**Language and the Values of Personal Pronouns:**

A Tool to Redistribute Resources from Outgroup Individuals to Ingroup Collectives

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**Summary**

We propose that language may function as a tool for influencing behaviors of other to boost resources of a speaker. We use an automatic method for measuring valence of social groups in a large text corpus. The results show ingroup favoritism and differential valence for pronouns related to individuality or group belongings.

**Theory**

Theorizing and data on evolution of behavior has largely focused on what behavior that improves the fitness of an individual. However, behavior may also be used to influence the behavior of group members in order to increase fitness of an individual group member. Previous theories have suggested that a human need to belong (Baumeister & Leary, 1995) is the evolutionary explanation of ingroup favoritism. However, we propose that speakers use language and ingroup favoritism as a tool to influence behaviors of others to boost resources of the speaker.

One way to increase resources is to redistribute individual resources to collective resources, leading to greater possibility of using resources collected by other ingroup members. Another way is to recruit members from the outgroup and influence them to share the speakers goal and perspectives. In all these processes, language play a crucial role by spreading values that promotes these behaviors. In this study, we measure these values in large text corpora by studying the valence of the context of pronouns.

**Personal pronouns are semantic markers for social identification and groups**

![Fig 1: Division of pronouns into ingroup and outgroups, as well as into individual and collective form. Subjective and possessive form within circles. (Frequencies of pronouns in the semantic space within parenthesis.)](image)

**Hypothesis**

Language is used to create and maintain ingroup favoritism. Personal pronouns (I, me, we, our) refers to ingroups, whereas third person pronouns (he, she, his, hers, they) to outgroups. We hypothesize that first personal pronouns have a higher valence than third personal pronouns.

**Language is used to recruit outgroup members**

Pronouns are markers for individual (I, he, she) and collective identification (we and they). In recruiting new members to the ingroup, the speaker addresses individuals rather than groups, and when doing this emphasizes the value of belonging to the speakers’ ingroup. Consequently, we predict a higher valence of individual than collective outgroup pronouns, and a higher valence of collective than individual ingroup pronouns.

**Language and possessive pronouns serve as a tool for distributing wealth**

The overall goal of a speaker is to influence listeners to share their resources with the speaker. We predict that possessive collective ingroup pronouns to have the highest valence compared to all other forms of possessive pronouns.

**Method – computational semantic analysis**

Latent Semantic Analysis (LSA) (Landauer, McNamara, Dennis & Kintsch, 2007) is a computational method for measuring semantic distances in large text corpora. This is done through an algorithm similar to factor analysis, where a matrix of written documents is reduced to a higher order structure called a semantic space. Words that have been used in similar context and with similar meaning are positioned nearby in the space.

The semantic space was created from 482 K Reuters Messages published in 1997. Valence of pronouns can be measured as the semantic differences between human ranked valence words and the context of pronouns. Human ranked words from the ANEW-list (on a scale from 0-10) (Bradley & Lang, 1994) were used to predict valence in the semantic space.

**Results and Conclusion**

All contrasts showed significant main and interaction effects, p < .0001 (test: ANOVA). The results show that valence differs between pronouns representing various social groups. Some of these aspects of these differences can be explained by previous theories, such as ingroup favoritism, and the need to belong (Tajfel & Turner, 1979, Baumeister & Leary, 1995). However, these models do not predict the interaction effects: in-outgroups and individual/collective that proposed theory accounts for. Previously, most social psychology has considered language merely as a mirror of cognition and affect. Our theory goes beyond these aspects by introducing language as a tool for speakers to influence others.

We have been able to collect these results by introducing semantic spaces as a computational tool on social psychology. LSA has previously been used in language learning and information processing but seldom within social psychology research. Our finding adds to previous findings of ingroup favoritism. This is particularly surprising because Reuter Flahes are written with the goals to objective with a minimal amount of values. We acknowledge a big potential in studying social psychology phenomena through computational semantics.

**References**


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**Fig 2. Ingroup Favoritism and different evaluations of individuality and collective identity.**

![Fig 2](image)

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