

## COMMENTARY ON PLUMM, BORHART, & WEATHERLY

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It has long been understood that different ways of speaking about the same thing may obtain drastically different psychological functions and, thereby, occasion different patterns of responding. Knowledge of this phenomenon has afforded powerful application in the rhetoric of political discourse. In this arena, increasing trends in Earth's temperature may be called "global warming" or "climate change"; dissenting citizens may be "revolutionaries" or "gangs of thugs," and various positions on the inclusion of contraceptives in healthcare coverage may be "a war on women's health" or "an attack upon religious freedom". In the age of twenty-four hour news and online social networking, such strategies for gaining political capital have never before been taken to greater extremes, and our opportunities to observe them have never been more frequent.

As a behavior scientist living in this cultural context, it is thrilling to see fellow researchers unafraid to expand the effective range of behavioral science. In this paper, Plumm, Borhart and Weatherly do their part to speak beyond the operant chamber and into the turbulent and complex world of human political behavior. Without question, this is exactly the sort of high-stakes challenge our intellectual forefathers envisioned decades ago, while laying the empirical foundations for our understanding of behavior. I applaud their efforts, and aim now to provide some commentary on their work to highlight additional implications of their findings above and beyond those already mentioned.

The dynamic nature of cultural memes makes them a difficult moving target for researchers. This sort of assessment, offered by Plumm et al., offers an interesting view of the strength of certain cultural memes at a given point in time. Repetitions of this procedure over time should afford measurement of changes in

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these trends as cultural conditions evolve, opening the door to scientific goals of prediction and influence.

An understanding of current trends in cultural attitudes can better equip behavior analysts to answer emergent calls for technologies for the direct assessment of socio-politically relevant patterns in verbal behavior. For example, Maibach, Roser-Renouf, & Leiserowitz (2009) assessed American's views on global warming. Their analysis revealed six distinct segments of the population, ranging from "alarmed" to "dismissive." These authors suggest that those seeking to promote environmental stewardship craft messages, messaging techniques, and methods suited to the character of specific population segments. Without such technologies to identify critical "frames," even the findings in Plumm et al., that one of five social policies was undifferentiated as a function of changing frames, are difficult to explain. Answering why "same-sex marriage" and "gay marriage" appear to exert similar stimulus control yet "doctor-assisted suicide" and "right to die" do not will require a robust, flexible and scientifically grounded theory of language.

Plumm et al. suggest that, "If discounting is going to be a useful measure in the study of public or social policies, then one needs to understand why some participants might not value certain outcomes." They then appeal to the concept of "framing" as described in Prospect Theory (Tversky & Kahneman, 1981) as a possible explanatory vantage, adding that, "From a behavioral perspective, framing would be expected to potentially alter behavior by altering the discriminative stimuli present in the situation." Here it seems valuable to further distinguish among the behavioral and economic approaches as separate scientific enterprises. Whereas the former is characterized as an inductive study of the interaction of organism and environment, the latter are more commonly hypothetico-deductive investigations of deviations from presumed "rationality." Conflation of these two perspectives places the interpreter of behavioral data at risk of deriving philosophically eclectic or incoherent conclusions.

In maintaining allegiance to inductive science, it should be noted that reducing the effect of framing on decision making to a matter of simple discriminations does not answer *why* words synonymous by definition acquire measurably different psychological functions. In such complex behavior patterns as those observed on policy decisions, stimulus control must be understood as an outcome of a vast web of cascading conditional discriminations. The breadth of conditionality goes far beyond traditional formulations of stimulus generalization, relying exclusively on the physical characteristic of stimuli.

Equivalence preparations (Sidman & Tailby, 1982; Sidman, 1994) demonstrate how verbally capable humans may respond to stimuli in ways that

are arbitrary with respect to the physical characteristics of those stimuli. For example, the stimulus “@” may exert identical control as the stimulus “at” in certain contexts, despite their sharing few physical characteristics. An appreciation for how people may come to respond to equivalence or “same as” relations arbitrarily is an important step toward understanding complex policy choices. However, the participants in the current study were asked to respond to a broader set of relations than just equivalence. Policies were reported to be *more* or *less* valued, some policy outcomes were *better* or *worse* than others, and policy outcomes justified *longer* or *shorter* waits, just to name a few evident relations.

Relational Frame Theory (RFT) expands upon equivalence to include a wider array of arbitrary relations beyond similarity to include relations of coordination, distinction, hierarchy, comparatives such as “better/worse”, self-referentials such as “like me/not like me”, temporal relations like “before/after”, and so on. In combination with the other conceptual pillars of RFT, such as derived relational responding and transformation of stimulus function, this inductive theory provides the behaviorist ways of speaking adequate to the task of explaining why subtle changes in policy language exert powerful control over decision making.

Derived relational responding describes the common observation of behavior with respect to relations among stimuli not previously trained. The emergence of such responses is observed as a function of other, directly trained relations. For example, a person trained to select B or C in the presence of A, will without direct training select A in the presence of B or C (called mutual entailment or symmetry) and B in the presence of C and vice versa (called combinatorial entailment or transitivity). As much is clearly demonstrated in equivalence preparations.

Further, if A acquires some discernable function, the functions obtaining among B and C will transform in accordance to the relation of them to A. For example, if A is trained as the *opposite* of B and C, people will readily derive that B and C are the *same* without direct training. Moreover, given direct training for the relation  $A < B < C$ , any function bestowed by the environment upon A will transfer to B and C in accordance with the  $<$  relation. So if A is paired with an aversive that occasions an avoidance response, RFT predicts that the magnitude of the response would be greater with B and C even though B and C have never been paired with aversives directly. These predictions enjoy robust support from empirical investigations, and clearly distinguish “relational responding” from the narrower subset of “equivalencing” (Auguston, Dougher, & Markham, 2000; Barnes-Holmes, Barnes-Holmes, Smeets, Strand, & Friman, 2004; Berens & Hayes, 2007).

In his description how stimulus functions are altered via respondent and operant learning, Torneke (2010) offers, “My point here is to emphasize that the

function of a stimulus is not an inherently given quality of the stimulus. Its function can be determined only through an analysis of the wider situation (the context) and the individual's response. The same stimulus can have different stimulus functions." Some contemporary samples of rhetorical strategies by public figures are helpful in understanding the utility of RFT for explaining why the framing of public policies may impact decision-making.

In a recent interview (Shapiro, 2012), Linguist Ben Zimmer describes political strategies designed to change the stimulus functions of popular terms in political discourse. For example, he says, "During Ronald Reagan's first term, 'Reaganomics' was generally a negative epithet...but by 1984, the economy had turned around, and Ronald Reagan in fact embraced the term 'Reaganomics'." He describes a similar transformation of the stimulus functions of the word "queer," saying, "So for instance, the term 'queer,' which is a very pejorative term, was reclaimed by members of the gay community as a neutral or positive term...to the extent that you now have queer studies at universities, for instance." In both of these examples, political factions are able to co-opt the functions of popular cultural terms by altering the context in which audiences are exposed to them, including the contents and sources of the messages in which these terms are imbedded.

"Obamacare" provides a current example. With popular embrace for this term now across the political spectrum, parties vie to produce the most powerful function-altering narratives. Initially coined by conservatives and applied as a pejorative label for the President's healthcare policy, Zimmer points out that supporters of Obama's policy have more recently been observed expressing their opinions with signs and slogans reading: "We love Obamacare!"

Technologies appropriate for the direct measurement of whether rhetorical strategies are effective in transforming stimulus functions are needed. Innovations to this end should be seen as going hand-in-hand with procedures designed to measure discounting curves and other meaningful outcomes of verbal processes. The Implicit Relational Assessment Procedure (IRAP—Barnes-Holmes, Barnes-Holmes, Stewart, & Bowles, 2008) provides a promising starting point.

The IRAP records latency and accuracy in time-pressured conditional discrimination tasks in order to assess the relative strength of responses consistent or inconsistent with a given relation among stimuli. Were it to be applied alongside the procedures in Plumm et al., the IRAP might provide additional insights into prevailing language patterns or "subject variables" at an individual level. For example, subjects who identify more quickly and accurately when relata such as "gay" and "bad" are situated in a frame of coordination than when the same relata are situated in a frame of distinction, might not be expected to

value pro gay marriage policy. Readers are encouraged to challenge whether such speculations stand up empirically as current theory and evidence suggest they would. Whether it is found that previous findings in RFT do or do not generalize to language of policy decisions, enough can be learned about the role of language in political behavior to make the pursuit worthwhile.

It is important to make explicit that this call to further investigation of the role of core language processes in political behavior is not submitted in criticism of Plumm, et al. Clearly, the core focus of their study was examination of changes in discounting curves as a function of word choice in policy descriptions—a fine contribution and important line of research that readers will certainly find interesting and inspiring. Rather, these comments are intended to expand upon the potential implications of Plumm et al.'s findings that readers might be encouraged to investigate further. Behavior as impactful as public policy decision-making is worthy of study across many levels of analysis, experimental preparations and interpretive filters. All comers are welcome.

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