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Honesty-Humility Under Threat: Self-Uncertainty Destroys Trust Among the Nice Guys

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Recent research on humans' prosociality has highlighted the crucial role of Honesty-Humility, a basic trait in the HEXACO personality model. There is overwhelming evidence that Honesty-Humility predicts prosocial behavior across a vast variety of situations. In the present contribution, we cloud this rosy picture, examining a condition under which individuals high in Honesty-Humility *reduce* prosocial behavior. Specifically, we propose that under self-uncertainty, it is particularly those individuals high in Honesty-Humility who reduce trust in unknown others and become less prosocial. In 5 studies, we assessed Honesty-Humility, manipulated self-uncertainty, and measured interpersonal trust or trust in social institutions using behavioral or questionnaire measures. In Study 1, individuals high (vs. low) in Honesty-Humility showed higher levels of trust. This relation was mediated by their positive social expectations about the trustworthiness of others. Inducing self-uncertainty decreased trust, particularly in individuals high in Honesty-Humility (Studies 2–5). Making use of measuring the mediator (Studies 2 and 3) and applying a causal chain design (Studies 4a and 4b), it is shown that individuals high in Honesty-Humility reduced trust because self-uncertainty decreased positive social expectations about others. We end with an applied perspective, showing that Honesty-Humility is predictive of trust in social institutions (e.g., trust in the police; Study 5a), and that self-uncertainty undermined trust in the police especially for individuals high in Honesty-Humility (Study 5b). By these means, the present research shows that individuals high in Honesty-Humility are not unconditionally prosocial. Further implications for Honesty-Humility as well as for research on self-uncertainty and trust are discussed.

Keywords: HEXACO, honesty-humility, self-uncertainty, trust

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In one of his famous dialogues, Plato elaborated on the goodness of human nature. He let his main protagonist, Socrates, ask the question, "Do not all men, in your opinion, my dear sir, desire the good?" Socrates' dialogue partner Meno replied, "I think not." (Plato, 1967). In fact, individuals differ strongly in their basic prosocial orientations (Ashton & Lee, 2007) and history of science is permeated by studies on this topic (Haidt, 2003). In this respect, contemporary personality research has contributed considerably to the understanding of humans' prosociality. Noteworthy are recent developments highlighting the basal prosocial trait of Honesty-Humility that plays an important role in this regard (Hilbig, Glöckner, & Zettler, 2014). According to Ashton and Lee (2007), "Honesty-Humility represents the tendency to be fair and genuine in dealing with others, in the sense of cooperating with others even when one might exploit them without suffering retaliation." (p. 156). Remarkably, Honesty-Humility appears to be the prosocial trait par excellence, predicting prosocial behavior across an impressive variety of situations (Lee & Ashton, 2013; Zettler & Hilbig, 2015).

In the present contribution, we extend the existing literature by investigating the boundary conditions of Honesty-Humility and prosocial behavior. That is, we ask the important and novel questions under which conditions Honesty-Humility is *not* related to prosociality, and when individuals high in Honesty-Humility *reduce* prosocial behavior. Therefore, a remarkable gap in research is addressed in this contribution. Specifically, we argue and empirically show that individuals high in Honesty-Humility reduce prosocial behavior under self-uncertainty. Here, we focus on one of the basic pillars of prosocial interactions, that is, trust (for an overview, see Thielmann & Hilbig, 2015b), and examine the hypothesis that under self-uncertainty, otherwise prosocial individuals who positively value the welfare of others (i.e., individuals high in Honesty-Humility) reduce trust in unknown others and become less prosocial. Additionally, we deliver empirical evidence for the mechanism proposed to explain prosocial behavior in individuals high in Honesty-Humility. As such, we address recent assertions by Back and Vazire (2015) that research on personality should consider in its analyses psychological mechanisms associated with specific traits and real social outcomes. In the following, we provide a detailed literature overview and the theoretical framework of the hypothesized and tested relations.

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Honesty-Humility and Prosociality

Honesty-Humility is one central factor of the HEXACO personality model (Ashton & Lee, 2007). The HEXACO model entails the six factors of Honesty-Humility (H), Emotionality (E), eXtraversion, (X), Agreeableness (A), Conscientiousness (C), and Openness to Experience (O). The HEXACO model thus has a similar factor structure as traditional five-factor models of personality (e.g., the Big Five; Goldberg, 1990; McCrae & Costa, 2008), extended by Honesty-Humility.[1] To recapitulate the definition, Honesty-Humility reflects the tendency to be fair and genuine in social interactions and to cooperate with others, although noncooperation might yield greater benefits (Ashton & Lee, 2007). As such, Honesty-Humility reflects the proactive tendency to act prosocially. In this sense, Honesty-Humility plays a role in various circumstances. It has been shown that Honesty-Humility is positively related to sociopolitical equality orientation (Lee, Ashton, Ogunfowora, Bourdage, & Shin, 2010), job performance (Johnson, Rowatt, & Petrini, 2011), integrity and ethical decision-making in business relations (Lee, Ashton, Morrison, Cordery, & Dunlop, 2008), and a low desire for power and money (Lee et al., 2013); it is negatively related to workplace delinquency (de Vries & van Gelder, 2015; Zettler & Hilbig, 2010) and the dark tetrad of Machiavellianism, psychopathy, narcissism, and sadism (Book et al., 2016).

In the interpersonal context, Honesty-Humility reveals its prosocial impact (Zhao & Smillie, 2015). In a line of studies by Hilbig and colleagues (2014), for instance, participants had to distribute money between themselves and an unknown interaction partner. From a selfish economic perspective, participants should maximize their own payoff, regardless of what the other individual would receive. Contrary to this perspective, the higher an individual's score on Honesty-Humility, the more s/he gave the unknown other at personal cost (see Hilbig & Zettler, 2009, and Zhao, Ferguson, & Smillie, 2016, for replications of this effect). Moreover, Honesty-Humility was shown to predict trustworthiness (Thielmann & Hilbig, 2015a), honest and benevolent behavior (Hilbig, Thielmann, Hepp, Klein, & Zettler, 2015; Hilbig, Thielmann, Wührl, & Zettler, 2015; Hilbig & Zettler, 2015), interpersonal and intergroup cooperation (Hilbig, Zettler, Leist, & Heydasch, 2013; Hilbig, Zettler, Moshagen, & Heydasch, 2013; Thielmann & Böhm, 2016), and altruism (Hilbig & Zettler, 2009; Thielmann & Hilbig, 2014).

Remarkably, these findings emerged beyond the other central prosocial factor of the HEXACO model, Agreeableness. Agreeableness reflects the "tendency to be forgiving and tolerant of others, in the sense of cooperating with others even when one might be suffering exploitation by them" (p. 156, Ashton & Lee, 2007). In this way, Agreeableness is shown to be negatively related to *reactive*, anger-based aggression (Hilbig, Zettler, Leist, & Heydasch, 2013; Hilbig, Thielmann, Klein, & Henninger, 2016; McNulty & Russell, 2016; Sheppard & Boon, 2012; Thielmann, Hilbig, & Niedtfeld, 2014), whereas null-relations are typically found regarding *proactive* prosocial behavior (e.g., donations, trust; Ashton, Lee, & de Vries, 2014; Evans & Revelle, 2008; Hilbig et al., 2014). Basically, it is Honesty-Humility, not Agreeableness, which reflects proactive prosocial behavior on a personality level (Hilbig et al., 2014).

Honesty-Humility and Interpersonal Trust

Thielmann and Hilbig (2014) argue for a projection mechanism to explain prosociality in individuals high in Honesty-Humility (cf. Krueger, 2013; Krueger, DiDonato, & Freestone, 2012; Yamagishi et al., 2013). Specifically, individuals high in Honesty-Humility are assumed to project their own prosociality and trustworthiness on other people. Having the expectations that others are prosocial and trustworthy, individuals high in Honesty-Humility can unfold their basic prosocial orientation and behave accordingly (Thielmann & Hilbig, 2014). In this sense, prosocial behavior toward others by individuals high in Honesty-Humility stems, to a certain extent, from their expectations that others are (also) prosocial and trustworthy.

Social expectations about others are important for the assumption that Honesty-Humility is also related to interpersonal trust. In fact, positive social expectations about others are a crucial element in many definitions of trust (Evans & Krueger, 2016; Mayer, Davis, & Schoorman, 1995; Thielmann & Hilbig, 2015b). Rousseau, Sitkin, Burt, and Camerer (1998), for instance, proposed a conceptualization of trust according to which "[t]rust is a psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behavior of another" (p. 395). Accordingly, having positive expectations about the trustworthiness of another individual has been shown to determine an individual's actual trust (e.g., Bigoni, Bortolotti, Casari, & Gambetta, 2013; Fetchenhauer & Dunning, 2009; Vyrastekova & Garikipati, 2005; Yamagishi et al., 2013).

Combining the proposal by Thielmann and Hilbig (2014) that individuals high in Honesty-Humility have positive social expectations about others, whereas positive social expectations are crucial for actual trust behavior, individuals high (vs. low) in Honesty-Humility should show a higher level of trust, explained by positive expectations about others' trustworthiness (Thielmann & Hilbig, 2015b). These assumptions are tested in the studies reported in the empirical part of this contribution.

(Un)conditional Prosociality and the Impact of Self-Uncertainty

The assumptions so far clearly follow existing research—it is expected that Honesty-Humility relates to prosociality and in particular to interpersonal trust. This fits into the broader picture that individuals high in Honesty-Humility behave prosocially across a vast variety of situations. In this regard, past research indeed suggests that individuals high in Honesty-Humility might be unconditionally prosocial, that is, they show prosocial behavior independently of their current situation. Hilbig, Zettler, and Heydasch (2012), for instance, document that individuals *low* in Honesty-Humility cooperate when they could be punished for noncooperation, but shift toward noncooperation when no punishment could be executed. In contrast, individuals high in Honesty-Humility cooperate whether or not a punishment option was present (see Hilbig & Zettler, 2009, for similar results). Moreover,

[1] See Ashton, Lee, and De Vries (2014) for a detailed discussion regarding the differences of Neuroticism versus Emotionality, and Agreeableness as conceptualized in traditional five-factor models and the HEXACO model.

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individuals low in Honesty-Humility cooperate when cooperative behavior is highly incentivized, but less so when incentives are low. Individuals high in Honesty-Humility instead cooperate independently of low versus high incentives for cooperation (Zettler, Hilbig, & Heydasch, 2013). Thielmann and Hilbig (2015a) provide further evidence that individuals high in Honesty-Humility might be unconditionally prosocial. In their studies, participants could decide how much money received (with profit) from another individual to transfer back. Individuals high (vs. low) in Honesty-Humility send more money back, and this was independent from how much they received from the other individual.

A similar picture emerges in the organizational context. Zettler and Hilbig (2010) show that individuals low in Honesty-Humility decrease counterproductive work behavior when organization politics were perceived as satisfying. In contrast, individuals high in Honesty-Humility show low levels of counterproductive work behavior, regardless of their perceived organization politics (for a replication, see Wiltshire et al., 2014). An equal pattern emerged in the context of insecurity where job insecurity increased counterproductive work behavior, but not for individuals high in Honesty-Humility (Chirumbolo, 2015). Recently, it was shown that school students high in Honesty-Humility show low levels of antisocial behavior, irrespective of how likely it was to be punished for showing antisocial behavior (Allgaier, Zettler, Wagner, Püttmann, & Trautwein, 2015).

In sum, the overall picture of the existing literature suggests that individuals high in Honesty-Humility might be unconditionally prosocial. We question this rosy picture and examine a condition in which individuals high in Honesty-Humility reduce prosocial behavior. Preliminary evidence for this perspective comes from Zettler et al. (2013), showing that Honesty-Humility is related to cooperative behavior in a dyad given high expectations that the other individual will cooperate. However, individuals high in Honesty-Humility reduce cooperation given low expectations of the interaction partner's cooperativeness. Thus, individuals high in Honesty-Humility are not insensitive to their current situation. In the present contribution, we argue that self-uncertainty reduces prosociality in individuals high in Honesty-Humility, as outlined in the following.

Building on uncertainty-identity theory, the unconformable feeling of uncertainty emerges from threatened important aspects of the self—one's perceptions, attitudes, values, and goals (Hogg, 2000). As self-uncertainty fundamentally threatens the self, humans are motivated to reduce self-uncertainty and to make the world around them more predictable (Hogg, 2007). In this regard, self-uncertainty activates coping mechanisms such as strengthening group identification (Hogg, 2007, 2009). On a more concrete level, then, self-uncertainty causes one to seek soft haptic sensations (van Horen & Mussweiler, 2014), to turn to materialism (Chang & Arkin, 2002), and to enhance creativity among those who value distinctiveness from others (Rios, Markman, Schroeder, & Dyczewski, 2014).

Uncertainty-identity theory emphasizes that potential uncertainties are not equally relevant for every individual. What matters is their actual self-relevance. That is to say, uncertainty matters strongly when the self is involved (Hogg, 2007). As such, in the context of prosocial behavior, self-uncertainty is likely to be particularly relevant for those whose basic orientation is prosocial, that is, individuals high in Honesty-Humility. Regarding interpersonal trust, we have argued that individuals high in Honesty-Humility project on others their own prosociality and trustworthiness, leading to positive expectations about others (Thielmann & Hilbig, 2014). These positive expectations should, in turn, foster trust. In a state of self-uncertainty, however, the projection of the prosocial self to others is inhibited as uncertainty threatens the self; the self, however, is relevant for the (prosocial) projection of prosocial individuals. As a result of the disturbed projection, individuals high in Honesty-Humility should no longer have pronounced positive social expectations about others. This should, consequently, reduce trust.

Theoretical Model and Hypotheses

Overall, the presented considerations lead to the following theoretical model, displayed in Figure 1. Our model entails the following specific assumptions. The first two assumptions focus on Honesty-Humility under baseline conditions, that is, without self-uncertainty being activated. These are tested in Studies 1–5. First, it is hypothesized that Honesty-Humility is positively related to trust. Second, this should be the case, as outlined above, because Honesty-Humility is related to positive social expectations about how others will behave. Positive social expectations are, in turn, predictive for one's trust in others. This picture is assumed to be different under uncertain conditions; that is, self-uncertainty should moderate the relation of Honesty-Humility and trust, empirically tested in Studies 2–5. Specifically, the third hypothesis reads that under self-uncertainty, individuals high in Honesty-Humility shift toward distrust. Fourth, this should be the case because individuals high in Honesty-Humility reduce positive expectations about others under self-uncertainty, which in turn reduces trust. Thus, changed positive expectations in individuals high in Honesty-Humility should explain why individuals high in Honesty-Humility shift to distrust under self-uncertainty. In other words, changed positive expectations are assumed to function as the explanatory variable, that is, the mediator.

The outlined theoretical assumptions are tested in five studies. Honesty-Humility (and the other dimensions of the HEXACO) was measured, self-uncertainty was manipulated, and trust was assessed using different behavioral and questionnaire measures. The question of mediation was approached by measuring the mediator (Studies 1–3) and applying a causal chain design in Study 4 (cf. Spencer, Zanna, & Fong, 2005). We end with an applied perspective by examining the relation of Honesty-Humility and trust in social institutions (trust in the police, the justice system, the government) and whether self-uncertainty reduces trust in the police, especially in individuals high in Honesty-Humility (Study 5).

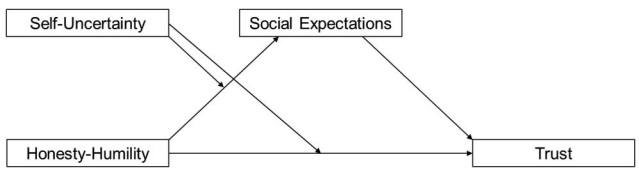

Figure 1. The full assumed and tested model.

Study 1

In the first study, the basic part of the full theoretical model was tested (i.e., the first two assumptions). Specifically, we put the assumptions to an empirical test (a) that Honesty-Humility is positively related to trust under baseline conditions, (b) because Honesty-Humility is related to positive social expectations about how others will behave which, in turn, are predictive for one's trust in others. Study 1 thus aimed to establish a basis for the consecutive studies (Studies 2–4), which additionally examined the relation of Honesty-Humility and trust under self-uncertainty. Study 1 examined the relation without inducing self-uncertainty.

Method

Research ethics statement. The studies reported in the present contribution were conducted in full accordance with the Ethical Guidelines of the German Association of Psychologists (DGPs) and the American Psychological Association (APA). Institutional review boards or committees are not mandatory at German universities. There was no deception of participants in any of the reported studies.

Procedure. The study was conducted online via Amazon Mechanical Turk (cf. Buhrmester, Kwang, & Gosling, 2011). Participants first completed the HEXACO personality items, then read the explanations of the trust game and finally made their trust decision. After the study, participants were paid out via the Amazon Mechanical Turk system (for details see below).

HEXACO. To assess the HEXACO personality model, we used the 60-item version of the HEXACO Personality Inventory—Revised (HEXACO-60; Ashton & Lee, 2009). The HEXACO-60 consists of 10 items for each of the six HEXACO scales. Responses were given on a 7-point Likert scale ranging from *strongly disagree* to *strongly agree* (unless indicated otherwise, this applies to every other self-report measure in this contribution). A sample item of the Honesty-Humility scale (Cronbach's alpha = .70, M = 4.77, SD = 0.94) reads, "I would never accept a bribe, even if it were very large." Cronbach's αs, mean values, and standard deviations of the other scales of the HEXACO are provided in the Supplementary Material.

Interpersonal trust. We used a binary-choice version of the sequential trust game to obtain a behavioral measure of interpersonal trust (Berg, Dickhaut, & McCabe, 1995; Evans & Krueger, 2014; Kreps, 1990). The trust game is a prominent economic game in experimental psychology, experimental economics, and beyond (for an overview, see Johnson & Mislin, 2011, and Thielmann & Hilbig, 2015b).

The instructions participants received are provided in the Supplementary Material. The trust game consisted of two randomly paired real players, that is, no deception was involved. Participants read that one would be Player 1 and the other would be Player 2 and that this decision is made by chance.[2] In the game, each player's decision affected the final payoff of the other. Figure 2 shows the behavioral options and their payoff consequences for each player.

If Player 1 chooses Option R (i.e., the distrust option) the game ends and Player 1's final payoff will be \$6; Player 2's final payoff will be \$2. If Player 1 chooses Option L, the other player is trusted (i.e., the trust option), and the payoffs are determined by Player 2's choice. Specifically, if Player 2 selects Option B, the trust of Player 1 pays out and Player 1 gets \$10; Player 2 gets \$10, too. However, if Player 2 selects Option A, then Player 1's trust does not pay out; Player 1 only receives \$2 and Player 2 receives \$18. When Player 1 made the choice, s/he did not know the choice of Player 2 (instead, Player 2 knows the first player's decision and can react to it by being trustworthy or not, what is known by Player 1).

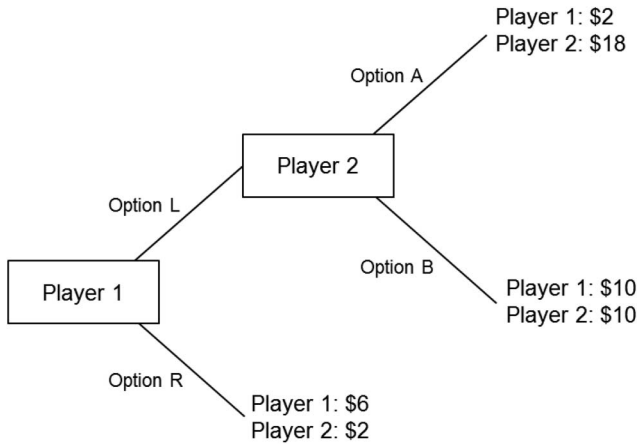

Figure 2. The applied trust game in Study 1 and Study 2.

A selfish–rational Player 2 would always choose Option A. Anticipating this, a selfish-rational Player 1 would always choose Option R, leading to a collectively inefficient outcome (Evans & Krueger, 2009). Yet, trusting the other player and choosing Option L would maximize social welfare. Contrary to the prediction of selfish rationality, a meta-analysis on continuous trust games involving 162 studies and more than 23,000 participants has shown that a considerable amount of participants in the role of Player 1 chose to trust Player 2, that is, transfer between 22% and 89% of the initial endowment, and a mean transfer of 50% (Johnson & Mislin, 2011).

At the beginning of the instructions, participants were informed that 1 of 15 participants in the game will be paid out (independent of the role played, either Player 1 or Player 2), as regularly done in the field of experimental economics (i.e., random-lottery incentive scheme; see, e.g., Bardslay et al., 2000). This makes it possible to play the game with high and relevant stakes while assuring that participants' choice had, to the given probability, real financial consequences for players. Player matching as well as payment of 1 out of 15 participants was made after data collection was completed.

Social expectations. Player 1's social expectations of how Player 2 would decide was assessed with one item. The item reads: "I expected that Player 2 would choose Option A (I would receive \$2 and Player 2 would receive \$18)." Responses were given on a 7-point Likert scale ranging from *strongly disagree* to *strongly agree*. The item was assessed after the trust game to get an

[2] Please note that only Player 1 is of interest for the current study as Player 1's behavior reflects (dis)trust in another person. Therefore, we programmed the study in a way that we had 20 times as much Players 1 as Players 2 in our study. Accordingly, one Player 2 was matched to 20 Players 1 to assure real interactions between participants.

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unbiased measure of the central dependent variable (trust). Measurement order is addressed in Study 4. In the analyses reported below, the item was entered reversed into the analyses so that positive values reflect positive expectations.

Participants. Using G*Power (Faul, Erdfelder, Buchner, & Lang, 2009), a power analysis was conducted for a two-tailed *z* test for a single regression coefficient in a logistic regression. Power was set to .80 (Cohen, 1992), and a small-to-medium effect (odds ratio = 2.0; Rosenthal, 1996) was (conservatively) assumed. This power analysis revealed a required sample size of $N = 82$ to detect a significant effect (alpha level of .05) given there is a true effect. However, as we did not know the "true effect," we oversampled the study. Financial opportunities when the study was run made it possible to overpower the study and therefore to reduce the likelihood of Type II error. We obtained complete data from 150 US American individuals (42.0% women; $M_{age} = 35.95$, $SD_{age} = 12.24$) who played as Player 1 in the study. Dropout rates for all studies in this contribution are provided in the Supplementary Material.

Results and Discussion

Main results. Overall, 57.3% of participants chose the trust option.[3] Using logistic regression analyses, trust was regressed on Honesty-Humility and the other dimensions of the HEXACO model (see Table 1). This analysis revealed that Honesty-Humility was positively related to trust, representing a small-to-medium effect (Rosenthal, 1996). No other dimension of the HEXACO model turned out as a significant predictor.

Social expectations. Next, social expectations were regressed on Honesty-Humility. Honesty-Humility predicted (positive) social expectations ($B = 0.60$, $SE = 0.18$, $\beta = .27$, $p < .01$), which were in turn positively related to trust ($B = 0.63$, $SE = 0.11$, $p < .01$, $OR = 1.88$) when Honesty-Humility was included in the regression model ($B = 0.30$, $SE = 0.22$, $p = .16$, $OR = 1.36$). The indirect effect was also significant, that is, the bootstrapped 95% confidence interval excluded zero [0.15; 0.72] (Hayes, 2013). In other words, social expectations mediated the relation of Honesty-Humility and trust in that individuals high in Honesty-Humility had more positive expectations compared with individuals low in Honesty-Humility; these positive expectations then predicted trust.

The first study found evidence in favor of the basic part of the full model. Honesty-Humility was in fact related to trust under baseline conditions, mediated by social expectations. No other dimension of the HEXACO personality model, including the other prosocial dimension of Agreeableness, emerged as a significant predictor. These findings speak to the notion of Hilbig et al. (2014), emphasizing that it is Honesty-Humility, not Agreeableness, that reflects proactive prosocial behavior on the personality level. We further elaborate on this important finding in the General Discussion.

We have argued that the picture drawn in Study 1 is different under self-uncertainty. Specifically, it is assumed that individuals high in Honesty-Humility shift toward distrust under self-uncertainty, because under uncertainty they reduce positive expectations about others. These assumptions were tested in Study 2 and replicated in Study 3.

Table 1
Multivariate Logistic Regression Analysis in Study 1 (N = 150)

Criterion: Trust	*B*	*SE*	*p*-value	Odds ratio
Honesty-Humility	.64	.22	<.01	1.90
Emotionality	.14	.18	.43	1.15
Extraversion	.00	.16	.98	1.00
Agreeableness	−.09	.18	.64	.92
Conscientiousness	−.19	.21	.38	.83
Openness	−.01	.18	.97	.99
Constant	−1.90	1.72	.28	.15

Note. Coding of trust: 1 = trust; 0 = distrust.

Studies 2 and 3

Method

Procedure. The studies were again conducted online via Amazon Mechanical Turk (cf. Buhrmester et al., 2011). Participants first completed the HEXACO personality items, then read the explanations of the trust game, responded to the self-uncertainty manipulation, and finally made their trust decision. The same payment procedure as in the first study was applied.

HEXACO. We again used the 60-item version of the HEXACO Personality Inventory—Revised (Ashton & Lee, 2009). Honesty-Humility was reliably measured in Study 2 ($\alpha = .78$, $M = 4.61$, $SD = 1.07$) and Study 3 ($\alpha = .75$, $M = 4.52$, $SD = 1.00$). Cronbach's alpha, mean values, and standard deviations of the other scales are provided in the Supplementary Material.

Manipulating self-uncertainty. Self-uncertainty was, in both studies, induced using a standard self-uncertainty manipulation (Hohman & Hogg, 2015). Specifically, participants in the self-uncertainty condition [control condition] were asked to "take a few minutes and think about those aspects in your life that make you feel the most uncertain [certain] about yourself, your future or your place in the world. Then please describe two of those in detail below."

PANAS. After the manipulation of self-uncertainty, participants filled out the 20-item Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988). The PANAS consists of 10 adjectives measuring current negative affect and 10 items measuring current positive affect. Responses on the PANAS items (in all studies of this contribution) were given on a 5-point Likert scale ranging from *not at all* to *extremely*. The PANAS was included as a filler task and to gauge whether the manipulation of self-uncertainty affect positive and negative affect, as typically done in studies on uncertainty (Hohman & Hogg, 2015; van Horen & Mussweiler, 2014).

Manipulation check. The PANAS was complemented with the adjective "uncertain," which served as a manipulation check.

[3] The number of participants who trusted the other player in this and the following studies was descriptively somewhat larger than the mean transfer rate in continuous trust games ($M = 50\%$; see meta-analysis of Johnson & Mislin, 2011). However, our experimental set-up includes some features that have been shown to increase trust behavior (e.g., interaction with "real" instead of "fake" Player 2). Moreover, in Studies 1–3 we used a binary-choice, that is, "all-or-nothing," instead of a continuous trust game. It has been argued elsewhere that the binary-choice trust game is a better model of trust in various real-life situations and that trust behavior is higher if players have to choose between fully trusting versus not trusting at all (e.g., Fetchenhauer & Dunning, 2012).

Interpersonal trust. Exactly the same trust game of Study 1 was used in Study 2. In this way, we follow the classic trust game procedure (Berg et al., 1995; Kreps, 1990) that imposes the rule that every participant is financially better off after the game, even when Player 1 chose the distrust option. In Study 3, we radicalized the trust game in that choosing the distrust option now has antisocial, harming effects on Player 2. In Study 3, we gave each participant $2 as a basic endowment. Now, when Player 1 chooses the distrust option s/he received in total $6 (as in Studies 1 and 2). Player 2, however, received $0 in total (instead of $2 as in Studies 1 and 2). It was stated in the instructions that "Player 2's payoff decreases from $2 (basic endowment) to $0." Thus, the antisocial consequences of choosing the distrust option were explicitly mentioned.

In this way, in Study 3, we were able to test the possibility that individuals high in Honesty-Humility might shift toward distrust under self-uncertainty, even when they have to accept that their behavior harms another individual in that the other player's income is decreased.

Social expectations. Player 1's social expectation of how Player 2 would decide was assessed as in Study 1.

Participants. A power analysis was conducted for a two-tailed z test for a single binominal regression coefficient (i.e., the effect of the manipulation of self-uncertainty) in a logistic regression. Power was set to .80 (Cohen, 1992) and equal distribution of participants across conditions was assumed. This power analysis revealed a required sample size of $N = 164$ to detect an effect of the self-uncertainty manipulation of medium size (an odds ratio of 2.5; Rosenthal, 1996).

We obtained complete data from 225 US American individuals in Study 2 (51.8% women; $M_{age} = 32.84$, $SD_{age} = 11.04$) and complete data from 181 US American individuals in Study 3 (55.2% women; $M_{age} = 34.08$, $SD_{age} = 11.18$) who played as Player 1. Excluding participants of Study 3 who indicated that they had participated in a similar earlier study (11%) does not change the results in terms of significance levels and direction. Dropouts were not significantly uneven by condition in any of the studies reported in the present contribution (see Supplementary Material for additional information; Zhou & Fishbach, 2016).

Results and Discussion

Manipulation check and PANAS. In Study 2, analyses revealed a significant difference, $t(223) = 3.68$, $p < .01$; Cohen's $d = .49$ in state uncertainty between the self-uncertainty condition ($M = 2.62$, $SD = 1.31$) and the control condition ($M = 2.01$, $SD = 1.16$). The same pattern was observed in Study 3, which also found a significant difference, $t(179) = 3.21$, $p < .01$; Cohen's $d = .48$ in state uncertainty between the self-uncertainty condition ($M = 2.52$, $SD = 1.31$) and the control condition ($M = 1.93$, $SD = 1.12$). These results indicate a successful induction of self-uncertainty in both studies.

As in other research (e.g., Hohman & Hogg, 2015; van Horen & Mussweiler, 2014), there were, in Study 2, negligible differences, $t(223) = 1.30$, $p = .20$ in negative affect (self-uncertainty condition: $M = 1.61$, $SD = 0.76$; control condition: $M = 1.48$, $SD = 0.77$; Cohen's $d = .17$) and positive affect, $t(223) = 1.67$, $p = .10$; self-uncertainty condition: $M = 2.91$, $SD = 0.94$; control condition: $M = 3.13$, $SD = 1.02$; Cohen's $d = .22$. In Study 3, there was a significant difference, $t(179) = 2.39$, $p = .02$ in negative affect (self-uncertainty condition: $M = 1.61$, $SD = 0.69$; control condition: $M = 1.37$, $SD = 0.61$; Cohen's $d = .35$). The main results (see below) did not change qualitatively or quantitatively (i.e., in terms of significance level) when negative affect was included in the regression models. No significant difference was found for positive affect, $t(179) = 0.76$, $p = .45$; self-uncertainty condition: $M = 3.13$, $SD = 0.96$; control condition: $M = 3.02$, $SD = 0.93$; Cohen's $d = .11$.

Additionally, regressing state self-uncertainty on Honesty-Humility, the experimental condition, as well as their interaction revealed no significant interaction indicating that the manipulation of self-uncertainty did not significantly work better or worse for individuals low or high in Honesty-Humility. The same findings emerged for positive and negative affect (in both studies all p values of the interaction terms were $> .22$).

Main results. Across conditions, 72.0% of participants chose the trust option in Study 2. This was the case for 77.3% of participants in Study 3. Using logistic regression analyses, trust was regressed on Honesty-Humility, the experimental condition, as well as their interaction. The results of both studies are displayed in Table 2.

Table 2
Trust Regressed on Honesty-Humility, the Experimental Condition, as Well as Their Interaction (Studies 2 and 3)

	Study 2				Study 3			
Criterion: Trust	*B*	*SE*	*p*-value	Odds ratio	*B*	*SE*	*p*-value	Odds ratio
Honesty-Humility	.83	.25	<.01	2.29	1.08	.36	<.01	2.95
Condition	−.44	.33	.17	.64	−.31	.40	.43	.73
Honesty-Humility × Condition	−.82	.31	<.01	.44	−1.22	.44	<.01	.30
Constant	1.27	.25	<.01	3.57	1.48	.31	<.01	4.37
Effect of the condition at low Honesty-Humility	.43	.41	.28	1.55	.91	.49	.06	2.50
Effect of the condition at high Honesty-Humility	−1.32	.52	.01	.27	−1.54	.67	.02	.21

Note. Logistic regression was used (1 = trust; 0 = distrust); Coding of conditions: 0 = Control condition; 1 = Self-uncertainty condition; Honesty-Humility was mean-centered in all studies; the coefficient of Honesty-Humility reflects the relation of Honesty-Humility and trust in the control condition.

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The following results emerged in Study 2 and were replicated in Study 3. First, there was no significant main effect of the experimental condition. Second, Honesty-Humility was positively and significantly related to trust in the control condition, thus replicating Study 1. Third, an interaction between Honesty-Humility and the experimental condition was found (see Table 2). Decomposing the interaction (Hayes, 2013) revealed in both studies that self-uncertainty significantly decreased trust for individuals high in Honesty-Humility (1 *SD* above the mean). No significant effect emerged for individuals low in Honesty-Humility (1 *SD* below the mean). The patterns of both studies are displayed in Figure 3.

Notably, these findings were, as in Study 1, specific for Honesty-Humility; no other dimension of the HEXACO personality model emerged as a significant predictor of trust either as a main effect or in an interaction with the experimental condition (see Supplementary Material for details and a single exception that was, however, not replicated in the other studies).

Social expectations. Because of the complexity of the following statistical models, we report the relevant findings of the models predominantly in plain text. Yet, all statistical parameters of both studies are provided in the Supplementary Material.

It was first tested whether the significant positive relation of Honesty-Humility and trust under baseline conditions (the control condition) is explained by higher social expectations of individuals high in Honesty-Humility. This was indeed the case: higher Honesty-Humility values were related to higher positive social expectations, which in turn were positively related to trust. The indirect effect in both studies was also significant (the 95% bootstrapped CI excluded zero in Study 2 [0.06; 0.74] and Study 3 [0.31; 1.40]). This was already shown in Study 1, so Study 2 and Study 3 replicated the first study's findings.

Next, the full hypothesized model, as displayed in Figure 1, was tested. Analyses in both studies revealed a significant interaction of Honesty-Humility and the experimental condition when social expectations were set as the dependent variable. Specifically, self-uncertainty reduced social expectations for individuals high in Honesty-Humility but not for individuals low in Honesty-Humility. Positive social expectations, in turn, predicted how much the other participant is trusted when Honesty-Humility, the experimental condition, as well as their interaction were controlled for. Overall, there was a significant indirect effect of the interaction (the 95% bootstrapped CI excluded zero in Study 2 [−0.76; −0.05] and Study 3 [−1.96; −0.31]), indicating mediation of social expectations for those individuals high in Honesty-Humility but not for those low in Honesty-Humility.

Overall, we found double empirical support, that is, across both studies, for the theoretical model displayed in Figure 1. Specifically, it was shown that Honesty-Humility was positively related to trust under baseline conditions. This could be explained by higher positive social expectations of individuals high (vs. low) in Honesty-Humility; positive social expectations were, in turn, positively related to trust behavior. These findings replicate Study 1.

Central to our assumptions, the picture was different under uncertain conditions in that self-uncertainty moderated the relation of Honesty-Humility and trust as well as the mediation through social expectations. In detail, self-uncertainty decreased social expectations in the other players, specifically for individuals high in Honesty-Humility. Decreased social expectations in turn predicted lower trust.

The third study replicates the first two and thus provides further empirical support for the assumed full model. Moreover, Study 3 shows that individuals high in Honesty-Humility shift away from trust under self-uncertainty, even when they have to condone that their behavior has antisocial effects. This remarkable finding is discussed in detail in the General Discussion.

Study 4a

Although the first three studies provide evidence in favor of the proposed model, they have shortcomings that center on the measurement of the mediator (i.e., social expectations). Social expectations were measured after the dependent variable (trust) to assure unbiased measurement of trust, which is important to initially test an unbiased basic effect. Yet, measurement of the mediator could be biased by the measurement of the dependent variable. Additionally, social expectations were self-reported, and the path between social expectations and trust (termed b-path in mediation analyses) is correlational (Rucker, Preacher, Tormala, & Petty, 2011).

All these issues can be solved by a causal chain design (Spencer et al., 2005). In this approach, the independent variable and the mediating variable are manipulated in two consecutive studies: In a first study, the causal path from the independent variable to the mediating variable is tested. In a second study, the mediator is

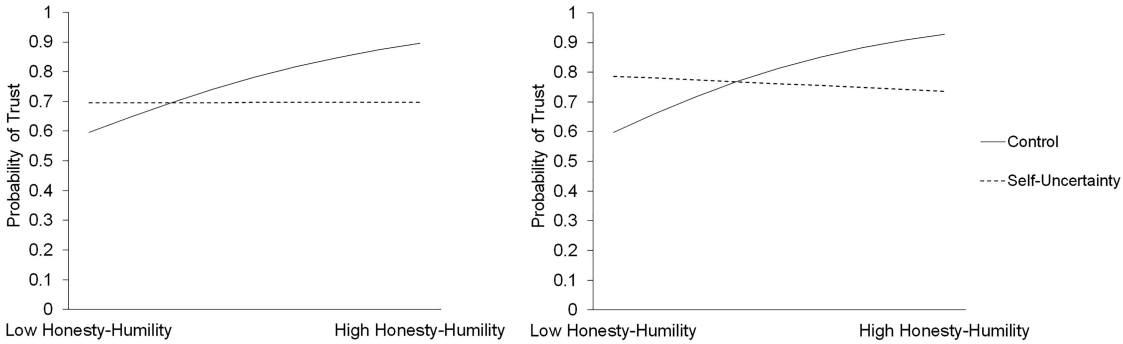

Figure 3. Plotted probabilities of trust as a function of Honesty-Humility and the experimental condition (left part: Study 2; right part: Study 3). Low Honesty-Humility refers to 1 *SD* below the mean; high Honesty-Humility refers to 1 S*D* above the mean.

manipulated and the causal path from the mediating variable to the dependent variable is tested. Accordingly, in Study 4a, we manipulated self-uncertainty, assessed Honesty-Humility, and measured social expectations. Finally, individuals made their decision in a trust game. In Study 4b, we manipulated the mediator and tested whether lower social expectations reduced trust behavior.

In Studies 4a and 4b, we addressed further shortcomings of the previous studies. Specifically, unlike the earlier presented studies, the mediator (i.e., social expectations) was measured prior to the dependent variable. Additionally, Studies 4a and 4b were conducted in the laboratory. Our general conclusions thus do not rely only on online studies and participants selected from Amazon Mechanical Turk. To increase methodological diversity, the study was conducted in a different country (Germany) and used a different version of the trust game.

Method

Procedure. In this laboratory study, participants sat in cubicles and worked on the study at laptops. Personality items were assessed first, and the instructions of the trust game were read afterward, followed by the manipulation of self-uncertainty. After that, social expectations were measured. Finally, decisions in the trust game were made.

HEXACO. As in the previous studies, the 60-item version of the HEXACO Personality Inventory–Revised (Ashton & Lee, 2009) was used, this time a validated German version (Moshagen, Hilbig, & Zettler, 2014; Thielmann, Hilbig, Zettler, & Moshagen, in press). Honesty-Humility was reliably measured ($\alpha = .78$, $M = 4.65$, $SD = 1.09$). Cronbach's alpha, mean values, and standard deviations, as well as detailed results of the other scales, are provided in the Supplementary Material.

Manipulating self-uncertainty. Self-uncertainty was manipulated as in Studies 2 and 3.

PANAS and manipulation check. The PANAS and the single item "uncertain" were assessed after the manipulation of uncertainty.

Social expectations. Instead of using only one item as in Studies 2 and 3, we used a three-item version for this study. The three items read "I expect that Player 2 can be trusted"; "I expect that Player 2 will behave fairly"; and, "I expect that Player 2 has good intentions." Social expectations were reliably measured ($\alpha = .91$, $M = 4.69$, $SD = 1.55$).

Interpersonal trust. In this study, we used another version of the trust game that produces a continuous measure of trust (cf. Berg et al., 1995). Like in the previous studies, the trust game consisted of two paired players. Participants read that one would be Player 1 and the other would be Player 2. Participants learned that they would be assigned either to the role of a money transfer initiator (Player 1) or to the role of a transfer receiver (Player 2). Actually, all participants were assigned to the role of Player 1.

Player 1 initially received 5 Euro, whereas Player 2 received nothing. Participants in the role of a Player 1 had the option to transfer any amount between 0 and 5 Euro (in whole numbers) to Player 2, who would then decide how much money s/he wanted to send back. In line with the general logic of the trust game, it was further explained that the amount of money the initiator was willing to transfer (between 0 and 5 Euro) would be tripled. Thus, this paradigm is designed to assess the level of trust on the part of the initiator (i.e., the person who can decide on how much money s/he is willing to put in the second person's hands).[4] The amount of money participants transferred to Player 2 was used as the measure of trust ($M = 3.73$, $SD = 1.32$). The instructions of the trust game are provided in the Supplementary Material.

Participants. A power analysis was conducted to detect an effect of medium size ($f^2 = .062$). Power was set to .80 (Cohen, 1992). This power analysis revealed a required sample size of $N = 128$. We obtained complete data from 127 students from a German university (49.6% women; $M_{age} = 21.59$, $SD_{age} = 4.53$) who played as Player 1 in the study.

Results and Discussion

Manipulation check and PANAS. Analysis revealed a significant difference, $t(125) = 2.89$, $p < .01$; Cohen's $d = .51$ in state uncertainty between the self-uncertainty condition ($M = 2.70$, $SD = 1.32$) and the control condition ($M = 2.05$, $SD = 1.21$). This indicates a successful induction of self-uncertainty.

Again, there was a negligible difference, $t(125) = 0.55$, $p = .59$; Cohen's $d = .09$ in negative affect (self-uncertainty condition: $M = 1.69$, $SD = 0.57$; control condition: $M = 1.63$, $SD = 0.72$). A significant difference emerged for positive affect in this study, $t(125) = 2.29$, $p = .02$; uncertainty condition: $M = 2.86$, $SD = 0.82$; control condition: $M = 3.16$, $SD = 0.65$; Cohen's $d = .41$. The main results (see below) did not change when positive affect was included in the regression models.

Furthermore, as in Studies 2 and 3, the interaction of Honesty-Humility and the experimental condition was not a significant predictor of state uncertainty, indicating that the manipulation of uncertainty did not significantly work better or worse for individuals low or high in Honesty-Humility. The same findings emerged for positive and negative affect (all p-values of the interactions were $> .13$).

Main results. Using OLS regression analysis, *social expectations* were regressed on Honesty-Humility, the experimental condition, as well as their interaction. The results are displayed in Table 3. First, there was no significant main effect of the experimental condition. Second, Honesty-Humility was positively and significantly related to social expectations in the control condition. Third, an interaction between Honesty-Humility and the experimental condition was found (see Table 3).

Decomposing the interaction (Hayes, 2013) revealed that self-uncertainty significantly decreased social expectations for individuals high in Honesty-Humility (1 *SD* above the mean). No significant effect emerged for individuals low in Honesty-Humility (1 *SD* below the mean). A similar pattern emerges for trust (see Table 3 and Figure 4).

[4] Again, only Player 1 is of interest for the current study as Player 1's behavior reflects trust in another person. All participants were assigned to the role of Player 1. To ensure real interactions between participants, we had 6 additional participants initially playing as Player 2; one responded to a transfer of 5 Euro, one to a transfer of 4 Euro, one to a transfer of 3 Euro, and so on. When a Player 1 decided to transfer 5 Euro, for instance, s/he was matched to the decision of the Player 2 who responded to 5 Euro. Additionally, like in the previous studies, participants were informed that 1 out of 15 participants in the game would be paid out. Participants learned about this at the beginning of the instructions.

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Table 3
Social Expectations and Trust Regressed on Honesty-Humility, the Experimental Condition, as Well as Their interaction. (Study 4a)

	Social expectations						Trust					
Criterion: Trust	*B*	*SE*	*t*	*p*-value	Lower 95% CI	Upper 95% CI	*B*	*SE*	*t*	*p*-value	Lower 95% CI	Upper 95% CI
Constant	4.85	.19	26.17	<.001	4.48	5.21	3.81	.16	24.05	<.001	3.50	4.12
Honesty-Humility	.63	.16	3.97	<.001	.32	.95	.44	.14	3.24	<.01	.17	.71
Condition	−.27	.26	−1.02	.31	−.79	.25	−.07	.23	−.33	.74	−.52	.37
Honesty-Humility × Condition	−.60	.25	−2.45	.02	−1.09	−.12	−.80	.21	−3.80	<.001	−1.22	−.38
Effect of the condition at low Honesty-Humility	.39	.38	1.02	.31	−.36	1.14	.80	.32	2.46	.02	.16	1.44
Effect of the condition at high Honesty-Humility	−.92	.37	−2.48	.01	−1.67	−.19	−.94	.32	−2.97	<.01	−1.58	−.31

Note. OLS regression was used (higher values indicating more trust); Coding of conditions: 0 = Control condition; 1 = Self-uncertainty condition; Honesty-Humility was mean-centered; the coefficient of Honesty-Humility reflects the relation of Honesty-Humility and trust in the control condition.

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As in Studies 2 and 3, reduced social expectations under self-uncertainty mediated the decrease in trust in individuals high in Honesty-Humility; there was a significant indirect effect of the interaction (the 95% bootstrapped CI excluded zero [−0.57; −0.04]). The statistical parameters of the models are provided in the Supplementary Material.

Overall, the first study of the causal chain design provided evidence for the first part of the model: Self-uncertainty decreased social expectations in individuals high in Honesty-Humility. Support for the overall model was also found: Honesty-Humility was positively related to trust behavior, which was reduced by self-uncertainty. This decrease was mediated by reduced social expectations. Note that the effect of self-uncertainty unexpectedly flipped for those individuals low in Honesty-Humility; that is, under self-uncertainty, individuals low in Honesty-Humility showed even more trust than individuals high in Honesty-Humility (yet this effect was not mediated by higher social expectations). As we did not observe this effect in any of the other studies, we do not elaborate on the pattern.

So far, the path between social expectations and trust is still of a correlational nature. This is solved by the second step of the causal chain design, where the mediator is manipulated. In the study reported below, we therefore manipulated social expectations and tested their causal effect on trust.

Study 4b

Method

Procedure. The study was conducted in the laboratory; participants sat in cubicles and worked on the study at laptops. Participants first read the instructions of the same trust game used in Study 4a. In the instructions of the trust game, social expectations were experimentally manipulated (see below).

Social expectations. Integrated in the instructions of the trust game, participants in the high social expectations condition read, "Note that in a recent study, a *majority* of Player 2 behaved fairly (i.e., transferred back half of the received amount of money to Player 1)." Participants in the low social expectations condition read, "Note that in a recent study, a *minority* of Player 2 behaved fairly (i.e., transferred back half of the received amount of money to Player 1)." Johnson and Mislin (2011) report that both, a prosocial majority or minority, was observed in previous studies; thus, both statements are not deceptive.

Interpersonal trust. The same trust game procedure as in Study 4a was applied (Berg et al., 1995). Participants transferred on average $M = 3.67$ Euro ($SD = 1.34$) to Player 2.

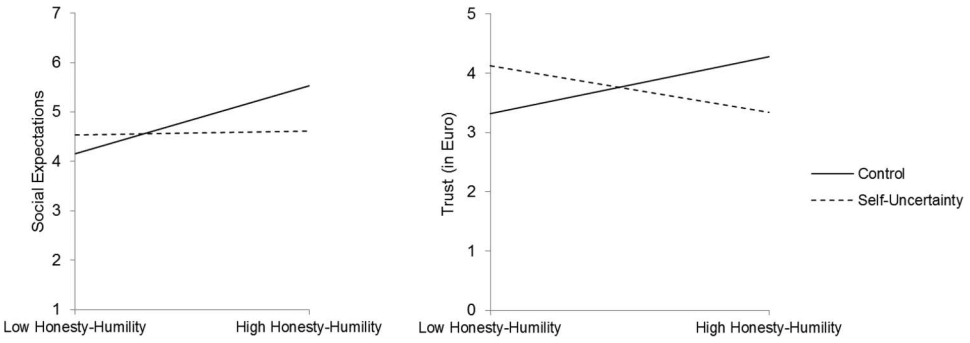

Figure 4. Social expectations (left part) and trust (right part) as a function of Honesty-Humility and the experimental condition (Study 4a). Low Honesty-Humility refers to 1 *SD* below the mean; high Honesty-Humility refers to 1 S*D* above the mean.

Manipulation check. After the trust game, we included a manipulation check using the three items (in past tense) from Study 4a measuring social expectations ($\alpha = .92$).

Participants. Using G*Power (Faul et al., 2009), a power analysis was conducted for a medium effect between conditions (Cohen's $d = .50$). Power was set to .80 (Cohen, 1992). This power analysis revealed a required sample size of $N = 128$ to detect a significant effect (alpha level of .05, two-tailed) given there is a true effect. Because of the high volume of participants accessible during the two days that the study was conducted, we could obtain complete data from 194 students from a German university (48.5% women; $M_{age} = 21.66$, $SD_{age} = 4.23$) who played as Player 1 in the study. Excluding participants of Study 4b (15%) who indicated that they had participated in a similar earlier study (i.e., Study 4a) does not change the results in terms of significance levels and direction.

Results and Discussion

Results of the manipulation check are reported first. Analyses revealed a significant difference, $t(192) = 4.43$, $p < .001$; Cohen's $d = .64$ in social expectations between the low social expectations condition ($M = 4.76$, $SD = 1.62$) and the high social expectations condition ($M = 5.64$, $SD = 1.09$). Analyzing trust behavior, participants in the low social expectations condition transferred less money to Player 2 ($M = 3.43$, $SD = 1.45$) than participants in the high social expectations condition ($M = 3.92$, $SD = 1.17$). This difference was significant, $t(192) = 2.54$, $p = .01$; Cohen's $d = .37$.

Study 4a complemented the causal chain design, showing that social expectations indeed affect interpersonal trust. In combination, Studies 4a and 4b tested the full mediation model, showing that individuals high in Honesty-Humility decrease social expectations under self-uncertainty. Decreased social expectations, in turn, lead to reduced trust.

So far, we have relied on parsimonious game theoretical paradigms to assess individual differences in trust. In Studies 5a and 5b, we went beyond basic research and tested the main assumptions in an applied context, that is, trust in social institutions (i.e., trust in the police, the justice system, and the government). Trust in social institutions has been shown to be an important determinant of a society's social welfare (La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 1997). As such, we examined our basic assumptions in an applied context of high societal relevance. We report on the relation of Honesty-Humility and trust in social institutions in a sample representative for the German population (Study 5a) and whether self-uncertainty reduces trust in the police, especially in individuals high in Honesty-Humility (Study 5b).

Study 5a

Method

Procedure. The study was conducted online via a commercial company in Germany. For financial reasons, only the Honesty-Humility dimension of the HEXACO was assessed. Participants first responded to the items of Honesty-Humility and then on items assessing trust in social institutions.

Honesty-Humility. Honesty-Humility was assessed using the 10 items from the HEXACO Personality Inventory—Revised (Ashton & Lee, 2009). A German version was used (Moshagen et al., 2014; Thielmann et al., in press), and responses (in the entire study) were given on a 5-point Likert scale ranging from *strongly disagree* to *strongly agree*. Reliability of Honesty-Humility was lower compared with the previous studies, but still adequate ($\alpha = .64$, $M = 3.66$, $SD = 0.62$).

Trust in institutions. Based on the three-item Short Trust Scale by Beierlein, Kemper, Kovaleva, and Rammstedt (2014), three items for each social institution (trust in the police, the justice system, and the government) were formulated. The items read, "I am convinced that most police officers [people in charge in the justice system; the government] have [has] good intentions"; "You can't rely on the police [the justice system; the government] these days"; and, "Generally speaking, the police [the justice system; the government] can be trusted." Trust in each institution was reliably measured (trust in the police: $\alpha = .78$, $M = 3.68$, $SD = 0.91$; the justice system: $\alpha = .79$, $M = 3.40$, $SD = 0.97$; the government: $\alpha = .84$, $M = 2.93$, $SD = 1.07$).

Participants. A sample representative for the German population regarding age, sex, and education was drawn. We obtained complete data from 300 Germans (45.9% women; $M_{age} = 46.77$, $SD_{age} = 15.25$). Power analysis with this sample size revealed a statistical power of 99.9% to detect an effect of medium size ($r = .30$).

Results and Discussion

As displayed in Table 4, all three trust measures were highly intercorrelated. Central for the present contribution, Honesty-Humility showed positive correlations with all three measures of trust. The highest correlation emerged for trust in the police ($r = .30$; $p < .001$).

These findings emphasize that Honesty-Humility is not only relevant for trust to unknown strangers, as shown in Studies 1–4, but also for trust in social institutions that determine social welfare. In line with the basic idea of this contribution, in the next step we examined the relation of Honesty-Humility and trust in social

Table 4
Pearson's Correlations Between Honesty-Humility and the Three Trust Measures (Study 5a)

Measure	Honesty-Humility	Trust in the police	Trust in the justice system	Trust in the government
Honesty-Humility	1			
Trust in the police	.30***	1		
Trust in the justice system	.17**	.76***	1	
Trust in the government	.10+	.46***	.57***	1

+ $p < .10$. ** $p < .01$. *** $p < .001$.

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institutions under self-uncertainty (Study 5b). Here, we focus on trust in the police due to its highest correlation with Honesty-Humility.

Study 5b

Method

Procedure. The study was conducted via Amazon Mechanical Turk. Participants first respond to the items of the HEXACO, worked on the self-uncertainty manipulation and the PANAS used in Studies 2–4a, and finally responded to items assessing trust in the police.

HEXACO. As in the previous studies, the 60-item version of the HEXACO Personality Inventory–Revised (Ashton & Lee, 2009) was used. Honesty-Humility was reliably measured (α = .78, M = 4.65, SD = 1.03). Cronbach's alpha, mean values, and standard deviations, as well as detailed results of the other scales, are provided in the Supplementary Material.

Manipulating self-uncertainty. Self-uncertainty was manipulated as in Studies 2–4a.

PANAS and manipulation check. The PANAS and the single item "uncertain" were assessed after the manipulation of uncertainty.

Trust in the police. The three-items of Study 5a were used (α = .78, M = 5.17, SD = 1.37).

Participants. Power analysis was equivalent to Study 4a; a sample size of N = 128 was required to detect a significant interaction effect of medium size. We obtained complete data from 128 U.S.–American individuals (55.5% women; M_{age} = 37.04, SD_{age} = 13.64).

Results and Discussion

Manipulation check and PANAS. Analyses revealed a significant difference, $t(126) = 2.69$, $p < .01$; Cohen's d = .48 in state uncertainty between the self-uncertainty condition (M = 2.33, SD = 1.34) and the control condition (M = 1.74, SD = 1.13). There were negligible differences, $t(126) = 1.33$, $p = .19$; Cohen's d = .23 in negative affect (self-uncertainty condition: M = 1.55, SD = 0.86; control condition: M = 1.37, SD = 0.69) and positive affect, $t(126) = 0.16$, $p = .87$; uncertainty condition: M = 3.09, SD = 0.99; control condition: M = 3.12, SD = 0.83; Cohen's d = .03. These results indicate a successful induction of self-uncertainty.

Main results. Trust in the police was regressed on Honesty-Humility, the experimental condition, as well as their interaction. The results are displayed in Table 5.

First, there was no significant main effect of the experimental condition. Second, Honesty-Humility was positively and significantly related to trust in the police in the control condition. Third, an interaction between Honesty-Humility and the experimental condition was found (see Table 5). In line with the pattern of the previous studies (see Supplementary Material for the figure), there was a positive relation between Honesty-Humility and trust in the police in the control group, and self-uncertainty significantly decreased trust specifically for those scoring high on Honesty-Humility. In combination, Studies 5a and 5b deliver evidence for the assumed relations in the applied context of trust in a social institution.

General Discussion

The basic personality trait of Honesty-Humility has received remarkable attention in recent years. In fact, there is overwhelming evidence that Honesty-Humility predicts prosocial behavior across a vast variety of situations (Lee & Ashton, 2013; Zettler & Hilbig, 2015). In the present contribution, we have applied a differentiated approach to this perspective, examining a condition under which Honesty-Humility is *not* related to prosocial behavior, and when individuals high in Honesty-Humility *reduce* prosocial behavior.

Overall, we have reported on five methodologically diverse studies that include samples from the U.S. and Germany, from both online and lab studies. In a first step, we extend existing literature to the prosocial context of interpersonal trust by showing that Honesty-Humility predicts trust behavior across different versions of the trust game, as well as in applied questionnaire measures of trust (trust in the police, the justice system, and the government). The higher trust among individuals high in Honesty-Humility is mediated by their positive social expectations about the trustworthiness of others (Study 1). However, inducing self-uncertainty decreases trust because it shakes positive social expectations about others in individuals high in Honesty-Humility. As a consequence, under self-uncertainty the otherwise cooperative and trusting people, that is, individuals high in Honesty-Humility, are as (dis)trusting as individuals low in Honesty-Humility. Beyond

Table 5
Trust in the Police Regressed on Honesty-Humility, the Experimental Condition, as Well as Their Interaction (Study 5b)

Criterion: Trust in the police	*B*	*SE*	*t*	*p*-value	Lower 95% CI	Upper 95% CI
Constant	5.24	.16	32.04	<.001	4.92	5.57
Honesty-Humility	.64	.15	4.32	<.001	.35	.93
Condition	−.12	.23	−.52	.61	−.57	.33
Honesty-Humility × Condition	−.62	.22	−2.76	<.01	−1.06	−.17
Effect of the condition at low Honesty-Humility	.51	.32	1.59	.11	−.13	1.16
Effect of the condition at high Honesty-Humility	−.75	.32	−2.33	.02	−1.39	−.11

Note. OLS regression was used (higher values indicating more trust); Coding of conditions: 0 = Control condition; 1 = Self-uncertainty condition; Honesty-Humility was mean-centered; the coefficient of Honesty-Humility reflects the relation of Honesty-Humility and trust in the control condition.

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showing that the "nice guys" are affected by self-uncertainty in that they reduced trust, the reported research has several methodological strengths. That is, the hypothesized causal chain could be reliably shown in three studies, either by measuring the mediator variable (i.e., social expectations; Study 2 and Study 3), or by applying a causal chain design (Study 4). We end with an applied perspective by showing that the higher trust in social institutions, like the police, for individuals high in Honesty-Humility may be undermined by self-uncertainty (Study 5). This shows the potential negative consequences for society of the established effect.

Implications for Research on Honesty-Humility

Turning to the conceptual level, one relevant finding that needs to be highlighted is that Honesty-Humility, but not Agreeableness (the other prosocial trait as conceptualized in the HEXACO personality model), is predictive for interpersonal trust and decreased trust under self-uncertainty. To recapitulate, Agreeableness reflects the tendency to be forgiving and accepting of uncooperative behavior of others. In this sense, Agreeableness reflects reactive prosociality whereas Honesty-Humility reflects proactive prosociality (Hilbig, Zettler, Leist, & Heydasch, 2013). Because trusting others is a proactive, prosocial action, the notions by Hilbig, Zettler, Leist, and Heydasch (2013) are in line with the present studies' findings.

Additionally, the present research delivers empirical evidence for the mechanism proposed by Thielmann and Hilbig (2014) to explain prosociality in individuals high in Honesty-Humility. Thielmann and Hilbig (2014) argue that individuals high in Honesty-Humility project their own prosociality and trustworthiness on other people (cf. Krueger, 2013; Krueger et al., 2012). Having the expectation that people are typically prosocial and trustworthy, individuals high in Honesty-Humility can, in turn, trust even unknown others (Thielmann & Hilbig, 2014). Somewhat surprisingly, the batch of research showing that Honesty-Humility is related to prosocial behavior (see, e.g., Ashton, Lee, & de Vries, 2014; Hilbig et al., 2012; Hilbig, Zettler, Leist, & Heydasch, 2013; 2014) has, on an empirical level, neglected the question of *why* individuals high in Honesty-Humility are prosocial. We empirically showed that prosociality of individuals high in Honesty-Humility stems, to some extent, from their positive social expectations that others are also trustworthy and prosocial. In this regard, the present research substantially extends research on Honesty-Humility. Of course, future research should address additional determinants of one's decision to trust, for instance, risk and loss aversion, betrayal sensitivity, and social norms (cf. the overview by Thielmann & Hilbig, 2015b, and Thielmann & Hilbig, in press), as well as their relation to Honesty-Humility.

Additionally, the results of the present studies align well with findings by Zettler and colleagues (2013) who show that Honesty-Humility is positively related to cooperative behavior when high levels of cooperation in other individuals can be expected. However, when cooperative behavior cannot be expected, they cooperate to a similar low extent as individuals low in Honesty-Humility. In combination with the results from the present set of studies, the overall empirical evidence suggests that reduced social expectations shape behavior of individuals high in Honesty-Humility, leading to similar (reduced) levels of prosocial behavior as individuals scoring low on this prosocial trait.

Another noteworthy contribution to the literature is made by the present research. Specifically, a situational boundary condition under which individuals high in Honesty-Humility become less prosocial is shown (i.e., under self-uncertainty). Documenting this shift is remarkable, as Honesty-Humility was *consistently* related to prosocial behavior, no matter how the situational boundary condition was construed (e.g., Thielmann & Hilbig, 2015a; Hilbig et al., 2012; Zettler & Hilbig, 2010). The present research is, along with the study by Zettler and colleagues (2013), the first to demonstrate that individuals high in Honesty-Humility are not unconditionally prosocial; instead, under conditions of self-uncertainty they reduce social expectations and consequently trust in others. Thus, individuals high in Honesty-Humility are not prosocial out of fundamental principles that exist independent of the social situation (Batson, Ahmad, Powell, & Stocks, 2008; Batson, Ahmad, & Tsang, 2002). Additionally, regarding cooperative behavior, these considerations fit well with the notion of "conditional cooperation," that is, the willingness to cooperate if others are also expected to cooperate (e.g., Fischbacher, Gächter, & Fehr, 2001; Frey & Meier, 2004). Hence, we suspect that it is individuals high in Honesty-Humility who show conditional cooperation, a hypothesis that should be tested in future research.

Overall, the present contribution may inspire other research investigating under what situational boundary conditions Honesty-Humility is or is not related to prosocial behavior. In fact, prosociality of Honesty-Humility is well documented in numerous articles (Ashton, Lee, & de Vries, 2014; Hilbig et al., 2014). Showing conditions under which Honesty-Humility is *not* related to prosociality or even related to antisocial behavior seems to be an important next step in research on Honesty-Humility, so that a more differentiated picture could be drawn about this important social personality trait. The present research reflects a first step in this direction and a solid foundation in this regard.

In discussing the findings of the present research, one may ask whether individuals high in Honesty-Humility become more antisocial or less prosocial under self-uncertainty. The basis of antisocial (aggressive) tendencies is the ultimate motivation to harm another individual (Anderson & Bushman, 2001). In the present studies (especially in Study 3), the second player is harmed by distrust of the first player. Yet, it is obvious that one cannot draw conclusions from the effect a behavior produces back to the ultimate goal of a behavior (Elster, 2007). Specifically, although distrust has antisocial, harming effects on another individual, this does not necessarily mean that the motives of distrust behavior are antisocial. We show that reduced trust under self-uncertainty of individuals high in Honesty-Humility is explained by reduced social expectations; it seems conceptually implausible that self-uncertainty may increase harming motivations in basically prosocial individuals. Thus, the antisocial effects of distrust may rather reflect an unintended consequence due to, as shown, reduced expected trustworthiness. Yet, these antisocial consequences are real, so individuals high in Honesty-Humility at least condone that another individual is harmed by reduced trust under uncertain conditions.

Also note that across all studies, using both binary-choice (Studies 1–3) and continuous (Study 4) trust game behavior along with questionnaire-based trust assessments (Study 5), we find medium-to-high levels of trust in all experimental conditions. Therefore, relatively "low levels" of trust of those individuals low in Honesty-

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Humility and individuals high in Honesty-Humility under self-uncertainty can still be considered as medium-level trust in an absolute sense. In other words, the antisocial effects should be interpreted relative to the control condition, whereas even under self-uncertainty, trust was present to a certain (although lower) degree.

Implications From a Perspective of Uncertainty and Trust

In a time of terrorist attacks, changing societies, and the migration of refugees, uncertainties about ourselves and the society in which we live, both in the present as well as in the future, are prevalent in many humans' lives (Daase & Kessler, 2007; Lübke & Erlinghagen, 2014; Schmidt-Catran & Spies, 2016). In the present paper, we have investigated the potential consequences of self-uncertainty for social interactions that require trust in other persons and institutions. As such, our results provide evidence for the potential negative consequences of self-uncertainty in everyday interpersonal interactions, as well as in relations between individuals and society, with negative effects on social welfare.

The reported findings are in line with uncertainty–identity theory, emphasizing that uncertainty strongly matters when the self is involved (Hogg, 2007). We show that in the context of prosocial behavior, self-uncertainty is particularly relevant for those whose basic orientation is prosocial, that is, individuals high in Honesty-Humility. Additionally, our research connects well to previous research on trust. Definitions of trust often emphasize that risk, vulnerability, or (informational) uncertainty accompanies trusting another person (Mayo, 2015; Thielmann & Hilbig, 2015b). To the best of our knowledge, however, uncertainty that is not inherent in the trust-relevant situation itself is neglected by research on trust. We show that self-uncertainty that has in fact nothing to do with the trust-relevant situation per se spills over and affects interpersonal trust. Additionally, we reveal who actually shows this spillover effect; these are individuals high in Honesty-Humility. In sum, we also contribute to research on behavioral decision making, showing that a personal factor (i.e., Honesty-Humility) in interaction with a situational factor (i.e., induced self-uncertainty) affects (pro)social decision making.

Limitations and Outlook

We acknowledge that our results do not encompass other conceptual inductions of uncertainty, such as mortality salience implemented in terror management theory (Greenberg, Solomon, & Arndt, 2008; Pyszczynski, Greenberg, Solomon, Arndt, & Schimel, 2004; van den Bos & Miedema, 2000). In fact, research on terror management theory shows that mortality salience, which is related to self-uncertainty (Echebarria-Echabe, 2013; Hohman & Hogg, 2015), may reduce prosocial behavior under specific conditions (Pfattheicher & Schindler, 2015; Rosenblatt, Greenberg, Solomon, Pyszczynski, & Lyon, 1989; Schindler, Reinhard, & Stahlberg, 2013). Future research could thus contribute to the question of whether the observed effects are specific to self-uncertainty, as manipulated in the present research, or whether they can be extended to other inductions of uncertainty.[5]

The present research's studies contained real behavior, instead of hypothetical, with actual financial consequences for participants. As such, we addressed the claim that research in psychology should include real behavior in its analyses (Baumeister, Vohs, & Funder, 2007). This approach strengthens the internal validity of the findings. Although we have shown that Honesty-Humility predicts trust in applied settings (e.g., trust in the police), the present research cannot make claims regarding other occurrences of trust or whether individuals' trust behavior is consistent across these occurrences. In this sense, external validity of the present research is restricted (i.e., implications for the real world). Also, in real-world situations, a variety of uncertainties are present, like job uncertainty, uncertainty induced by strangers, or uncertainty due to the present state of society (Esses, Medianu, & Lawson, 2013; van den Bos & Lind, 2002). Effects of one type of uncertainty might be different or stronger than another.

Conclusions

Overall, we applied a state of the art perspective according to which social behavior is the product of a person × situation interaction. In this regard, we take into account that individuals' social behavior (such as trust) is shaped by basic personality traits (such as Honesty-Humility) in interaction with situational variables (such as self-uncertainty). On this basis, the present research shows, remarkably, that even basically prosocial humans are not unconditionally prosocial. Every social behavior is shaped by the social situation, as is the behavior of the "nice guys."

[5] We coded the content of participants' uncertainty responses in each study to analyze whether the present findings are specific to some forms of uncertainty (e.g., job uncertainty, uncertainty about own abilities). Content did not moderate the findings.

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