



The two faces of cooperation: On the unique role of HEXACO Agreeableness for forgiveness versus retaliation



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ABSTRACT

Cooperation requires a tendency for fairness (versus exploitation) and for forgiveness (versus retaliation). Exactly these tendencies are distinguished in the HEXACO model of personality, which attributes the former to Honesty-Humility (HH) and the latter to Agreeableness (AG). However, empirical dissociations between these basic traits have primarily supported the substantial and unique role of HH, whereas the picture for AG has remained somewhat inconclusive. To overcome limitations of prior studies, we introduce an economic paradigm, the Uncostly Retaliation Game, to more conclusively test the unique role of AG for forgiveness versus retaliation. In two fully incentivized experiments, we found that AG (and not HH) indeed negatively predicts retaliation decisions in the face of prior exploitation. Furthermore, the results confirm that the paradigm provides a more direct measure of retaliation (beyond individual payoff-concerns and social preferences such as inequality aversion) than previous measures and that it may thus serve future investigations into the reactive aspect of cooperation.

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1. Introduction

Cooperation and pro-social behavior are vital pillars of societal functioning and commonly considered an essential aspect of human nature (Bowles & Gintis, 2011). Whereas the evolution of cooperation originally constituted a puzzle to researchers from diverse disciplines, seminal research revealed that cooperation can indeed evolve based on plausible interaction strategies between agents (Axelrod & Dion, 1988; Axelrod & Hamilton, 1981; Nowak, 2006). Importantly, strategies that allow for cooperation to evolve and that are successful with respect to the long-term outcomes for all agents (e.g. “tit-for-tat” and variants thereof, Nowak, 2006) include two general behavioral tendencies: A willingness to cooperate initially (i.e., a cooperative *action*) and a willingness to reinstate cooperation even after defection (i.e., a cooperative *reaction*). It is this very distinction that recently formed part of the theoretical basis (Ashton & Lee, 2001) for what is currently one of the most prominent models of basic personality structure, the HEXACO model (Ashton & Lee, 2007, 2008a; Ashton, Lee, & De Vries, 2014).

In lexical studies across a broad set of languages, Ashton, Lee, and colleagues consistently recovered a six-factor structure of trait

adjectives (Ashton et al., 2004; Lee & Ashton, 2008), giving rise to their corresponding six-factor personality model (Honesty-Humility, Emotionality, eXtraversion, Agreeableness, Conscientiousness, and Openness, thus HEXACO). Therein, they explicitly distinguish between basic tendencies of (active) fairness versus exploitation – subsumed under the Honesty-Humility (HH) factor – and (reactive) forgiveness versus retaliation – subsumed under the Agreeableness (AG) factor – as complementary aspects of reciprocal altruism. Specifically, Honesty-Humility characterizes individuals “cooperating with others even when one might exploit them without suffering retaliation” (Ashton & Lee, 2007, p. 156), whereas Agreeableness refers to those “cooperating with others even when one might be suffering exploitation by them” (Ashton & Lee, 2007, p. 156). This distinction between active versus reactive cooperativeness (Hilbig, Zettler, Leist, & Heydasch, 2013; Zhao & Smillie, 2015) exactly mirrors the two main ingredients of strategies underlying the evolution of cooperation and arguably constitutes the primary difference between the HEXACO model and its closest predecessor, the Big Five approach (McCrae & Costa, 2008).

Given both the theoretical importance of the HH-AG distinction and the counterargument that the two are merely aspects of one single broad (Agreeableness) factor as specified in the Big Five (DeYoung, 2010; McCrae & Costa, 2008; van Kampen, 2012), it is of primary importance to scrutinize the empirical evidence concerning this distinction. Ashton and Lee’s argument of the

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cross-language emergence of six factors and thus, by implication, a distinction between HH and AG, was disputed in some subsequent lexical studies (De Raad, Barelds, Levert, et al., 2010), though not in others (De Raad et al., 2014). Both this inconclusive picture and especially the corresponding debate on the number of to-be-distinguished basic traits (Ashton & Lee, 2010; De Raad, Barelds, Mlačić, et al., 2010) are, in our view, more telling about the inconclusiveness of lexical approaches for the question at hand than about either of the positions taken in the debate. Rather, strong evidence for the proposed distinction would require a pattern of dissociations to the effect that either of the two factors can be exclusively linked to some criteria that the other cannot account for. In particular, we concur with Zhao and Smillie (2015) that use of “robustly established behavioral paradigms” will allow for testing “core postulates [...] by examining the theoretical division between honesty-humility and agreeableness through their ‘double dissociation’”, ultimately representing “a major shift in trait psychology, from mere description to explanatory models” (p. 294).

On the one hand, there is now ample evidence that HH accounts for diverse criteria that the HEXACO variant of AG cannot predict. These include crime, delinquency, and counterproductive work behavior (Dunlop, Morrison, Koenig, & Silcox, 2012; van Gelder & de Vries, 2013; Zettler & Hilbig, 2010), dishonesty and cheating (Hershfield, Cohen, & Thompson, 2012; Hilbig & Zettler, 2015; Thielmann, Hilbig, Zettler, & Moshagen, in press), as well as sexual harassment, sexual “quid pro quos”, and infidelity (Ashton & Lee, 2008b; Hilbig, Moshagen, & Zettler, 2015; Lee, Gizzarone, & Ashton, 2003) and thus cover a wide range of immoral, exploitative behaviors that are linked to low HH. Most importantly, HH was repeatedly shown to positively predict actively fair (versus exploitative) behavior in fully incentivized economic paradigms and allocation decisions (e.g., Baumert, Schlösser, & Schmitt, 2014; Hilbig, Glöckner, & Zettler, 2014; Hilbig, Thielmann, Hepp, Klein, & Zettler, 2015; Thielmann et al., in press), whereas HEXACO AG was largely unrelated to said behavior (see also Ackermann, Fleiß, & Murphy, 2016; Hilbig et al., 2013). Thus, in summary, empirical evidence strongly supports the unique role of HH (as opposed to AG) for capturing fairness versus exploitation – thereby supporting the proposed pattern of dissociation for active cooperativeness.

On the other hand, the evidence for a unique association between HEXACO AG and forgiveness versus retaliation is notably less convincing. First off, studies investigating self-reports of AG-related criteria such as a reciprocity scale (Perugini, Gallucci, Presaghi, & Ercolani, 2003), a revenge planning scale (Lee & Ashton, 2012), several forgiveness scales (Romero, Villar, & López-Romero, 2015; Shepherd & Belicki, 2008), or a vengeance scale (Sheppard & Boon, 2012) indeed found medium to large effects for AG (typical $|r|$ between 0.30 and 0.70). However, all of these criteria were also substantially linked to HH (typical $|r|$ between 0.20 and 0.40), typically in the same direction as AG. Thus, although the effects sizes tend to be larger for AG than for HH, the findings do not corroborate a conclusive pattern of dissociation. A somewhat more encouraging picture evolved from studies based on hypothetical economic games, especially the ultimatum game (Güth, Schmittberger, & Schwarze, 1982) in which a responder can reject unfair offers made by a proposer (for details of the game, see below): It was repeatedly found that AG predicts responders' ultimatum game decisions – that is, individuals low in AG are more likely to reject offers and thus to retaliate – whereas HH typically does not (Hilbig et al., 2013; Thielmann & Hilbig, 2014; Thielmann, Hilbig, & Niedtfield, 2014). However, the effect sizes for AG were notably smaller than in the self-report studies summarized above (typical $|r|$ between 0.15 and 0.20). Also, a recent study using fully incentivized economic games again found that whereas

only HH predicted positive reciprocity, both AG and HH predicted negative reciprocity and thus the tendency to retaliate (Ackermann et al., 2016). Hence, in summary, there is only limited evidence for the unique role of AG (over and above HH) in explaining forgiveness versus retaliation and thus the implied pattern of dissociation for reactive cooperation.¹

Discouraging though this picture may appear at first sight, we maintain that it is, at least in part, due to methodological aspects of previous studies. In particular, the only behavioral measure of forgiveness versus retaliation used so far, the ultimatum game, does not offer a sufficiently direct measure of said tendency. In the ultimatum game, one player (the proposer) makes an offer to the other (the responder) about how to split an endowment between the two; the responder can either accept or reject the offer. If she accepts, the endowment is split as proposed, whereas if she rejects the entire endowment is lost and neither player receives anything (for variants, see Suleiman, 1996). Thus, rejection of an offer conflates retaliation with the willingness to forgo gains because retaliation is costly (Brethel-Haurwitz, Stoycos, Cardinale, Huebner, & Marsh, 2016). Problematically, whereas the intention to retaliate should be a mark of low AG, the willingness to forgo gains could actually be a matter of high HH. Consequently, the behavior in question – rejecting unfair offers in the ultimatum game – may necessitate a trait pattern (low AG, but high HH) which, almost by definition, is unlikely to ever be strong as “there are few if any behaviors or traits that depend on the contrast between the two reciprocally altruistic tendencies represented by H[H] and A[G]” (Ashton et al., 2014, p. 146, emphasis original). Stated simply, it is thinkable that AG could only strongly predict ultimatum rejections if it were generally negatively associated with HH which makes little sense theoretically and has, to best of our knowledge, never been found empirically.

The conflation of different behavioral tendencies or motives within the same economic game is neither uncommon (Thielmann, Böhm, & Hilbig, 2015) nor inherently undesirable. For example, it has been a seminal insight that humans are indeed willing to retaliate even at some cost (Fehr & Gächter, 2000, 2002). However, for the reasons sketched above, costly retaliation is unsuitable for the specific purpose of testing the unique role of AG within the HEXACO framework. The latter will require a behavioral task in which retaliation is not – or, at least arguably much less – conflated with one's willingness to forego gains. In the following, we will present a corresponding paradigm which we will name the “Uncostly Retaliation Game” (URG) and subsequently use it in two experiments which test the ability of AG to (substantially and uniquely) predict retaliation in the face of exploitation.

1.1. The Uncostly Retaliation Game

In general terms, the URG is a variant of the ultimatum game, based on the idea of decoupling retaliation from costs (Anderson & Putterman, 2006). In particular, it implements a second player who can retaliate against a first player's allocation decision at no personal cost (Houser & Xiao, 2010; Leibbrandt & López-Pérez, 2014; note, however, that their paradigms involved fixed but non-zero costs for retaliation). Thus, the URG is a sequential, two-stage extensive-form game, though with incomplete information for the first player (see below). The game structure is depicted

¹ It should be noted explicitly that the empirical picture is even less in favor of the claim that HH and AG should be subsumed under Big Five Agreeableness. Unlike HH, Big Five Agreeableness has neither been linked consistently to fairness versus exploitation in economic games (for an overview see Hilbig, Thielmann, et al., 2015), nor has it been more consistently linked to forgiveness versus retaliation than HEXACO AG (Zhao & Smillie, 2015).

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