



Figure 1 (Becker & Kenrick). A hierarchy of fundamental goals. Following Maslow's classic scheme, those lower in the pyramid are presumed to develop earlier in life, and, at a proximate level, to take priority over those higher up. Following evolutionary life history considerations, the lower goals are linked to somatic effort, followed by mating effort, and finally parenting effort (see Kenrick et al. 2010).

might also more generally boost or undermine accuracy by liberating more cognitive resources. For example, we found that activating the goal of self-protection with a guided visualization enhanced people's accuracy at detecting enemies (Becker et al. 2011). In contrast, activating the goal of revenge/anger (absent self-protection goals) undermined accuracy in favor of a bias to identify slightly angry or foreign-looking faces as enemies. This suggests that fear liberates more cognitive resources than anger, sensitizing perception to maximize the benefits of detecting threats while minimizing the costs of false alarms when no threat is present. One of the most basic findings in social cognition is that people are miserly with their cognitive resources, and the studies above suggest that people may instinctively be saving these resources for occasions when more fundamental goals arise.

In conclusion, selfish goals are a good start, but it is critical to consider how different goals are organized into an adaptive system. The society of mind is just that – a society – it is not a Hobbesian state of nature with all goals being brutish and short with one another. We instead propose a hereditary oligarchy, a hierarchy of fundamental goals that work together to maximize reproductive fitness across highly variable environments.

Tag, you're it: Affect tagging promotes goal formation and selection

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Eliza Bliss-Moreau^a and Lisa A. Williams^b

^aBrain, Mind, and Behavior Unit, California National Primate Research Center, University of California, Davis, Davis, CA 95616; ^bSchool of Psychology, University of New South Wales, Sydney NSW 2052, Australia.

elblissmoreau@ucdavis.edu

<http://www.elizablissmoreau.com>

lwilliams@unsw.edu.au

<http://www.williamssocialemotionslab.com>

Abstract: Building upon Huang & Bargh's (H&B's) theory, we propose a complementary view that goal formation and selection are both supported by affect. We suggest that goals may form when affect "tags" discrete

behaviors and their outcomes. Further, we propose that goal-associated affect may help guide selection between competing goals, for example, in the case of short-term and long-term goals.

Huang & Bargh (H&B) provide a compelling view regarding the "selfish" nature of goals. Two important questions are left unaddressed. First, how are behaviors prioritized such that they become goals in the first place? Second, how is competition between short-term and long-term goals reconciled? We propose that affect supports both processes. Affect is an omnipresent neuropsychological state generated via the integration of sensory information with interoceptive information; it is characterized by hedonicity and arousal (e.g., Barrett & Bliss-Moreau 2009; Barrett & Russell 1999; Russell 2003). In this commentary, we first propose that affect "tags" behaviors such that they become organized into goals (i.e., goal formation). Second, we propose that affect "tags" existing goals, allowing for the resolution of goal competition (i.e., goal selection).

Affect is broadly involved in many psychological phenomena, including but not exclusive to, emotion (e.g., Barrett 2006; Russell 2003), personality (e.g., Revelle 1995; Yik & Russell 2001), stereotyping (e.g., Mackie & Hamilton 1993; Moreno & Bodenhausen 2001), and the formation of implicit associations (e.g., Payne et al. 2005; 2007). Affect guides behavior (e.g., Martin et al. 1993; Raghunathan & Pham 1999), directs deployment of cognitive resources (e.g., Gable & Harmon-Jones 2010; Wegener et al. 1995), and even influences the content of consciousness (e.g., Anderson et al. 2011b; 2011a). As such, affect is a prime candidate for being involved in goal formation and selection.

H&B acknowledge the possible role for affect in goal processes when they state, "a goal can become associated with positive affect; this 'tagging' signals goal desirability" (sect. 4.2.1, para. 5). In this and similar views (e.g., Aarts 2007), affect perpetuates goals, which presumably already exist. A complementary perspective addresses goal formation. In our view, affect becomes associated with particular behaviors, thus influencing the likelihood that those behaviors occur on future occasions. Goals form over repeated behavior-outcome sequences. For example, the repeated association between physical affection and its associated positive affective state leads to a goal to pursue social relationships that may include physical affection. Thus, affect plays a critical

role in goal formation: when positive affect accompanies a behavior-outcome link, that link is prioritized for formation into a goal. Likewise, when a behavior results in negative affect, the likelihood of that behavior occurring in the future decreases (possibly subserving “avoidance” goal formation; Carver & Scheier 1990; Higgins 1997). The linking of affect with behaviors likely occurs via associative learning (Bliss-Moreau & Barrett 2009). These processes can occur either consciously or unconsciously and may become automatized according to the rules set forth by H&B. Our view does not require that goals become mentally represented in a formal sense, though this is likely the case in humans. In sum, we propose that behavior-outcome patterns become organized into goals *because* of affect.

Affect may also help prioritize goals when selection between different goals is necessary (in the “predecisional phase” of goal sequencing; Heckhausen & Gollwitzer 1987). Often, goals are pursued serially rather than in parallel, requiring that a particular goal be selected over another. Goal selection is particularly important when selecting between short-term goals (discussed in the target article) and long-term goals (not discussed in the target article). Pursuing the most desirable goal now (e.g., eating a delicious but not nutritious snack) may negatively impact future goals and states (e.g., losing weight). Thus, competition arises: Should one pursue short- or long-term goals in the given moment? Affect may aid in the resolution of this conflict by “tagging” goals for selection. For example, if a highly positive affective state is associated with a long-term goal, that long-term goal is more likely to be selected than a short-term goal tagged with less positive affect. Affect may also support favoring long-term gain (positive experiences conferred in the future; e.g., losing weight) in the face of short-term pain (negative experiences in the present; e.g., achy muscles after a hard workout) (Williams & DeSteno 2014). Over time, this process likely becomes anticipatory in nature: goals that are anticipated to create more positive states are selected (Bagozzi & Pieters 1998).

We are not alone in suggesting that affect and goals are related. Others have proposed that affect arises from and shapes goal-relevant processes (e.g., Aarts 2007; Carver & Scheier 1990; Schwarz & Bohner 1996). Notably, our focus on the importance of affect’s “tagging” role in goal formation and selection guides a number of testable hypotheses. For example, when our perspective is applied to understanding evolution, one could deduce that animals that have affect should also have goals. In this view, it is possible for organisms to have goals without sophisticated cognitive resources or the sorts of mental representations that humans have. Further, the differentiation of affect should track the differentiation of goals. Animals with affect alone (e.g., who feel pleasure) would have relatively more global goals (e.g., moving toward that which produces pleasure) than animals with highly differentiated affect (e.g., discrete emotions such as pride), who should have correspondingly differentiated goals (e.g., achieving personal success). In our view, the process of differentiation occurred across evolutionary history. Analysis of the affect-goal relationship across phylogeny should, therefore, reveal a progressive change from nondifferentiated affect supporting nondifferentiated goals to differentiated affect supporting differentiated goals.

Although cross-species evaluation of this process needs to be performed, it is notable that many theories of discrete emotion in humans utilize similar logic (e.g., Bagozzi & Pieters 1998; Cosmides & Tooby 2000; Frijda 1986; Keltner & Gross 1999). Another testable hypothesis highlights the relatively flexible nature of goals, which is inherently the case as the result of the fluidity of the affect system. For example, it should be possible to shift goal formation and selection by manipulating an individual’s affective state. Indeed, support for this idea has been found in humans (Aarts 2007; Schwarz & Bohner 1996).

We hope that focusing on the role of affect in goal formation and selection should allow for greater understanding of the mechanisms that subserve goals in humans and nonhuman animals.

Unconsciously competing goals can collaborate or compromise as well as win or lose

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Peter Carruthers

Department of Philosophy, University of Maryland, College Park, MD 20742.

pcarruth@umd.edu

<http://faculty.philosophy.umd.edu/pcarruthers/>

Abstract: This commentary offers a friendly extension of Huang & Bargh’s (H&B’s) account. Not only do active goals sometimes operate unconsciously to dominate or preempt others, but simultaneously active goals can also collaborate or compromise in shaping behavior. Because neither goal wins complete control of behavior, the result may be that each is only partly satisfied.

Huang & Bargh (H&B) provide powerful arguments for the claim that goals can be active and influence behavior outside of awareness. I concur fully. Indeed, I go further and claim that goals (as opposed to felt desires) are *never* conscious and *always* operate outside of awareness. For our access to our own goals and decisions is always interpretive in nature, much like our access to the goals of other people (Carruthers 2011). H&B focus mostly on the ways in which unconscious goals can preempt conscious ones, however, and in their official statement of their view, they propose that behavior is always controlled by the strongest currently active goal. I suggest a complimentary perspective: goals can also cooperate or compromise outside of awareness, simultaneously shaping a single behavior (in cases of compromise in such a way as to partially satisfy each while fully satisfying none). For example, in answering a question, one might have the goal of saying honestly what one believes, but one might also have the goal of making a good impression on the questioner, or of enhancing one’s own self-image. As a result, what, precisely, one says may be different from what one would have said had either one of these goals been active individually. I will illustrate and substantiate this claim with reference to the counterattitudinal essay paradigm used extensively by social psychologists studying so-called “cognitive dissonance.”

The basic finding in this literature is that participants induced to write an essay arguing for the opposite of what they believe will thereafter shift their expressed attitudes quite markedly (provided that their freedom of choice in writing the essay had been emphasized to them). For example, students who are known to be strongly opposed to a rise in tuition (as measured in an unrelated questionnaire taken some weeks previously, perhaps) will say that they are neutral on the issue, or even moderately in favor, after writing an essay under conditions of “free choice” arguing that tuition *should* be raised. For many years it was believed that writing a counterattitudinal essay induced a negative feeling (called “dissonance”) resulting from the perceived inconsistency between one’s underlying attitude and one’s freely undertaken behavior (Bem 1967; Festinger 1957). But there is good reason to think that this explanation is incorrect. Although the negative emotional component of the account is well established (Elliot & Devine 1994), it turns out that similar shifts in expressed attitude can be caused by *pro*-attitude essay writing, provided that people believe their action is likely to be harmful. This was elegantly demonstrated by Scher and Cooper (1989) who told participants of a newly discovered (but fictitious) “boomerang effect,” according to which essays read early in a sequence of messages would tend to have counterpersuasive effects. Hence, an essay arguing *against* a rise in tuition would be apt to induce the university committee dealing with the issue to *raise* tuition if that essay were read first or second in the series of essays they consult when considering the question. Under these conditions people who had written proattitudinal essays (arguing that tuition should *not* be raised) shifted their expressed attitudes quite markedly having