

Moral virtues inferences: When limited information affects our attribution of virtues

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Abstract

In everyday life, when we have to formulate judgements, we often end up being influenced by information that is not directly related to the matter at hand. This happens both when we encounter the person in the real-life world, but also in the cyber-world, when, for example, we use social networks. In both cases, indeed, based simply on a few images or short stories, we may start to believe fake news or judge someone by generalising limited information to the overall judgement of that person/situation, as it happens in the halo effect. Even moral assessment can be influenced by limited, non-moral information; however, little is known on how this influence can affect our moral inferences about someone's virtues. We conduct three experiments, in which we assess how aspects non-directly connected to moral information, such as looks or fortuitous events, can affect our judgement about someone's morality. The experiments focus on the use of very limited information (e.g., attractiveness and/or short anecdotes), to reproduce the typical information available on a social network (e.g., people post selfies, or brief personal stories about their thoughts and feelings, or brief descriptions of personal events). In all experiments, the participants were asked to judge the moral virtues (honesty, courage, wisdom, and hope) of the person in the picture/narrative. Results show that pictures and narratives significantly affect the judgement of virtues. Moreover, the third experiment reveals a combined effect, by enhancing the influence of non-moral aspects on evaluation of someone's moral dispositions.

Keywords

Moral virtues inferences; Halo effect; social media; gender bias

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Introduction

“Anne is a beautiful young girl who graduated with honours. She is surely a wise and honest person!” In everyday life, assumptions like these are extremely common. Indeed, people are often biased towards believing that certain characteristics of behaviour or personality go together. When this cognitive bias has been observed between logically unconnected aspects (such as physical appearance and socially desirable aspects), it has been called “Halo effect” (Asch, 1946; Thorndike, 1920), namely, the evaluation of some aspects about something or someone is generalised to other unrelated aspects.

As extant research has shown, physical appearance is one of the most used features for such generalisations, and it is based on the stereotype “Beautiful is good” (Dion & Dion, 1987; Dion et al., 1972). The Halo effect generated

by this stereotype is quite strong, as these generalisations rely on very limited information (e.g., the attractiveness of a face; Bargh et al., 1996; Klein & O'Brien, 2018; see also Del Gatto et al., 2021) and are formed very quickly: J. Willis and Todorov (2006) have shown that to see a face for 100 ms was enough to make an inference about someone's personality traits (see also Dion et al., 1972; Talamas

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et al., 2016; Wilson & Eckel, 2006; for a review, see Forgas & Laham, 2017). First impressions can affect our attitudes and social interactions with others (Bar et al., 2006; Kinley et al., 2019). The basic assumption, according to the Implicit Personality theory (Bruner & Tagiuri, 1954; Jackson et al., 1978; see also Schneider, 1973; for a review), is that some personality characteristics co-occur (e.g., leadership and a dominant personality) and these co-occurrences allow us to quickly generalise the evaluation of some aspect to other domains.

Moreover, the impartiality of our judgements seems to be affected by gender stereotypes (Eagly & Mladinic, 1994). In line with the “Perceiver effect” (Kenny, 1994), namely, our tendency to perceive others in a specific way, previous literature has shown that in a variety of contexts, women are usually described differently than men (Eagly & Mladinic, 1994; Fiske et al., 2007): women are viewed in a more favourable and positive manner (Eagly & Mladinic, 1989; Reynolds et al., 2020), showing characteristics like kindness, selflessness, and patience, while men are viewed as more aggressive, selfish, decisive, and forceful (Heilman, 2001). As a result, gender stereotypes might implicitly increase unjust discriminations, for example, by preventing women’s ascent up as leaders in an organisation (Heilman, 2001), or by influencing political preference and voting behaviour (Hoyt et al., 2009).

Notably, first impressions and judgements often refer to people’s moral dispositions, and more specifically to moral virtues, such as honesty and courage. According to a broadly Aristotelian perspective, moral virtues can be described as particular qualities, enabling the subject to reach an ideal balance between emotional reactions and rational thoughts, by shaping practical life through an experienced use of the will (Curzer, 2012; Skorburg, 2019). More specifically, moral virtues might be seen as robust personality traits (Miller, 2014; Russel, 2015; Snow, 2010). In a virtue-ethical perspective of normativity—which we endorse here—virtues are considered more fundamental than any other ethical concepts, as we usually define terms like *good* and *right* through the notion of virtue, deserving consequently a conceptual priority (Niederbacher, 2020). Therefore, what matters practically is the fact that virtues are generally recognised, regardless of their cultural indebtedness or conceptual understanding (see De Caro & Vaccarezza, 2020). The hypothesis that unrelated personal features or behaviour induces a moral judgement with reference to one’s moral virtues, or that the inference of one’s moral virtuous behaviour implies an overall goodness, seems to be deeply rooted in our cognitive associations (Merritt, 2018; Piazza et al., 2014). In particular, *practical wisdom* would account for the possibility to see someone’s morally good actions and dispositions (either specific virtues or even just seemingly virtuous acts) as *situated* instances of their global goodness (De Caro et al., 2024). If we did not attribute a general

goodness (read: practical wisdom) to the agent when we saw certain actions, we would not develop expectations about his or her future behaviour, which we very often do instead (De Caro & Vaccarezza, 2020). This is consistent with the “Principle of phronetic charity” (De Caro et al., 2018), according to which we tend to unify our epistemic access to one’s moral character.

Researchers have demonstrated that the judgements about someone’s moral traits are crucial when forming impressions of others (Goodwin, 2015; Goodwin et al., 2014). Some studies have shown that the ability to make moral inferences is spontaneous (Uhlmann et al., 2015; see also Greene et al., 2008) and, when morally relevant information is absent, people automatically base their judgements on unrelated non-moral information to make an inference about someone’s values (Klebl et al., 2022). Cui et al. (2019) demonstrated that the moral evaluation of a deed is influenced by the actor’s attractiveness, while Bocian et al. (2018) have demonstrated that facial mimicry influences judgement of moral character. Finally, Klebl et al. (2022) demonstrated that the “Beauty is good” stereotype that most strongly affects the attribution of moral traits over non-moral traits. All these studies have focused their attention on a specific aspect of beauty, namely, the “attractiveness” of the people portrayed, that leads to a more subjective evaluation (other more “objective”¹ aspects may be related to the symmetry or complexity of a face; see Aleem et al., 2019).

Moreover, so far, we have focused on how stable aesthetic aspects can affect our judgements, also in the moral domain. However, to the best of our knowledge, few studies seem to investigate how transitory aesthetic aspects, like emotion expressions, can influence our impression about someone, or whether this transitory information can affect our moral evaluation. In a study conducted by M. L. Willis et al. (2011), for example, results have demonstrated that happy faces were judged more positively than when expressing other emotions (M. L. Willis et al., 2011).

In addition to aesthetical aspects, our moral judgement might be affected by other morally irrelevant dimensions, like information about someone’s luck or competence. Moral philosophers argue that luck undermines our notion of morality (Makkuni, 1996). Indeed, according to the “Moral Luck” idea, we may be morally judged for some of our actions which are beyond our control and for which we are not responsible (Nagel, 1979; Williams, 1981).

Regarding competence, his relationship with morality and the bidirectional influence of these aspects on each other have been studied recently by Chen et al. (2022). These authors propose the “Talented good hypothesis” to explain their results showing that describing someone as competent has a positive effect on the evaluation of his overall morality: competent people were considered more attractive, making them perceived as more moral than incompetent ones (Chen et al., 2022). However, previous literature highlight controversies regarding these interactions: Wojciszke and Dowhlyluk (2006)

show that in Polish society persons successful in business or politics are perceived as less moral than failing ones (Wojciszke & Dowhlyuk, 2006). This result is in line with the “Evil genius hypothesis”: higher competence might drive people to have more immoral actions (Gino & Wiltermuth, 2014). However, despite the morality of an action, first impressions and judgements often refer to people’s moral dispositions, such as honesty or courage, that might be seen as specific and robust personality traits (Miller, 2014; Russel, 2015; Snow, 2010). Even so, to the best of our knowledge, no studies yet examined the influence of competence on the evaluation of specific moral dispositions.

Nevertheless, these studies demonstrated that first impressions and overall morality may rely also on anecdotes: the way in which someone is described, or what we hear and read about someone, might influence our evaluations of him, sometimes by enhancing the effect of aesthetical information (Lampel & Anderson, 1968). For example, we might base our judgement about someone’s moral traits simply by reading what he or she publishes on its social network profile. Indeed, social media are today an integral part of our life, and they became an extremely common way to gather information about someone or something (Mitchelstein & Boczkowski, 2010). A dangerous side effect of the use of such media as a source of information, is the spread of fake news (Lazer et al., 2018): people trust what they see and read without verifying the information and the reliability of the source (Moravec et al., 2018). By relying on this information people form overall impressions and beliefs (Clayton et al., 2020), eventually having a strong impact in every field of our life, for example, by affecting decisions made by citizens during political elections² (Palmer & Peterson, 2016; see also Kotsonis, 2020, about Ethical theory and narratives; see also how the use of social media correlates positively with political participation, Tang & Lee, 2013).

To summarise, the studies discussed here highlight the knowledge about how stereotypes can affect our judgements both in non-moral and moral domains. In this study, we aim to investigate how non-moral aspects can influence our moral inferences about someone’s virtues.³ We use four moral virtues (e.g., Honesty, Courage, Wisdom, and Hope) that in a broadly Aristotelian perspective might be seen as robust personality dispositions. The inclusion of hope and wisdom might be questioned, as some approaches place them among the intellectual virtues. Admittedly, a growing number of studies within virtue ethics are inclined to think that hope is not a purely intellectual virtue (Chignell, 2023; Jeffrey & Mehari, 2023; Milona, 2020) and that wisdom can be better interpreted as practical wisdom or *phronesis*, which emphasises its moral skill dimension (De Caro et al., in press).

In three experiments, we examine in depth the influence of non-moral information, like physical appearance and anecdotes, on our evaluation. Experiment 1 aims to confirm

that aesthetical stable aspects (e.g., attractiveness) produce a Halo effect in the judgement of someone’s moral virtues, and to verify whether even transitory looks (e.g., emotional expression) can influence moral evaluation. In line with the literature that states that happy people are judged more positively, we hypothesise that if transitory information affects moral evaluation, then smiling characters will be judged more virtuous than neutral or sad ones. Experiment 2 aims to assess whether moral evaluations can rise from limited non-moral information, presented verbally, about the competence or luck of fictitious characters. In line with the “Talented good hypothesis” and the “Moral luck” idea, we hypothesised that the more a person is perceived as competent or lucky, the more he or she is going to be judged as virtuous. Even if our study does not directly investigate the influence of the use of social media, we chose to use a set of brief narratives, to reproduce the typically limited information available in a daily context, such as in social network posts. Finally, in Experiment 3 we use both pictures and short anecdotes, hypothesising that aesthetical aspects and verbal non-moral information might have a combinatory effect, enhancing our cognitive biases. Therefore, our aim is to verify whether coupling pictures and narratives, now fully mimicking a social network post, can enhance our inferences about someone’s moral virtues.⁴

Experiment 1

In Experiment 1, we evaluate the effect of aesthetical looks, both stable and transitory, on the judgements about someone’s virtues. According to the “beautiful is good” stereotype, we hypothesise that attractive characters are judged more virtuous than unattractive ones. Moreover, we hypothesise that positive emotions induce participants to judge characters broadly more positively. Finally, we check if some gender bias might affect moral evaluations. To test these hypotheses, we run four separate $2 \times 2 \times 3$ analyses of variance (ANOVAs) on the ratings of each of the four values used in this study.

Method

Participants and power analysis. Seventy-three undergraduates took part in the experiment for course credit (36 males; $M_{\text{age}} = 21.29$ years, $SD = 2.7$, range = 18–34 years).⁵ Power analysis was based on conventional Cohen’s effect size index (Cohen, 1992). Using an alpha of .05 with the standard power of 80% and a medium effect size of 0.25, the sample size for the present study was a minimum of 43 participants (Cohen, 1992). Sample size and analysis were determined accordingly.

Apparatus and materials. The experiment was controlled by a custom-made script in PsychoPy 3.0, running on a 15’ 2.4 GHz MacBook Pro laptop computer.

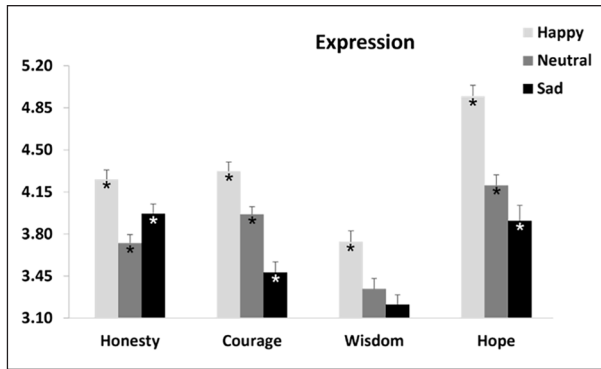


Figure 1. Experiment 1. Chart of Expression for all virtues. Likert-type means are plotted on the vertical axis. Error bars represent the standard error of the means. Asterisks indicate significant differences of $p < .05$ or less.

A set of facial photos was selected in a pilot study (to be found in the Supporting Information—SI supplementary materials). The visual stimuli consisted of faces of unknown male and female players of UK reality television shows (unknown to the Italian audience), divided in attractive and unattractive (10 in each category, according to the results of the pilot study), featuring three emotional expressions each: positive (happy), neutral, and negative (sad) ones, for a total of 60 pictures. The faces were presented at the top centre of a grey (50%) display.

Procedure. The participants were presented with each picture, and they were asked to judge four moral values (i.e., Honesty, Courage, Wisdom, and Hope) of the person in the picture, by answering questions like “How *honest* is the person in the picture?” or “How *courageous* is the person in the picture?” on a 7-point Likert-type scale. The four questions were displayed simultaneously with the face, at the bottom centre of the display. The pictures were judged in a randomised order.

Results. We conducted four $2 \times 2 \times 3$ ANOVAs, one for the ratings of each of the four values (Honesty, Courage, Wisdom, Hope), with the within factors of “Stimuli gender” (male and female), “Attractiveness” (attractive and unattractive faces), and “Expression” (positive, neutral, and negative). All analyses, including main effects, are Bonferroni corrected, and the level of significance is $\alpha = .008$ (we considered testing the four different dependent variables a risk for “familywise error”).

The analyses revealed a significant main effect of “Expression” for all the DVs: *Honesty*, $F(2, 144) = 24.659$, $p < .001$, $\eta_p^2 = .255$; *Courage*, $F(2, 144) = 46.728$, $p < .001$, $\eta_p^2 = .393$; *Wisdom*, $F(2, 144) = 34.701$, $p < .001$, $\eta_p^2 = .325$; *Hope*, $F(2, 144) = 40.950$, $p < .001$, $\eta_p^2 = .362$. Post hoc revealed that happy faces were judged more virtuous than neutral ones ($p < .001$ for all DVs) and sad ones ($p < .001$

for all DVs; Figure 1). “Attractiveness” yielded a significant main effect, but only for *Courage*, $F(1, 72) = 46.835$, $p < .001$, $\eta_p^2 = .394$; *Wisdom*, $F(1, 72) = 10.139$, $p = .002$, $\eta_p^2 = .123$; and *Hope*, $F(1, 72) = 7.656$, $p = .007$, $\eta_p^2 = .096$: attractive faces were judged systematically more brave, wise, and hopeful than unattractive ones. The interaction between “Stimuli gender” and “Attractiveness” was also significant for *Honesty*, $F(1, 72) = 7.873$, $p = .006$, $\eta_p^2 = .099$; *Courage*, $F(1, 72) = 24.454$, $p < .001$, $\eta_p^2 = .253$; and *Wisdom*, $F(1, 72) = 24.875$, $p < .001$, $\eta_p^2 = .256$. Post hoc analyses showed a number of interesting instances of this interaction: unattractive females were judged less virtuous than attractive females for *Honesty* and *Wisdom*, while unattractive males were judged less courageous than everyone else (all $p < .05$; Figure 2). Finally, the interaction between “Attractiveness” and “Expression” was significant for *Courage*, $F(2, 144) = 8.858$, $p < .001$, $\eta_p^2 = .109$; *Honesty*, $F(2, 144) = 6.005$, $p = .003$, $\eta_p^2 = .077$; and *Hope*, $F(2, 144) = 6.478$, $p = .002$, $\eta_p^2 = .082$. Post hoc revealed that the effect of “Attractiveness” is often significantly enhanced by a happy expression or reduced by a sad or neutral one (all relevant $p < .05$).

Experiment 2

In Experiment 2, we evaluate the effect of verbally presented non-moral information, about competence and fortuitous events, on someone’s virtues judgement.

Method

Participants and power analysis. Fifty-four undergraduates took part in the experiment for course credit (28 males; $M_{\text{age}} = 21.11$ years, $SD = 2.28$, range = 19–28 years). Power analysis was based on Cohen’s effect size index (Cohen, 1992). Using an alpha of .05 with the standard power of 80% and a medium effect size of 0.25, the sample size for the present study was a minimum of 53 participants (Cohen, 1992). Sample size and analysis were determined accordingly.

Apparatus and materials. The Apparatus was identical to the one used in Experiment 1. The stimuli consisted of short anecdotes (range: 31–63 words, $M = 45.56$, $SD = 7.29$) about male and female characters, in terms of ability (competent, neutral, and incompetent) and fortuitous events (lucky, neutral, and unlucky; see supplementary materials) for a total of 60 narratives. The narratives about abilities may describe someone very successful in what he does (competent level; for example, Sofia has studied a lot and she has succeeded in her examination); someone that is doing something (neutral level; for example, Sofia is doing an examination); or someone very unsuccessful in what he does (incompetent level; Sofia fails to pass the exam). The narratives about fortuitous events may describe someone

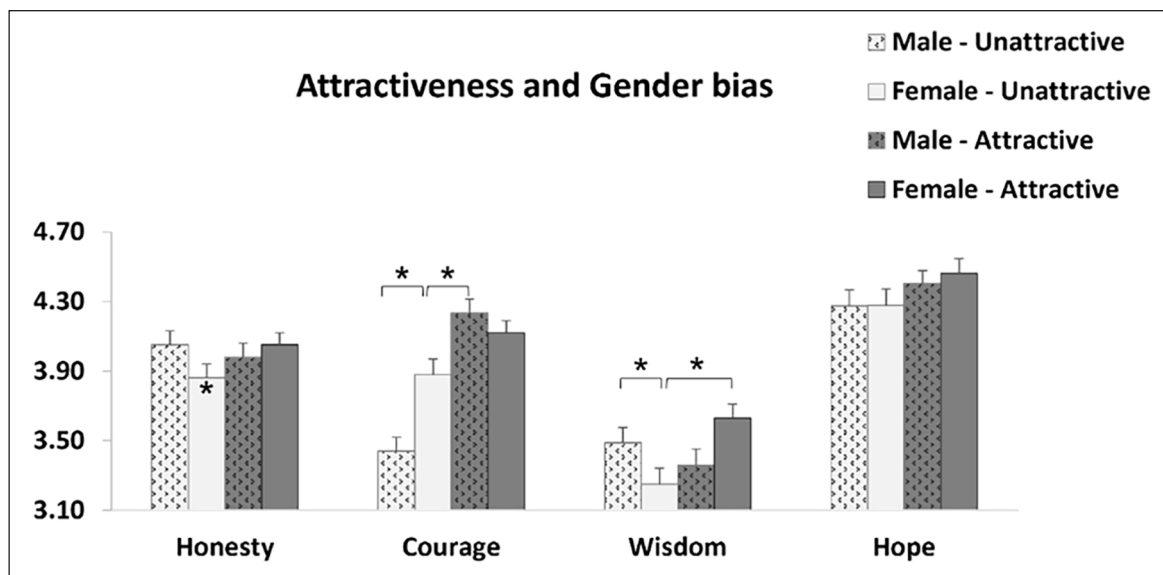


Figure 2. Experiment 1. Chart of the interaction between Attractiveness and Gender stimuli. Likert-type means are plotted on the vertical axis. Error bars represent standard error of the means. Asterisks indicate significant differences of $p < .05$ or less.

lucky (lucky level; for example, Mario wins the lottery); someone that is doing something (neutral level; for example, Mario plays to the lottery); or someone unlucky (unlucky level; for example, Mario has an accident). All narratives were designed to be devoid of moral content and gender categorisations: the characters' name was the only way to discriminate between female and male characters. The narratives were presented at the top centre of a grey (50%) display.

Procedure. The procedure and task were the same as in Experiment 1, except that in Experiment 2 we used short narratives as stimuli.

Results. Four separate 2×3 ANOVAs were conducted, one for the ratings of each of the four values (Honesty, Courage, Wisdom, Hope), with the within factors of "Stimuli gender" (male and female) and "Ability" (competent, neutral, and incompetent anecdotes). All analyses, including main effects, are Bonferroni corrected and the level of significance is $\alpha = .008$ (we considered testing the four different dependent variables a risk for "familywise error").

The analyses revealed a significant main effect of "Ability" for all the DVs: *Honesty*, $F(2, 106) = 43.127$, $p < .001$, $\eta_p^2 = .448$; *Courage*, $F(2, 106) = 39.387$, $p < .001$, $\eta_p^2 = .426$; *Wisdom*, $F(2, 106) = 142.530$, $p < .001$, $\eta_p^2 = .728$; and *Hope*, $F(2, 106) = 25.487$, $p < .001$, $\eta_p^2 = .309$. Post hoc revealed that competent characters were judged more virtuous than neutral ones ($p < .05$ for *Courage*, *Wisdom*, *Hope*) and incompetent ones ($p < .001$ for all DVs; Figure 3). Our results revealed also a main effect of "Stimuli gender," but only for *Courage*, $F(1, 53) = 19.180$, $p < .001$, $\eta_p^2 = .265$, and *Wisdom*, $F(1,$

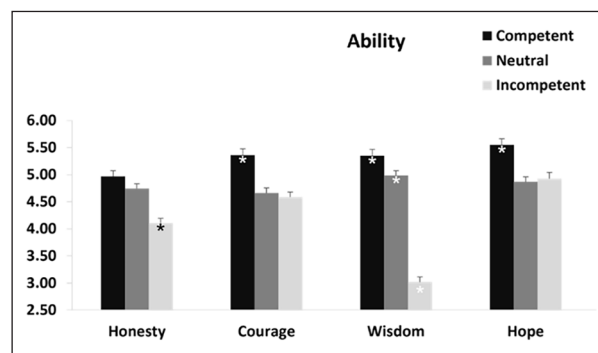


Figure 3. Experiment 2. Chart of Ability for all virtues. Likert-type means are plotted on the vertical axis. Error bars represent the standard error of the means. Asterisks indicate significant differences of $p < .05$ or less.

$53) = 12.250$, $p < .001$, $\eta_p^2 = .187$: female characters were judged braver, but males were judged wiser than females. Finally, the interaction between "Stimuli gender" and "Ability" was also significant only for *Wisdom*, $F(2, 106) = 11.430$, $p < .001$, $\eta_p^2 = .177$. Post hoc analyses showed that competent characters were judged wiser than incompetent ones ($p < .001$), and neutral males were judged wiser than incompetent males and neutral females ($p < .001$). Competent females were judged wiser than neutral and incompetent females ($p < .05$).

Moreover, four separate 2×3 ANOVAs were conducted, one for the average ratings of each of the four values, with the within factors of "Stimuli gender" (male and female) and "Luck" (lucky, neutral, and unlucky anecdotes).

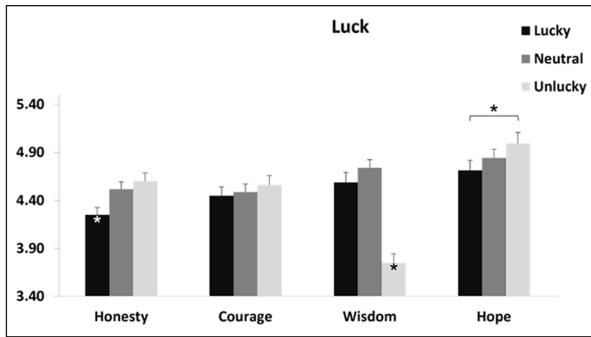


Figure 4. Experiment 2. Chart of Luck for all virtues. Likert-type means are plotted on the vertical axis. Error bars represent the standard error of the means. Asterisks indicate significant differences of $p < .05$ or less.

The analyses revealed a significant main effect of “Luck” for most of the evaluations: *Honesty*, $F(2, 106) = 20.110$, $p < .001$, $\eta_p^2 = .275$; *Wisdom*, $F(2, 106) = 57.272$, $p < .001$, $\eta_p^2 = .519$; and *Hope*, $F(2, 106) = 6.209$, $p = .003$, $\eta_p^2 = .104$. Post hoc revealed that lucky characters were judged less virtuous than neutral ($p < .001$ for *Honesty*) and unlucky ($p < .01$ for *Honesty*, *Hope*). Moreover, lucky and neutral characters were judged wiser than unlucky ($p < .01$; Figure 4). We found also a main effect of “Stimuli gender,” but only for *Honesty*, $F(1, 53) = 28.550$, $p < .001$, $\eta_p^2 = .350$, and *Courage*, $F(1, 53) = 20.563$, $p < .001$, $\eta_p^2 = .279$: male characters were judged less virtuous than female ones. Finally, the interaction between “Stimuli gender” and “Luck” was also significant for *Honesty*, $F(2, 106) = 10.850$, $p < .001$, $\eta_p^2 = .170$; *Wisdom*, $F(2, 106) = 9.836$, $p < .001$, $\eta_p^2 = .156$; and *Hope*, $F(2, 106) = 5.991$, $p = .003$, $\eta_p^2 = .101$. Post hoc analyses showed that lucky males were judged less honest and less hopeful than mostly everyone else ($p < .01$); unlucky females were judged more honest than everyone else ($p < .05$). Moreover, unlucky males were judged less wise than everybody else ($p < .01$), while unlucky females were judged less wise than everybody but unlucky males ($p < .001$). Finally, neutral females were judged less hopeful than everybody else, but lucky males ($p < .05$).

Experiment 3

In Experiment 3, we evaluate whether aesthetical and narratives together enhance the effect found in Experiments 1 and 2.

Method

Participants and power analysis. One hundred seventy-three undergraduates took part in the experiment for course credit and were divided in two groups (the first, composed by 81 participants: 17 males; $M_{\text{age}} = 20.43$ years,

$SD = 2.12$, range = 18–31 years; the second, composed by 92 participants: 34 males; $M_{\text{age}} = 20.23$ years, $SD = 1.75$, range = 19–31 years).

Power analysis was based on Cohen’s effect size index (Cohen, 1992). Using an alpha of .05 with the standard power of 80% and a medium effect size of 0.25, the sample size for the present study was a minimum of 37 participants for each group (Cohen, 1992). Sample size and analysis were determined accordingly.

Apparatus and materials. The experiment was controlled by a custom-made script in PsychoPy 3.0, and was run online on participants’ PCs, by means of the Pavlovia platform. All stimuli were presented on a grey (50%) background.

Pictures. The visual stimuli, selected from Experiment 1, consisted of faces of male and female players of UK reality television shows (unknown to the Italian audience) divided in attractive and unattractive (four in each category), featuring two emotional expressions each: positive (happy) and negative (sad) ones, for a total of 32 pictures.

Anecdotes. The stimuli consisted of short anecdotes (range = 19–51 words, $M = 35.64$, $SD = 7.49$) about people, both male and female, in terms of Ability (32 describing competent behaviour and 32 incompetent one, for a total of 64 narratives) or Luck (32 describing lucky events and 32 unlucky events, for a total of 64 narratives; see supplementary materials). The narratives had all the features described in Experiment 2.

Procedure. The first group was presented with pictures coupled with Ability anecdotes, while the second one was presented with pictures coupled with Luck anecdotes. Each picture was presented twice: once with a positive anecdote (e.g., competent or lucky) and once with a negative one (e.g., incompetent or unlucky), for a total of 64 trials for each group. The task was the same as in previous experiments, with the only difference that in this experiment pictures and anecdotes were coupled.

Results. Four separate $2 \times 2 \times 2 \times 2$ ANOVAs were conducted, one for the average ratings of each of the four values given by the first group, with the within factors of “Stimuli gender” (male and female), “Attractiveness” (attractive and unattractive faces), “Expression” (positive and negative), and “Ability” (competent and incompetent). All analyses, including main effects, are Bonferroni corrected and the level of significance is $\alpha = .008$ (we considered testing the four different dependent variables a risk for “familywise error”).

The analyses confirmed a significant main effect of “Ability” for all the DVs, *Honesty*, $F(1, 80) = 91.555$, $p < .001$, $\eta_p^2 = .533$; *Courage*, $F(1, 80) = 160.820$, $p < .001$, $\eta_p^2 = .667$; *Wisdom*, $F(1, 80) = 160.292$, $p < .001$, $\eta_p^2 = .667$; and *Hope*,

Table 1. Experiment 3.

		Ability	
		Competent	Incompetent
Honesty	Attractive (SE)	4.89 (.089)	4.31 (.055)
	Unattractive (SE)	4.9 (.084)	3.84 (.067)*
Courage	Attractive (SE)	5.65 (.084)	5.03 (.081)
	Unattractive (SE)	5.58 (.089)	3.66 (.101)*
Wisdom	Attractive (SE)	5.14 (.088)	3.85 (.071)
	Unattractive (SE)	5.07 (.089)	3.21 (.098)*
Hope	Attractive (SE)	5.65 (.091)	4.95 (.093)
	Unattractive (SE)	5.61 (.088)	3.78 (.107)*

Interaction between Ability and Attractiveness. Asterisks (*) indicate significant interactions of $p < .05$ or less.

Table 2. Experiment 3.

		Fortuitous events	
		Lucky	Unlucky
Honesty	Positive (SE)	4.20 (.066)	4.13 (.082)
	Negative (SE)	4.37 (.067)	3.94 (.068)*
Courage	Positive (SE)	4.44 (.072)	4.46 (.070)
	Negative (SE)	4.43 (.077)	4.22 (.066)*
Wisdom	Positive (SE)	4.57 (.084)	4.65 (.105)
	Negative (SE)	4.63 (.079)	4.52 (.108)*
Hope	Positive (SE)	4.69 (.076)	4.73 (.095)
	Negative (SE)	4.65 (.085)	4.56 (.085)*

Interaction between Fortuitous events and Expressions. Asterisks (*) indicate significant interactions of $p < .05$ or less.

$F(1, 80)=142.134, p < .001, \eta_p^2 = .639$, revealing that competent characters were judged more virtuous than incompetent ones. Another significant main effect was linked to “Attractiveness,” for all virtues: *Honesty*, $F(1, 80)=51.057, p < .001, \eta_p^2 = .389$; *Courage*, $F(1, 80)=204.496, p < .001, \eta_p^2 = .718$; *Wisdom*, $F(1, 80)=95.269, p < .001, \eta_p^2 = .543$; and *Hope*, $F(1, 80)=144.853, p < .001, \eta_p^2 = .644$: attractive characters were judged more virtuous than unattractive ones. Notably, the interaction between “Ability” and “Attractiveness” was also significant for all of the DVs: *Honesty*, $F(1, 80)=62.140, p < .001, \eta_p^2 = .437$; *Courage*, $F(1, 80)=174.331, p < .001, \eta_p^2 = .685$; *Wisdom*, $F(1, 80)=52.862, p < .001, \eta_p^2 = .397$; and *Hope*, $F(1, 80)=128.490, p < .001, \eta_p^2 = .616$. Post hoc revealed that incompetent people are judged more virtuous when they are attractive than unattractive ($p < .001$ for all virtues; Table 1). Finally, the interaction between “Attractiveness” and “Expression” was significant as well when evaluating *Honesty*, $F(1, 80)=31.731, p < .001, \eta_p^2 = .284$; *Courage*, $F(1, 80)=12.248, p < .001, \eta_p^2 = .132$; and *Wisdom*, $F(1, 80)=41.557, p < .001, \eta_p^2 = .341$. Both happy and sad characters were judged more virtuous when attractive in post hoc comparisons ($p < .01$). Moreover, for *Honesty*, *Courage*, and *Wisdom*, attractive characters were judged more virtuous when featuring a happy face ($p < .01$). Finally, for *Honesty* and *Wisdom*, unattractive characters were judged less virtuous when happy than sad ($p < .01$).

Finally, four separate $2 \times 2 \times 2 \times 2$ ANOVAs were conducted, one for the average ratings of each of the four values given by the second group, with the within factors of “Stimuli gender” (male and female), “Attractiveness” (attractive and unattractive faces), “Expression” (positive and negative), and “Luck” (lucky and unlucky).

The analyses revealed a significant main effect of “Luck” for *Honesty*, $F(1, 91)=31.373, p < .001, \eta_p^2 = .256$, and *Courage*, $F(1, 91)=14.112, p < .001, \eta_p^2 = .134$. Another significant main effect was linked to “Attractiveness,” for *Honesty*, $F(1, 91)=74.342, p < .001, \eta_p^2 = .449$, and *Courage*, $F(1, 91)=29.423, p < .001, \eta_p^2 = .244$: attractive

people were judged more virtuous than unattractive ($p < .05$). Moreover, we found a main effect of “Expression” for *Courage*, $F(1, 91)=9.925, p = .002, \eta_p^2 = .098$, and *Hope*, $F(1, 91)=5.618, p = .020, \eta_p^2 = .058$: happy people were judged more virtuous than sad ones. An interaction between “Luck” and “Attractiveness” was also significant for *Honesty*, $F(1, 91)=29.113, p < .001, \eta_p^2 = .242$. Post hoc revealed that both lucky and unlucky were judged more virtuous when they were attractive ($p < .05$), while unattractive were judged more virtuous when lucky than unlucky ($p < .001$). Finally, the interaction between “Luck” and “Expression” was significant for all the DVs: *Honesty*, $F(1, 91)=33.119, p < .001, \eta_p^2 = .272$; *Courage*, $F(1, 91)=14.402, p < .001, \eta_p^2 = .136$; and *Wisdom*, $F(1, 91)=7.798, p = .006, \eta_p^2 = .078$. Post hoc here revealed that unlucky characters were judged more virtuous when they were happy than sad ($p < .01$; for *Wisdom*, $p = .051$). For *Honesty*, lucky characters were judged less honest when they were happy ($p = .005$). Finally, sad characters were judged more honest when lucky than unlucky ($p < .001$; Table 2).

Discussion

The aim of this study was to investigate how different non-moral information can affect our judgement about someone’s virtues. Previously, researchers have demonstrated that in the absence of moral information, people can evaluate someone’s morality based on other characteristics (Cui et al., 2019; Klebl et al., 2022). Our results crucially extend these findings, first, by confirming that also judgements about others’ morality are affected by non-moral aspects, such as attractiveness; second, our study shows that also transitory aesthetical aspects and verbally presented non-moral information might induce participants to fall into heuristic inferences or even cognitive bias. Finally, our results show that aesthetical and verbally presented information have a combinatory effect, boosting the inferences about someone’s moral dispositions. Indeed, all three experiments show that limited information, unrelated to the moral domain,

significantly affects judgements about virtues such as Courage, Honesty, Wisdom, and Hope.

The results from Experiment 1, as expected, show that moral inferences about someone's virtues are affected by non-moral aspects, such as facial appearance. In line with previous literature (Cui et al., 2019; Klebl et al., 2022; Talamas et al., 2016; Wilson & Eckel, 2006), our results confirm that facial attractiveness is crucial for our judgements of morality, and specifically of virtues: attractive faces (both male and female) were judged more virtuous than unattractive ones. The results found in Experiment 1, about the influence of attractiveness on our moral evaluation, can be explained in line with the Halo effect bias: participants seem to generalise the positive impact of aesthetic attractiveness on characters' moral domain, namely, participants evaluate attractive characters as more virtuosos than unattractive one.

Moreover, Experiment 1 shows that emotion expression has an incremental effect on our judgement: expression, independently from other aspects like gender or attractiveness, boosts the participants' evaluation of someone's morality for all virtues: smiling, "happy" faces are considered more virtuous than sad faces. This result probably depends on the finding that happy faces are generally judged more positively than other emotions (M. L. Willis et al., 2011), and this positivity is extended to the overall judgement of that person, including also moral values. It is worth noting that, in contrast to stable aesthetic aspects, emotion expressions, even if not explicitly connected to moral aspects, could be relevant for the judgement of virtues, facilitating the inference of characters' moral dispositions. Based on this, the effect of the transitory aesthetic aspects found in Experiment 1 cannot be directly explained by the Halo effect or linked to a cognitive bias (which required factors influencing the attribution of traits to be irrelevant to the attribution of such traits), but could be linked to a kind of logical inference.

The aim of our study was also to demonstrate that verbally presented non-moral information can drastically affect our judgements about someone's virtues. Results from Experiment 2 have demonstrated that short anecdotes about competence and fortuitous events, devoid of any direct moral information, significantly affect the judgement of one's moral virtues. Results about competence reveal that people with higher personal or professional abilities are judged more virtuous than someone with lower abilities, and this is true for all of the virtues included in this study: as the level of competence increases, the evaluation of virtuosity increases. Therefore, Experiment 2 seems to confirm the "Talented good hypothesis" proposed by Chen et al. (2022).

However, as for the transitory aesthetical aspects, also the effect of competence and luck on our moral judgements could be due to a logical inference. Indeed, competence may have some faint logical connection with moral

virtues: to become competent, it may be implied that someone features virtues like tenacity or consistency or courage to persist. Thus, aspects such as competence and wisdom might actually be associated with each other: as wisdom itself can be seen as arising from experience and ability, one might expect an influence of a person's abilities on his or her assessment of wisdom, or it might be logical to associate sadness with hopelessness, leading to a low score in the assessment of "hope" for people with a sad expression. Again, even luck might show a faint logical connection with some moral dispositions, like Hope: someone lucky needs to be less hopeful, as the events are already favourable. Our moral inferences, therefore, could be explained as the result of a logical connection between some accidental skill or luck and moral virtues, and not as the results of a cognitive bias, even if the narratives about someone's competence or luck are devoid of any moral information. Although something like this is possible, this kind of explanation is not applicable to all our paired variables: luck, for example, does not seem to be correlated with honesty or courage, or attractiveness is undoubtedly not correlated with the judgement of wisdom, honesty, or courage. Moreover, if we think of virtues as moral skills for which an agent is responsible and which moral agents voluntarily possess, then we can concede that spontaneous emotions and non-moral skills are—in general—not necessarily associated with virtuous character, which is characterised by stable moral traits. Finally, luck and competence are sometimes difficult to disentangle: lucky or unlucky events may also depend on our own actions and responsibilities. For example, if someone's purse is stolen, this could be related to the bad luck or irresponsibility of the person who does not take the right precautions. Further investigations are needed to further assess the pure effect of lucky events on our moral inferences.

An alternative explanation is based on the "Implicit personality theory" (Bruner & Tagiuri, 1954; Schneider, 1973) that describes how our impressions are, consciously or unconsciously, influenced by assumptions that certain traits are linked to other characteristics and behaviours, so we infer someone's cardinal trait from these narratives, and we assume that this person also exhibits other traits that are commonly linked to that characteristic, influencing also our moral evaluations about someone's virtues. Obviously, these moral inferences also depend on the common ideas of the different virtues, but Experiment 2 results show that these influences may also be extended even between traits that are not usually linked (e.g., Luck and the virtue of Honesty).

Experiment 3 confirms results from Experiment 1 about attractiveness while extending these results showing that the effect of attractiveness seems to be even stronger, therefore more difficult to avoid, than other aesthetical transitory aspects, such as emotional expressions. Indeed, the results of Experiment 3 show that emotional

expression, unlike attractiveness, seems less crucial when other information can be evaluated, such as information about someone's competence. Probably, these narratives were considered more relevant than transitory aspects for our moral evaluations. Experiment 3, moreover, also confirms and expands the results of Experiment 2, showing that competent characters were judged more virtuous than incompetent ones, and this effect is enhanced by attractiveness: if someone is incompetent, he or she is judged as less virtuous, but if he or she is also unattractive, he or she will be considered even less virtuous. These results seem to confirm Chen et al.'s (2022) findings about the strong relationship between competence and attractiveness, highlighting that the more a person is competent, the more he or she is perceived as attractive, and this increases his perceived morality. Experiment 3 results, finally, also show a definite relationship between fortuitous events and courage. As the old saying reminds us, "Fortune favors the bold"; indeed, luckier people were judged more courageous. Our results show that the effect of fortuitous events has an effect in interaction with emotional expressions: independent from the virtues considered, if a person is described as lucky and looks happy, he is considered more virtuous than an unlucky and sad person.

Our study revealed a solid gender bias. In Experiment 1, participants judged unattractive females systematically lower for the virtues of Honesty, and Wisdom, while unattractive males are judged systematically less courageous. Gender bias is found also in Experiment 2, showing that females are judged braver but less wise than males. The interesting aspect is that the narratives were purposely made gender-neutral, meaning that no specification was made about gender, other than the fictitious character's name. This could be explained in terms of the "Gender stereotypes" effect (Eagly & Mladinic, 1994; Fiske et al., 2007; Heilman, 2001): as competence seems to be more linked to an agentic behaviour, a female who engages competent actions could be viewed as brave, but not necessarily wise. Finally, in Experiment 2 we found a gender bias for the virtues of Honesty, and Courage: females seem to be judged more honest and braver than male characters. In line with the "Perceiver effect" (Kenny, 1994) associated with gender stereotypes, the specific traits typically used to describe females (e.g., kindness, selflessness, patience) made them judged more positively than male characters (Eagly & Mladinic, 1989; Reynolds et al., 2020).

In conclusion, we have seen that forming a first impression basing our judgements on unwarranted generalisations is easily found also in the moral domain. What we see, hear, or read about someone, even if extremely limited, affects our judgements: it is thus highly probable that these judgements may significantly also affect our decisions about and interactions with that person in the future. In our current information age, in which our devices allow

us to have all kinds of information at our fingertips, we find ourselves frequently using this (limited, manipulated, or even fabricated) information and linking, implicitly, some irrelevant aspects to specific traits or characteristics to guide our decisions (e.g., commercial or political preferences), without feeling the need for further research.⁶ As our study demonstrated that these inferences run up to include moral values, future research may investigate whether these judgements about people are actually used as basis to take decisions in the real world. Our study has not considered how personal features of whoever is the judge may influence the recognition of virtues in someone else. Specifically, it would be interesting to investigate whether one's virtuosity, especially practical wisdom (De Caro & Vaccarezza, 2020), can regulate or mitigate such an effect.

It is certainly necessary to point out that this study presents some limitations. First, one limitation might be related to two aspects of the visual stimuli used. Indeed, on one hand, we selected the five men and five women who have been evaluated as the most attractive, and the five men and five women who have been evaluated as least attractive. However, by asking the participants of the pilot to evaluate the attractiveness we obtained a subjective evaluation of attractiveness and not an objective evaluation of beauty. Further studies may use measurable features of the stimuli (i.e., symmetry or complexity; Aleem et al., 2019) to assess the stability of this effect across cultures, age, and gender differences. On the other hand, even though the order of visual stimuli was randomised, the fact that we used the same person 3 times (one per emotion) does not allow us to rule out a possible carryover effect. Further research is necessary to disentangle these aspects. A second limitation may concern the fact that we aim to investigate how social networks information can affect our judgements, but we only attempt to simulate a single post, not a real scenario. Future research might investigate this aspect using a stimulation more real, like social networks newsfeed, to see whether more ecological design has an incremental effect on our moral virtues inferences.

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Author contributions

R.B., A.I., and C.D.G. produced the initial hypotheses, were responsible for administration, and analysed data; C.N. provided philosophical treatment of the matter and relevant references; A.I. drafted a first version of the manuscript; all authors reviewed and revised the final manuscript. This experimental study confirms and expands the results in Navarini, Indraccolo, and Brunetti (2021) and Navarini, Indraccolo, Ricci, and Brunetti (2021).

Consent form

Informed consent was obtained from all individual participants included in the study.

Declaration of conflicting interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Ethical approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

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Data accessibility statement

All studies, measures, manipulations, and data/participant exclusions are reported in the manuscript or its Supplementary Material. The data sets generated during the current study and the study materials are available from the corresponding author. None of the experiments was preregistered.

Supplemental material

The supplementary material is available at qjep.sagepub.com.

Notes

1. Please note that our definition of objectivity may differ from that of certain classical philosophical approaches considering beauty as a direct result of objective mathematical properties. Instead, it is in line with Aleem et al.'s (2019) definition which refers to the universality of responses and preferences in human observers (Aleem et al., 2019; Treder, 2010).
2. Researchers suggest that to use digital technologies more responsibly and choose the right course of action, especially when interacting and communicating with other users, we should develop the so-called Cyber-wisdom (Harrison, 2016a, 2016b). According to Dennis and Harrison (2020), four areas are important to develop Cyber-wisdom: (a) *virtue literacy*, namely, the acquisition of abilities and of a virtue-rich language that helps the understanding of the nature of different virtues in the digital age; (b) *virtue motivation*, namely, a strong desire to act on the virtues, by seeking the honest and compassionate course of action; (c) *virtue perception and reasoning*, namely, the ability to perceive the morally relevant and virtue-salient aspects, and to make and to justify decisions based on virtue; and, finally, (d) *virtue practice and reflection*, namely, the ability to reflect on

the moral dimension of one's own experiences online and to rationally deliberate on the best course of moral action. The need to encourage the development of Cyber-wisdom arises from the common idea that the progress of technologies comes along with some online moral concerns, such as to base our judgements on fake news or limited information that might distort them. This clearly affects the area point (c) *virtue perception and reasoning*, as this effect can make us consider as morally relevant aspects unrelated to morality.

3. We thank an anonymous reviewer for observing that for at least some expressions or abilities, there may be a rational connection between "nonmoral" aspects and virtues. For example, one might not attribute hope to a sad face on the assumption that it would have a more positive expression if it were hopeful. Moreover, a person who is skilled in a certain field might be more likely to represent a wise character than an incompetent one. The meaning attributed to the virtues may influence the moral judgement of the participants' dispositions. However, if we think of virtues as moral skills for which an agent is responsible and which moral agents voluntarily possess, then we can concede that spontaneous emotions and non-moral skills are—in general—not necessarily associated with virtuous character, which is characterised by stable moral traits.
4. These experiments are carried out with methods presented in Navarini, Indraccolo, and Brunetti (2021) and Navarini, Indraccolo, Ricci, and Brunetti (2021) and extend those results.
5. All participants in all three experiments were naïve as to the purpose of the study, which has been approved by the Ethics Review Board.
6. This result might help us to better understand the importance of the area of Cyber-wisdom (c) *virtue perception and reasoning* on our moral inferences: we should be wiser to be able to avoid these unwarranted generalisations and moving more cautiously through the cyber-world (see also Navarini, Indraccolo, Ricci, & Brunetti, 2021). However, we did not directly investigate whether a wiser person is effectively less inclined to cognitive biases or generalisations. In future research, it could be interesting to investigate whether a person with a more developed practical wisdom could navigate more responsibility in this cyber-world, focusing his judgement on relevant moral information.

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