THE DIFFERENTIAL ATTENTION BIASES OF LIBERALS AND CONSERVATIVES

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Abstract

Using a modified flanker paradigm to measure the extent to which individuals’ attention is devoted to different types of stimuli, we test whether attentional patterns vary systematically with political orientations and find this to be the case. Specifically, when the target stimulus is an angry face, people holding right-of-center political beliefs produce response times indicative of much more muted flanker effects than do those holding left-of-center beliefs. When the target stimulus is a happy face, there is no significant difference in flanker effects across political orientations. This response pattern highlights important differences in attention and emotion processing between people on the left and people on the right that may constitute a potential cognitive endophenotype, mediating previously identified genetic and physiological differences linked to political orientation and attitudes. Further study using established social neuroscience methods is merited to clarify potential cognitive mechanisms underlying political orientation.
Growing evidence indicates that liberals and conservatives differ not just in their political preferences but also in their personality traits (Caprara et al., 2006; Gerber et al., 2010; Mondak et al. 2010; Mondak, 2010), preference for closure (Chirumbolo, Areri, and Sensales, 2004; Golec, Cislak, & Wesolowska 2010; Kemmelmeier, 1997), core personal values (Schwarz, Caprara, & Vecchione, 2010), sensitivity to threat (Feldman & Stenner, 1997; Huddy et al., 2005), fondness of authority (Adorno et al., 1950; Altemeyer, 1981; 1996), orientation to social dominance (Sidanius & Pratto, 1996; 1999), preference for societal organization (Jost et al., 2003), approach to child rearing (Hetherington & Weiler, 2009; Lakoff, 2002; Stenner, 2005), sensitivity to disgust (Inbar, Pizarro & Bloom, 2009), preference in art and humor (Wilson, 1990; Wilson, Ausman, & Matthews, 1973), typical life accoutrements (Carney et al., 2008), moral foundations (Graham, Haidt, and Nosek 2009), susceptibility to eye gaze (Dodd, Hibbing, & Smith 2011), baseline neural structure (Kanai, et al., 2011), neural patterns in response to unexpected events (Amodio et al., 2007), physiological response to threat (Oxley et al., 2008), and possibly even genetics (Settle et al., 2010; Hatemi et al., 2011).

Though this is an impressive and varied list, the primary focus of previous research has been on traits that participants ascribe to themselves, usually in survey self-reports, or on biological/physiological traits. Missing from the list, for the most part, are studies of the cognitive correlates of political orientations: how people think (not how they think they think) and what they pay attention to. Yet identifying these cognitive and attentional patterns is critical to a more developed understanding of the characteristic features of various political orientations. These patterns, after all, provide a basic foundation for decision making and behavior. This is because attention plays a central role in the general regulation of emotion (Gross & Thompson,
and emotions are a well-known basis for motivating action and attitudes, including action
and attitudes in the political sphere (Frijda, 1989; Marcus, 2002). Thus if two individuals are
exposed to an identical environmental stimulus containing varying classes of affective
information, they may perceive that stimulus quite differently. All that is required for such
dissimilarity to appear is for these two individuals to pay differential attention to the affective
cues in the environment; those differences may lead to distinct preferences and behaviors,
including distinct political preferences or behaviors.

Consider, for example, attention to emotionally expressive faces. One individual might
pay more attention to angry than happy faces, which leads to a perceived world where strangers
are viewed as potentially dangerous and threatening. If so, it would not be surprising if that
person adopted more personally and politically conservative orientations. For example, an
individual who focuses on threatening cues may be less eager to experience novel situations and
diverse people so may be less supportive of public policies promoting societal change and novel
lifestyles and more supportive of defense spending and restrictions on immigration.

The notion that attentional biases might underlie ideological orientations has not been
heavily studied (for an exception, see Dodd, Hibbing, and Smith, 2011). Yet there is evidence
that cognitive biases pertaining to facial emotions systematically predict political attitudes (Vigil,
2010). In this work, photographic facial images were given “emotionally ambiguous”
expressions and research subjects were asked to report the emotion they thought was being
expressed. Political conservatives were found to be more likely than liberals to attribute negative
(or dominant) emotions, such as anger, to the face than they were to attribute positive (or
submissive) emotions such as happiness. The topic of disparate responses to faces is a
promising, logical, and important one since humans are social creatures. If there is variation in the way people perceive the moods of those around them, it is likely to have political and other implications.

Still, perceptions are only part of the story. There may also be variations in the kinds of faces that grab people’s attention and these attentional variations could have political implications quite apart from perceptual variations. Characterizing the dimensions that elicit attention biases is particularly important given that social information comes in the form of multiple stimuli varying in congruity and affect and demanding real-time processing. From an array of options, some people may fixate on angry faces; others may fixate on happy faces, and these variations are likely to be related to political orientations. In fact, our core hypothesis, based on the thrust of many of the studies cited in the first paragraph as well as Vigil’s work, is that individuals who champion politically conservative positions will tend to be those who typically focus their attention on angry, not happy, faces. Such a result would suggest that political orientations are related not just to the emotions people attribute to faces but also to the kind of faces that demand their attention. Previous studies show conservatives are more physiologically responsive to threatening stimuli (Oxley et al., 2008) and that they appear to see anger where liberals do not (Vigil, 2010). Do conservatives also attend to threatening faces (as we hypothesize) or do they tend to ignore such faces because they are made uncomfortable by them?

In order to identify the relationship between people’s political orientation and their tendency to focus attention on faces projecting particular emotions we turned to the flanker task. This paradigm seems particularly well-suited for testing the possibility that liberals and
conservatives are differentially attentive to angry and to happy faces. Despite this value, the flanker paradigm appears to be absent from the political science literature in general and from the political psychology literature in particular. Thus we have two major objectives in this research note: 1.) to introduce a potentially valuable analytical methodology and 2.) to present original empirical evidence on the distinctive attentional biases of liberals and conservatives.

The Flanker Paradigm and Methods

The flanker paradigm is a well-established research protocol for measuring attention. A typical flanker trial involves presenting pictures of three stimuli to a subject on a computer screen: one in the center of the screen (the target) along with one picture on both sides of the target (the flankers). The flanking stimuli are either congruent with the target (displaying the same emotion) or incongruent with the target (displaying a different emotion). Participants are instructed to ignore the flanking stimuli and make a judgment regarding whether they like or dislike the target stimuli. They are told to respond with the ‘z’ key if they dislike the target or the ‘/’ key if they like the target. Response times (RTs) are recorded and the difference between RTs for trials with congruent flankers and with incongruent flankers becomes the central measure (Eriksen & Eriksen, 1974).

Flanker tasks fall under the rubric of “executive control” tasks where RT to the target is slowed when the flanker is incongruent to the target relative to when it is congruent, reflecting the “cost” of differential processing of conflicting stimuli. More recently, the flanker and other executive control paradigms have been modified to include a variety of stimulus properties of interest to test specific hypotheses. Examples include emotional content through use of taboo (Mathewson, Arnell, & Mansfield, 2008) and alcohol paraphernalia versus neutral objects to
delineate relapse-related attention biases (Cox, Blount, & Rozak, 2000). Given the preliminary and separate evidence for differences in processing threatening (Oxley et al., 2008) in perceptions of affectively valenced stimuli (Vigil, 2010) and in cognitive control paradigms (Amodio et al., 2007), we adapted the flanker paradigm to determine whether differences across the political spectrum also exist in attention and emotion processing. The flanker paradigm makes it possible to investigate the effects of socially relevant stimuli (i.e., faces) on attention, in different affective contexts. The question we pose is whether individuals holding policy preferences traditionally associated with a conservative ideology as opposed to those holding liberal preferences will differ in their affect and congruity-relevant processing of information, akin to the previously identified variation in psychological (self-report) and physiological responses across the political spectrum.

Measuring Political Orientations: Although political orientations can be captured in many different ways, including self-placement on the ideological spectrum and party identification, we measured political orientation by asking participants to self-report their preferences on 24 separate political issues such as gun control and abortion rights. Items were posed in the well-known Wilson-Patterson (1968) format where participants are presented with a phrase such as gun control, abortion rights, or high taxes and asked to report whether they agree or disagree (for a full list, see the appendix). We then assigned a value of 1 if the participant favored the conservative position on that issue, 0 if the participant favored the liberal position, and .5 if they were unsure. Next we summed these 24 items into a simple additive index. These procedures make it possible to view political orientation as the continuous concept that it is (rather than draw an artificial line between liberals and conservatives) and, in subsequent
analyses, to consider the distinct sub-components of ideology such as economic and social orientations (Carsay and Layman, 2002).

Participants and Procedures: One hundred and nineteen participants (63 females, and 56 males), ranging in age from 18 to 53 years but primarily in the 19-23 range ($M = 20.058, SD = 3.93$), completed the study. At the beginning of the experiment, participants were given a short survey that included questions on issue preferences, party identification, self-reported ideology, and demographics (sex, and year in school). Participants then completed the modified flanker task.

Materials and Apparatus: The flanker task was programmed in E-prime 1.2 (Psychology Software Tools, Inc.), and was administered individually on a Pentium IV computer with a Dell monitor in a testing room equipped with soft lighting. Participants were seated approximately 40 cm from the computer screen and responded using the standard computer keyboard. Stimuli were pictures of faces displaying either happy or angry emotions (drawn from the NimStim Face Stimulus Set). All pictures were identical in size (113 x 133 pixels) and all stimuli were presented with the same neutral white background. All face stimuli were balanced for race and gender across valence type. Examples of the sets of images employed in the flanker task are presented in Figure 1. In order to equate stimuli across participants for perceived valence, participants completed a computerized pretest to select the stimuli that were later used in the flanker task. During the pretest, participants were presented with 12 images of angry and happy stimuli that they rated on a scale of 1 (disliked the most) to 8 (liked the most). The two lowest rated angry faces and the two highest rated happy faces were selected for subsequent use in the flanker experiment.
Results

We begin with evidence that our group of subjects was typical in demonstrating the flanker effect. As indicated in the first row of Table 1, on the whole participants were over 10 milliseconds quicker to respond when the flankers were congruent with the target than when they were incongruent (p < .05). Not all targets are the same, however, and previous research has shown that, compared to positive stimuli, negative (threatening) stimuli activate separate neural pathways (Carver & White, 1994; Carver, Sutton, & Scheier, 2000). Consistent with this line of thought, previous research using the flanker task has found that responses are faster overall to angry targets compared to happy targets (Van Honk, Tuiten, de Haan, van den Hout, & Stam, 2001), presumably for the evolutionarily sensible reason that it is more important to pay attention to threatening than to nonthreatening stimuli (Fox & Russo, 2002). Once again, our data are perfectly consistent with previous evidence. Compared to happy targets, angry targets elicited RTs approximately 30 milliseconds quicker both when the flankers were congruent (angry) and incongruent (happy). It is also interesting to note that the flanker effect is much more noticeable when the target is angry (second row of Table 1) than when the target is happy (third row).

But the main issue is whether or not the tendency to be affected by flankers is correlated with political orientations. As mentioned, given previous findings on the sensitivity of conservatives to threat, our expectation is that differential flanker effects will be clearest when the target is threatening (angry). An alternative hypothesis, however, is that conservatives, in light of their tendency to be conscientious (Gerber et al., 2010; Mondak, 2010), will be less
susceptible to flanker effects across the board since they would focus more dutifully on the target regardless of its content. The best way to present the results is a series of scatterplots with susceptibility (RT for congruent flankers minus RT for incongruent flankers) to the flanker effect plotted against political orientation. The first scatterplot (Figure 2) shows the relationship for all targets; the second (Figure 3), for angry targets only; and the third (Figure 4), for happy targets.

(Figures 2, 3, and 4 about here)

With all targets included, the bivariate correlation, though positive ($r = .14$), is statistically insignificant ($p > .10$), suggesting that, compared to liberals, individuals with conservative views do not on the whole display greater ability to screen out distractions. The pattern changes, however, when the focus is exclusively on trials with angry targets (Figure 3). Here the relationship is positive, sizable ($r = .24$), and statistically significant ($p < .05$). On average, when targets are angry, individuals with conservative issue positions have response times for incongruent flankers that are nearly as fast or even faster than for congruent flankers. Liberals, on the other hand, tend to be slowed down more by incongruent flankers as per traditional flanker effects. What this suggests is that conservatives focus so much on the target when it is angry that the usual slowing effects of incongruent flankers do not much apply. This pattern holds up even when controls are added (partial $r = .24; p < .05$). Interestingly, Figure 4 shows that there is no symmetrical but opposite result for liberals when the targets are happy faces. When only happy targets are analyzed, political ideology is completely unrelated, with a coefficient that is close to 0 ($-.01$) and statistically insignificant at even the .10 level. In other words, it is not the case that liberals are fixated on happy targets to the point that they are unaffected by the nature of the flankers.
Discussion

We utilized a traditional flanker paradigm with affectively valenced faces as the targets and flankers to investigate how task distracting emotional information might differentially influence the respective attention of liberals and conservatives and found that conservatives do not give evidence of traditional flanker effects when the target is angry even as liberals do. This relationship persists when the two control variables available are introduced but is confined to those cases in which the target is an angry face. Liberal-conservative attentional differences appear to be real but restricted to threatening stimuli, at least in this particular sample. One interpretation of these results is that conservatives are sufficiently fixated on the angry face that they are unaffected by the nature of the flanking images (congruent or incongruent) in the fashion that liberals tend to be. These observed, distinct basic information processing biases in attention allocation among emotionally valenced stimuli constitute an important element of the distinguishing features of political liberals and conservatives. It is not just that conservatives tend to see anger where liberals do not (Vigil, 2010) but that conservatives attend to anger more than liberals do (Calvo & Esteves, 2005).

Readers should resist the urge to attach normative judgments to these results. Paying attention to angry faces has obvious evolutionary advantages though at some point it undoubtedly becomes counterproductive. The message here is not that liberals are better than conservatives or vice versa but rather that differences exist across the range of political orientations not just with regard to the manner in which they respond to surveys or with regard to selected biological, neurological, and physiological patterns but also with regard to the type of stimuli that grabs their attention. One final point is that, on the basis of these results, it would
appear the flanker paradigm is capable of revealing interesting, previously unreported differences in attention to affective stimuli. It is possible to imagine application of this paradigm in a variety of contexts such as investigating the differential effects of negative advertising. No special equipment is required beyond the ability to measure response time precisely. A measure of attention of this sort could prove to be a useful tool in a variety of contexts about which readers of Political Psychology care a good deal.
References


Kanai, Ryota, Feilden, T., Firth, C., & Rees, G. 2011. Political orientations are correlated with brain structure in young adults. *Current Biology 21*, 1-4


Table 1: Effects for Congruent and Incongruent Flankers

<table>
<thead>
<tr>
<th>Target</th>
<th>Congruent Flanker</th>
<th>Incongruent Flanker</th>
<th>Mean Difference</th>
<th>t-test</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>736.02</td>
<td>746.29</td>
<td>-10.27</td>
<td>2.27**</td>
</tr>
<tr>
<td>Angry Targets</td>
<td>718.88</td>
<td>732.64</td>
<td>-13.76</td>
<td>2.35**</td>
</tr>
<tr>
<td>Happy targets</td>
<td>753.15</td>
<td>759.94</td>
<td>-6.78</td>
<td>1.1</td>
</tr>
</tbody>
</table>

N = 119  
p < .05 **
Figure 1: Congruent and Incongruent Flanker Conditions

Examples of congruent and incongruent flanker stimuli taken from the NimStim Face Stimulus Set (Tottenham et al., 2009). "Development of the MacBrain Face Stimulus Set" was overseen by Nim Tottenham and supported by the John D. and Catherine T. MacArthur Foundation Research Network on Early Experience and Brain Development. Please contact Nim Tottenham at tott0006@tc.umn.edu for more information concerning the stimulus set.”
Figure 2: Flanker Effect and Ideology – All Targets

\[ r = .14 \ (p = .12) \]
Figure 3: Flanker Effect and Ideology – Angry Targets

$r = .24 (p = .00)$

Figure 4: Flanker Effects and Ideology – Happy Targets

$r = -.01 (p = .89)$
Appendix: Wilson Patterson Instrument
The Wilson Patterson Index was constructed as an additive scale from agree/disagree/uncertain responses to 24 issue questions, with higher scores reflecting more ideologically conservative issue attitudes. Issues and response coding are as follows:

<table>
<thead>
<tr>
<th>Issue</th>
<th>Agree</th>
<th>Disagree</th>
<th>Uncertain</th>
</tr>
</thead>
<tbody>
<tr>
<td>School Prayer</td>
<td>1</td>
<td>0</td>
<td>.5</td>
</tr>
<tr>
<td>Pacifism</td>
<td>0</td>
<td>1</td>
<td>.5</td>
</tr>
<tr>
<td>Socialism</td>
<td>0</td>
<td>1</td>
<td>.5</td>
</tr>
<tr>
<td>Pornography</td>
<td>0</td>
<td>1</td>
<td>.5</td>
</tr>
<tr>
<td>Illegal Immigration</td>
<td>0</td>
<td>1</td>
<td>.5</td>
</tr>
<tr>
<td>Women’s equality</td>
<td>0</td>
<td>1</td>
<td>.5</td>
</tr>
<tr>
<td>Death Penalty</td>
<td>1</td>
<td>0</td>
<td>.5</td>
</tr>
<tr>
<td>Patriot Act</td>
<td>1</td>
<td>0</td>
<td>.5</td>
</tr>
<tr>
<td>Premarital Sex</td>
<td>0</td>
<td>1</td>
<td>.5</td>
</tr>
<tr>
<td>Gay Marriage</td>
<td>0</td>
<td>1</td>
<td>.5</td>
</tr>
<tr>
<td>Abortion Rights</td>
<td>0</td>
<td>1</td>
<td>.5</td>
</tr>
<tr>
<td>Evolution</td>
<td>0</td>
<td>1</td>
<td>.5</td>
</tr>
<tr>
<td>Patriotism</td>
<td>1</td>
<td>0</td>
<td>.5</td>
</tr>
<tr>
<td>Biblical Truth</td>
<td>1</td>
<td>0</td>
<td>.5</td>
</tr>
<tr>
<td>Iraq War</td>
<td>1</td>
<td>0</td>
<td>.5</td>
</tr>
<tr>
<td>Welfare Spending</td>
<td>0</td>
<td>1</td>
<td>.5</td>
</tr>
<tr>
<td>Globalization</td>
<td>1</td>
<td>0</td>
<td>.5</td>
</tr>
<tr>
<td>Pollution Control</td>
<td>0</td>
<td>1</td>
<td>.5</td>
</tr>
<tr>
<td>Small Government</td>
<td>1</td>
<td>0</td>
<td>.5</td>
</tr>
<tr>
<td>School Standards</td>
<td>Agree 1</td>
<td>Disagree 0</td>
<td>Uncertain .5</td>
</tr>
<tr>
<td>------------------</td>
<td>---------</td>
<td>------------</td>
<td>--------------</td>
</tr>
<tr>
<td>Foreign Aid</td>
<td>Agree 0</td>
<td>Disagree 1</td>
<td>Uncertain .5</td>
</tr>
<tr>
<td>Free Trade</td>
<td>Agree 1</td>
<td>Disagree 0</td>
<td>Uncertain .5</td>
</tr>
<tr>
<td>Obedience</td>
<td>Agree 1</td>
<td>Disagree 0</td>
<td>Uncertain .5</td>
</tr>
<tr>
<td>Compromise</td>
<td>Agree 0</td>
<td>Disagree 1</td>
<td>Uncertain .5</td>
</tr>
</tbody>
</table>