Major personality traits and regulations of social behavior: Cheaters are not the same as the reckless, and you need to know who you're dealing with

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ABSTRACT

This research explores the hypothesis that major personality traits are systematically associated with social regulation response tendencies. Specifically, the adaptive function of specific traits from 'Big-Five' and HEXACO models were evaluated in terms of how they are understood and utilized in predicting the behaviors of others. Big-Five factors of agreeableness and conscientiousness track tendencies to obey or break social contract and precautionary rules, but not discriminatively nor as predicted. HEXACO traits, however, provided discriminative patterns of associations between personality and response tendencies (within individuals and for third-person associations, cross-culturally) in greater accord with previous work. Honesty–humility is associated with social contract behaviors and conscientiousness is associated with precaution behaviors, consistent with conceptualizations as psychological adaptations for tracking fitness-relevant individual differences.

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1. Reasoning about social rules and personality

Cosmides and Tooby (1989) and Cosmides (1989) argued that for humans to engage in effective social exchange – i.e., cooperation for mutual benefit—they must possess cognitive mechanisms for detecting cheating. Much of the support for this proposal has come from demonstrations that people display a specific competence for detecting cheaters on social contract versions of conditional reasoning tasks (the Wason selection task). Social contracts, which are rules regulating social exchanges, can be phrased as, *If you take the benefit then you must satisfy the requirement*, such that persons breaking these rules are illicitly benefiting themselves. Part of the theoretical foundations for the proposal of social exchange reasoning is that such situations involved reciprocal cooperation for mutual benefit (i.e., reciprocal altruism; Trivers, 1971).

Subsequent studies demonstrated that people are also competent at detecting violations of logically matched precautionary rules of the form: *If the hazard exists then you must protect yourself.* Fiddick, Cosmides, and Tooby (2000) have argued that social contracts and precautions – despite their formal similarities – are psychologically distinct rules processed by separate cognitive adaptations. Precautions are generally about situations that involve some type of hazard and the methods for avoiding or mitigating that hazard (i.e., hazard management). As with social contract reasoning, an evolved competence for hazard management is suggested by people's reasoning about precautionary rules embedded within conditional reasoning tasks (Fiddick et al., 2000).

Some researchers have questioned if these are actually two distinct reasoning abilities, as opposed to both being part of some more general ability to reason about regulations or deontic situations (e.g., Cheng & Holyoak, 1989; Manktelow & Over, 1990). A significant body of research, however, suggests that humans have separate, domain-specific cognitive adaptations for social exchange and hazard management. For example, Stone, Cosmides, Tooby, Kroll, and Knight (2002) found that a patient with extensive bilateral orbitofrontal and anterior temporal lobe

damage displayed a dissociation in his reasoning about social contracts and precautions, performing significantly worse in social contract reasoning than in precautionary reasoning. (Also see convergent findings by Ermer, Guerin, Cosmides, Tooby, & Miller, 2006; Fiddick, Spampinato, & Grafman, 2005; Reis et al., 2007.) Additionally, Fiddick (2004) observed that people associate violations of social contracts and precautions with different emotional reactions, anger and fear respectively, and that manipulations of actor intent had a significant influence on people's reasoning about social contracts, but not on their reasoning about precautions.

The direction of these prior findings led to the present research that investigates two related but quite distinct general issues that are fundamental to the study of human personality and its relationship with both evolutionary theory and social reasoning. The first issue revolves around what personality traits should be hypothesized to relate to differences in social rule adherence or violation. The domain-specific reasoning approach is strongly based in evolutionary ideas, whereas some major personality dimensions have quite atheoretical foundations. The second issue revolves around the extent to which personality differences summarize behavioral dispositions (specifically in relation to social rules) and the extent to which others notice, track, and use personality differences as predictors of interpersonal behavioral tendencies. Such a use of personalities as predictors would be especially compelling, for instance, in tasks that have previously been argued to elicit evolved domain-specific reasoning processes.

These issues – whether major personality dimensions can be related to evolved adaptations and whether others use personality perceptions to understand and predict behavior – are further elaborated upon in the following sections. We then present a series of studies to address these issues, looking at both alternative models of personality dimensions and cross-cultural variations.

1.1. What are the major personality dimensions?

An important goal for personality psychology has been to identify the major dimensions of individual variation, based on the idea that a set number of traits are sufficient to describe a large portion of human personality. The most common manifestation of this idea, the Big-Five or Five-Factor Model, argues that individual differences are best captured by five global dimensions: Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness to Experience (Costa & McCrae, 1992). The Big Five model is decidedly atheoretical and is based on a psycholexical approach; identifying the most important individual differences in personality based on their prevalence and distributions in language (Block, 2010; McAdams, 2001; Paunonen & Jackson, 2000). Statistical procedures (most notably, factor analysis) have often found that five major traits work particularly well in terms of relative amounts of variance explained as personality measures.

The Big Five personality traits are *big* due to their broad nature, encompassing several sub-dimensions or facets (John & Srivastava, 1999). Because factorial analysis – and not theory—is commonly used to derive the structure of personality, several possible factorial solutions are viable. The Big Five, as the dominant factorial structure of personality, has received the most consideration. The present research focuses primarily on the traits of agreeableness and conscientiousness, which both intimately relate to how people interact with each other (Markey & Markey, 2006) and are accurately assessed in other people (Funder, Kolar, & Blackman, 1995). Agreeableness is an interpersonal trait related to aiding and supporting others with the belief that aid will be reciprocated by others (Costa & McCrae, 1992). Conscientiousness encompasses characteristics that focus on how hard-working, self-disciplined, reliable, responsible, well-organized and persevering a person is (McAdams, 2001).

A different structure of global personality dimensions is advocated by Ashton and Lee (2005). Specifically, the HEXACO model is a 6-factor model of personality that diverges from the Big Five in a few key respects. Most obviously, of course, the HEXACO model includes a sixth personality dimension, Honesty–Humility, that combines elements from the Big Five dimensions of agreeableness and conscientiousness. The HEXACO model also captures additional variance not shared with the Big Five, and the HEXACO Emotionality and Agreeableness dimensions differ somewhat from the Big Five Neuroticism and Agreeableness dimensions, roughly representing rotational variants of the latter. Thus the HEXACO model consists of: Honesty–humility, Emotionality (similar to neuroticism), eXtraversion, Agreeableness, Conscientiousness, and Openness to experience. This model also deviates from the atheoretical stance of the Big Five model, with explicit connections drawn (from the start, rather than *post hoc*) between certain factors and particular evolutionary considerations:

> "Honesty-Humility and Agreeableness... are thought to correspond to traits underlying two complementary forms of reciprocal altruism, such that high Honesty-Humility represents a tendency to cooperate with others even when one might exploit them without retaliation, and such that high Agreeableness represents a tendency to cooperate with others even when one might be suffering exploitation by them."

[(Lee & Ashton, 2006)]

1.2. Evolution and personality traits

Several evolutionary mechanisms are capable of generating individuals who have strong and enduring personality differences. One should expect, in fact, to see personality differences across the sexes (i.e., alternative physical morphs within a species), differences due to reactions to individual phenotypic differences, differences from contingent adaptations to environmental circumstances, and differences due to frequency dependent selection for alternative trait variations (Tooby & Cosmides, 1990). It is these sorts of potential mechanisms that often are the starting points for research hypotheses among personality psychologists who take evolutionary processes into account (Buss, 2008, 2009a, 2009b; Figueredo, Gladden, Vásquez, Wolf, & Jones, 2009; Figueredo et al., 2005; MacDonald, 1995; Michalski & Shackelford, 2008, 2010; Nettle, 2006). At the broadest level, these accounts stress that much of personality variation (although not all) can be understood as the calibration of evolved adaptations to different environmental inputs.

Evolutionary descriptions have been overlaid on Big Five personality factors, both across the board (e.g., Buss, 2008; Michalski & Shackelford, 2010) and for individual factors (e.g., for extraversion: Nettle, 2005). Evolutionary analyses of personality differences have also pointed out the social perception functionality of a tendency to actively perceive individual differences in terms of a relatively small number of behavioral dispositions. To wit, Buss (1991) argues that personality traits are not only research distillates of character, but tools of social perception used in real life because "perceiving, attending to, and acting upon differences in others is crucial for solving problems of survival and reproduction" (p. 471). For example, the avoidance of physical injury is an important and practical problem with significant consequences for survival (Sugiyama, 2004). To the extent that physical injuries are in part due to stable individual dispositions of others (e.g., aggressiveness or lack of agreeableness), being attentive to those dispositions can help one predict and avert physical injuries. Conscientiousness – one of the factors of the Five-Factor Model—might also reflect injury-relevant dispositions, as research suggests that