Beauty stereotypes in social norm enforcement
The effect of attractiveness on third-party punishment and reward

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ABSTRACT

The present study analyzes how attractiveness affects social norm enforcement in a context of third-party punishment and reward. The authors developed a Third-Party Punishment and Reward Game (TPRG) that consisted of two steps. First, subjects observed a short Public Goods Game between two fictitious players; afterwards they had the opportunity to punish or reward either one or both players. Interfering in the game was costly for the subjects. The eight rounds of the game comprised scenarios that were either *stereotype-consistent* (attractive cooperators and unattractive free-riders) or *stereotype-inconsistent* (attractive free-riders and unattractive cooperators). Subjects' emotional responses to each fictitious player were registered. Participants (N = 197) were found to punish attractive free-riders less severely than unattractive ones, whereas attractive cooperators were rewarded more than unattractive ones. Our present findings may support a so-called "beauty priority": attractiveness was highly valued by participants even among players who cheated. Furthermore, the intensity of subjects' emotional responses reflected the amounts of punishment and reward they allocated to players. The above results led to the conclusion that stereotype-consistent scenarios evoke more extreme emotions and interventions than stereotype-inconsistent ones.

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1. Introduction

1.1. Cooperation and punishment

Reciprocal relationships in human groups are consolidated by consensual social norms. The ability to follow norms and punish defectors enables minimization of interpersonal conflicts as well as generalization and sustention of cooperation in the group (Fehr, Fischbacher, & Gächter, 2002). The theory of so-called *strong reciprocity* suggests that people are basically ready to cooperate with others and they are willing, even at their own expenses, to punish defectors who violate norms and reward those who fulfill norms above expectations (Gintis, Bowles, Boyd, & Fehr, 2003).

The Third-Party Punishment Game (TPG) was developed for studying strong reciprocity. The game involves two players who play Prisoner's Dilemma or Dictator Game while a third party observes the game (Fehr et al., 2002). Several studies demonstrated that observers (third-parties) would respond extremely sensitively to violations of the cooperation and distribution norms (Fehr et al., 2002; Fehr & Fischbacher, 2004; Fehr & Gächter, 2000; Turillo, Folger, Lavelle, Umphress, & Gee, 2002). The former norm requires people to engage

in mutually beneficial social exchanges with one another; the latter stands for individuals' concerns for fairness (Fehr & Fischbacher, 2004; Turillo et al., 2002). In these studies, subjects were willing to punish defectors and reward cooperators at their own expenses even though they were told that these costs will never be repaid to them. The authors suggest that interventions were motivated by *strong negative emotions* toward the defectors (Fehr & Fischbacher, 2004; Gintis et al., 2003).

1.2. Social attractiveness

While people show considerable interindividual differences as to whom they find attractive, researchers have identified features of the human face which are universally preferred across cultures in potential sexual partners (Little, Jones, & DeBruine, 2011; Rhodes, 2006). Beyond mate choice, facial attractiveness has a strong impact on people's social success. In line with the "*what is beautiful is good*" stereotype – initially proposed by Dion, Berscheid, and Walster (1972) – social psychologists have shown that people tend to attribute positive psychological traits to attractive individuals, including social and intellectual competence, dominance, and a predisposition to cooperate in social dilemma situations (Andreoni & Petrie, 2008; Fink, Neave, Manning, & Grammer, 2006). Due to these attributions, attractive adults are more likely to receive help and get higher salaries than less attractive people (Keating, 2003). Studies investigating the neural responses to facial attractiveness have demonstrated that people experience more positive emotions

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(shown as a higher activation in the brain's reward circuitry) while looking at physically more attractive compared to unattractive faces (Hahn & Perrett, 2014). In a similar vein, Griffin and Langlois (2006) revealed the effects of the stereotype "what is ugly is bad": subjects found individuals with an unattractive face less sociable, altruistic, and intelligent compared to more attractive individuals.

Generally, in reciprocal relationships more attractive people are judged more cooperative and more trustworthy than others (Andreoni & Petrie, 2008). Results of experimental games demonstrate that players placed in a social dilemma are more likely to cooperate and beginners allocate larger amounts of money to physically attractive players than to less attractive ones. However, this so-called "beauty premium" does not necessarily earn victory for more attractive players at the end of the game (Wilson & Eckel, 2006). Attractive players who do not prove trustworthy, that is, who show no or minimal cooperation, are subject to more severe punishment ("beauty penalty") than less attractive trustees who failed to reciprocate (Wilson & Eckel, 2006).

1.3. Norm-enforcing emotions

During human evolution, norm-enforcement behavior might have had several direct and indirect benefits despite its obvious costs. Such benefits, for example, are gaining a good reputation within the community, attracting cooperating individuals' attention, and deterring defectors (Barclay, 2004; Bereczkei, Birkás, & Kerekes, 2010). From an evolutionary perspective, altruistic punishment and reward are viewed as costly signals, which reveal one's fitness and ample resources (West, El Mouden, & Gardner, 2011).

In the above mentioned experimental games, subjects chose to punish defectors and reward cooperators despite researchers excluding opportunities to gain a good reputation or to exercise reciprocity (players met only once). Recent work of Delton, Krasnow, Cosmides and Tooby (2011) provides an explanation for this seemingly "irrational" generosity. For most of their existence humans have lived in small hunter–gatherer tribes characterized by a large number of repeated encounters. This resulted in evolved cognitive biases that favor cooperation over defection even in one-shot interactions.

A more proximate level explanation of norm-enforcing behavior comes from Trivers (1971) who suggested that emotions like gratitude or anger (moralistic aggression) play a vital role in regulating social interactions. In other words, an individual's decision of meting out punishments to cheaters or allocating rewards to cooperators is likely to be grounded in both rational and emotional mental processes. In fact, Fehr and Gächter (2000) have demonstrated that the intensity of the experienced anger depended on the degree of defection. The more salient the norm violation, the more intense the anger that subjects experienced; thus they allocated more severe punishments (Fehr & Gächter, 2000). In the same vein, the more intense the subjects' positive emotional experience, the larger rewards they allocated to cooperators (de Kwaadsteniet, Rijkhoff, & van Dijk, 2013).

1.4. Hypotheses

In this study we focused on the extent of influence that came to bear on "unaffected third parties" from the behavior of individuals who varied in attractiveness and cooperation. Previous studies have shown that i) people react with intense negative emotions (i.e. anger) to the violation of social norms and are willing to inflict severe punishments on defectors even at their own costs (Fehr & Gächter, 2000), whereas they experience positive emotions (e.g. gratitude or contentment) and allocate rewards when observing cooperative behavior (de Kwaadsteniet et al., 2013); ii) subjects tend to attribute more advantageous personality traits to physically attractive individuals and experience more positive emotions toward them compared to unattractive faces (Fink et al., 2006; Griffin & Langlois, 2006; Hahn & Perrett, 2014). Based on these findings, two major predictions were tested:

Prediction 1. In general, subjects are predicted to allocate more severe punishments to free-riders than to cooperators. Furthermore, due to positive evaluations attributed to beauty, participants are predicted to inflict lower punishments to more attractive free-riders, compared to less attractive ones. Similarly, more attractive cooperators are expected to receive higher rewards than less attractive ones.

Prediction 2. The degree of punishment and reward may be mediated by the emotional response evoked by the affected players. Due to positive attributions concerning physically attractive individuals and negative attributions concerning unattractive individuals, stereotype-consistent scenarios (attractive cooperators and unattractive free-riders) are expected to evoke more intense emotions in subjects than stereotype-inconsistent ones.

The computer game developed for the present study is similar to those applied in studies conducted by Charness, Cobo-Reyes and Jiménez (2007) as well as de Kwaadsteniet et al. (2013). Namely, the game is used to study not only the role of punishment in decision making processes but also the targets and amounts of reward chosen by subjects in social dilemmas. As opposed to the above studies, however, third-party interventions in this study are related to physical attractiveness and not to environmental predictability (de Kwaadsteniet et al., 2013) or trusting behavior (Charness et al., 2007). According to cooperation and attractiveness, players can be sorted into two categories: stereotype-consistent and stereotype-inconsistent types. The former category includes attractive cooperators and unattractive defectors, while the latter includes unattractive cooperators and attractive cheaters.

Another important new condition introduced in this study is that players observed by third parties play the Public Goods Game (and not the Trust Game or Investment Game) which represents a more complex type of interpersonal relationships. Public Goods Game was used so that subjects would primarily base their decisions on players' contributions to the common good, that is, subjects would consider the cooperation norm rather than the distribution norm (Fehr & Fischbacher, 2004; Turillo et al., 2002). In sum, this study investigated the effects of attractiveness on norm-enforcement behavior and emotions by means of an experimental computer game, the Third-Party Punishment and Reward Game (TPRG) developed by the authors.

2. Method

2.1. Sample

The sample included 197 students of the humanities and sciences faculties of the University of Pécs, Hungary, of which 93 were male (aged between 18 and 31; M age = 21.74 years; SD = 2.32) and 104 were female (aged between 18 and 29; M age = 20.59 years; SD = 1.84). All participants were Caucasians and heterosexual. Participation was voluntary and anonymous. Subjects were financially rewarded for participation with an amount varying between 1000 HUF and 5000 HUF (Hungarian Forint: approximately $4–20), according to their performance in the game.

2.2. Stimulus materials and manipulation check

Sixteen portraits were included in the stimulus materials which were selected from a total of 89 male and female portraits of Caucasian adults displaying neutral expressions borrowed from the database of a previous study (see Meskó, 2007). An important selection criterion was that subjects should not recognize any of the presented faces. Attractiveness and trustworthiness of each face was rated on a 7-point scale by 48 (7 Caucasian males, 41 Caucasian females) B.A. students in psychology at the University of Pécs, Hungary. Based on the mean

values obtained for the portraits (upper 25% and lower 25%), 8 male and 8 female portraits were included in the stimulus materials (4 attractive and 4 unattractive faces of each sex).

Subsequently, the software *PsychoMorph* was used to morph the selected attractive male and female faces (4 faces for each sex) with an attractive masculine male average face and an attractive feminine female average face, respectively, in the ratio of 50:10:10 (shape/color/texture). The average faces were generated from previous studies at the University of Pécs (Meskó, 2007; Tiddeman, Stirrat, & Perrett, 2005). This procedure increased the attractiveness of the stimulus faces while preserving their realistic appearance (Fig. 1). Unattractive faces were not manipulated.

The obtained stimulus materials were subjected to a second rating performed by another group of students at the University of Pécs (7 males and 42 females). A paired samples *t* test of the ratings verified the previous classification of the portraits; that is, attractive faces showed significantly higher mean values of both attractiveness and trustworthiness than unattractive faces (Table 1). A highly significant correlation was obtained between attractiveness and trustworthiness ratings (Pearson's $r = .656$; $p < .001$). We argue that higher scores on trustworthiness imply expectations for cooperation.

2.3. The Third-Party Punishment and Reward Game (TPRG)

The experimental computer game used in this study was developed by one of the authors. As opposed to the Third-Party Punishment Game (TPG), the basis of the TPRG is a mini-version of the Public Goods Game comprising 8 rounds (Fehr & Gächter, 2000). In each round, two fictitious same-sex players' offers are displayed in the middle of the screen.

Fig. 1. Examples from the attractive and unattractive male and female portraits used in the study.

Table 1
The table shows the mean and standard deviation of attractiveness and trustworthiness judgments for the attractive and unattractive stimuli pictures used in the study. It also shows the results of the paired samples *t*-tests that were conducted in order to verify the difference between attractive and unattractive stimuli.

Rating	Portrait	M	SD	*t*-Value
Attractiveness	Attractive	4.31	0.66	-26.76, $p < 0.001$
	Unattractive	1.87	0.53	
Trustworthiness	Attractive	4.33	0.71	8.17, $p < 0.001$
	Unattractive	3.37	0.78	

Portraits of the players are displayed next to the outer side of each offer in a 320×400 resolution (Fig. 2).

Subjects are instructed to punish or reward one or both players after observing their offers, or they may choose not to interfere (neutral position). In each round 2000 HUF ($8) is credited to subjects' account, from which they may draw funds to modify the accounts of players A and B (the joint account is not affected by the intervention). However, intervention is costly for subjects because the amount allocated as punishment or reward is charged to their account (1:1), of which the closing balance is used as the basis of the actual monetary reward they receive at the end of the game (Table 2). The lowest possible closing balance is 0, in which case the participant would still receive 1000 HUF payment. Subjects have 60 s in each round to make their decision. If the time limit expires, the program saves the changes made up to that point and moves to the next round of the game.

2.4. Procedure

In one half of the 8 rounds of the game, subjects were presented with *stereotype-consistent* scenarios (attractive cooperator and unattractive defector), while in the other half they observed *stereotype-inconsistent* scenarios (unattractive cooperator and attractive defector). Each subject was presented with the scenarios in the same predefined randomized order. The sequence was arranged so that no more than two scenarios of the same type (stereotype-consistent or inconsistent) followed successively. Male and female pairs of players followed alternately. To eliminate any laterality effects, attractive players were displayed on the right in one half of the scenarios and on the left in the other half.

Players' offers were designed so that the difference between the two players' closing balances was the same in stereotype-consistent and stereotype-inconsistent scenarios (1400 to 1800 HUF, approximately $5–6). Defectors transferred 26% to 34% of the maximum possible offer to the joint account while 60% to 68% of it was transferred by cooperators.

Subjects were seated individually and physically separated in front of the computers. Subjects were informed that they were going to participate in a nationwide online study; however, the study hypotheses and the offline mode of the game were revealed to them only after the study was finished. After reading the experimental instructions, subjects were offered the opportunity to play a demo game in which they could attempt to punish and reward. Subsequently, each subject received an answer sheet on which they indicated their gender, age and an individual identification code of their choice (most frequently their student ID code). This latter was necessary for establishing each subject's financial reward they received after the experiment, since rewards were based on their performance in the game. Subjects were made aware of the fact that the larger the sum they used to punish or reward players in the game, the less money they would receive at the end.

Subjects' also registered their interventions in the TPRG on the answer sheet. In addition, they were asked to use each interim between two successive rounds (ca. 10 s) to rate their emotional experience evoked by each player on a scale ranging from −3 (*anger*) to +3 (*contentment*).

Fig. 2. Screenshot of the experimental game (Third-Party Punishment and Reward Game, TPRG) that was used in the study.

3. Results

3.1. The effect of attractiveness on interventions

Subjects' interventions (rewards and punishments separately) were subjected to a repeated measures ANOVA test in a 2 (Attractiveness: attractive, unattractive) × 2 (Strategy: cooperator, free-rider) design. Subjects' sex (male, female) was entered as a between-subjects factor which revealed no significant difference in either analyses.

3.2. Estimated marginal means of rewards allocated to players

Significant main effects were found for both Strategy {F (1,196) = 296.594; $p < 0.001$; partial $\eta^2 = 0.602$} and Attractiveness {F (1,196) = 33.817; $p < 0.001$; partial $\eta^2 = 0.147$}. These results show that cooperators and attractive players earned higher rewards on average than their respective counterparts (Table 3).

A significant interaction effect was found between Attractiveness and Strategy {F (1,196) = 41.772; $p < 0.001$; partial $\eta^2 = 0.176$}. It suggests that while there is a significant difference between the average amount of reward allocated to attractive ($M = 441.919$; $SD = 364.037$) and unattractive cooperators ($M = 333.049$; $SD = 268.167$), there is no difference between the allocations to attractive ($M = 14.731$; $SD = 39.389$) and unattractive free-riders ($M = 20.202$; $SD = 72.978$) (Fig. 3). As expected, *attractive cooperators* received the highest amount of reward.

3.3. Estimated marginal means of punishments allocated to players

Significant main effects were found for both Strategy {F (1,196) = 310.358; $p < 0.001$; partial $\eta^2 = 0.613$} and Attractiveness {F (1,196) = 9.151; $p < 0.004$; partial $\eta^2 = 0.045$}. These results show that free-riders and unattractive players received higher amounts of punishment on average than their respective counterparts (Table 4).

There was a significant interaction effect between Attractiveness and Strategy {F (1,196) = 10.249; $p < 0.003$; partial $\eta^2 = 0.050$}, suggesting that while there is a significant difference between the average amount of punishment allocated to attractive ($M = 342.576$; $SD = 261.618$) and unattractive free-riders ($M = 397.096$; $SD = 347.609$), there is no difference between the allocations to attractive ($M = 11.111$; $SD = 51.157$) and unattractive cooperators ($M = 10.520$; $SD = 37.099$) (Fig. 4). As expected, *unattractive free-riders* received the highest amount of punishment.

3.4. Emotions evoked by players

Participants' emotional responses were subjected to a repeated measures ANOVA test in a 2 (Attractiveness: attractive, unattractive) × 2 (Strategy: cooperator, free-rider) design. Subjects' sex (male, female) was entered as a between-subjects factor which revealed no significant difference {F (1,196) = 0.133; $p > .05$}. Significant main effects were found for both Strategy {F (1,196) = 643.454; $p < 0.001$; partial $\eta^2 = 0.767$} and Attractiveness {F (1,196) = 18.682; $p < 0.001$; partial $\eta^2 =$

Table 2
The table illustrates how participants' payoffs were calculated based on their closing balance.

Closing balance	Payoff
>14.400 (90%)	5.000 HUF ($20)
>12.800 (80%)	4.000 HUF ($16)
>11.200 (70%)	3.000 HUF ($12)
>9.600 (60%)	2.000 HUF ($8)
≤9.600	1.000 HUF ($4)

Table 3
The mean and standard deviation of rewards allocated to players regarding their strategy and attractiveness, respectively.

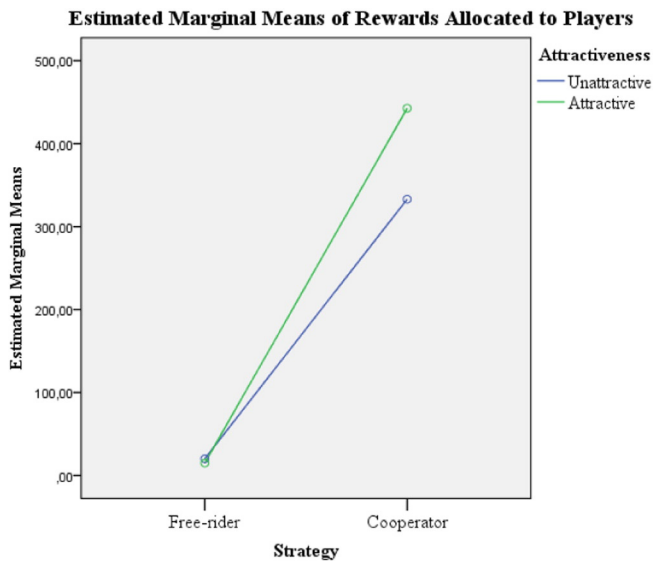|		M	SD
Strategy	Free-rider	17.466	56.184
	Cooperator	387.484	316.102
Attractiveness	Unattractive	176.625	170.573
	Attractive	228.325	201.713

Estimated Marginal Means of Rewards Allocated to Players

Fig. 3. The estimated marginal means of rewards allocated to players in regard to their strategy and level of attractiveness.

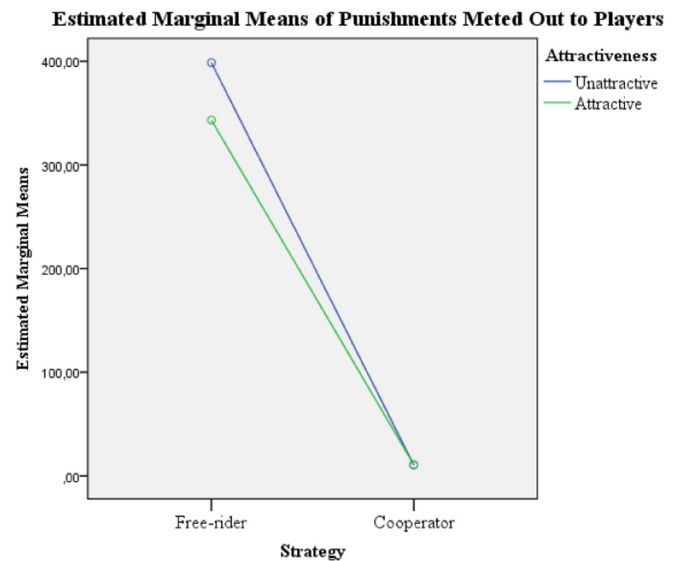**Estimated Marginal Means of Punishments Meted Out to Players**

Fig. 4. The estimated marginal means of punishments allocated to players in regard to their strategy and level of attractiveness.

0.087}. There was no significant interaction between the variables. These results show that subjects responded with more positive emotions to cooperators and attractive players than to their respective counterparts. Simple effect analyses (paired samples t-tests) confirmed that there were significant differences between the emotional responses elicited by attractive versus unattractive cooperators and free-riders, respectively. Specifically, attractive cooperators elicited a higher level of contentment than unattractive cooperators, while unattractive free-riders evoke more intense anger in subjects than attractive free-riders did (Table 5).

3.5. Interventions mediated by emotions

To verify the causal relationship between emotions and interventions we conducted a series of simple linear regression analyses. The data were analyzed separately regarding the players' level of attractiveness and strategy (Table 6). In all four cases significant regression equations were found. The emotional responses evoked by attractive cooperators predicted nearly 20% of the variation in interventions allocated to these players. For unattractive cooperators this count was around 25%; for attractive defectors 29% and for unattractive defectors 32%.

4. Discussion

There can be many reasons why punishment evolved in humans. Apart from the group norm maintenance theory which suggests that punishment serves as a means to eliminate defectors from the group, advocates of the social exchange theory argue that the role of punishment is to enhance personal gains from cooperation (Krasnow, Cosmides, Pedersen, & Tooby, 2012). To determine which one of the prior mentioned two evolutionary stable strategies is responsible for

the emergence of punishing behavior was beyond the scope of this study. Rather, we intended to focus on strong reciprocity as a human behavioral pattern documented in the laboratory (Gintis, Henrich, Bowles, Boyd, & Fehr, 2008), without analyzing the evolutionary function of its emergence.

Confirming our first prediction, subjects did in fact allocate higher amounts of reward to cooperators and more severe punishments to free-riders (Tables 3-4). More importantly there was a significant interaction between the player's strategy and level of attractiveness regarding both types of interventions (i.e. reward and punishment). As hypothesized, attractive cooperators received higher rewards than unattractive cooperators, while unattractive free-riders suffered more severe punishments than attractive free-riders (Figs. 3-4). These results somewhat contradict the findings of Wilson and Eckel (2006) who found that attractive trustees who failed to reciprocate properly were more severely punished than non-attractive cheaters. They argued that this so-called "beauty penalty" arose from the higher expectations subject held toward attractive players. The present study supports a "*beauty priority*", however. That is, our participants not only favored attractive cooperators, but were also more lenient toward attractive free-riders. The cause of this difference may lie in the methodology. We applied a third-party punishment context where participants were not involved in the social dilemma situation and punished as "outsiders". In contrast, Wilson and Eckel (2006) registered the reactions of affected second-parties in a Trust Game.

Confirming our second prediction, there was a significant causal relationship between the emotional responses elicited by players and the amount of interventions allocated to them (Table 6). Cooperation elicited more positive emotions than defection, whereas defection implied a higher level of negative feelings, compared to cooperators. This is not surprising considering that several previous studies reported intense

Table 4
The mean and standard deviation of punishments allocated to players regarding their strategy and attractiveness, respectively.

		M	SD
Strategy	Free-rider	369.836	304.613
	Cooperator	10.816	44.128
Attractiveness	Unattractive	203.808	192.354
	Attractive	176.843	156.387

Table 5
The mean and standard deviation of the participants' emotional responses regarding the players' strategy and attractiveness. The table also shows the results of the paired samples t-tests.

Strategy	Attractiveness	M	SD	t-Value
Cooperator	Attractive	1.548	1.039	3.593, $p < 0.001$
	Unattractive	1.352	0.822	
Free-rider	Attractive	−1.099	0.911	−3.092, $p < 0.003$
	Unattractive	−1.308	1.120	

Table 6
The results of the simple linear regression analyses demonstrating the causal relationship between elicited emotions and allocated interventions regarding the four different types of players.

Players	R^2	a	B	Regression equation
Attractive cooperators	.193	182.96	160.27	$F(1,196) = 46.814$, $p < .001$
Unattractive cooperators	.244	96.48	167.20	$F(1,196) = 63.106$, $p < .001$
Attractive free-riders	.286	−145.07	165.08	$F(1,196) = 78.472$, $p < .001$
Unattractive free-riders	.319	−129.87	188.85	$F(1,196) = 92.019$, $p < .001$

negative emotions evoked by violations of the cooperation norm (de Kwaadsteniet et al., 2013; Fehr & Fischbacher, 2004).

Additionally, we found that stereotype-consistent scenarios (attractive cooperators and unattractive free-riders) elicited more extreme emotions in subjects and led them to allocate higher rewards and punishments than stereotype-inconsistent scenarios did (Table 5). The uninvolved third parties responded with more intense negative emotions and more severe punishments to norm violations committed by less attractive individuals than to those committed by more attractive ones. This is presumably due to the negative stereotypes (less sociable, altruistic, and intelligent) attributed to the less attractive individuals (Furlow et al., 1998; Griffin & Langlois, 2006).

In addition to negative emotions evoked by norm violation, subjects reported positive emotions toward attractive cooperators. Hardly any empirical data are currently available on the role of norm-enforcement reward mediated by positive emotions. Even the study providing the exception to this general lack of research investigated the phenomenon in relation to environmental predictability and not attractiveness (de Kwaadsteniet et al., 2013). Results of the present study revealed that subjects experienced higher positive emotions in stereotype-consistent situations, that is, when observing *attractive cooperators*. This result could be explained when rewarding procedure is considered as a kind of helping behavior that is allocated to those people who proved to be generous in the Public Goods Game. Since cooperators voluntarily forego a part of their resources, *and* attractive persons are conferred with positive attributions such as honest and trustworthy, attractive cooperators may elicit a high empathic arousal in subjects.

In both consistent situations (attractive cooperator and unattractive free-rider) the players' behavior and attributions together create an emotional charge in participants that may motivate their action. Naturally, further research is needed to clarify between emotional states and reward/punishment. Subsequent studies are planned to utilize the methodological tools of narrative psychological content analysis to reveal motives underlying subjects' interventions (László et al., 2013).

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