

Relationships of Political Alignment and Personal Attributes: Online Survey and Social Data Analysis

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Abstract

Although social data can be an important source of information for studying personal attributes, it remains unclear which kinds of attributes can be inferred from social data and meaningfully used in the social sciences. In response, we analyzed the relationships between a variety of attributes, including political alignment, morality, food identity, and brand preferences, based on Twitter data and online survey data. Our results revealed a relationship between political alignment (liberal and conservative) and morality, food identity, and brand preferences. In addition, liberal people were more likely to belong to the food left-wing category, while conservative people showed a higher preference for Japanese companies than liberal people.

1 Introduction

Although inferring personal attributes from social data is important in research in the social sciences as well as application in social media, complex relationships in person attributes remain unstudied. In our research, we analyzed social data—namely, the tweets of Twitter users—in relation to their personal attributes, as identified by an online survey. In particular, we investigated the relationships between each user’s political alignment, morality, food identity, and brand preferences (Fig. 1).

The framework for our research draws from two important concepts. The first, Moral Foundations Theory developed by Jonathan Haidt [1], holds that every person innately has five moral foundations that allow him or her to intuitively judge moral situations. They are:

- Harm (i.e., disliking the pain of others and feeling responsible for protecting vulnerable people);
- Fairness (i.e., taking the right or just action based on accepted rules);
- Ingroup (i.e., being loyal to social ingroups, including family and nation);

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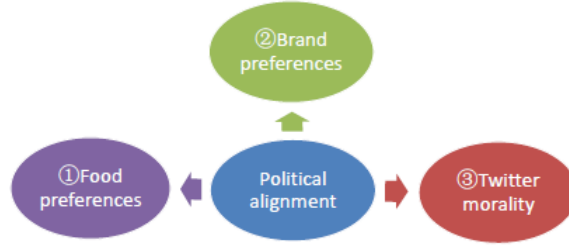


Figure 1: Research Diagram (Survey data were used for 1 and 2; Twitter data were used for 3)

- Authority (i.e., respecting and obeying tradition and legitimating authority);
- Purity (i.e., feeling antipathy for disgusting things and contamination).

We measured those five moral foundations in Japanese texts with reference to the Japanese Moral Foundations Dictionary (J-MFD) [2]. The second concept is “food identity,” which proposes two types of people. Whereas proponents of the so-called “food left-wing” typically advocate natural foods and health consciousness (e.g., vegetarians and vegans), proponents of the so-called “food right-wing” generally consume any available food products and enjoy eating fast food. Sasahara (2018) has shown that food identity can serve as an appropriate proxy for personal attributes and can offer insights into potential buying patterns [3]. Mobilizing those two concepts, we examined the relationship between the self-reported political alignment and food identity, brand preferences, and morality.

2 Data and Method

2.1 Data

First, we gathered the responses of a sample of 703 participants from online users to a questionnaire addressing food preferences and brand preferences in statements that participants rated on a 7-point scale (0 = very irrelevant, 7 = very relevant). Participants also indicated their political alignment on an 11-point scale (0 = very liberal, 10 = very conservative) (Fig. 2). We placed ones whose scores ranged from 0 to 2 in the liberal group and ones whose scores ranged from 8 to 10 in the conservative group. As we were only focusing on people from these two groups, we excluded the ones whose scores ranged from 3 to 7.

Second, upon receiving permission from the participants, we also collected Twitter data representing each user by using Twitter API. After gathering all posts (i.e., tweets, retweets, and replies) from 650 active Twitter accounts with more than 2,000 posts, we quantified the tweets in terms of moral foundations based on the J-MFD.

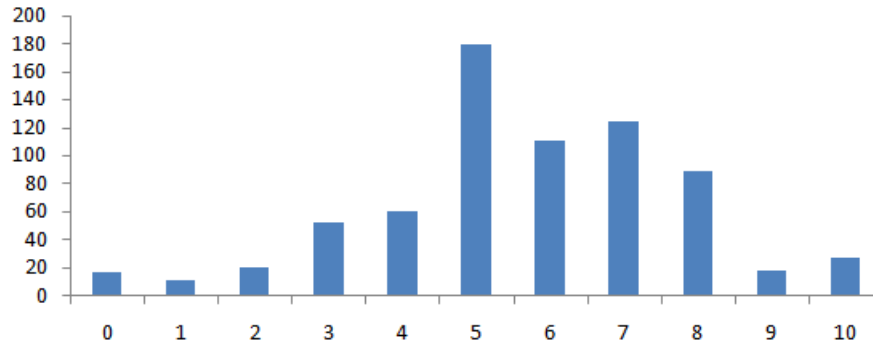


Figure 2: Distribution of users with different political alignment on an 11-point scale (0: very liberal, 10: very conservative)

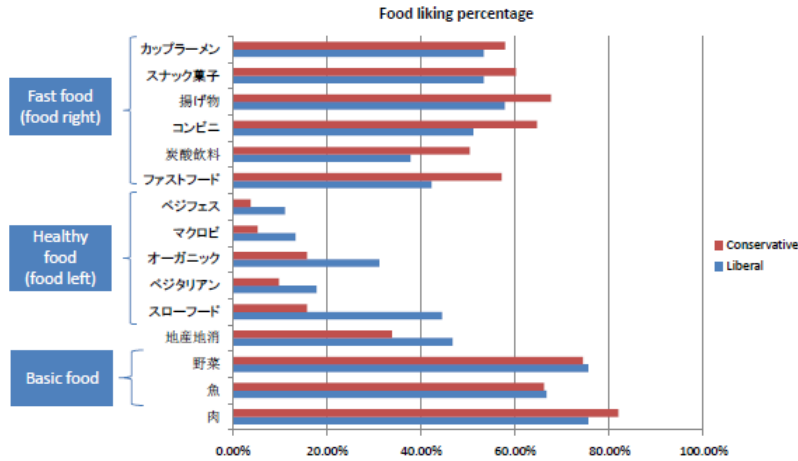


Figure 3: Food liking percentage

2.2 Data Analysis

We analyzed the relationships among political alignment, food identity, and brand preferences as indicated in the questionnaire data for each group of participants (i.e., the liberal group and the conservative group). Our calculations prioritized the value of political alignment in identifying links among other attributes. For morality analysis, we used MeCab to separate Japanese sentences in tweets into words and then measured the moral loadings from each participant's tweets with reference to the J-MFD. The moral loading was the percentage of words in the J-MFD also used in tweets.

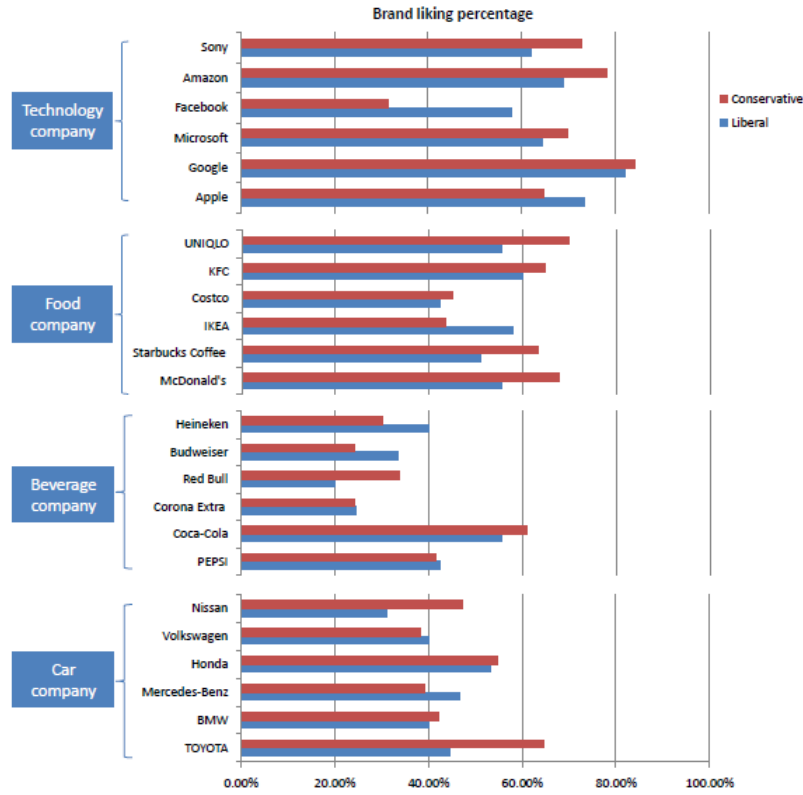


Figure 4: Brand liking percentage

3 Results

Figure 3 shows the relationship between political alignment and food preferences, the latter of which we divided into three types: fast food (i.e., food right-wing), healthy food (i.e., food left wing), and basic food (i.e., base ingredients). Our results reveal a relationship between political alignment and food preferences; liberal people prefer healthy foods more than conservative ones, whereas conservative people prefer fast food more than liberal ones. The groups did not indicate a significant difference in preferences for basic food.

We also analyzed the difference in preferences for specific brands between the two groups. Japanese companies such as Nissan and Toyota were more preferred in the conservative group, whereas the majority of participants who preferred popular brands such as IKEA and Facebook were in the liberal group (Fig. 4).

To measure moral loadings, we computed the frequencies of words related to "virtue" and "vice" as defined in the J-MFD. Figure 5 shows that participants in the liberal group had higher virtue loadings than ones in the conservative group in most of the foundations except purity. Furthermore, the frequencies of virtue words related to ingroup and authority were greater than any of the other moral

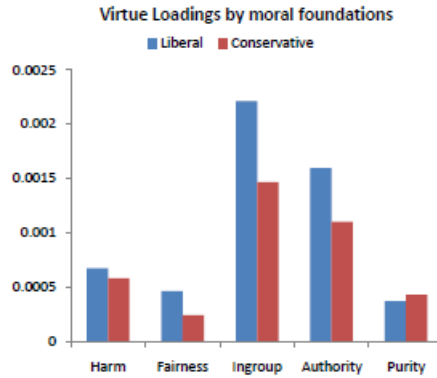


Figure 5: Virtue loadings by moral foundation

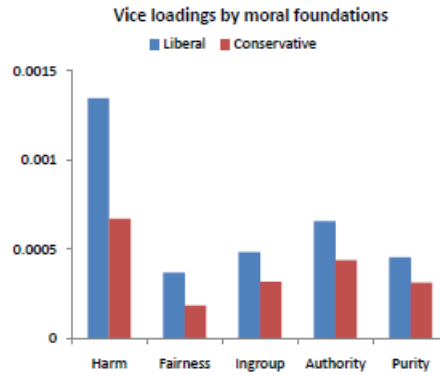


Figure 6: Vice loadings by moral foundation

foundations. By contrast, vice-related words indicated harm more than any other moral foundation (Fig. 6), with fairness, with the minimum proportion. By political alignment, participants in the liberal group had higher vice-related moral loadings for all of the five moral foundations, especially for harm and fairness.

Lastly, we visualized popular moral words in tweets using word cloud (Fig. 7). For ingroup, “社会,” “国,” “国民,” and “家族” often appeared in the tweets of participants in the liberal group, while, for harm, “虐待,” “被害,” “战争,” and “平和” appeared frequently for them as well. In such tweets, participants in the liberal group often demonstrated their morality via ingroup loyalty (i.e., virtue), authority (i.e., virtue), and harm (i.e., vice).

4 Discussion

Our examination of relationships among the personal attributes revealed that participants in the conservative group prefer fast foods over healthy foods, while



- [2] Akiko Matsuo, Kazutoshi Sasahara, Yasuhiro Taguchi, and Minoru Karasawa. Development and validation of the japanese moral foundations dictionary. *arXiv*, abs/1804.00871, 2018.
- [3] Kazutoshi Sasahara. You are what you eat: A social media study of food identity. *arXiv*, abs/1808.08428, 2018.