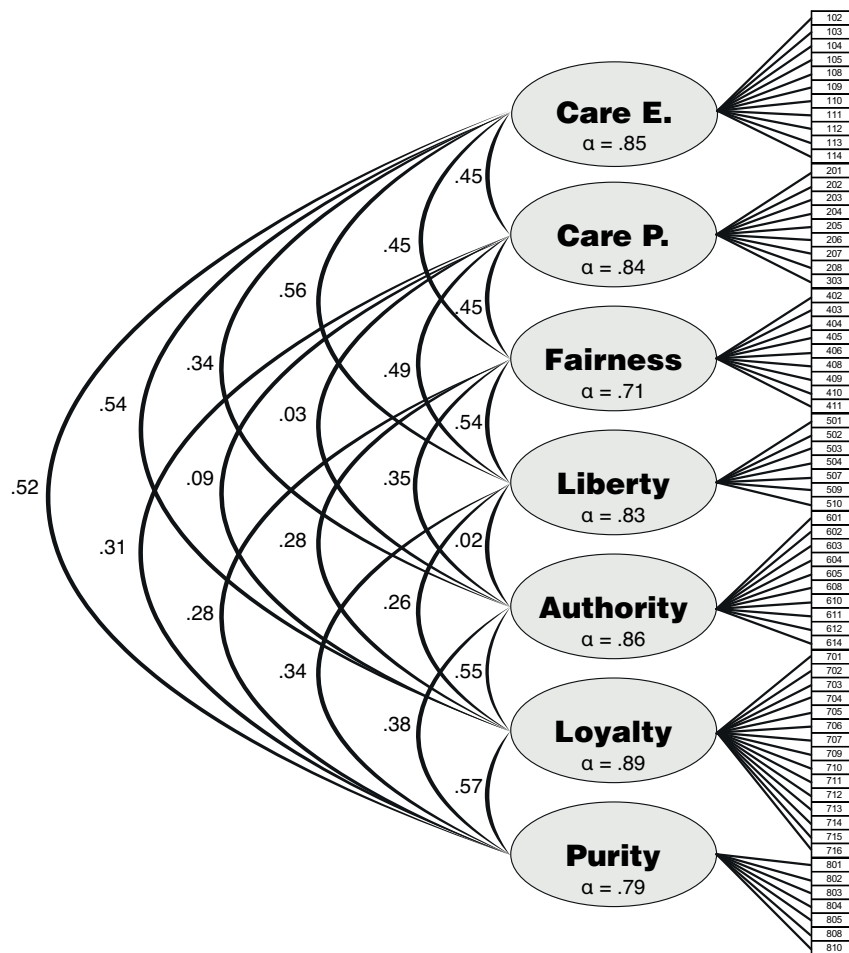


FIGURE 1: Representation of the factorial analysis considering the seven factors. Numbers represent the vignettes codes, Cronbach's alpha for each foundation and the correlation between foundations.

position.<sup>2</sup> One plausible explanation is that the Brazilian sample was more liberal and left-wing than the US sample, but we cannot be sure because we do not have comparable measures of political ideology. Anyway, these findings were merely illustrative, since we cannot assume that Brazil and USA scores are directly comparable, as clear differences in culture and vocabulary are present.

#### 4 Discussion

The present study translated the Moral Foundations Vignettes (Clifford et al., 2015) into the Portuguese language and then validated the translated scenarios in a Brazilian sample of university students from Sao Paulo city. As discussed in the introduction, this instrument is an important research tool and presents significant differences from other instruments, since it enables the participant to make judgments

<sup>2</sup>The differences are unlikely to be driven by gender, because the gender balance was quite similar in the two samples.

regarding different moral foundations with regard to everyday situations.

A factor analysis of the MFVs found a close relationship between the original scenarios and their translations. Clifford et al. (2015) found eight factors deriving from the classic six moral foundation (Haidt & Joseph, 2004), since Care foundation was divided by three considering physical violation to animals, and to humans considering physical and emotional violation of Care. Here, we found seven factors mainly representing all six moral foundations, splitting Care vignettes between physical and emotional violations. This result demonstrated that physical violations of Care toward humans and animals are judged as wrong in a similar perspective by the Brazilian sample. In any case, the fact that the factor related to the violation of human Care has kept most of the original vignettes related to this foundation, which supports the validity of this instrument in the assessment of moral judgment within the different moral foundations.

Some discrepancies arose between the original vignettes and our translation. Some of the vignettes, such as #809,

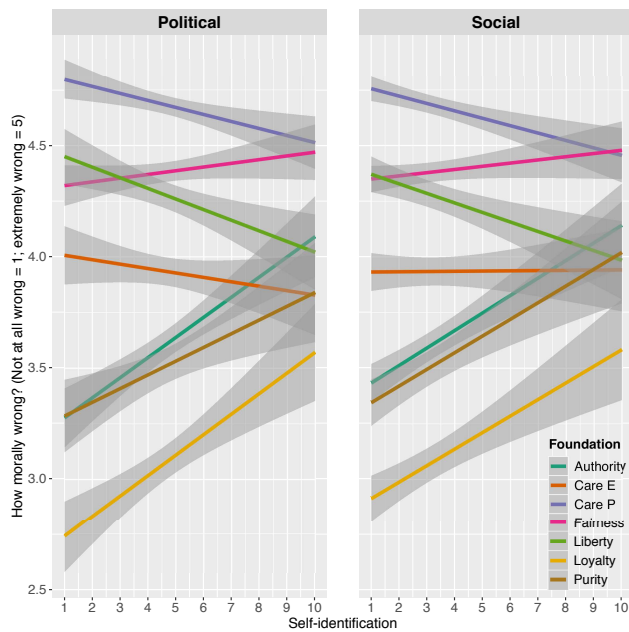


FIGURE 2: Representation of the wrongness judgement for each MFVs factors in respect to participants Political (1 = “extremely Left”; and 10 = “extremely Right”) and Social (1 = “extremely Liberal”; and 10 = “extremely Conservative”) self-identification, where values represent mean wrongness judgement and spreads represent confidence interval.

did not fit into any of the seven factors, a point that can be explained by the fact that a significant portion of participants who responded to these situations with “It is not morally wrong and does not apply to any of the provided choices” (Table 2).

In addition, our Brazilian participants judged physical and emotional Care, Fairness, and Liberty violations as significantly more wrong than the participants from the USA sample. On the other hand, the inverse pattern is observed for Purity violations. Possibly these findings reflect marked characteristics related to culture, social ideology, and also the political scenarios of each sample.

The four foundations that were judged as more wrong by the Brazilian participants are classified as *individualizing* foundations. Haidt (2008) classifies Care, Fairness, and Liberty foundations as *individualizing* foundations, since they focus on the individual as the locus of moral value. In contrast, Authority, Loyalty, and Purity focus on the group as the locus of moral value, so they are called *binding* foundations. In these terms, we found that Brazilian participants judge violations of individualizing foundations more harshly than their counterparts in the USA sample. In addition, Brazilian participants judged violations of the Purity foundation as less wrong than USA participants did. Some Brazilian participants commented that they considered some Purity vignettes “strange”, but they did not consider these

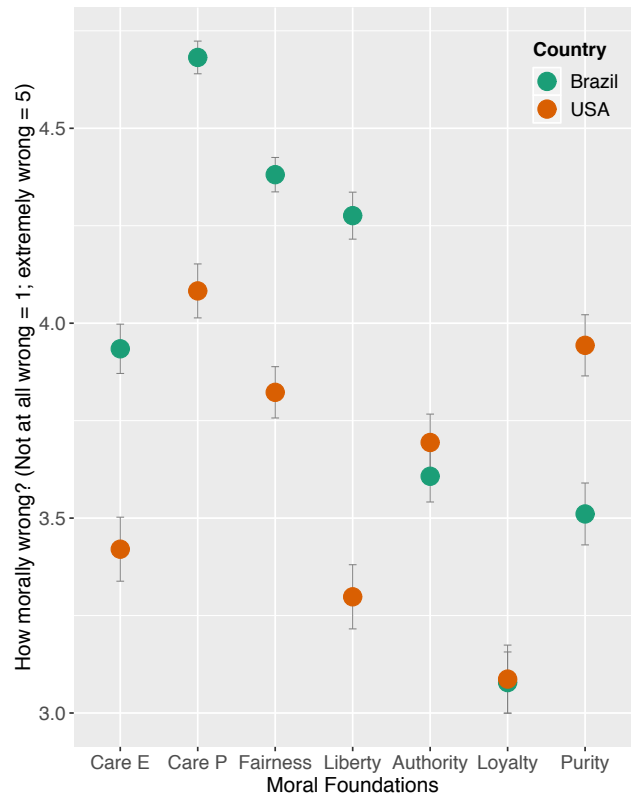


FIGURE 3: Representation of the wrongness judgement for each MFVs factors in respect to USA and Brazil samples, where values represent mean wrongness judgement and spreads represent confidence interval.

acts wrong, since the author of the violation could perform the act in private without harming anyone (especially for vignettes #801, #808, and #805). Thus, our Brazilian sample was more harsh with regard to individualizing foundations and less harsh with regard to one binding foundation. In both respects, our Brazilian sample resembled patterns that were found more often among liberals in previous studies in the USA (Graham et al. 2009).

Although the present study has already carried out some exploratory analyses in relation to social and political ideologies, other studies are necessary in order to better understand the cultural differences in relation to the way in which the different moral foundations are characterized in the Brazilian sample. These further studies can use the new research instrument that has been validated in the current work.

The main limitations of this study are that: i) it did not use other measures regarding moral foundations, such as MFQ (Graham et al., 2011; Silvino et al., 2016), which would allow a greater experimental control and perhaps enable conclusions about which measure (MFQ or MFVs) is best; ii) its student sample did not represent the greater variability in the Sao Paulo city, since it is a city of 12 million



inhabitants with a wide range of cultures, religions, and socioeconomic levels; and iii) it did not equalize the number of participants of each gender; and iv) vocabulary differences between Brazil and Portugal must be considered in the case of Portugal researchers interested in using the set of vignettes recommended here. New studies are needed to overcome these limitations.

In any case, the present study achieved its objective of validating the Moral Foundation Vignettes instrument for the Portuguese language in Brazil for a university sample from Sao Paulo city. This new tool enables the continuation of studies regarding the Moral Foundation Theory in the Brazilian population.

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