

Running head: Emotions in Politics

Emotions in Politics

Florian van Leeuwen¹

Michael Bang Petersen²

¹Department of Social Psychology, Tilburg University, Professor Cobbenhagenlaan 225,
5037 DB, Tilburg, Netherlands. Email: f.vanleeuwen@tilburguniversity.edu

²Department of Political Science, Aarhus University, Bartolins Alle 7, DK-8000 Aarhus C,
Denmark. Email: michael@ps.au.dk

To appear in *The Oxford Handbook of Evolution and the Emotions*, Laith Al-Shawaf and
Todd Shackelford, Eds.

Word count: 9,314 all included.

Abstract

Politics is the process of negotiating resources, both in the here-and-now and in the future, by establishing rules about resource allocation. Previous work has argued that adaptations for politics include capacities for political judgment (including senses of self-interest, others' interests, and the dynamics of collective opinion) and political behavior (including adaptations for persuasion, informational vigilance, acquiring status, and coalitional rivalry). Here, we review the key role played by emotions for both political judgment and behavior. First, we detail how emotions that specifically evolved for negotiation (e.g., anger and envy) influence political judgment and behavior. Second, we review how a number of emotions that were not designed for negotiation also influence political judgment and behavior. Specifically, we review work on the relation between disgust and political attitudes for illustration. Overall, we argue for the view that emotions are inherent to politics. Politics—including persuasion, ideology, social coordination, and the pursuit of long-term political goals—cannot be disentangled from emotions. Hence, the classical opposition between emotion and rationality in politics is misleading.

Keywords: emotions, politics, goals, negotiation, political behavior

Emotions in Politics

Emotions are likely to subvert our reasoning and decision-making. At least, that is the classic view on the matter in the Western history of ideas (e.g., Keltner & Lerner, 2010). If emotions subvert our ability to deliberate and make good decisions, then emotions would be detrimental to democratic politics, and it would be desirable to reduce the influence of emotions on political judgment and behavior. However, an analysis of what emotions and politics are, and recent empirical work on these topics, points to at least three reasons for optimism. First, concerns that easily manipulated emotions will subvert rational politics might be exaggerated, because people are also equipped with evolved defenses against emotion-based persuasion. Second, worries that increased threats (and the associated experience of negative emotions) result in shifts towards social conservatism might be based on a mistaken view of the relation between negative emotions and problem-solving abilities. Third, concerns that emotions push politics toward solving short-term rather than long-term problems might be unwarranted, because emotions might play a role in the pursuit of long-term goals.

1. Politics is negotiating about entitlement

Politics is the process of negotiating about resources, both in the here-and-now and in the future, by establishing rules about resource allocation: Who gets what, when, and how (Lasswell, 1950). In other words, political behavior involves creating or revising shared expectations about entitlement. Politics is the manifestation of psychological adaptations designed to solve the conflict and coordination problems that emerge from group living. Work in political psychology (e.g., Jost & Sidanius, 2004) and especially evolutionary political psychology (Petersen, 2016) provides a starting point for thinking about the psychological mechanisms involved in politics. Evolutionary political psychology is the

study of human politics by applying the theoretical toolkit offered by evolutionary psychology (Tooby & Cosmides, 2015).

Evolutionary political psychology can be summarized with four principles (for details see Petersen, 2016): (1) The psychological mechanisms that humans evolved for politics (our evolved political psychology) were crafted by natural selection to operate adaptively in small-scale societies. Mass societies have emerged too recently to have shaped our evolved political psychology. (2) Evolved political psychology provides an underlying default structure for mass politics. That is, our evolved psychology provides default intuitions and preferences. Political arrangements that fit with these intuitions are likely to be perceived as appealing or compelling, which predicts that across societies political institutions will have particular features and to be oriented towards solving similar problems (Boyer & Petersen, 2012). (3) Politics is an arms race about information, and our evolved political psychology was shaped by the co-evolution of strategies and counter-strategies to manipulate information. Because politics is about shared expectations about entitlement, selection pressures favored both *offensive* strategies that sought to decrease the sense of entitlement in the minds of others and *defensive* counter-strategies to resist such manipulation. (4) In mass societies, our evolved political psychology often responds to events and groups without direct experience, but on the basis of information provided by others (e.g., rumors, gossip, news) and mental simulations (i.e., imagination and other forms of forecasting; Petersen & Aarøe, 2013).

The offensive strategies and defensive counter-strategies described above must include adaptations for political judgment and political behavior (Petersen, 2016). Adaptations for political judgment involve abilities to evaluate rules about resource distributions. Without abilities to make such evaluations, individuals would not be able to strive for increased entitlement, or to further their own political interests. These adaptations for political judgment include a sense of self-interest, a sense of the interests of close others,

and a sense of the distribution of interests within the greater collective (i.e., some form of public opinion assessment). These senses are designed to answer three questions, respectively: *How does this rule affect me? How does this rule affect others who are valuable to me? How do others evaluate this rule?* A key assumption is that the psychological mechanisms that make these judgments use decision rules that were fitness-enhancing under ancestral conditions (Tooby & Cosmides, 1990).

Adaptations for political behavior involve behavioral strategies that seek to target and change shared mental models about who is entitled to what. These adaptations include capacities for acquiring status, coalitional rivalry, persuasion, and informational vigilance (Petersen, 2016). These kinds of activities may involve a variety of emotional experiences, such as pride triggered by a gain in status, sadness over a lost election, or anger towards an exploitative elite. Indeed, recent work suggests that humans have evolved a suite of emotions for negotiating about entitlement, including anger, envy, compassion, pride, and shame (e.g., Sell et al., 2017; Sznycer, 2019). While political scientists have long recognized the role of emotions in political judgment and behavior (e.g., Marcus, 2000; Valentino et al., 2011), we here assess this role from an adaptationist perspective.

2. Emotions coordinate thinking and action for goal pursuit

There is no discipline-wide consensus among psychologists about how to define emotions—for example, a chapter in the *Handbook of Social Psychology* (Keltner & Lerner, 2010) lists eight viable definitions. Most definitions indicate that emotions involve a physiological response and orient the person to respond to ongoing events in their environment. Theoretical work in evolutionary psychology has proposed and developed a precise definition of what emotions are: “superordinate mechanisms that evolved to coordinate the activity of other programs in the solution of adaptive problems” (Al-Shawaf et al., 2015, p. 173; Cosmides & Tooby, 2000; Tooby & Cosmides, 1990; Tooby & Cosmides,

2008). The suite of other mechanisms controlled by emotions is broad and includes mechanisms for attention, perception, memory, categorization, learning, energy allocation, physiology, and behavior. In other words, the proposal is that “emotions are mechanisms that set the brain’s highest-level goals. Once triggered by a propitious moment, an emotion triggers a cascade of subgoals and sub-subgoals that we call thinking and acting” (Pinker, 1997, p. 373). Of course, this definition is a working hypothesis, a conjecture that serves as a middle-level theory (Buss, 1995), from which specific and testable hypotheses can be derived.

This superordinate mechanism view of emotions has at least two advantages compared to alternative definitions. First, compared to definitions that exclude function (e.g., defining emotion as “positive or negative experience that is associated with a particular pattern of physiological activity,” Schachter et al., 2020, p. 410), it includes an explanation for why emotions influence so many other psychological and physiological processes. Approaches that ignore evolved function make it difficult or impossible to explain why emotions would have such broad influences. In contrast, the superordinate mechanism view explains the broad effects of emotions on other processes in terms of the evolved function of emotions. Functional goal-directed behavior requires that there is a high degree of coordination between numerous psychological and physiological processes. Solving a particular adaptive problem requires a particular kind of coordination between attention, memory, physiology, movement, etc. The conjecture is that each emotion evolved to solve this coordinating function for a particular adaptive problem (Al-Shawaf et al., 2015; Tooby & Cosmides, 1990; 2015).

Second, the superordinate mechanism view has an advantage when compared to definitions that characterize basic emotions as having three features: distinctive universal signals (i.e., a communicative signal such as a facial expression), distinctive physiology, and

distinct antecedents (Ekman, 1992). While this proposal has inspired much fruitful work on emotions, the proposal that emotions with distinct signals are more basic than those without distinct signals remains arbitrary. It is not clear what is gained or explained by adding (or removing) the label *basic*, nor is it clear why this must be predicated on whether or not the emotion has an associated signal. The superordinate mechanism view suggests that there may be emotions—such as envy (Smith & Kim, 2007) and sexual jealousy (Tooby & Cosmides, 1990)—that evolved to solve crucial adaptive problems, but that lack a distinct facial expression, simply because a distinct facial expression did not help solving the adaptive problem (Al-Shawaf et al., 2015).

3. Emotions for negotiation influence political judgment and behavior

Given this understanding of emotions, we believe that emotions influence political judgment and behavior in at least two ways. As politics involves negotiating rules about entitlement, emotions that evolved for negotiating with others are likely to play a key role in politics. In addition, the view that emotions are superordinate mechanisms suggests that multiple emotions may influence political judgment and behavior, even though these emotions have not evolved specifically for negotiating entitlement, but rather because these emotions regulate some processes that influence or feed into political judgment or behavior. Below we review examples of recent work on both such processes.

Recent work suggests that humans have evolved a suite of emotions for negotiating about entitlement, including anger (Sell et al., 2009), pride (Sznycer, Al-Shawaf, et al., 2017), shame (Sznycer et al., 2016), envy, and compassion (Sznycer, Seal, et al., 2017). Each of these emotions seems to be a distinct strategy for increasing what one is entitled to in the minds of others.

Anger is the emotion that was selected for resolving conflicts of interest in favor of the self by convincing (e.g., persuading or threatening) others to place greater weight on the

welfare of the self (Sell et al., 2009; Sell, 2011). The recalibrational theory of anger posits that individuals have mental representations of welfare-tradeoff ratios, i.e., the relative weight placed on the welfare of others compared to welfare of the self (Tooby et al., 2008; Delton & Robertson, 2016). The higher someone's welfare-tradeoff ratio towards you, the more they weigh your welfare in making decisions, and the more likely they are to choose options that benefit you. When the ratio equals 1, the other person values your welfare as much as their own welfare. When the ratio is 0.5, they value their own welfare twice as much as yours. When the ratio is 0.25, they value their own welfare four times as much as yours. This means that they might opt for actions that give them a benefit of 1 unit, but cost you nearly 4 units (of reproductively relevant resources). If someone reveals such a low welfare-tradeoff ratio towards you, you might be motivated to convince them to treat you better. The system that activates and executes this attempt to raise their welfare-tradeoff ratio towards you is anger.

Anger coordinates psychological and physiological programs to implement two negotiation strategies: imposing costs on others and withholding benefits from others. In some situations, you might be able to impose costs on others, for example when you are physically stronger or have lots of allies. In other situations, you might not be able to impose costs, and can only withhold benefits (e.g., not engage in cooperative endeavours with the other). Both of these strategies are incentives for the other to place greater weight on your welfare. Based on these considerations, Sell et al. (2009) hypothesized that increased abilities to impose costs (operationalized as physical strength) and withhold benefits (operationalized as attractiveness) would relate to greater success in resolving conflicts in one's favor, feeling more entitled, and being angered more easily. The findings showed that among men, physical strength predicted anger-proneness, history of fighting, perceived utility of aggression, entitlement, and success in conflict, and that attractiveness predicted entitlement and success

in conflict. Among women, attractiveness predicted anger-proneness, perceived utility of aggression, entitlement, and success in conflict.

As mentioned above, a key idea in evolutionary political psychology is that people make political judgments by using decision rules that were adaptive under ancestral conditions. When negotiating under ancestral conditions, physical strength and attractiveness were relevant variables because they affected one's ability to impose costs and confer benefits. However, these variables are irrelevant when forming attitudes about modern mass politics, such as whether to support the military invasion of another country, or whether a nation's politics should be geared toward more equality or inequality. Hence, from a normative perspective, physical strength and attractiveness should not influence judgments about modern politics. Yet, in studies conducted by Sell et al. (2009), stronger men and more attractive women were also more supportive of war. This illustrates how evolutionary approaches predict findings that may seem puzzling but are supported by the data, and that cannot be explained by theories of humans as rational actors. The relation between physical strength and support for war has now been replicated in samples from Argentina, Denmark, and Romania—though not in a sample from Israel (Sell et al., 2017). Recent work suggests that this relationship generalizes to support for and participation in intra-state political violence (e.g., anti-government protests; Bartusevicius, 2020). The relation between physical strength and entitlement also extends to attitudes about inequality: across 12 samples with over 6,000 participants, stronger men were more supportive of political and economic inequality (Petersen & Laustsen, 2019).

Anger is not the only emotion that influences political judgments about inequality. Modern societies have extensive social welfare policies for reducing inequality and providing support for those in need. Compassion and envy are emotions that influence political attitudes about redistribution (Sznycer, Seal, et al., 2017; Delton, Petersen, DeScioli, et al., 2018).

Under ancestral conditions, humans faced uncertainty about the supply of food. On some days, you might not find enough food to feed your family. But someone else may be lucky and find more than they can eat on that day. By sharing food, individuals who are lucky pay a small cost, but provide a large benefit to those who are unlucky. Individuals who share when they are lucky are appreciated and are likely to receive shared food in the future when they are unlucky. Based on these and other considerations, it was hypothesized that compassion serves as a form of social insurance, and therefore is not only sensitive to absolute needs (such as lacking resources or being poor or ill) but is also sensitive to instances of being unlucky and of sudden increases in hardship (Delton, Petersen, DeScioli, et al., 2018). A series of studies that measured compassion towards people in different situations showed that participants felt more compassion *both* towards individuals who had few resources *and* individuals who had suddenly been unlucky. Crucially, these feelings of compassion influenced judgments about social welfare: Individuals who evoked more compassion were judged to be more entitled to receive social welfare, a finding replicated in both Denmark and the United States (Petersen et al., 2012).

Inequality is omnipresent. This creates a selection pressure for strategies for interacting with *those who are better off* than oneself. Envy may be a key emotion for this adaptive problem. Sznycer, Seal, et al. (2017) hypothesized that envy motivates and coordinates strategies for reducing the welfare of individuals who are better off than oneself. Envy is different from self-interest, in that self-interest motivates the pursuit of improving one's situation regardless of the resources of others, but envy specifically motivates the decrease of relative differences in resources or status. Based on this reasoning, they predicted that feelings of envy should relate to support for redistribution, a prediction that was supported in samples from the USA, UK, India, and Israel.

Evidence is accumulating that pride and shame are key emotions for influencing expectations about entitlement, by recalibrating welfare-tradeoff ratios in the minds of others. Such emotions are likely highly relevant to political negotiation. In short, the proposal is that pride coordinates the pursuit and advertising of socially valued, status-boosting actions (Sznycer, Al-Shawaf, et al., 2017; Sznycer et al., 2018a). Shame is its counterpart: it motivates the avoidance of status-lowering actions and limits the spread of information that may damage one's status (Sznycer et al., 2016; Sznycer et al., 2018b). Guilt (Sznycer, 2019) and gratitude (Smith et al., 2017) may also regulate welfare-tradeoff ratios—perhaps both in one's own mind and in that of others—and appear designed to keep valuable relationships alive. While there is much work about the relation between national pride and politics (e.g., Solt, 2011; Ray, 2017), how political judgment and behavior are influenced by pride, shame, guilt, and gratitude (e.g., Delton, Petersen, & Robertson, 2018), are promising avenues for further research.

4. Emotions as the object of negotiation

Do other emotions—those not designed for negotiating about entitlement, but for other adaptive problems—influence politics? A wealth of evidence suggests that they do. These other emotions seem to influence political judgment and behavior in at least two ways. One path of influence is direct and involves mental simulation of relevant events. For example, when a person is asked whether they favor or oppose a law forbidding sex between opposite-sex siblings, they might imagine such an event, feel disgust towards it, and conclude that the law aligns with their preferences (the disgust indicates that the self does not want to engage in such actions), which increases the likelihood that they will favor the law (cf. Tybur et al., 2013).

The second path builds on the existence of the first path and involves persuasion by others. As mentioned above, humans have evolved abilities for persuasion, and one strategy

for persuading others is activating their emotions (e.g., Brader, 2005). The existence of emotions in the minds of others has selected for capacities to use emotions in order to strategically manipulate others. Fear appeals are a common form of such emotion-based persuasion; these are persuasive communications that attempt to arouse fear by “emphasizing the potential danger and harm that will befall individuals if they do not adopt the messages’ recommendations” (Tannenbaum et al., 2015, p. 1178). Some fear appeals may also aim to evoke other emotions than fear. For example, anti-smoking campaigns around the world try to discourage people from smoking by printing disgusting images on cigarette packaging.

However, individuals are not easily manipulated by emotion-based persuasion. As mentioned above, adaptations for political judgment and behavior include mechanisms for *informational vigilance*. Any form of communication makes an individual vulnerable to manipulation, because the goal of communication is to change the mental state of the organism receiving information (Krebs & Dawkins, 1984). However, when a particular form of communication is manipulative to such an extent that the costs to receivers are (on average) larger than the benefits, then there is selection for receivers to become insensitive to the signals (e.g., by ignoring such signals or being unable to process them; Al-Shawaf et al., 2015).

Humans have evolved such mechanisms for informational vigilance (also called epistemic vigilance, Sperber et al., 2010). Work in psychology, anthropology, political science, and marketing suggests that humans are not gullible, but vigilant towards implausible information and tend to hold on to their prior beliefs (Mercier, 2017). Humans are not easily convinced by attempts at persuasion. Work in psychology and political science shows that humans can engage in motivated reasoning, ignoring or discounting information that counters their prior beliefs (Kunda, 1990). Such motivated reasoning might be one form of informational vigilance, protecting individuals from acquiring implausible ideas or ideas

that are detrimental to their fitness interests (Petersen, 2016). A striking example of resistance to well-intended persuasion comes from work in the 1970s and 1980s on intentions to use seat belts. When seat belts were introduced, intentions to use them were generally low. The idea was that fear appeals would convince people of the risks involved and boost intentions to use them. But videos showing the danger posed by not using seatbelts had so little influence on people's intentions to use them that the risk researcher Paul Slovic concluded that people are incapable of accurately perceiving the risks involved and thus argued for laws mandating seat-belt use (Slovic, 1985).

4.1 Are tendencies to feel emotions related to political attitudes?

Research on the influence of emotions (others than those for negotiation) on politics can be tied to at least two questions. One question is: *Are individual differences in tendencies to feel particular emotions related to political attitudes?* The second question results from the fact that the stimuli or situations that typically trigger negative emotions are associated with threats or worries (e.g., Keltner & Lerner, 2010) and asks, *Does perceiving threats influence political attitudes?* Below we review recent work relating to each of these questions.

The idea that individuals who are prone to negative emotions such as fear and anger are likely to have more conservative political attitudes has a long history in political psychology (e.g., Jost et al., 2003). Over the last decade, a large number of studies has asked whether another negative emotion, disgust, also relates to conservative political attitudes. This work demonstrates that an emotion that did not evolve for negotiating about entitlement can have a substantial influence on political judgment and behavior.

First, it turns out that disgust is not one emotion, but probably three: pathogen disgust, sexual disgust, and moral disgust (Tybur et al., 2009; 2013). The function of pathogen disgust is to motivate and coordinate the avoidance of pathogenic infection (Tybur et al., 2013). The function of sexual disgust is to motivate avoidance of costly sexual interactions with unwise

mate choices, whereas the function of moral disgust is to coordinate condemnation with other people in situations of conflict.¹ There is substantial evidence that pathogen disgust coordinates the avoidance of pathogenic infection (Oaten et al., 2009). For example, objects or people associated with cues of pathogens reliably evoke disgust (e.g., Curtis et al., 2004). This suggests that individuals who are more motivated to avoid pathogens—i.e., are more pathogen disgust sensitive—are more likely to have negative attitudes towards policies that activate pathogen disgust.

A key feature of pathogen disgust is that it works in a “better safe than sorry” manner. The system can make two kinds of mistakes: failing to detect and avoid pathogens (i.e., a false negative) or incorrectly inferring the presence of pathogens and motivating avoidance of pathogens that do not actually exist (i.e., a false positive). The former kind of error tends to be more costly than the latter. Hence, the system is calibrated toward making false positive errors (Tybur & Lieberman, 2016; Schaller, 2015; see also Haselton & Buss, 2000; Haselton & Nettle, 2006; Nesse, 2005). Ethnic outgroups and foreign immigrants are often associated with infectious disease (Oaten et al., 2011), sometimes because they come from areas with high prevalence of infectious disease (and thus may be infectious), and other times because of rumors and propaganda. Based on such considerations, it was hypothesized that motivations to avoid pathogens should relate to anti-immigration attitudes (Faulkner et al., 2004). Recent work has borne out this prediction: in samples from both the USA and Denmark, individuals

¹ There is currently some debate as to whether this division is accurate, in particular about whether pathogen disgust also includes design for avoiding consumption of plant toxins and whether moral disgust is a distinct emotion (Lieberman et al., 2018; Rozin & Falon, 1987). In addition, disgust is often described as an output of the behavioral immune system (the set of psychological mechanisms that evolved for avoiding infection; Schaller, 2015), rather than as a superordinate system controlling pathogen avoidance. This is simply a matter of terminology. Most audiences will expect that the word *disgust* refers to the affective state, rather than the entire motivational system. Hence, for the sake of communication, disgust is sometimes used to refer to the affective state, and the motivational system is called the behavioral immune system. When defined as a superordinate mechanism, the emotion pathogen disgust is equivalent to the behavioral immune system (Lieberman & Patrick, 2014).

who were more sensitive to pathogen disgust were more opposed to immigration (Aarøe et al., 2017; Ji et al., 2019).

There appears to be a large set of objects, entities, or practices that through persuasion can become associated with infection or contamination, such as homeless people, genetically modified foods, vaccines, and nuclear power. Individuals who are more disgust sensitive will tend to favor policies that remove these objects or entities (Clay, 2017; Clifford & Piston, 2017; Clifford & Wendell, 2016; Kam & Estes, 2015; Hacquin et al., 2020). Pathogen disgust sensitivity does not only relate to narrow measures of policy attitudes, but reliably correlates with measures of socially conservative ideology (Terrizzi et al., 2013; Tybur et al., 2016), identification with conservative parties, and voting for conservative parties (Aarøe et al., 2020).²

4.2 Does perceiving threats influence political attitudes?

As mentioned above, a large amount of work in political psychology has examined whether and how emotional responses to threats—fears, anxiety, worries, etc.—relate to political attitudes. Indeed, an influential standard view is that perceptions of threat (and the worries they activate) influence political ideology by making people more favorable towards conservative right-wing policies (Jost et al., 2003). This view was supported by a meta-analysis (including 22,818 participants from 12 countries) that showed that individuals with more fears and worries were more supportive of conservative ideology. However, recent empirical work examining the relationships between specific threats and attitudes towards specific political issues across a larger variety of cultures suggests that there is no straightforward relation between feeling threatened and political ideology. An analysis of data from the World Values Survey from more than 60,000 participants from 56 countries

² Sexual disgust also relates to socially conservative attitudes (Kurzban et al., 2010). Whether the relation between pathogen disgust and socially conservative ideology can be attributed to sexual disgust is currently unclear (Aarøe et al., 2020; Billingsley et al., 2018; Tybur et al., 2015).

showed that while being worried about war was associated with identifying with right-wing ideology, being worried about crime in one's neighborhood was associated with identifying with left-wing ideology (Brandt et al., 2020). In addition, facing the threat of poverty was associated with both support for left-wing economic beliefs (e.g., opposing economic inequality) and right-wing cultural beliefs (e.g., supporting status-based discrimination on the job market).

The complex relation between perceiving threats and political attitudes is partly a result of the fact that both threat and ideology are broad constructs each consisting of multiple dimensions. It is possible that when each of these underlying dimensions is accurately measured, then measures of specific threats will relate specifically to support for policies, parties, and ideologies that are associated with reducing those threats (Brandt et al., 2020; Eadeh & Chang, 2019). But what policies (and parties and ideologies) will people perceive as reducing particular threats? An adaptationist perspective suggests that people will form such judgments using heuristics that worked well in ancestral small-scale societies (see the first principle of evolutionary political psychology mentioned above). We think that a first step in unraveling the relation between threats and ideology is to find the mistaken assumptions that underlie the standard view that right-wing ideology is an anxiety-reducing response to threats.

While the standard view might be tenable in the narrow sense that some conservative policies and beliefs have palliative effects and momentarily reduce feelings of anxiety (e.g., Osmundsen & Petersen, 2017), we think that as a broad generalization, it rests on two untenable assumptions. First, it assumes that individuals with a right-wing ideology have more or more intense worries (i.e., perceive more problems or threats). Second, it assumes that adherence to tradition is a viable means of reducing problems (i.e., neutralizing a threat or reducing a source of worry).

Regarding the first assumption, while right-wing ideology is associated with worries about social cohesion, security and physical violence, and changing norms about sexuality and religion (Duckitt et al., 2010), this does not mean those on the left worry less. One major element that distinguishes left-wing and right-wing ideology is views about inequality and redistribution (e.g., Jost et al., 2003). In other words, those on the left tend to worry more about there being too much inequality, while those on the right tend to worry more about there being not enough inequality (e.g., Pratto et al., 1994). Indeed, work on the relation between moral values and political ideology supports the broad notion that liberals are more concerned with violations of norms of equality and fairness (Graham et al., 2009; Kivikangas et al., 2020). This suggests that the difference between those on the left and those on the right is not so much in *how much* they worry, but rather in *what* they worry about. Zooming in on political hot-buttons supports this view: those on the right tend to be more concerned about immigration, law and order, and taxes, while those on the left tend to be more concerned about the environment, social security, and health care (Seeberg, 2017).

Second, the standard view proposed that conservative ideology relates to traits that tend to lower anxieties and worries, such as resistance to change, conformity to traditions, and low openness to experience (Jost et al., 2003; Sibley & Duckitt, 2008). The assumption that these broad conservative traits reduce or neutralize threats and uncertainties (e.g., Jost et al., 2003; Duckitt et al., 2010) does not align with an adaptationist perspective. Traditions probably only help address a narrow range of problems. Consider the basic problem of nutrition. Eating involves the problem of getting poisoned or infected by eating contaminated food, and this risk may be reduced by following traditions about what to eat (Murray et al., 2011). However, the problem of having insufficient food can be reduced with different behaviors, such as appealing to egalitarian norms (Petersen et al., 2013) and breaking habits and eating novel foods (Al-Shawaf, 2016; Perone et al., 2021). Analyses of how humans

solve problems suggests that conservative traits like resistance to change, conformity to traditions, and low openness to experience are not effective strategies for dealing with problems (Cosmides & Tooby, 2002; Deutsch, 2011). Traditions will also often not provide a solution to novel problems, because traditions (other than those that characterize science, such as rational criticism) do not typically contain the knowledge or procedures that are needed to solve novel problems (Deutsch, 2011).

For example, the personality trait of *openness to experience* reflects predispositions to be creative, unconventional, and innovative (Ashton & Lee, 2007). Low openness to experience is thus associated with reduced tendencies for creativity and innovation. Humans appear to have evolved a unique set of mental abilities for solving problems, involving improvisational intelligence (Cosmides & Tooby, 2002) and creativity (Deutsch, 2011). Hence, there seems a mismatch between the broad set of stimuli that trigger negative emotions (e.g., predators, hunger, infectious disease, job loss, public speaking) and the presumed function of conservative ideology. It seems poor design to have emotions that are triggered by cues that an adaptive problem is present, but then reduce the probability that the organism can solve the problem by reducing creativity and adjusting attitudes so that conventions seem appealing and innovations aversive. Humans have adapted to life in the cognitive niche, where information about how to solve problems is the most valuable resource (Tooby & Devore, 1987; Pinker, 2010). As humans are an intensely social species, it is likely that when an individual faced a novel problem, there were some others who had faced similar problems in the past and who had found ways to make (minimal) improvements. In such an environment, individuals who were more open to adopting useful innovations would likely have fared better than those ignoring innovations. Hence, each emotion may include design to activate a *particular kind* of openness or creativity when faced with an adaptive problem. As the proverb goes: necessity is the mother of invention.

More generally, an adaptationist perspective suggests that how threats influence political judgment and behavior depends on what kinds of judgments and behaviors typically helped resolve that particular threat in the ancestral environment. The mechanisms that regulate these judgments should not take into account whether the policies involved are currently associated with left-wing or right-wing politics. For example, for those who have less, the problem of large inequality is not addressed by endorsing the status quo (cf. Brandt, 2013), but rather by reducing the welfare of those who are better off—a complex goal, the pursuit of which may be coordinated by envy (Sznycer, Seal, et al., 2017).

5. Emotions are inherent to politics

Following the classic view that emotions are likely to subvert our reasoning and decision-making, one might call for making politics more rational by removing the pernicious influence of emotions. The above discussion may seem to follow the classic view by focusing on how emotions influence political judgment and behavior. This may give the impression that it would be possible to remove emotions from politics, in the sense that emotions are epiphenomena that can distort political judgments and behaviors. In contrast, we propose that this view is neither fruitful nor tenable as emotions and politics are inherently related.

The view that humans are political animals (Petersen, 2016) suggests that adaptations for politics have a pervasive influence on human behavior. The notion that some emotions are for politics (see section 3), entails that emotions and politics cannot be separated. An agent without emotions for negotiating would simply not engage in politics when confronted with a rule that reduces their entitlement. Without emotional systems, there would be no systems for generating the valuations that are key for political judgments and no systems for propelling the actions that are key to political negotiation. Rather than maintaining a division between emotions on the one hand and adaptations for politics on the other hand, we think that it might be fruitful to consider politics as inherently related to emotions. In other words, the

emotions that evolved for negotiating entitlement (anger, compassion, envy, pride, shame, and perhaps others) are at the core of our evolved political psychology.

Does this mean that politics is reduced to heated irrational debates about short-term projects? Standard definitions that characterize emotions as short-lived responses to current events (Keltner & Lerner, 2010) suggest an affirmative answer. In contrast, the superordinate mechanism view suggests that emotions enable politics, including social coordination for political projects, both normatively desirable and undesirable, and both in the short- and long-term.

5.1 Emotions enable coordination with others

Darwin's (1872/2009) work on the expression of emotions has inspired the bulk of evolutionary-minded research of emotions. Indeed, there has been extensive debate about the facial expressions associated with basic emotions (e.g., Ekman, 1992). A widespread assumption is that the expression of one's emotional state has some communicative value (e.g., Ekman, 1992; McCullough & Reed, 2016). However, biological theories of communication show this assumption to be unwarranted (Al-Shawaf et al., 2015; Al-Shawaf & Lewis, 2017; McCullough & Reed, 2016). Sometimes it might be beneficial to conceal an emotional state from others, i.e., hold a poker face. Some emotions, like envy and sexual jealousy, appear to lack an distinct facial expression.

The superordinate mechanism view suggests that expressions of emotions are not an inherent feature of a small set of basic emotions, but rather that the expression of emotions should be strategic and serve the pursuit of one's goals. Emotion expression might play a pivotal role in achieving some self-serving political goals, such as acquiring status via coalitional rivalry (including collective violence, see Horowitz, 2001). However, not all emotional coordination must be that destructive: expressing disgust at moral violations can

also be used to coordinate condemnation of norm violations (Lieberman et al., 2017; Molho et al., 2018), and for example might be used to reduce exploitation and corruption.

A closer look at how and why emotional signals (and in particular facial expressions) enable political coordination suggests that emotions might help coordinate against authoritarian leaders. Recent work on how people solve coordination problems suggests that some communicative behaviors (such as facial expressions, blushing, and laughing) may be especially useful for creating common knowledge (Thomas et al., 2014; De Freitas et al., 2019). Facial expressions create common knowledge because they are salient to both the expressor and the perceivers and rapidly and easily decoded: “The perceiver not only knows the intended mental state of the expresser but knows that the expresser knows it, that the expresser knows that the perceiver knows it, and so on” (Thomas et al., 2014, p. 672). This points to the possibility that there may be a set of emotional signals that serve social coordination by generating common knowledge. Studies of how minority groups respond to repression suggest that humor is sometimes used as a form of resistance (Vollhardt et al., 2020). In addition, in some societies there are professions dedicated to making fun of authorities: comedians and late-night talkshow hosts. One function of laughter might be to coordinate opposition towards undeserved claims of authority (Pinker, 1997). Humor at the expense of inept leaders might reduce the shared sense of what the authority figure is entitled to.

5.2 Emotions enable the pursuit of long-term goals

Characterizing emotions as short-lived affective responses to ongoing events makes *mental time travel* difficult to explain (Boyer, 2008). Memories often have a vivid emotional component (e.g., re-experiencing the shame of saying something foolish during a job interview) and imagining the future can involve strong emotional experiences (e.g., intense happiness when imagining that you will finally meet a distant loved one). If our emotions are

reactions to ongoing events, then why do we also feel them when recalling the past and imagining the future?

Studies of mental time travel suggest that the affective aspects of memories and imagination are crucial for self-control in two ways (Boyer, 2008). First, episodic memory of emotional events seems to help inhibit impulsive behavior. Second, forecasting of emotional events seems to reduce time discounting (i.e., discounting rewards in the future). The emotional aspects of mental time travel seem to fit with the view that emotions are superordinate mechanisms. From this perspective, the phenomenon of mental time travel reveals that emotions are not necessarily designed for regulating short-term goal pursuit, but may include design for regulating behavior across longer time spans. Some emotions, such as fear of snakes, may be systems dedicated to short-term responses (Öhman & Mineka, 2003). But other emotions may be designed for the pursuit of long-term goals.

For example, pride is characterized as motivating socially valued behavior and so relates to acquiring status. But is the pride system only active in the moment that we feel proud? Status is hard to acquire and often involves highly coordinated behaviors over long stretches of time. For social organisms, acquiring and maintaining status is of primary importance. If achieving this goal requires the coordination of behaviors across long periods of time, then the superordinate mechanism view of emotions entails the prediction that the pride system includes design for such long-term behavioral control – including remembering past achievements and imagining future proud achievements. It is not very helpful to assign emotions the role of regulating behavior in the short-term and explain long-term coordination by virtue of self-control. Self-control is a linguistic shorthand for the inhibition of short-term-oriented responses, which facilitates the pursuit of long-term goals; it is not a mechanism. It is a label rather than an explanation.

By associating emotions with short-term affective responses, researchers may have overlooked a number of longer-lasting influences of emotions on judgment and behavior. From an applied perspective, this is unfortunate. If emotions regulate the pursuit of our highest-level goals, then understanding how the emotions work is crucial for knowing how to achieve long-term political goals. Achieving long-term political goals such as democracy, wealth, and good health care requires extensive coordination between individuals. We should prepare for the *next* pandemic, which may be in the distant future. We will be in a better position to achieve such coordination if we understand better how emotions guide us toward or away from particular long-term goals.

References

- Aarøe, L., Petersen, M.B. and Arceneaux, K. (2020), The Behavioral Immune System Shapes Partisan Preferences in Modern Democracies: Disgust Sensitivity Predicts Voting for Socially Conservative Parties. *Political Psychology*, *41*, 1073-1091. doi: 10.1111/pops.12665
- Aarøe, L., Petersen, M.B., & Arceneaux, K. (2017). The behavioral immune system shapes political intuitions: Why and how individual differences in disgust sensitivity underlie opposition to immigration. *American Political Science Review*, *111*(2), 277-294. doi: 10.1017/S0003055416000770
- Al-Shawaf, L. (2016). The evolutionary psychology of hunger. *Appetite*, *105*, 591-595.
- Al-Shawaf, L., & Lewis, D.M.G. (2017). Evolutionary psychology and the emotions. In V. Zeigler-Hill and T.K. Shackelford (Eds.). *Encyclopedia of Personality and Individual Differences*. Springer.
- Al-Shawaf, L., Conroy-Beam, D., Asao, K., & Buss, D. M. (2015). Human emotions: An evolutionary psychological perspective. *Emotion Review*, *8*, 173–186.

- Ashton, M. C., & Lee, K. (2007). Empirical, theoretical, and practical advantages of the HEXACO model of personality structure. *Personality and social psychology review, 11*(2), 150-166.
- Bartusevicius, H. (2020). Physical strength predicts participation in political violence. *PsyArXiv preprint*. <https://doi.org/10.31234/osf.io/dres6>
- Billingsley, J., Lieberman, D., & Tybur, J. M. (2018). Sexual disgust trumps pathogen disgust in predicting voter behavior during the 2016 US Presidential Election. *Evolutionary Psychology, 16*(2), 1474704918764170.
- Boyer, P. (2008). Evolutionary economics of mental time travel?. *Trends in Cognitive Sciences, 12*(6), 219-224.
- Boyer, P., & Petersen, M.B. (2012). The naturalness of (many) social institutions: evolved cognition as their foundation. *Journal of Institutional economics, 8*(01), 1-25.
- Brader, T. (2005), Striking a Responsive Chord: How Political Ads Motivate and Persuade Voters by Appealing to Emotions. *American Journal of Political Science, 49*, 388-405. <https://doi.org/10.1111/j.0092-5853.2005.00130.x>
- Brandt, M. (2013). Do the Disadvantaged Legitimize the Social System? A Large-Scale Test of the Status–Legitimacy Hypothesis. *Journal of Personality and Social Psychology, 104*(5), 765-785.
- Brandt, M. J., Turner-Zwinkels, F. M., Karapirinler, B., van Leeuwen, F., Bender, M., van Osch, Y., & Adams, B. G. (2020). The association between threat and politics depends on the type of threat, the political domain, and the country. *Personality and Social Psychology Bulletin*. <https://doi.org/10.1177/0146167220946187>
- Buss, D. M. (1995). Evolutionary psychology: A new paradigm for psychological science. *Psychological Inquiry, 6*(1), 1–30.

- Clay, R. (2017). The behavioral immune system and attitudes about vaccines: germ aversion predicts more negative vaccine attitudes. *Social Psychological and Personality Science*, 8, 162-172.
- Clifford, S., & Piston, S. (2017). Explaining public support for counterproductive homelessness policy: The role of disgust. *Political Behavior*, 39, 503–525.
<https://doi.org/10.1007/s11109-016-9366-4>
- Clifford, S., & Wendell, D. G. (2016). How disgust influences health purity attitudes. *Political Behavior*, 38(1), 155-178.
- Cosmides, L., & Tooby, J. (2000). Evolutionary psychology and the emotions. In M. Lewis & J. M. Haviland-Jones (Eds.), *Handbook of emotions* (2nd ed., pp. 91–115). New York, NY: Guilford.
- Cosmides, L., & Tooby, J. (2002). Unraveling the enigma of human intelligence: Evolutionary psychology and the multimodular mind. *The evolution of intelligence*, 145-198.
- Curtis, V., Aunger, R., & Rabie, T. (2004). Evidence that disgust evolved to protect from risk of disease. *Proceedings of the Royal Society of London. Series B: Biological Sciences*, 271(suppl_4), S131-S133.
- Darwin, C. (2009). *The expression of the emotions in man and animals*. London, UK: Penguin Classics. (Original work published 1872)
- De Freitas, J., Thomas, K., DeScioli, P., & Pinker, S. (2019). Common knowledge, coordination, and strategic mentalizing in human social life. *Proceedings of the National Academy of Sciences*, 116(28), 13751-13758.
- Delton, A. W., & Robertson, T. E. (2016). How the mind makes welfare tradeoffs: Evolution, computation, and emotion. *Current Opinion in Psychology*, 7, 12-16.

- Delton, A. W., Petersen, M. B., & Robertson, T. E. (2018). Partisan goals, emotions, and political mobilization: The role of motivated reasoning in pressuring others to vote. *The Journal of Politics, 80*(3), 890-902.
- Delton, A. W., Petersen, M. B., DeScioli, P., & Robertson, T. E. (2018). Need, compassion, and support for social welfare. *Political Psychology, 39*(4), 907-924.
- Deutsch, D. (2011). *The Beginning of Infinity: Explanations that Transform the World*. London, UK: Allen Lane.
- Duckitt, J., Bizumic, B., Krauss, S. W., & Heled, E. (2010). A tripartite approach to right-wing authoritarianism: The authoritarianism-conservatism-traditionalism model. *Political Psychology, 31*(5), 685-715.
- Eadeh, F. R., & Chang, K. K. (2019). Can threat increase support for liberalism? New insights into the relationship between threat and political attitudes. *Social Psychological and Personality Science, 11*, 88-96.
<https://doi.org/10.1177/1948550618815919>
- Ekman, P. (1992). An argument for basic emotions. *Cognition and Emotion, 6*, 169-200.
- Faulkner, J., Schaller, M., Park, J. H., & Duncan, L. A. (2004). Evolved disease-avoidance mechanisms and contemporary xenophobic attitudes. *Group Processes & Intergroup Relations, 7*(4), 333-353.
- Graham, J., Haidt, J., & Nosek, B. (2009). Liberals and Conservatives Rely on Different Sets of Moral Foundations. *Journal of Personality and Social Psychology, 96*(5), 1029-1046.
- Hacquin, A., Altay, S., Aarøe, L., & Mercier, H. (2020, October 1). Fear of contamination and public opinion on nuclear energy. <https://doi.org/10.31234/osf.io/wdвуq>

- Haselton, M. G., & Buss, D. M. (2000). Error management theory: a new perspective on biases in cross-sex mind reading. *Journal of Personality and Social Psychology*, *78*, 81–91.
- Haselton, M. G., & Nettle, D. (2006). The paranoid optimist: An integrative evolutionary model of cognitive biases. *Personality and Social Psychology Review*, *10*, 47-66.
- Horowitz, D. L. (2001). *The deadly ethnic riot*. Berkeley: University of California Press.
- Ji, T., Tybur, J. M., & van Vugt, M. (2019). Generalized or origin-specific out-group prejudice?: the role of temporary and chronic pathogen-avoidance motivation in intergroup relations. *Evolutionary Psychology*, *17*(1), 1474704919826851.
- Jost, J. T., & Sidanius, J. (Eds.). (2004). *Political psychology: Key readings*. Psychology Press.
- Jost, J. T., Glaser, J., Kruglanski, A. W., & Sulloway, F. J. (2003). Political Conservatism as Motivated Social Cognition. *Psychological Bulletin*, *129*(3), 339-375.
- Kam, C.D., & Estes, B.A. (2016). Disgust sensitivity and public demand for protection. *The Journal of Politics*, *78*, 481–496. <https://doi.org/10.1086/684611>
- Keltner, D., & Lerner, J. (2010). Emotion. In S. Fiske & D. Gilbert (Eds.), *The handbook of social psychology* (pp. 312–347). New York, NY: McGraw Hill.
- Kivikangas, J. M., Fernández-Castilla, B., Järvelä, S., Ravaja, N., & Lönnqvist, J. E. (2021). Moral foundations and political orientation: Systematic review and meta-analysis. *Psychological Bulletin*, *147*, 55-94.
- Krebs, J. R., & Dawkins, R. (1984). Animal signals: Mind-reading and manipulation. In J. R. Krebs & N. B. Davies (Eds.), *Behavioural ecology: An evolutionary approach* (2nd ed., pp. 380–402). Oxford, UK: Blackwell Scientific.
- Kunda, Z. (1990). The Case for Motivated Reasoning. *Psychological Bulletin*, *8*, 480-498.

- Kurzban, R., Dukes, A., & Weeden, J. (2010). Sex, drugs and moral goals: Reproductive strategies and views about recreational drugs. *Proceedings of the Royal Society B: Biological Sciences*, 277(1699), 3501-3508.
- Lasswell, H.D. (1950). *Politics: Who gets what, when, how*. New York: P. Smith.
- Lieberman, D., & Patrick, C. (2014). Are the behavioral immune system and pathogen disgust identical?. *Evolutionary Behavioral Sciences*, 8(4), 244-250.
- Lieberman, D., Billingsley, J., & Patrick, C. (2018). Consumption, contact and copulation: how pathogens have shaped human psychological adaptations. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 373(1751), 20170203.
- Marcus, G. E. (2000). Emotions in politics. *Annual review of political science*, 3(1), 221-250.
- McCullough, M. E., & Reed, L. I. (2016). What the face communicates: Clearing the conceptual ground. *Current Opinion in Psychology*, 7, 110-114.
- Mercier, H. (2017). How gullible are we? A review of the evidence from psychology and social science. *Review of General Psychology*, 21(2), 103-122.
- Molho, C., Tybur, J. M., Güler, E., Balliet, D., & Hofmann, W. (2017). Disgust and anger relate to different aggressive responses to moral violations. *Psychological science*, 28(5), 609-619.
- Murray, D.R., Trudeau, R., & Schaller, M. (2011). On the origins of cultural differences in conformity: Four tests of the pathogen prevalence hypothesis. *Personality and Social Psychology Bulletin*, 37(3), 318-329.
- Nesse, R. M. (2005). Natural selection and the regulation of defenses: A signal detection analysis of the smoke detector principle. *Evolution and human behavior*, 26(1), 88-105.
- Oaten, M., Stevenson, R. J., & Case, T. I. (2009). Disgust as a Disease-Avoidance Mechanism. *Psychological Bulletin*, 135(2), 303-321.

- Oaten, M., Stevenson, R. J., & Case, T. I. (2011). Disease avoidance as a functional basis for stigmatization. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 366(1583), 3433-3452.
- Öhman, A., & Mineka, S. (2003). The malicious serpent: Snakes as a prototypical stimulus for an evolved module of fear. *Current directions in psychological science*, 12(1), 5-9.
- Osmundsen, M., & Petersen, M. B. (2017). Political ideology and precautionary reasoning: testing the palliative function of right-wing ideology on obsessive-compulsive symptoms. *Social Cognition*, 35(4), 450-474.
- Perone, P., Çınar, Ç., D'ursi, P., Durmuşoğlu, L. R., Lal, V., & Tybur, J. (2021). Examining the effect of hunger on responses to pathogen cues and novel foods. *Evolution and Human Behavior*. <https://doi.org/10.1016/j.evolhumbehav.2021.02.004>
- Petersen, M. B. (2016). Evolutionary Political Psychology. In D. M. Buss (Ed.), *Handbook of Evolutionary Psychology* (2 ed., Vol. 2, pp. 1084-1102). Wiley.
- Petersen, M. B., & Laustsen, L. (2019). Upper-body strength and political egalitarianism: Twelve conceptual replications. *Political Psychology*, 40(2), 375-394.
- Petersen, M. B., Aarøe, L., Jensen, N. H., & Curry, O. (2014). Social welfare and the psychology of food sharing: Short-term hunger increases support for social welfare. *Political Psychology*, 35(6), 757-773.
- Petersen, M. B., Sznycer, D., Cosmides, L., & Tooby, J. (2012). Who deserves help? Evolutionary psychology, social emotions, and public opinion about welfare. *Political Psychology*, 33(3), 395-418.
- Petersen, M.B., & Aarøe, L. (2013). Politics in the mind's eye: Imagination as a link between social and political cognition. *American Political Science Review*, 107(02), 275-293.
- Pinker, S. (1997). *How the mind works*. New York: W. W. Norton & Company.

- Pinker, S. (2010). The cognitive niche: Coevolution of intelligence, sociality, and language. *Proceedings of the National Academy of Sciences*, *107*(Supplement 2), 8993-8999.
- Pratto, F., Sidanius, J., Stallworth, L., & Malle, B. (1994). Social Dominance Orientation: A Personality Variable Predicting Social and Political Attitudes. *Journal of Personality and Social Psychology*, *67*(4), 741-763.
- Ray, S. (2018). Ethnic Inequality and National Pride. *Political Psychology*, *39*, 263-280. doi: 10.1111/pops.12406
- Rozin, P., & Falon, A. E. (1987). A Perspective on Disgust. *Psychological Review*, *94*(1), 23-41.
- Schachter, D., Gilbert, D., Wegner, D., & Hood, B. (2020). *Psychology, Third European edition*. London: Red Globe Press.
- Schaller, M. (2015). The behavioral immune system. In D.M. Buss (Ed.), *Handbook of Evolutionary Psychology* (2nd ed.). New York: Wiley.
- Sell, A. N. (2011). The recalibrational theory and violent anger. *Aggression and violent behavior*, *16*(5), 381-389.
- Sell, A., Sznycer, D., Al-Shawaf, L., Lim, J., Krauss, A., Feldman, A., ... & Tooby, J. (2017). The grammar of anger: Mapping the computational architecture of a recalibrational emotion. *Cognition*, *168*, 110-128.
- Sell, A., Tooby, J., & Cosmides, L. (2009). Formidability and the logic of human anger. *Proceedings of the National Academy of Sciences*, *106*(35), 15073-15078.
- Sibley, C. G., & Duckitt, J. (2008). Personality and prejudice: A meta-analysis and theoretical review. *Personality and Social Psychology Review*, *12*(3), 248-279.
- Slovic, P. (1985, January 30). Only new laws will spur seat-belt use [Editorial]. *The Wall Street Journal* (1985, January 30).

- Smith, A., Pedersen, E. J., Forster, D. E., McCullough, M. E., & Lieberman, D. (2017). Cooperation: The roles of interpersonal value and gratitude. *Evolution and Human Behavior*, 38(6), 695-703.
- Smith, R. H., & Kim, S. H. (2007). Comprehending envy. *Psychological Bulletin*, 133(1), 46-64.
- Solt, F. (2011). Diversionary nationalism: Economic inequality and the formation of national pride. *The Journal of Politics*, 73(3), 821-830.
- Sperber, D., Clément, F., Heintz, C., Mascaro, O., Mercier, H., Origg, G., & Wilson, D. (2010). Epistemic vigilance. *Mind & Language*, 25, 359–393.
<http://dx.doi.org/10.1111/j.1468-0017.2010.01394.x>
- Sznycer, D. (2019). Forms and functions of the self-conscious emotions. *Trends in Cognitive Sciences*, 23(2), 143-157.
- Sznycer, D., Al-Shawaf, L., Bereby-Meyer, Y., Curry, O. S., De Smet, D., Ermer, E., ... & McClung, J. (2017). Cross-cultural regularities in the cognitive architecture of pride. *Proceedings of the National Academy of Sciences*, 114(8), 1874-1879.
- Sznycer, D., Seal, M. F. L., Sell, A., Lim, J., Porat, R., Shalvi, S., ... & Tooby, J. (2017). Support for redistribution is shaped by compassion, envy, and self-interest, but not a taste for fairness. *Proceedings of the National Academy of Sciences*, 114(31), 8420-8425.
- Sznycer, D., Tooby, J., Cosmides, L., Porat, R., Shalvi, S., & Halperin, E. (2016). Shame closely tracks the threat of devaluation by others, even across cultures. *Proceedings of the National Academy of Sciences*, 113(10), 2625-2630.
- Sznycer, D., Xygalatas, D., Agey, E., Alami, S., An, X. F., Ananyeva, K. I., ... & Fukushima, S. (2018b). Cross-cultural invariances in the architecture of shame. *Proceedings of the National Academy of Sciences*, 115(39), 9702-9707.

- Sznycer, D., Xygalatas, D., Alami, S., An, X. F., Ananyeva, K. I., Fukushima, S., ... & Onyishi, I. E. (2018a). Invariances in the architecture of pride across small-scale societies. *Proceedings of the National Academy of Sciences*, *115*(33), 8322-8327.
- Tannenbaum, M. B., Hepler, J., Zimmerman, R. S., Saul, L., Jacobs, S., Wilson, K., & Albarracín, D. (2015). Appealing to fear: A meta-analysis of fear appeal effectiveness and theories. *Psychological Bulletin*, *141*(6), 1178-1204.
- Terrizzi Jr, J. A., Shook, N. J., & McDaniel, M. A. (2013). The behavioral immune system and social conservatism: A meta-analysis. *Evolution and Human Behavior*, *34*(2), 99-108.
- Thomas, K., DeScioli, P., Haque, O., & Pinker, S. (2014). The Psychology of Coordination and Common Knowledge. *Journal of Personality and Social Psychology*, *107*(4), 657-676.
- Tooby J., & DeVore, I. (1987). The reconstruction of hominid behavioral evolution through strategic modeling. In W. Kinzey (Ed.), *Primate models of hominid behavior* (pp. 183–237). New York, NY: SUNY Press.
- Tooby, J. & Cosmides, L. (2015). The theoretical foundations of evolutionary psychology. In Buss, D. M. (Ed.), *The Handbook of Evolutionary Psychology, Second edition. Volume 1: Foundations*. (pp. 3-87). Hoboken, NJ: John Wiley & Sons.
- Tooby, J., & Cosmides, L. (1990). The past explains the present: Emotional adaptations and the structure of ancestral environments. *Ethology and Sociobiology*, *11*(4), 375-424.
- Tooby, J., & Cosmides, L. (2008). The evolutionary psychology of the emotions and their relationship to internal regulatory variables. In M. Lewis, J. M. Haviland-Jones, & L. F. Barrett (Eds.), *Handbook of emotions* (3rd ed., pp. 114–137). New York, NY: Guilford.

- Tooby, J., Cosmides, L., Sell, A., Liberman, D., & Sznycer, D. (2008). Internal regulatory variables and the design of human motivation: A computational and evolutionary approach. In A. Elliot (Ed.), *Handbook of approach and avoidance motivation*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Tybur, J. M., & Lieberman, D. (2016). Human pathogen avoidance adaptations. *Current Opinion in Psychology*, 7, 6-11.
- Tybur, J. M., Inbar, Y., Güler, E., & Molho, C. (2015). Is the relationship between pathogen avoidance and ideological conservatism explained by sexual strategies?. *Evolution and Human Behavior*, 36(6), 489-497.
- Tybur, J. M., Lieberman, D., & Griskevicius, V. (2009). Microbes, Mating, and Morality: Individual Differences in Three Functional Domains of Disgust. *Journal of Personality and Social Psychology*, 97(1), 103-122.
- Tybur, J., Lieberman, D., Kurzban, R., & DeScioli, P. (2013). Disgust: Evolved Function and Structure. *Psychological Review*, 120(1), 65-84.
- Tybur, J.M., Inbar, Y., Aarøe, L., Barclay, P., Barlow, F.K., de Barra, M., ... Žeželj, I. (2016). Parasite stress and pathogen avoidance relate to distinct dimensions of political ideology across 30 nations. *Proceedings of the National Academy of Sciences*, 113, 12408–12413. doi: 10.1073/pnas.1607398113
- Valentino, N. A., Brader, T., Groenendyk, E. W., Gregorowicz, K., & Hutchings, V. L. (2011). Election night's alright for fighting: The role of emotions in political participation. *The Journal of Politics*, 73(1), 156-170.
- Vollhardt, J. R., Okuyan, M., & Ünal, H. (2020). Resistance to collective victimization and oppression. *Current Opinion in Psychology*, 35, 92-97.