



HAL
open science

What in the word! The scope for the effect of word choice on economic behavior.

Katherine Farrow, Gilles Grolleau, Naoufel Mzoughi

► To cite this version:

Katherine Farrow, Gilles Grolleau, Naoufel Mzoughi. What in the word! The scope for the effect of word choice on economic behavior.. *Kyklos*, 2018, 71 (4), pp.557-580. 10.1111/kykl.12186 . hal-01706921

HAL Id: hal-01706921

<https://hal.science/hal-01706921v1>

Submitted on 12 Sep 2023

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

WHAT IN THE WORD!
THE SCOPE FOR THE EFFECT OF WORD CHOICE ON ECONOMIC BEHAVIOR*

Katherine Farrow,[†] Gilles Grolleau,[‡] Naoufel Mzoughi[§]

ABSTRACT: We propose that words can be an object of systematic study in the field of economics and outline an approach to the study of word choice in behavioral economics. We consider words as strategic instruments of influence and review how they can impact behaviors in several subtle and distinctive ways, namely through their capacity to elicit affect, support identity and social belonging, evoke linguistic associations, and generate bias arising from variations in fluency. We provide a variety of examples to illustrate the behavioral impacts of words through these mechanisms and provide practical recommendations regarding how words can be harnessed by policymakers to reach socially desirable goals through a consideration of how word-related behavioral anomalies shape incentives.

KEY WORDS: behavior, exclusion, stereotypes, words, associations

JEL CLASSIFICATION NUMBERS: A19; Z00

* We thank Michael Bell, Bradley Ruffle, and other colleagues for helpful comments on a previous version. We also thank several anonymous reviewers and the editors of *Kyklos* for their constructive comments. The usual caveat applies.

[†] Corresponding author. University of Montpellier, UMR 1135 LAMETA, 34060 Montpellier, France. *Email:* kate.farrow@supagro.inra.fr

[‡] Supagro, UMR 1135 LAMETA, 34060 Montpellier, France; Univ. Bourgogne Franche-Comté, Burgundy School of Business-CEREN 21000 Dijon, France. *Email :* grolleau@supagro.inra.fr

[§] INRA, UR 767 Ecodéveloppement, 84914 Avignon, France.
Email: nmzoughi@avignon.inra.fr

I. INTRODUCTION

Scholars of rhetoric, political speech-writers, and translators number among the many professionals who recognize the important implications of language. Marketers, for example, have long understood that choosing a name for a product or brand is far from an insignificant task and invest considerable resources in selecting the best candidates (Colapinto, 2011). On the world stage, the repercussions of word choice can be significant. Stuart Chase, advisor to U.S. President Eisenhower, raised the possibility that an error was made in the translation of the Japanese response to the Allied Powers' call for unconditional surrender in World War II and that this misinterpretation may have contributed to the events that followed (Chase, 1954).¹ The capacity for word choice to have substantial economic and political consequences is also exemplified by the discussion around the adequate wording of the Brexit referendum, as some analysts suggested that the Leave campaign influenced the Brexit results through the word choice by tapping into our cognitive biases much more effectively than did the Remain campaign (Watt and Syal, 2015, Hatter, 2016).²

Despite a general and intuitive understanding that words have a unique ability to influence judgement and behavior, the quantitative impacts of word choice are not well understood. This is especially the case in the context of public policy instruments, where decisions regarding word choice can have decidedly large economic consequences. The choice of what words are used in social science experiments is recognized as an important element of experimental design, and researchers often have intuitions regarding which words to use or avoid. We note that these intuitions tend to be based on a rather fluid and implicit understanding of how words are likely to resonate with experimental subjects rather than explicit evidence. Given our implicit appreciation for the power of words, it is noteworthy that, apart from the literature on framing, a quantitative approach to the impacts of word choice on behavior remains largely unexplored. A recent exception is a study by Clot et al. (2017) demonstrating that altering even a single word (compensation *versus* payment) can significantly affect people's judgments about a proposed environmental policy. Indeed, while these types of impacts may be very

¹ In response to the ultimatum issued by the Allies, Japan had sent a message employing the word '*mokusatsu*.' While in context the term was intended to mean that the Japanese were reserving comment, the translation instead rendered the word to mean that the Japanese were ignoring the Allied message. Chase suggested that this misinterpretation contributed to the Allied decision to deploy nuclear weapons in Hiroshima and Nagasaki in August 1945.

² It is common knowledge that word choice is of utmost importance in the political sphere. Politicians are adept at choosing words so as to sway public opinion. In debates concerning government action in matters of foreign affairs, for example, invoking the word '*war*' rather than less extreme words like '*fight*' or '*campaign*' may have greater persuasive impact and incite increased support for military spending. Along these lines, Tenbrunsel and Messick (2004, p. 226) show that euphemisms enable individuals to "turn what may be [ethically] unacceptable into socially approved behaviors."

well understood with respect to consumer behavior in the field of marketing, much less is known regarding the impacts of word choice with respect to many other economically relevant behaviors.

Inspired by the importance that is attributed to word choice in other domains, we propose that words can be an object of systematic study in the field of economics. In what follows, we synthesize several theories accounting for the way in which words can impact behavior and assert that behavioral economics is in a unique position to explore, in an empirical and quantitative manner, how words can be leveraged in public policies in order to improve social outcomes. Our contribution is thus threefold. First, we gather together several psychological and cognitive mechanisms through which words can influence behavior. Second, we illustrate these mechanisms at work using a variety of anecdotal and empirical evidence that demonstrate the power of words in a number of contexts, including several examples with clear economic implications. Third, we suggest that word choice can offer policymakers a low-cost intervention capable of generating first-order effects, and we provide several practical suggestions to this end.

The issue of word choice is closely related to framing, on which there is an extensive literature (e.g. Chong and Druckman, 2007; Druckman, 2001). Definitions of framing effects are remarkably complex and far from reaching a status of consensus. Druckman (2001) proposes that *frames in communication* “refer to the words, images, phrases, and presentation styles that a speaker uses when relaying information to another” and that *frames in thought* refer to an individual’s (cognitive) understanding of a given situation. “Frames in communication and frames in thought are similar in that they both are concerned with variations in emphasis or salience. However, they differ in that the former usage focuses on what a speaker says (e.g., the aspects of an issue emphasized in elite discourse), while the latter usage focuses on what an individual is thinking (e.g., the aspects of an issue a citizen thinks are most important)” (Druckman, 2001). One way in which words can impact behavior is indeed their ability to affect the framing of a message by invoking different mental schemas, and thus word choice can in some cases be considered as a subtype of framing effects. As we will see however, in other cases, for example increasing the fluency or disfluency of a given word (Song and Schwartz, 2009) or leveraging alliteration (Davis et al., 2016), it seems difficult to attribute the impact associated with a word change entirely to a change in the frame. For example, although scholars and lay people often believe that important decisions in life, such as those regarding jobs, marriage, and location are rationally driven, recent work has implicated processes such as name-letter preferences in explaining these choices (i.e., *ceteris paribus*, people prefer companies that contain the same letters of their own name over companies that do not contain these letters) (Anseel and Duyck, 2009 and references therein). Indeed, wording frequently implies relatively minor changes such as replacing one word with another, which cannot be considered a typical frame change (e.g., people are less charitable when asked about the desirable level of government aid for “people on welfare” than

when asked about aid for “poor people” [Smith, 1987]). Thus, although the impacts associated with words can sometimes be subsumed under framing effects, we believe there is sufficient evidence to suggest that words can generate behavioral impacts that are distinct from framing impacts.

Our interest in analyzing words from a behavioral perspective is motivated by the observation that the role of words in the design of policy instruments is frequently underappreciated in economics and warrants greater consideration within the field. Literature on framing and bargaining has investigated these effects to some extent, but we contend that the importance of words themselves within the broader field of economics has been largely overlooked. While it is clear that in certain circles, there exists a well-developed appreciation for the importance of word choice, we raise a number of examples in this paper that indicate that many agents do not appear to be well-informed in this regard. While we propose that behavioral economics is the most pertinent tool to use to study the precise impacts of word choice on economic behaviors, we note that word choice could also conceivably be analyzed within the framework of other types of economic analysis. If economics can be described as the study of how people choose to use scarce and valuable resources, we contend that words satisfy these qualities, and that this observation constitutes grounds to explore the idea that word choice and a market for words could be studied using methods employed by traditional economic analyses. Before moving to the study of word choice using behavioral economics, we briefly consider what a broader ‘economics of words’ could entail and how it might be approached.

To the extent that rights to the use of certain words can be defined, enforced, and exchanged (as in the case of trademarks or domain names on the internet), words could conceivably be considered as goods in a marketplace. To the extent that their value is realized in their exchange, however, words could also be considered services. When an agent’s aim is to communicate a specific message in the most effective way and within a limited amount of space or time (e.g., *Twitter*) words could be considered as inputs in a production function under a constraint. Approaching an economic analysis of words in this way, however, would hinge on having some idea of the value of different words in producing desired outcomes (which, as we will explain, could be discerned through experimental methods). This would also imply that the use of any particular word entails opportunity costs associated with the unused alternatives. Furthermore, the words employed by one party can often affect those who are not directly involved in the ‘transaction’ (i.e. communication), and these effects could be either positive or negative, constituting externalities that have real impacts on subjective well-being. In using profane words in front of others, for example, one can disturb them (e.g. causing a loss of subjective well-being) without compensating for this loss. To the extent that profanity can be an effective subjective substitute for pain relief or physical violence, however, it can also be considered to have a positive value (Jay, 2009). It could also be said that words exhibit network effects when the ‘value’ of a word is determined at least in part by the number of people who use or understand it. Sunstein and Ullmann-

Margalit (2001) define solidarity goods as ones that “have more value to the extent that other people are enjoying them” and exclusivity goods as “goods whose value decreases as the number of people enjoying them increases.” We contend that certain words could be considered as these types of goods, and that which types may depend on a variety of factors, such as geography and social status.

The remainder of this paper is organized as follows. In Section 2 we propose an approach to the empirical study of word choice in behavioral economics and discuss the value that such study could offer. Without purporting to be exhaustive, the next four sections review several mechanisms through which words have been shown to impact decisions and behaviors, namely through their capacity to provoke affect, signal social inclusion or exclusion, evoke linguistic associations, and generate bias arising from differences in cognitive processing requirements. Although each mechanism is developed separately, it should be noted that they are not mutually exclusive and can conceivably generate synergistic (or antagonistic) effects. Section 6 concludes with some directions for future research and practical suggestions for policymakers.

II. HOW WORDS CAN CHANGE THE WORLD: A BEHAVIORAL ECONOMIC ANALYSIS

A traditional assumption in economics and finance is that an agent’s utility is determined only by objective outcomes, and accordingly, that this information is the only information that matters in the decision-making process. By this assumption, describing the same objective (monetary) outcome using one word vs. another should not affect the decisions and behaviors of rational and self-interested agents. There are several reasons for this expectation. Even if lay people could be influenced by subtle word manipulations in one shot interactions, economists might expect that repetition would sophisticate agents over time, causing them to focus their attention only on final objective outcomes (i.e. monetary payoffs), which would eliminate any impacts of word choice that may be present in the short term. Another general assumption is that these biases do not play a significant role in the aggregate either because they are averaged out or because they are corrected for by rational arbitrage. Finally, even supposing that such a narrow conception of outcomes was relaxed, economists themselves nevertheless generally evaluate outcomes on the basis of bottom-line wealth (Lewinsohn-Zamir, 2012).

Despite these assumptions, we raise anecdotal and empirical evidence suggesting that wording is indeed capable of generating persistent, aggregate impacts. While it is clear that word are used in strategic ways in a number of areas (e.g. politics and marketing), we maintain that not all agents – even those who may be relatively well-informed about the importance of word choice – are aware of the diversity of ways in which words have been shown to impact behavior. As a result, these agents

(and particularly policymakers) may not necessarily be well-equipped to make the most effective decisions when it comes to word choice, which means that incentives exist for individuals to better manage word-related anomalies. To support this claim, we examine three economic and policy related examples that point to the possibility that word choice can contribute to significant economic losses on a macroeconomic scale. First, in a series of small-scale experiments, Epley et al. (2006) and Epley and Gneezy (2007) consistently found that the same amount of additional income, labeled as either a ‘bonus’ or a ‘rebate’, lead to significantly different levels of spending and saving. They emphasized that public and managerial policies such as government tax policies may be missing out on a substantial opportunity to reach their goals by failing to employ the more advantageous word (‘bonus’). Second, Sussman and Olivola (2011) provide empirical support that people have a stronger aversion to tax-related costs than to equal-sized (or larger) monetary costs that are unrelated to taxes. Through several experiments, they found that the aversion that people exhibit to taxes cannot be entirely explained by the monetary cost itself, and hypothesize that this aversion may due in part to the word ‘tax’ and the associations it evokes. In a similar vein, Hardisty et al. (2010) showed that labeling the same surcharge as a ‘carbon tax’ vs. a ‘carbon offset’ significantly affects the attitudes of volunteers. Namely, Republicans are much less likely to support a carbon ‘tax’ than an ‘offset,’ whereas Democrats exhibited no significant difference in support between the two conditions. Third, in another domain, Tan and Low (2011; see also Shaikh and Bruce, 2016)³ explain that the words used to describe incentives for organs donors can dramatically change people’s perceptions and subsequent behaviors. As an example, they cite the fact that the Singapore government paid a great deal of attention to the words used to describe these incentives in order to avoid crowding out prosocial motivations (see Bowles, 2008). In particular, they carefully avoided the word ‘payment’ which can have the effect of transforming an altruistic act into a commercial transaction. Instead, the authorities opted to describe the incentive as a ‘reimbursement’ to ‘defray the costs or expenses’ associating with organ donation. The importance of word choice also appears to be overlooked in many other, non-economic domains, e.g. eyewitness testimony (Loftus and Guido, 1975), and health and environmental communications. These examples show that, while wording is certainly coming to the attention of policymakers and others in some circles, it is still relatively underappreciated and far from being used to its full extent.

³ After discussing arguments in favor of and against financial incentives in the context of organ donation, Shaikh and Bruce (2016) conclude that “there is an ethical distinction between direct payment (which is likely to be unethical because it violates several framework criteria, including concerns about commercialization or turning donor organs into a purchasable commodities) and a charitable contribution to show appreciation for organ donation (likely to be ethical, if process questions were acknowledged and addressed)”. This demonstrates that, beyond the level of financial incentives *per se*, the label that is used to describe an incentive (e.g., payment, compensation reimbursement, defrayment, reward, indemnity) can have significant economic and legal implications and thus matters more than one might expect.

In contrast, marketers and the linguistic experts with whom they collaborate are among those who are very alert to the myriad ways in which words can resonate with consumers. The name of the BlackBerry mobile device, for example, was chosen based on a variety of different factors: the word ‘black’ was expected to evoke the color of high-tech devices, ‘BlackBerry’ had no embarrassing meanings or associations in other languages, and linguistic research had shown that the letter ‘b’ was one of the most ‘reliable’ in any language (Colapinto, 2011). Another favorable factor was the aesthetic resemblance of the keys on the device to its namesake fruit. The importance of these factors to marketers brings into focus the often subliminal ways in which words can affect people. In one study, it was revealed that women in legal professions who had more masculine names were more likely to excel to higher positions than women with less masculine names (Alter, 2013).⁴ Neuroscientists have also found evidence that ‘yes’ and ‘no’ are treated differently in the brain (Alia-Klein et al., 2007). Based on this type of evidence, the question to be used in the June 2016 UK referendum concerning membership in the European Union was worded specifically so as to avoid the positive connotation associated with the word ‘yes,’ and the resulting bias that it could generate in voter responses (Elgot, 2016). Despite the evident care taken in designing this question, however, some analysts suggest that the wording of the referendum question was nevertheless biased in other ways (Watt and Syal, 2015, Hatter, 2016). This is further evidence of the need for a better understanding of the impact of word choice in the sphere of public policy. In light of the preliminary evidence raised here, and to the extent that such impacts can be anticipated, it is clear that the impacts of words on behavior are relatively underexplored, and that word choice, as an instrument, can offer policymakers a potentially effective way to avoid detrimental biases and move toward desired social outcomes.

The specific words that comprise a message can shape recipients’ perceptions of objectively identical outcomes and lead them to attribute (possibly erroneously) a variety of possible intentions to those sending the message. These perceived intentions, in turn, may then be acted upon (Fiedler and Mata, 2013). Experimental evidence has shown, for example, that cooperation levels can differ greatly according to the name of the game (e.g., Kay and Ross, 2003; Liberman et al., 2004; Dufwenberg et al., 2011). In these studies, playing the same game (with identical payoff structures and instructions) under the label of ‘the Community game’ or ‘the Wall Street game’ dramatically affected peoples’ willingness to cooperate: those who were told they were playing the Community game cooperated about 70 percent of the time, while those who were told they were playing the Wall Street Game cooperated only about 33 percent of the time. In some cases, it has been shown that labels can even lead to self-fulfilling prophecies (Becker, 1963, see also Ferraro et al., 2005 for an application to language in economics), such as country corruption rankings that dampen future legitimate business

⁴ Several studies vary the name of job candidates on fictitious CVs in order to study discrimination in various settings (e.g. against African-Americans in Bertrand and Mullainathan, 2004).

opportunities for those labeled as corrupt and that *'this label, in effect, reinforces corrupt means of business'* (Warren and Laufer, 2009).

We propose that a behavioral economic analysis of words should work from the understanding that language is self-referential, a concept raised by Ferdinand de Saussure that has become an operational tenet of linguistics (Saussure, 1906-1911). According to this concept, the meaning of a word is realized only insofar as the word signifies something different from what is signified by some other word. In this way, the meaning of the word 'light' is realized insofar as it signifies something to be distinguished from 'dark,' and thus meaning emerges from the relief that is created between words. In this way, much like geographic coordinates whose significance arises owing to their reference to other coordinates, the meaning of a word takes form with respect to its relation to other words. It could therefore be argued that an attempt to understand the absolute meaning or value of a single word would be quite infeasible.

We suggest that this property indicates a useful approach for empirically investigating the impact of word choice on behavior. Since the meaning of a single word cannot be reasonably apprehended in isolation, the study of the behavioral impacts associated with word choice would require a similarly differential approach. Concretely, this would consist of quantifying the impact that is associated with using one word compared to some alternative. While this is an inherent feature of experimental science generally, it is nonetheless important to recognize this property in proposing this new program of research. It is a modest aim, to be sure, but we contend that it is one that can prove useful to policymakers in ways that we outline in more detail later. Insofar as words arise from a more or less limited set, the findings generated by this research could indicate optimal context-specific formulations with respect to established policy objectives. We note that the generalizability of this type of result would critically depend on the behavior in question, as well as other elements of the context in which it is situated. By acquiring a more comprehensive understanding of the behavioral impacts of alternative words, it may be possible to reduce the satisficing that can occur with respect to word choice in public policy implementation. As in other applications of behavioral economics and social psychology to public policy, consensus should naturally exist regarding the aims of any word choice strategy employed.

Given the richness of language and the complexity of the ways in which language can impact individuals, the study of the quantitative impacts of word choice on behavior holds particular promise. We suspect that many policymakers, and economists in particular, do not often consider word choice itself as a distinct policy tool. Typical welfare analyses, for example, while they generate specific policy recommendations, rarely go so far as to examine and recommend the vocabulary that should be employed in their implementation. Regardless of the degree of deliberation involved in choosing

which words are used, however, it is clear that conveying any message at all necessarily implies a choice of words and as well as the accompanying behavioral impacts. In this paper, we advocate for a better understanding of these impacts. Without purporting to be exhaustive, we next consider several psychological mechanisms through which words can influence behavior and identify a variety of empirical and anecdotal evidence that lend support to these mechanisms.

III. WORDS CAN ACTIVATE AFFECT

It is now well-recognized that the brain employs two systems to process information. System 1 has been characterized as fast, automatic, frequent, unconscious, emotional, and stereotypic, whereas System 2 has been characterized as slow, effortful, infrequent, conscious, logical, and calculating (Kahneman, 2011). By using a particular word, one can (voluntarily or involuntarily) solicit System 1, inducing emotions or activating stereotypes (Devine, 1989; see also Guéguen and Lamy, 2011) that frequently operate under the radar of consciousness and can lead to impulsive behavioral reactions. Alternatively, one could deliberately select words so as to activate the slower, more reasoned process of System 2 rather than System 1. Several studies have shown that exposing individuals to emotionally loaded words through priming, e.g. violent words (Carver et al., 1983), achievement words (Bargh et al., 2001), and helping words (Macrae and Johnston, 1998), can directly affect their dispositions and actions. A natural example is the use of profanity, which can often provoke impulsive reactions. A highly publicized example occurred during the final game of the World Cup in 2006. France and Italy were tied 1-1 when, with 10 minutes left in overtime, Italian defender Marco Materazzi insulted the captain of the French national team, Zinedine Zidane, setting in motion a chain of events: in response, Zidane shoved his head into Materazzi's chest and was sent off the field, and Italy later went on to win the game 5-3 on penalties.⁵ As this example shows, some words have a propensity to activate an impulsive rather than a deliberative mindset, and that, in some settings, such as competitive interactions, this property is deliberately leveraged. Gneezy and Imas (2014) have coined the term the 'Materazzi effect' to refer to situations in which individuals anticipate the effects of emotions such as anger and strategically elicit them so as to gain an advantage over their opponents.

Although scant, emerging evidence demonstrates that the relative success or failure of a policy instrument can depend not only on its expressive function and pecuniary incentives, but additionally, as we argue here, on the vocabulary used to describe the new incentives (e.g. Clot et al., 2017). Lower willingness to pay for taxes relative to other types of payments may be due to the fact that the word tax elicits negative affective reactions (Sussman and Olivola, 2011). Additionally, in a study examining the behavior of visitors to a national park, Cialdini et al. (2006) find that a proscriptive statement

⁵ BBC. 2006. Materazzi denies terrorist insult. *BBC Sport* (July, 11). http://news.bbc.co.uk/sport2/hi/football/world_cup_2006/5168126.stm.

designed to encourage prosocial behavior (“Please don’t remove the petrified wood from the park”) is significantly more effective than a prescriptive statement (“Please leave petrified wood in the park”). The authors suggest that the negatively worded injunction is more powerful because it attracts more cognitive focus than the positively-worded injunction, and neuroscientific evidence indeed proposes that disproportionately strong reactions to the word ‘no’ are sourced in early childhood experiences involving prohibition from social others (Alia-Klein et al., 2007).

Another curious phenomenon worth noting is the psychological lure of obtaining something for free. Shampanier et al. (2007) show that the reduction in the price of a chocolate from \$0.14 to zero generates a much greater increase in demand relative to an equal reduction from \$0.15 to \$0.01. The perceived increase in the intrinsic value of a good when it is priced at zero has been called the ‘zero price effect,’ and it has been hypothesized that this arises due to a psychological tendency for free goods to elicit a more positive affective response than goods that have even a very low positive cost. As a result, use of the word ‘free’ can act as a sort of trigger, activating a cognitive mode that is perhaps characterized by a less critical consideration of the other types of costs that may be entailed. This intuition is implicit in business and marketing, where strategies often leverage consumers’ attraction to obtaining something for free with the inclusion of free bonuses that accompany larger purchases.

IV. WORDS CAN BEAR ON IDENTITY CONCERNS

Identity economics extends the traditional economic framework of decision-making by incorporating the notion of identity (i.e. a person’s sense of self) as an important determinant of behavior. When identity is introduced in this framework, the predictions of the conventional principal-agent model change, shedding light on evidence that is otherwise difficult to explain (Akerlof and Kranton, 2010). Within this framework, an individual’s conception of who they are and who they would like to be factor heavily into their decisions regarding how to behave. As such, their perceptions of what is proper, what is forbidden, and for whom, are fundamental to decisions such as how hard they work, who they spend time with, as well as which words they use and how they use them. In this way, individuals may gain or lose ‘identity utility’ when their actions (or even the actions of others) conform to or deviate from the social norms of a salient reference group. This is another instance in which externalities of subjective well-being could be said to occur as a result of word choice.

In this framework, words can serve to distinguish in-group members from out-group members. An emblematic example is ‘shibboleth,’ a word whose variations in pronunciation can be used to differentiate members of in-groups from those of out-groups (Judges 12:5-6). Differences in regional vocabulary (such as the use of soda, pop, and coke to refer to a sweetened carbonated beverage in the

U.S. Northeast, Midwest, and South, respectively),⁶ can be a source of solidarity between people who may differ in other ways. A growing literature on social identity demonstrates the relevance of solidarity for economic behavior. Chen and Li (2009) show that in-group favoritism can be induced even in the context of minimal (i.e. arbitrary experimental) groups, leading subjects to exhibit significantly higher levels of charitable behavior and lower levels of punishment behavior towards in-group members vs. out-group members. An increased sense of group identity has also been shown to increase coordination and social welfare in prisoner's dilemma and public good games (Chen and Chen, 2011, Chen et al., 2014). Denzau and North (1994) posit that an understanding of decision-making hinges on understanding the relationships between the mental models that individuals construct to order their world, the ideologies that these constructions generate, and the institutions that develop as a result of this process. Notably, they cite the importance of words as playing an integral role in these dynamics, as they contribute to establishing shared mental models, which facilitates the creation of ideologies and institutions in a co-evolutionary process.

To the extent that words can serve to signal status or belonging in certain social categories, as is the case with the use of slang or U-English vs. non-U-English, they can also be considered positive or negative positional goods within groups, i.e. goods that convey social information that esteems or stigmatizes the adopter and increases or lowers his or her social rank. The stigma that arises from negative positional goods may also foster negative social attitudes and discrimination between individuals (Orbach, 2006, in a different context). It has been argued that women in some societies pursue a kind of social equilibrium by using language associated with high social status in order to compensate for their inherently lower status as members of these societies, while males in the same societies seek to enhance a masculine identity by using language aimed at maintaining group solidarity (Key, 1975).

As the degree of sophistication of a message increases, vocabulary can also serve to increase transaction costs and can even present barriers to entry for some whose education level may prevent them from understanding complex messages. O'Brien et al. (1999), for example, report that most applications for the U.S. Food Stamp Program contained statements written at a high school reading level, which suggests that a complicated application process for such programs may be likely to reduce the number of applicants. The authors raise the possibility that such a situation may in some cases be deliberately engineered so as to discourage higher levels of participation in these programs. Indeed, current scientific understanding holds that complex or excessively refined language (e.g. legal statements) can deplete cognitive ability, which leads to situations in which something that is said may not always be understood. Variable access costs to comprehension are also evident in the use of

⁶ <http://www4.ncsu.edu/~jakatz2/files/dialectposter.png>

jargon, as is the norm in many professions. Although jargon can be useful when communicating technical messages in a precise way, it can also serve to distinguish between those who belong and those who do not belong to a community, and can thus help to reinforce a common identity among group members. According to Spolsky (1998), “a specialized jargon serves not just to label new and needed concepts, but to establish bonds between members of the in-group and enforce boundaries for outsiders. If you cannot understand my jargon, you don't belong to my group.” Witty banter among economists, for example, often makes reference to economic concepts, often with the effect of rendering their jokes less accessible to those who aren't familiar with this specialized vocabulary.

Although recent developments in economics have focused more on social identity, the other component of the sense of self, i.e. personal identity, and its interactions with social identity have largely been overlooked (Davis, 2011). Interestingly, a series of studies (e.g., Bryan et al., 2011; Bryan et al. 2013; Bryan et al., 2014) suggest that words that highlight the identity implications of a given behavior can be used either to encourage socially desirable behaviors (e.g. voting, helping) or to curb socially undesirable behaviors (e.g., cheating). Characterizing someone using *nouns* (that foster the perception that the behavior is reflective of the self) rather than equivalent *descriptive action verbs* (that do not activate the perception that the behavior reflects an identity but simply indicate engagement in a given action) can have significant impacts on behavior. Using identity-conveying words such as being ‘a cheater (voter/helper)’ rather than ‘someone who cheats (votes/helps)’, for instance, have been shown to curb (promote) dishonest (socially approved) behaviors (Bryan et al., 2011; Bryan et al. 2013; Bryan et al., 2014). Specifically, Bryan et al. (2013) found that people were significantly less likely to cheat for monetary gain when the experimental instructions read, “Please don't be a cheater” rather than “Please don't cheat”. Jones and Hudson (2000) find that a citizen's decision of whether or not to vote is determined by perceptions of the importance of civic duty, whereas the decision of how to vote is determined by perceptions of policies, policy integrity, and policy certainty, and suggest that frames are important making these motivations salient. By tapping into people's desire to see themselves as good and not bad, these subtle manipulations reinforce the relationship between identity and socially approved behaviors. Some authors even argued that “the repeated use of such language in organizations could cause these associations to become internalized and chronically active, even when linguistic primes are absent” (Cohen and Morse, 2014). Simply stated, these findings suggest that words can be a source of identity-related (dis)incentives that can be harnessed to reach socially desirable goals.

V. WORDS CAN EVOKE SPONTANEOUS ASSOCIATIONS

Another stream of literature demonstrates that behavior can be influenced by subconscious linguistic associations that can be responsible for perplexing biases in perception and decision-making in a

variety of domains, such as distance evaluation, costs of moving, housing preferences, and judgments related to traffic accidents (Alter, 2013). Huth et al. (2016) develop a semantic atlas of the cerebral cortex, mapping the physical areas in the brain that are characterized by groups of related concepts, and demonstrate that a single word can indeed appear in several areas at once, which provides neuroscientific support for the concept of spontaneous associations. North and South, for instance, are abstract concepts metaphorically tied to spatial perception (north = up, south = down) that may evoke additional associations (north = uphill, south = downhill). Several studies have found convergent support for these linguistic associations (e.g., Nelson and Simmons, 2009; Meier et al., 2011). Nelson and Simmons (2009) show that people believe that it will take longer to travel north than south, that it will cost more to ship to a northern vs. a southern location, and that a moving company will charge more for a northward move than for a southward move. Drews and Antal (2016) criticize the recent rise in the use of the term ‘degrowth’ in ecological economics, arguing that universal metaphors that associate ‘up’ with ‘good’ and ‘down’ with ‘bad’ will make it difficult to generate very positive evaluations of the term and the ideas that it represents among the public, which may hinder the objectives of those who support its adoption.

It is also well known that individuals have an affinity for their own name because they have developed positive implicit associations with it. As a result of this affinity, people tend to be attracted to others with similar names and have even been shown to be more likely to comply with requests from these people (Burger et al., 2004, Garner, 2005). Other recent work has provided convergent quantitative evidence for the existence of a metaphoric association between the words ‘meat’ and ‘male’ (Rozin et al., 2012). The authors examine this association empirically using six methods designed to detect underlying associations, including an implicit association test, free association, indirect scenario-based referencing, direct measurement polling, a preference and choice analysis, and a linguistic analysis. Overall, the results of these tests suggest that a significant associative relationship exists between meat and maleness in Western culture. Miller et al. (1998) note an economically-relevant example in which the residents of Quincy, Massachusetts, upon hearing of devastating flooding that occurred in Quincy, Illinois in 1993, took it upon themselves to donate provisions and physical assistance to help with the recovery effort. As this example shows, even minor or arbitrary similarities between people can foster identity-based affects that have the capacity, in turn, to generate a cascade of economically significant behaviors.

VI. WORD FLUENCY CAN GENERATE COGNITIVE BIASES

Beyond their literal and associative meanings, words can also differ in how easy they are to process, which is referred to as processing, or linguistic, fluency. Alter and Oppenheimer (2009) distinguish between several types of linguistic fluency. Specifically, words may be characterized according to

their phonological fluency (ease of pronunciation), lexical fluency (obscurity/familiarity), and syntactical fluency (complexity of grammatical construction). They compile evidence demonstrating that variations in these types of fluency have been shown to impact a variety of judgments, including those of veracity, familiarity, confidence, preference, intelligence, and valuation. Other research in social psychology has suggested that low linguistic fluency (requiring a great degree of effort to process) fosters the impression that a stimulus is unfamiliar, which in turn results in perceptions of higher risk regardless of objective probabilities or whether the risk is desirable or undesirable. Song and Schwarz (2009), for instance, found that food additives were rated as more harmful when their names were difficult to pronounce than when their names were easy to pronounce. Interestingly, this effect remains robust in other contexts, even when real money is at stake. Using a laboratory study and two analyses of real-world stock market data, Alter and Oppenheimer (2006) investigated the impact of stock name fluency on short-term share price movements, and found that stocks with fluent names significantly outperformed stocks with disfluent names in the short term. Given the influence of familiarity and cognitive fluency on judgment and perception, it could be argued that the first-mover to label an issue can secure the ability to exert a disproportionate amount of social and economic influence from then on. The phenomenon of brand names coming to replace references to products themselves (e.g. 'Hoovers,' 'Kleenexes,' etc.) constitutes one example in which this first-impression bias can have significant and lasting economic consequences in the marketplace. In a similar vein, Davis et al. (2016) show that promotional messages that use alliteration - the phonetic overlap of the beginnings of words that facilitates processing efficiency - are more persuasive for consumers than non-alliterative messages, even accounting for differences in cost. For instance, in one experiment, a promotion using the alliterative phrase "4 flapjacks \$4.13" was judged "a good deal" more often than promotions for "4 flapjacks \$3.87". Moreover, the alliterative message outperformed the \$.99 price-ending strategy.

In an early experiment, Langer et al. (1978) tested the persuasive impact of three different formulations of a request to break in line to use a college campus copy machine. He found that use of the request 'Excuse me, I have 5 pages. May I use the Xerox machine?' generated 60 percent compliance, whereas the use of the requests 'Excuse me, I have 5 pages. May I use the Xerox machine, because I have to make copies?' and 'Excuse me, I have 5 pages. May I use the Xerox machine, because I'm in a rush?' generated compliance rates of 93 and 94 percent respectively. From this experiment, it appears that the word 'because' was itself responsible for generating increased compliance, as compliance rates dramatically increased even when the reason provided was not very compelling (i.e. 'because I have to make copies'). This was interpreted as evidence that the word 'because' activates a mental heuristic that triggers automatic compliance.

Recent claims that society has entered a “post-truth” era in which actual facts have become less important to the electorate, have also brought attention to how people perceive and evaluate the soundness of the arguments that are presented to them (Etchells, 2017). Weisberg et al. (2015) show that the inclusion of neuroscientific terminology increases perceptions about the veracity of circular explanations. This lends support to other findings suggesting that the use of technical or scientific vocabulary and complex wording (reducing lexical and grammatical fluency, respectively) can increase the persuasive power of arguments being made, regardless of their actual veracity or logical soundness. In the case of the Brexit Referendum, Hatter (2016) suggests that the words used to describe the choice voters faced, namely Remain/Leave, were not complementary antonyms, as ‘Remain’ requires more cognitive effort to process than ‘Leave,’ and that this may have biased the elections results towards Leave. He suggests that more equivalent options in terms of cognitive load would have been, for example, Stay/Leave or Remain/Depart. Evidence that word choice impacts cognitive processes has obvious implications when it comes to public policy design, emphasizing, among other things, the importance of simplicity and clarity in communicating policies to the general public and identifying and avoiding possible sources of bias.

VII. POLICY IMPLICATIONS AND CONCLUSION

What we have tried to demonstrate in this paper is that, while some words may be more neutral than others, there is no such thing as a ‘neutral’ word, and that the words used in managerial and public policies have the potential to bias judgements and behavior regardless of whether these impacts are anticipated or not. A nascent but growing body of evidence from diverse fields suggests that they can operate through a number of psychological processes. Policymakers should be aware that the words used in policies and in public messages about policies can influence the perceptions and behaviors of individuals in ways that extend beyond the typical denotative and pecuniary considerations, and therefore that word choice is a far from unimportant task in the policy design process. For this reason, the way in which policies are described should be considered more seriously as an explicit element of the policymaking process, rather than as an afterthought of the welfare analyses on which they are based. We contend that word choice offers policymakers an underutilized, low-cost, and powerful tool by which to improve social outcomes, and that this strategy constitutes a particularly appealing tool in the context of budget constraints that often prohibit other, more costly, types of interventions. Moreover, word choice strikes us as a particularly intuitive and operational tool at the practitioner level (e.g., Davis et al., 2016 regarding the effectiveness of alliterative messages).

A challenge to this program of study lies in the fact that, while it is relatively easy to identify the effects of word choice on behavior in controlled laboratory environments, it is less easy to systematically implement and evaluate the effectiveness of word use in the real world because many

different words and characterizations can dynamically interact and compete with each other in this context. For this reason, we note that, as in other research programs employing experimental economic methods, laboratory experiments can be a useful departure point for identifying phenomena that should be explored further in the field, and we therefore stress the need for pilot studies in relevant contexts. The dynamics of word use, for example, could be better understood by discerning situations in which there is competition of words as well as situations in which an actor has at least to some extent monopoly power on the use of words, as is the case with word choice in government policies or the formulation of new laws or referenda questions by a majority of parliament (e.g. Brexit). These dynamics could also be studied in the context of the interactions that occur in industrial organization (e.g. brand proliferation as an entry barrier, first mover advantage, product differentiation, and raising rivals' costs) as a way to examine the dynamics of word use among competitors.

Interestingly, our research resonates with research conducted by Fischhoff (1983) and Frey and Eichenberger (1994), who attempt to build or extend a theoretical framework of frames and behavioral anomalies, respectively. More precisely, Fischhoff (1983) is interested in predicting how people will frame any given issue, given the great number of possibilities: "in order to predict behavior in less controlled situations, one must be able to anticipate how problems will be represented and what frames people will use to interpret them." Through a number of experiments, however, Fischhoff (1983) was unable to develop a general theory to predict which frame people will select, save for the robust finding that "people do not readily adapt to absorbing losses." To explain the evident difficulty in predicting frame choice, he suggested that people cannot introspect accurately about the factors influencing their decisions and choices. This view is well supported by experimental evidence showing the discrepancy between the ex-post reasons people cite for their behavior and the true reasons that were revealed using empirical approaches. The approach of Fischhoff (1983) is especially relevant for our analysis of words because it encourages further research elaborating on predictions about how people will word any given issue, as well as how words can affect individuals' construal of an issue, given the great number of possibilities.

Frey and Eichenberger (1994) propose an 'incentive approach' to analyzing behavioral anomalies, which can be distinguished from the psychological approach (investigating and identifying man's cognitive limitations) and the axiomatic approach (formally integrating evidence of anomalies into more predictive decision theories). The authors consider the landscape of competitive economic behavior as one in which behavioral anomalies shape the incentives of the anomaly-prone as well as those who would seek to exploit them. Those prone to committing anomalies can take costly actions to reduce this propensity in order to avoid loss of utility, and 'exploiters' can invest resources in seeking to exploit the behavioral anomalies of others, both of which involve a consideration of the marginal net benefits of addressing these anomalies. Thus, the incentive approach consists in

examining how individuals respond to the presence of behavioral anomalies in the marketplace, and focuses on new questions, in particular the conditions under which the incentives and possibilities for exploiting the anomalies of others is large enough to justify investing resources to taking advantage of them and when it is in the interest of the anomaly-prone to protect themselves from falling prey to behavioral anomalies. As Frey and Stutzer (2007) observe, “whether this interaction leads to an aggregate outcome consistent with the prediction of rational models or whether it generates large deviations from it depends on the structure of interaction (Fehr and Tyran 2005) ... As a result, the equilibrium extent of observable anomalies depends on a set of institutional conditions determining the benefits and cost of guarding and exploiting. In general, anomalies are unlikely to be fully eliminated by such interaction; they are transformed.”

Though the importance of word choice is, as we have argued, significantly underappreciated in certain domains, it remains the case that words (and thus decisions regarding word choice) are omnipresent in daily life, as actors in the economy and the polity make continual use of them in order to gain competitive advantage. Inspired by the works above, we consider the possibility that in this competitive landscape, the presence of word-related behavioral anomalies generate unique incentives for different actors: people affected by words in an anomalous way can do better by reducing their anomalies, and clever people can profit by exploiting the word-related anomalies of others, and both of these activities may be costly. Although an economic theory of wording is beyond the scope of this paper, we believe that more empirical research devoted to identifying these anomalies can nevertheless provide useful insights. Though Frey and Eichenberger (1994) focus exclusively on how firms exploit behavioral anomalies, we propose that benevolent central planners can also stand to improve social welfare by expending resources in order to determine how to exploit word-related anomalies in the public interest.

One interesting illustration of the incentive approach proposed by Frey and Eichenberger (1994) can be found in the unique company policies adopted by SSM Health, the first U.S. health care organization to win the prestigious Malcolm Baldrige National Quality Award. An unusual managerial practice of this organization is the banning of numerous violence-related words or expressions such as ‘bullet points’ (replaced with ‘information points’) ‘business targets’ (replaced with ‘business goals’) or ‘attacking a problem’ (replaced with ‘approaching a problem’) (Cialdini, 2016). In a similar vein, Liu and Gal (2011) show that companies who ask for ‘advice’ rather than ‘opinions’ or ‘expectations’ from consumers can generate feelings of empathy, and relationship closeness, which predict consumer willingness to purchase. These strategies, which recognize and explicitly address word-related behavioral anomalies provide examples of how well-informed policymakers might also leverage this knowledge to enhance social welfare.

We recognize the possibility that one may feel we are overconfident in experiments throughout this paper. Indeed, it is important not to over-interpret experimental findings. Laboratory experiments have a number of limitations (e.g., internal and external validity, representativeness, artificiality, low stakes, inexperienced participants) that have been discussed at length in the literature, especially regarding external validity (e.g., Levitt and List, 2007a, 2007b; see also Falk and Heckman, 2009 and Camerer, 2012 for replies). Moreover, the simple fact that participants are invited to participate in an *'experiment'* introduces a particular kind of frame, which may influence participants' behavior, as is the case with experimenter demand effects. Interviewed by the Federal Bank of Minneapolis,⁷ Gary Becker argued that “there is a heck of a difference between demonstrating something in a laboratory, in experiments, even highly sophisticated experiments, and showing that they are important in the marketplace... One can get excellent suggestions from experiments, but economic theory is not about how people act in experiments, but how they act in markets. And those are very different things.” Despite these limitations, however, “the experimental method is the most powerful tool for finding out about causal relations” (Guala, 2005). As a result, we are of the opinion that economic experiments offer researchers a unique and valuable approach to investigating behavioral anomalies. In particular, we concur with Kessler and Vesterlund (2015), who reconcile these opposing views by arguing that lab and field experiments are complements and “for most laboratory studies it is only relevant to ask whether the qualitative results are externally valid. A quantitative result refers to the precise magnitude or parameter estimate of an effect and a qualitative result refers to the direction or the sign of the estimated effect.” The authors add to other work (e.g. Camerer, 2012) showing that the external validity of qualitative results is frequently supported. As with any experimental result obtained in the lab, however, care should be taken not to over-interpret or inappropriately extrapolate findings to the real-world. Below we discuss several other key issues and offer some suggestions that may be useful to policymakers.

In order to anticipate the impacts associated with word choice and avoid their unintended consequences when implementing large-scale policies, policymakers could develop an extensive list of potential labels (not unlike the practice in marketing) that might be used to describe the specific elements of public policies. This list could include the synonyms of the labels under consideration as well as any similar words, their denotations and connotations, the frequency of the word in the given community, ease of pronunciation, any field-specific connotations that may exist among the targeted audience, and so on. As is the practice in marketing, expert opinions from linguists could also be solicited in order to help refine such a database. We note the possibility that once a word has been introduced, the first impression bias may make it difficult to alter people's original construals of and associations with an issue. On the other hand, word associations can also be dynamic in the sense that

⁷ Federal Bank of Minneapolis, 2002, Interview with Gary Becker, The Region, June, <https://www.minneapolisfed.org/publications/the-region/interview-with-gary-becker>.

repeated (mis)use of a word can shift people's perceived meaning. For example, euphemisms for tax increases such as tax 'reform' and asking voters to 'pay a little more' have, through repeated use, lost their euphemistic quality and come to be understood to mean increased taxes.

If several languages are implicated in a project, translation issues should also be carefully examined. Even when potential participants share the same language, a cautious approach remains necessary, as some evidence shows that the influence of certain labels can be culturally dependent. Dufwenberg et al. (2011) compared a 'community experiment' label with an 'experiment' label across identical games in Switzerland and Germany and found opposite behavioral effects between the two countries. The authors noted that the word for community has different historical connotations in Germany than it does in Switzerland (specifically a negative connotation in Germany and a positive connotation in Switzerland). Thus, the cultural framework in which a policy is to be implemented is also of considerable importance, especially when considering the fact that stereotype-activating words might have a greater impact within certain subsets of the population than others. In a survey experiment on environmental beliefs, for example, Republicans were more affected by the use of the words 'global warming' (vs. 'climate change') than were Democrats (Schuldt et al., 2011). Based on this sensitivity to the cultural context in which words are used, we reiterate the importance of performing pilot (quasi-)experimental studies in order to identify the most strategic words to use, or in cases where certain words lead to counterproductive effects, to at least identify the words that policymakers would do well to avoid.

Given the seriousness of the issues in which policymakers intervene (food security, public health, environmental issues, tax policy and compliance, etc.), we suggest that greater importance should be placed on the words employed in public policies and in descriptions of these policies. In-depth, case-by-case analyses should be conducted in order to elicit the best wording consistent with the pursued objectives. We contend that the considerations we raise here hold substantial promise as policy tools, and we urge researchers, policymakers and others in influential positions (e.g., managers, teachers) to devote more resources to exploring the peculiar effects of words on economic behaviors. In conclusion, we believe that there is a strong case for avoiding a 'one-word-fits-all' approach or leaving word choice to chance or unnecessary satisficing.

VIII. REFERENCES

- Akerlof, George A. and Kranton, Rachel E. (2010). *Identity Economics*. Princeton, NJ.: Princeton University Press.
- Alia-Klein, Nelly, Goldstein, Rita Z., Tornasi, Dardo, Zhang, Lei, Fagin-Jones, Stephanie, Telang, Frank, Wang, Gene-Jack, Fowler, Joana S. and Volkow, Nora D. (2007). What is in a Word? No versus Yes Differentially Engage the Lateral Orbitofrontal Cortex, *Emotion*. 7: 649-659.
- Alter, Adam L. (2013). *The Power of Names*. The New Yorker.
- Alter, Adam L. and Oppenheimer, Daniel M. (2006). Predicting Short-term Stock Fluctuations by Using Processing Fluency, *Proceedings of the National Academy of Sciences of the United States of America*. 103: 9369-9372.
- Alter, Adam L. and Oppenheimer, Daniel M. (2009). Uniting the Tribes of Fluency to Form a Metacognitive Nation, *Personality and Social Psychology Review*. 13: 219-235.
- Bargh, John A., Lee-Chai, Annette, Barndollar, Kimberly, Gollwitzer, Peter M. and Trotschel, Roman (2001). The automated will: Nonconscious activation and pursuit of behavioral goals, *Journal of Personality and Social Psychology*. 81: 1014-1027.
- Becker, Howard (1973). *Outsiders: Studies in the Sociology of Deviance*, New York: The Free Press.
- Bertrand, Marianne and Mullainathan, Sendhil (2004). Are Emily and Greg More Employable than Lakisha and Jamal? A Field Experiment on Labor Market Discrimination, *American Economic Review*. 94: 991-1013.
- Bowles, Samuel (2008). Policies Designed for Self-interested Citizens May Undermine "The Moral Sentiments": Evidence from Economic Experiments, *Science*. 320: 1605-1609.
- Bryan, Christopher J., Adams, Gabrielle S. and Monin, Benoît (2013). When Cheating Would Make You a Cheater: Implicating the Self Prevents Unethical Behavior, *Journal of Experimental Psychology-General*. 142: 1001-1005.
- Bryan, Christopher J., Master, Allison and Walton, Gregory M. (2014). "Helping" Versus "Being a Helper": Invoking the Self to Increase Helping in Young Children, *Child Development*. 85: 1836-1842.
- Bryan, Christopher J., Walton, Gregory M., Rogers, Todd and Dweck, Carol S. (2011). Motivating Voter Turnout by Invoking the Self, *Proceedings of the National Academy of Sciences of the United States of America*. 108: 12653-12656.
- Burger, Jerry M., Messian, Nicole, Patel, Shebani, del Prado, Alicia and Anderson, Carmen (2004). What a Coincidence! The Effects of Incidental Similarity on Compliance, *Personality and Social Psychology Bulletin*. 30: 35-43.
- Camerer, Colin F. (2012). 'The Promise and Success of Lab-Field Generalizability in Experimental Economics: A Critical Reply to Levitt and List'. In G. Frechette and A. Schotter (eds), *Methods of Modern Experimental Economics*. Oxford: Oxford University Press.

- Carver, Charles S., Ganellen, Ronald J., Froming, William J. and Chambers, William (1983). Modeling - an Analysis in Terms of Category Accessibility, *Journal of Experimental Social Psychology*. 19: 403-421.
- Chase, Stewart (1954). *The Tyranny of Words*. New York: Harcourt, Brace and World.
- Chen, Roy and Chen, Yan (2011). The Potential of Social Identity for Equilibrium Selection, *American Economic Review*. 101: 2562-2589.
- Chen, Yan and Li, Sherry X. (2009). Group Identity and Social Preferences, *American Economic Review*. 99: 431-457.
- Chen, Yan, Li, Sherry X., Liu, Tracy X. and Shih, Margaret (2014). Which Hat to Wear? Impact of Natural Identities on Coordination and Cooperation, *Games and Economic Behavior*. 84: 58-86.
- Cialdini, Robert B. (2016). *Pre-suasion: A Revolutionary Way to Influence and Persuade*. Simon & Schuster.
- Cialdini, Robert B., Demaine, Linda J., Sagarin, Brad J., Barrett, Daniel W., Rhoads, Kelton and Winter, Patricia L. (2006). Managing Social Norms for Persuasive Impact, *Social Influence*. 1: 3-15.
- Clot, Sophie, Grolleau, Gilles and Méral, Philippe (2017). Payment vs. Compensation for Ecosystem Services: Do Words Have a Voice in the Design of Environmental Conservation Programs? *Ecological Economics*. 135: 299-303.
- Cohen, Taya R. and Morse, Lily (2014). Moral character: What It Is and What It Does, *Research in Organizational Behavior: An Annual Series of Analytical Essays and Critical Reviews*. 34: 43-61.
- Colapinto, John (2011). Famous Names - Does it Matter What a Product is Called? *The New Yorker*.
- Davis, Derick F., Bagchi, Rajesh. and Block, Lauren G. (2016). Alliteration Alters: Phonetic Overlap in Promotional Messages Influences Evaluations and Choice, *Journal of Retailing*. 92: 1-12.
- Davis, John (2011). Review of Identity Economics by Akerlof and Kranton, *Economics and Philosophy*. 27: 331-338.
- Denzau, Arthur T. and North, Douglass C. (1994). Shared Mental Models – Ideologies and Institutions, *Kyklos*. 47(1), 3-31.
- Devine, Patricia. G. (1989). Stereotypes and Prejudice - Their Automatic and Controlled Components, *Journal of Personality and Social Psychology*. 56: 5-18.
- Drews, Stephan. and Antal, Miklós (2016). Degrowth: A "Missile Word" that Backfires?, *Ecological Economics*. 126: 182-187.
- Dufwenberg, Martin, Gächter, Simon and Hennig-Schmidt, Heike. (2011). The Framing of Games and the Psychology of Play, *Games and Economic Behavior*. 73: 459-478.

- Elgot, Jessica (2016). The EU Referendum: A Guide the UK's Biggest Political Decision of the Century. The Guardian.
- Epley, Nicholas and Gneezy, Ayelet (2007). The Framing of Financial Windfalls and Implications for Public Policy, *The Journal of Socio-Economics*. 36: 36-47.
- Epley, Nicholas, Mak, Dennis and Idson, Lorraine C. (2006). Bonus or Rebate?: The Impact of Income Framing on Spending and Saving, *Journal of Behavioral Decision Making*. 19: 213-227.
- Etchells, Pete (2017). Fake News and Neurobabble: How Do We Critically Assess What We Read? The Guardian.
- Falk, Armin and Heckman, James J (2009). Lab Experiments Are a Major Source of Knowledge in the Social Sciences, *Science*. 326: 535-538.
- Fehr, Ernst and Tyran, Jean-Robert (2005). Individual Irrationality and Aggregate Outcomes, *Journal of Economic Perspectives*. 19(4): 43–66.
- Ferraro, Fabrizio, Pfeffer, Jeffrey and Sutton, Robert I. (2005). Economics Language and Assumptions: How Theories Can Become Self-fulfilling, *Academy of Management Review*. 30: 8-24.
- Fiedler, Klaus and Mata, André (2013). The Art of Exerting Verbal Influence through Powerful Lexical Stimuli. In: Joseph Forgas, Orsolya Vincze and János László (eds.), *Social Cognition and Communication*. Sydney Symposium of Social Psychology: Psychology Press.
- Fischhoff, Baruch (1983). Predicting Frames, *Journal of Experimental Psychology: Learning, Memory, and Cognition*. 9(1):103–116.
- Frey, Bruno and Eichenberger, Reiner (1994). Economic Incentives Transform Psychological Anomalies, *Journal of Economic Behaviour and Organization*. 23(2): 215-234.
- Frey, Bruno and Stutzer, Alois (2007). Economics and Psychology: Developments and Issues (Chapter 1). In *Economics and Psychology: A Promising New Cross-Disciplinary Field*. MIT Press.
- Garner, Randy (2005). What's in a Name? Persuasion Perhaps, *Journal of Consumer Psychology*. 15: 108-116.
- Gneezy, Uri and Imas, Alex (2014). Materazzi Dffect and the Strategic Use of Anger in Competitive Interactions, *Proceedings of the National Academy of Sciences of the United States of America*. 111: 1334-1337.
- Guala, Francesco (2005). *The Methodology of Experimental Economics*. New York, N.Y.: Cambridge University Press.
- Guéguen, Nicholas and Lamy, Lubomir (2011). The Effect of the Word "Love" on Compliance to a Request for Humanitarian Aid: An Evaluation in a Field Setting, *Social Influence*. 6: 249-258.
- Hardisty, David J., Johnson, Eric J. and Weber, Elke U. (2010). A Dirty Word or a Dirty World? Attribute Framing, Political Affiliation, and Query Theory, *Psychological Science*. 21: 86-92.

- Hatter, Warren (2016). <https://warrenhatter.wordpress.com/2016/07/20/the-brexit-referendum-through-a-behavioural-lens/>. The Ripple Effect.
- Huth, Alexander G., de Heer, Wendy A., Griffiths, Thomas L., Theunissen, Frédéric E. and Gallant, Jack L. (2016). Natural Speech Reveals the Semantic Maps that Tile Human Cerebral Cortex, *Nature*. 532: 453-458.
- Jones, Philip and Hudson, John (2000). Civic duty and expressive voting: Is virtue its own reward?, *Kyklos*. 53(1), 3-16.
- Kahneman, Daniel (2011). *Thinking, Fast and Slow*, New York, NY: Farrar, Straus and Giroux.
- Kay, Aaron C. and Ross, Lee (2003). The Perceptual Push: The Interplay of Implicit Cues and Explicit Situational Construals on Behavioral Intentions in the Prisoner's Dilemma, *Journal of Experimental Social Psychology*. 39: 634-643.
- Kessler, Judd and Vesterlund, Lise (2015). The External Validity of Laboratory Experiments: The Misleading Emphasis on Quantitative Effects, In: *Handbook of Experimental Economic Methodology*. Oxford University Press: Oxford, UK.
- Key, Mary R. (1975). Male-Female Language - with a Comprehensive Bibliography, *Mr. Lingua*. 42: 231-234.
- Langer, Ellen, Blank, Arthur and Ben Zion, Chanowitz (1978). The Mindlessness of Ostensibly Thoughtful Action: The Role of "Placebic" Information in Interpersonal Interaction, *Journal of Personality and Social Psychology*. 36: 635-642.
- Levitt, Steven D. and List, John A. (2007). Viewpoint: On the Generalizability of Lab Behaviour to the Field, *Canadian Journal of Economics*. 40(2):347-70.
- Levitt, Steven D and List, John A. (2007). What Do Laboratory Experiments Measuring Social Preferences Tell Us About the Real World?, *Journal of Economic Perspectives*. 21: 153-174.
- Lewinsohn-Zamir, Daphna (2012). Taking Outcomes Seriously, *Utah Law Review*. 2: 861-902.
- Liberman, Varda, Samuels, Steven M. and Ross, Lee (2004). The Name of the Game: Predictive Power of Reputations versus Situational Labels in Determining Prisoner's Dilemma Game Moves, *Personality and Social Psychology Bulletin*. 30: 1175-1185.
- Liu, Wendy and Gal, David (2011). Bringing us together or driving us apart: The effect of soliciting consumer input on consumers' propensity to transact with an organization, *Journal of Consumer Research*. 38: 242-259.
- Loftus, Elizabeth F. and Guido, Zanni (1975). Eyewitness testimony: The influence of the wording of a question, *Bulletin of the Psychonomic Society*. 5 (1), 86-88.
- Macrae, C. Neil and Johnston, Lucy (1998). Help, I Need Somebody: Automatic Action and Inaction, *Social Cognition*. 16(4): 400-417.
- Meier, Brian P., Moller, Arlen C., Chen, Julie J. and Riemer-Peltz, Miles (2011). Spatial Metaphor and Real Estate: North-South Location Biases Housing Preference, *Social Psychological and Personality Science*. 2: 547-553.

- Miller, Dale T., Downs, Julie S. and Prentice, Deborah A. (1998). Minimal Conditions for the Creation of a Unit Relationship: The Social Bond between Birthdaymates, *European Journal of Social Psychology*. 28: 475-481.
- Nelson, Lief D. and Simmons, Joseph P. (2009). On Southbound Ease and Northbound Fees: Literal Consequences of the Metaphoric Link Between Vertical Position and Cardinal Direction, *Journal of Marketing Research*. 46: 715-724.
- O'Brien, Doug, Prendergast, Kimberly, Thomson, Eleanor, Fruchter, Marcus and Aldeen, Haley T. (1999). *The Red Tape Divide: State-by-State Guide to Food Stamp Applications, Feeding America*.
- Orbach, Barak (2006). Unwelcome Benefits: Why Welfare Beneficiaries Reject Government Aid, Law and Inequality: *A Journal of Theory and Practice*. 24.
- Rozin, Paul, Hormes, Julia M., Faith, Myles S. and Wansink, Brian (2012). Is Meat Male? A Quantitative Multimethod Framework to Establish Metaphoric Relationships, *Journal of Consumer Research*. 39: 629-643.
- Saussure, Ferdinand (1906-1911). *Course in General Linguistics*. Charles Bally and Albert Sechehaye (eds.).
- Schuldt, Jonathan P., Konrath, Sarah H. and Schwarz, Norbert (2011). "Global Warming" or "Climate Change"?, *Public Opinion Quarterly*. 75: 115-124.
- Shaikh, Saba and Bruce, C. R. (2016). An Ethical Appraisal of Financial Incentives for Organ Donation, *Clinical Liver Disease*. 7: 109-111.
- Shampanier, Kristina, Mazar, Nina and Ariely, Dan (2007). Zero as a Special Price: The True Value of Free Products, *Marketing Science*. 26: 742-757.
- Smith, Tom W. (1987). That Which We Call Welfare by Any Other Name Would Smell Sweeter: An Analysis of the Impact of Question Wording on Response Patterns, *Public Opinion Quarterly*. 51:75-83.
- Song, Hyunjin J. and Schwarz, Norbert (2009). If It's Difficult to Pronounce, It Must Be Risky, *Psychological Science*. 20: 135-138.
- Spolsky, Bernard (1998). *Sociolinguistics*. Oxford University Press.
- Sunstein, Cass R. and Ullmann-Margalit, Edna (2001). Solidarity goods, *Journal of Political Philosophy*. 9: 129-149.
- Sussman, Abigail B. and Olivola, Christopher Y. (2011). Axe the Tax: Taxes Are Disliked More than Equivalent Costs, *Journal of Marketing Research*. 48: S91-S101.
- Tan, Charmaine and Low, Donald (2012). Incentives, Norms, and Public Policy. In: Donald Low (ed.) *Behavioural Economics and Policy Design: Examples from Singapore*.
- Warren, Danielle E. and Laufer, William S. (2009). Are Corruption Indices a Self-Fulfilling Prophecy? A Social Labeling Perspective of Corruption, *Journal of Business Ethics*. 88: 841-849.

Watt, Nicholas and Syal, Rajeev (2015). EU Referendum: Cameron Accepts Advice to Change Wording of Question. *The Guardian*.

Weisberg, Deena S., Taylor, Jordan C. V. and Hopkins, Emily J. (2015). Deconstructing the Seductive Allure of Neuroscience Explanations, *Judgment and Decision Making*. 10: 429-441.