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Trustworthiness of a smile as a function of changes in the eye expression

Andrés Fernández-Martín[1], Patricia Álvarez-Plaza[2], Laura Carqué[2] and Manuel G. Calvo[2]
[1] Universidad Internacional de La Rioja and [2] Universidad de La Laguna

Abstract

Background: Trusting other people is necessary for satisfactory and successful social interaction. A person's perceived trustworthiness is related to perceived facial happiness. We investigated how trustworthy someone with a smiling face looks depending on changes in eye expression. **Method:** Video-clips of dynamic expressions were presented, with different combinations of the mouth (smiling vs. neutral) and the eyes (happy, neutral, surprised, sad, fearful, disgusted, or angry). Participants judged how happy (happiness task) or trustworthy (trustworthiness task) the expressers were. **Results:** Both happiness and trustworthiness judgments and reaction times varied as a function of small changes from happy to non-happy eyes in a smiling face, and depending on the specific nature of the eye expression, with angry eyes being particularly detrimental. **Conclusions:** Perception of facial happiness is more dependent on the smiling mouth, whereas trustworthiness relies more on eye expression. Judgments of untrustworthiness are especially sensitive to incongruence between the eyes and the mouth.

Keywords: Facial expression, happiness, trustworthiness, smile, non-happy eyes.

Resumen

***Confianza en una sonrisa en función de los cambios en la expresión de los ojos*. Antecedentes:** confiar en otras personas es necesario para una relación satisfactoria. La percepción de confianza por parte del observador en otra persona aumenta cuando la cara expresa alegría. Investigamos en qué medida la confianza depende de la expresión de los ojos en caras con una sonrisa. **Método:** presentamos vídeo-clips de expresiones dinámicas, con diferentes combinaciones de la expresión en la boca (sonrisa o neutra) y los ojos (alegres, neutros, de sorpresa, tristeza, miedo, asco y enfado). Los participantes juzgaban cuán contenta o de fiar parecía la persona observada. **Resultados:** tanto los juicios de alegría como los de confianza, y sus tiempos de reacción, variaron en función de pequeños cambios en los ojos, y de la naturaleza de éstos; los de enfado produjeron las mayores reducciones en alegría y confianza. **Conclusiones:** la percepción de alegría es más dependiente de una boca sonriente, mientras que la percepción de confianza depende más de la expresión en los ojos. La desconfianza aumenta especialmente por la incongruencia entre ojos y boca.

Palabras clave: expresiones faciales, alegría, confianza, sonrisa, ojos no alegres.

The smile is a multifunctional tool for social interaction. It can convey enjoyment, warmth, and other positive feelings, but it often shows mere politeness and even serves to conceal negative feelings (e.g., nervousness or embarrassment) or disguise bad intentions (e.g., arrogance or mockery). Although a smile in the mouth can be easily shaped intentionally, eye expression is less subject to voluntary control and thus can "leak" (as micro-expressions; e.g., Matsumoto & Hwang, 2014) a person's actual emotions and motives. The eyes can finely express more affective nuances than the straight smiling mouth, and thus reveal genuine feelings and intentions (Calvo, Fernández-Martín, & Nummenmaa, 2012; Johnston, Miles, & Macrae, 2010; McLellan, Johnston, Dalrymple-Alford, & Porter, 2010). In the present study, we aimed to determine how trustworthy someone with a smiling face looks depending on slight changes in eye expression.

Trusting other individuals is essential for satisfactory social relationships. As observers, humans automatically draw trait inferences about how trustworthy other people are, based on their facial appearance (Getov, Kanai, Bahrami, & Rees, 2015; Todorov, Pakrashi, & Oosterhof, 2009). Such judgments have a high inter-rater consensus and an identifiable neural signature, as reflected by enhanced amydgdala activity both for trustworthy and untrustworthy evaluations (Mattavelli, Andrews, Asghar, Towler, & Young, 2012; Rule, Krendl, Ivcevic, & Ambady, 2013). There is, nevertheless, scarce empirical support for the validity or accuracy of such trustworthiness inferences (Bonnefon, Hopfensitz, & De Neys, 2013; Rule et al., 2013). Yet people seem quite willing to use facial appearance to guide their judgments, which influence actual trust behavior (see Todorov, Mende-Siedlecki & Dotsch, 2013). Trustworthiness (subjective) judgments are reliably related to approach or avoidance behavior (Centorrino, Djemai, Hopfensitz, Milinski, & Seabright, 2015; Krumhuber et al., 2007). On what facial information do observers rely to draw inferences about other people's trustworthiness?

In the current study, we focused on faces with happy expressions because research has shown that perceived facial happiness is related to perceived trustworthiness (whereas untrustworthiness is associated mainly with angry expressions). This relationship has been observed when emotional faces with explicit signs of happiness serve as stimuli (Centorrino et al., 2015; Engell, Todorov, & Haxby, 2010; Johnston et al., 2010; Krumhuber et

Received: October 4, 2016 • Accepted: April 20, 2017
Corresponding author: Andrés Fernández-Martín
Facultad de Ciencias Jurídicas, Sociales y Humanidades
Universidad Internacional de La Rioja
26002 Logroño (Spain)
e-mail: andres.fernandez@unir.net

al., 2007; Miles, 2009; Oosterhof & Todorov, 2009; Quadflieg, Vermeulen, & Rossion, 2013), and also when faces with neutral expressions are presented and participants must actively detect 'subtle' emotions (Brewer, Collins, Cook, & Bird, 2015; Hehman, Flake, & Freeman, 2015; Oosterhof & Todorov, 2008; Said, Haxby, & Todorov, 2011). This is not surprising, given that (a) people who smile are typically rated as more agreeable, sincere, sociable, competent, polite, warm, or familiar—all of which seem aspects of trustworthiness—than inexpressive people (see Hess, Beaupré, & Cheung, 2002; Senft, Chentsova-Dutton, & Patten, 2016), (b) trustworthiness is highly related to positive affective valence in neutral faces (r = .84; Aguado, Román, Fernández-Cahill, Diéguez-Risco, & Romero-Ferreiro, 2011), and (c) has the highest positive factor loadings (.94) in the valence dimension of face evaluation (Oosterhof & Todorov, 2008).

Prior research, however, has not identified the contribution of major expressive sources in happy faces that drive trustworthiness judgments. To extend prior research, we investigated the role of eye expression relative to the mouth, and whether the eyes contribute similarly or differently to facial happiness and trustworthiness. To this end, we used video-clips of dynamic expressions, with different combinations of the mouth (smiling vs. neutral) and the eyes (happy, neutral, surprised, sad, fearful, disgusted, or angry), and participants judged how happy (happiness task) or trustworthy (trustworthiness task) the expressers looked. We were especially interested in the role of eye expression, due to its contribution to affective processing and the relationship between facial affective valence and trustworthiness (see above). To this end, in the current study, the eyes unfolded from happy to 50% neutral, surprised, fearful, sad, disgusted, or angry, while keeping a smiling mouth, in comparison with conditions in which both the eyes and the mouth unfolded in a congruent manner from neutral to happy, or vice versa.

How do such facial changes affect the perception of trustworthiness, relative to happiness? We predict that trustworthiness judgments will be more sensitive (i.e., a greater impairment or reduction of trustworthiness) to changes in eye expression, whereas happiness judgments will depend more on the smiling mouth. In the same vein, whenever a neutral mouth unfolds to a smiling mouth, happiness judgments will be faster than trustworthiness judgments. In contrast, whenever the eyes unfold from happy to non-happy, and become non-congruent with a smiling mouth, *un*trustworthiness will be detected faster than *un*happiness.

Method

Participants

Sixty-four psychology undergraduates (46 females, 18 males; aged 18 to 30 years) participated for course credit, after informed consent. Of them, 32 (23 females) were randomly assigned to either a trustworthiness or a happiness judgment task.

Instruments

As stimuli, we used 2-s video-clips for eight different expressions. First, we selected the photographs of two *prototypical* expressions, i.e., Happy (happy eyes and a smiling mouth) and Neutral (neutral eyes and mouth), of 24 posers (12 females; 12 males) from the KDEF database (Lundqvist, Flykt, & Öhman, 1998). Second, six composite-face photographic versions for each poser were constructed, by replacing the upper half of each happy face with the angry, sad, fearful, disgusted, surprised, or neutral upper face half, while the smiling mouth remained unchanged in the lower face half. This produced six *blended* expressions: angry eyes and a smile, henceforth An+Ha; sad eyes and a smile, Sa+Ha; fearful eyes and a smile, Fe+Ha; disgusted eyes and a smile Di+Ha; surprised eyes and a smile Su+Ha; and neutral eyes and a smile, Ne+Ha. Figure shows an example of the blended expressions (with non-happy eyes at 50% intensity), along with the happy and the non-happy prototypical expressions.

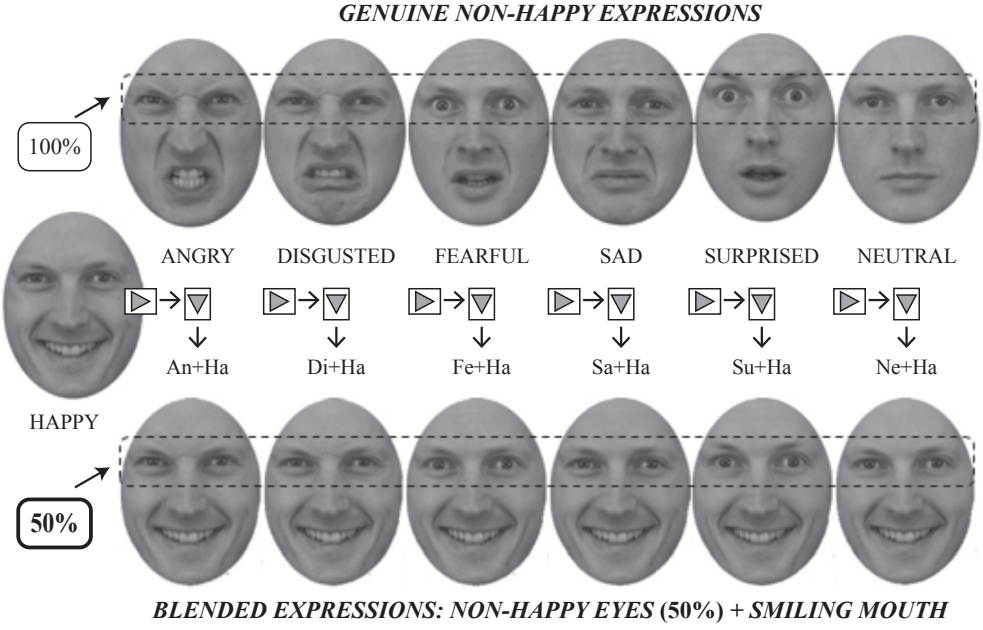

Figure 1. Types of blended expressions (lower row: An+Ha, Di+Ha, Fe+Ha, Sa+Ha, Su+Ha, and Ne+Ha) with non-happy eyes (angry, disgusted, fearful, sad, surprised, and neutral, respectively) unfolding up to 50% (of the full-blown non-happy expressions; upper row) from a happy face (middle section)

Third, the resulting photographic versions were converted into video format by FantaMorph© software (Abrosoft). For the two *prototypical* expressions, a Neutral→Happy condition was created by placing the neutral face as the first frame of a sequence and the happy face of the same poser as the last frame. Similarly, a Happy→Neutral expression was created by placing the happy face as the first frame and the neutral face as the last frame. FantaMorph generated a continuum that unfolded for 1 s from one expression to the other at 30 frames per second. For the six *blended* expressions, a photograph of a Happy face (happy eyes and a smile) was displayed, and then the eyes unfolded for 1 s towards one of the six non-happy eyes at 30 fps. This yielded the following expressions: Happy→An(50%)+Ha (henceforth, Happy→An+Ha), which evolved from happy eyes and smiling mouth towards angry eyes (up to 50% of intensity), while keeping the smile; Happy→Sa+Ha, from happy to sad eyes (50%) and a smile; Happy→Fe+Ha: from happy to fearful eyes (50%) and a smile; Happy→Di+Ha: from happy to disgusted eyes (50%) and a smile; Happy→Su+Ha: from happy to surprised eyes (50%) and a smile; and Happy→Ne+Ha: from happy to neutral eyes (50%) and a smile. A total of 192 video-clips were produced (24 posers by 8 conditions). Table 1 shows the eight conditions.

Importantly, to keep the blended expressions realistic and avoid an exaggerated, unnatural change in the eyes, the unfolding from happy to non-happy eyes was limited to 50% of *intensity* of the non-happy expression, rather than the full-blown angry-eyed, sad-eyed, etc., expression. Such blends may, in fact, represent fake smiles in social relationships where the smiler is not genuinely happy and conveying warmth, but rather may have internal negative feelings (e.g., dominance, sarcasm, or contempt, for angry or disgusted eyes; or nervousness, embarrassment, or appeasement, for fearful or sad eyes; or merely politeness, for surprised or neutral eyes; see Calvo, Gutiérrez-García, Avero, & Lundqvist, 2013). These non-happy or negative feelings may involuntarily "leak" through the eye region, even though a smiling mouth is intentionally exhibited.

The temporal segmentation of each video-clip was as follows. For the *prototypical* (i.e., Neutral→Happy, and Happy→Neutral) expressions, a still photograph of the initial expression (500 ms), was followed by the unfolding of the initial expression to the final expression (1 s), and a still photograph of the final expression (500 ms). For the *blended* (Happy→An+Ha, etc.) expressions, following the photograph of a happy face (eyes and mouth) for 1 s, the eyes unfolded to non-happy for 1 s, with no still photographic expression at the end (see Figure 2). The 1-s unfolding of expression was established to approximate the typical and natural average speed of dynamic expressions (see Hoffmann, Traue, Bachmayr, & Kessler, 2010). Each face within the video-clips subtended a visual angle of 10.6° (height) × 8.0° (width) at a 70-cm viewing distance. This approximates the size of a real face (13.8 × 18.5 cm) viewed from a distance of 1 m.

Procedure

In either a happiness or a trustworthiness judgment task, each participant was presented with the 192 video-clips, in 6 blocks (counterbalanced) of 32 trials (randomized). E-Prime 2.0 served for stimulus presentation and data collection. Participants were told that short videos of faces with different expressions would be presented, and asked to respond quickly with their dominant forefinger only, by pressing a key out of nine (labelled as 1 to 9 in the upper row of a standard computer keyboard). After each response, during a 1,500-ms intertrial interval, the forefinger should be placed on a predefined location of the space bar, approximately equidistant from the 1 to 9 keys. In the happiness task, participants judged how happy each expresser looked like over the course of the unfolding, in a 1 ("negative feelings") to 9 ("very happy") scale; in the trustworthiness task, how trustworthy each expresser looked like in a 1 ("untrustworthy") to 9 ("very trustworthy") scale. The sequence of events on each trial is illustrated in Figure 2. After an initial 500-ms fixation in the center of a screen, a video-clip was shown for 2 s. Following face offset, a screen appeared with the question "how happy?" or "how trustworthy?".

Data analysis

Statistical analyses were conducted using SPSS version 21.0. Judgment ratings (1-to-9) and reaction times were analyzed in ANOVAs with Task (2: happiness vs. trustworthiness) as a between-subjects factor, and Expression (8: see Table 1) as a repeated-measures factor. Bonferroni corrections ($p < .05$) were performed for all the a posteriori multiple contrasts involving the expression factor. Student *t*-tests for independent samples were used to determine significant differences between tasks. Bivariate Pearson correlation analyses were conducted between responses in each task. Given that the participants in each task were different (to avoid cross-over influence), the correlations were performed by items, with the stimuli serving as cases.

Table 1
Experimental conditions as a function of the eye and mouth of dynamic expressions. Conditions No. 1 and 8: Prototypical Expressions. Conditions 2 to 7: Blended Expressions

Condition No.	Final Smile	Initial Expression EYES	Initial Expression MOUTH	Unfolding Towards	Final Expression EYES	Final Expression MOUTH	Acronym
1	Yes	Neutral	Neutral	→	Happy	Smile	Neutral→Happy
2	Yes	Happy	Smile	→	Surprised (50%)	Smile	Happy→Su+Ha
3	Yes	Happy	Smile	→	Neutral (50%)	Smile	Happy→Ne+Ha
4	Yes	Happy	Smile	→	Fearful (50%)	Smile	Happy→Fe+Ha
5	Yes	Happy	Smile	→	Sad (50%)	Smile	Happy→Sa+Ha
6	Yes	Happy	Smile	→	Disgusted (50%)	Smile	Happy→Di+Ha
7	Yes	Happy	Smile	→	Angry (50%)	Smile	Happy→An+Ha
8	No	Happy	Smile	→	Neutral	Neutral	Happy→Neutral

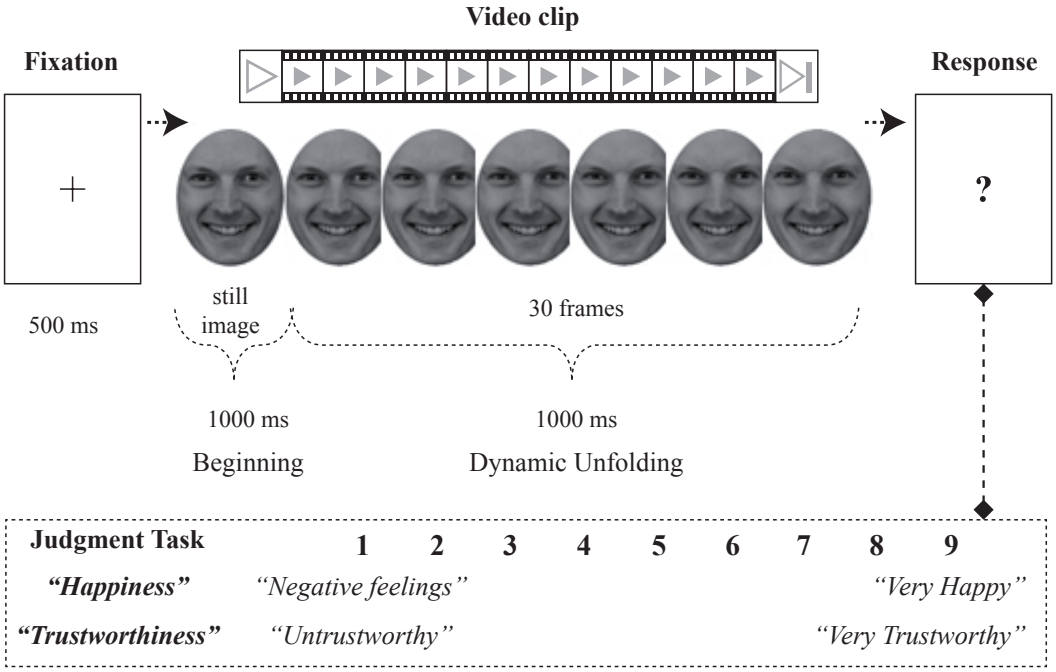

Figure 2. Sequence of events on each trial

Results

For *judgment ratings*, main effects of expression, $F(7, 434) = 237.73$, $p < .0001$, $\eta_p^2 = .79$, and task, $F(1, 62) = 38.22$, $p < .0001$, $\eta_p^2 = .38$, emerged. As indicated in Figure 3, the prototypical expressions unfolding from neutral to happy (i.e., Neutral→Happy, No. 1 in Table 1) looked happier and more trustworthy than the rest (all *p*s < .001). Also, blended expressions unfolding to neutral or surprised eyes (with a smiling mouth; i.e., Happy→Ne+Ha, and Happy→Su+Ha, No. 2 and 3) were judged as happier and more trustworthy than the others (except the Neutral→Happy). Expressions unfolding to angry eyes (with a smiling mouth; i.e., Happy→An+Ha, No. 7) were the least happy and trustworthy, along with the Happy→Neutral condition (No. 8). Expressions with eyes unfolding to fearful, sad, and disgusted (i.e., No. 4, 5, and 6) were generally equivalent, between the most and the least happy/trustworthy.

These effects were qualified by an expression by task interaction, $F(7,434) = 12.24$, $p < .0001$, $\eta_p^2 = .17$. Pairwise *t* tests for independent samples showed higher happiness than trustworthiness scores for expressions unfolding to both happy eyes and a smile (i.e., No. 1: Neutral→Happy), $t(62) = 7.13$, $p < .0001$, and for all the blended expressions with happy eyes turning to non-happy (i.e., No. 2 to 7: Happy→Su+Ha, etc.), all *t*s(62) ≥ 2.18, *p*s ≤ .033. In contrast, there were equivalent scores in both tasks for expressions without a final smile (i.e., No. 8: Happy→Neutral).

For *reaction times*, a main expression effect, $F(7, 434) = 70.04$, $p < .0001$, $\eta_p^2 = .53$, and an expression by task interaction, $F(7, 434) = 5.97$, $p < .0001$, $\eta_p^2 = .09$, emerged. As indicated in Table 2, post hoc contrasts revealed that expressions ending with happy eyes and a smile (i.e., No. 1: Neutral→Happy) were judged as happy and trustworthy faster than all the others, which generally did not differ from one another. Pairwise *t* tests for independent samples showed (a) faster happiness than trustworthiness responses for expressions ending with happy eyes and a smile (i.e., No. 1: Neutral→Happy), $t(62) = 2.37$, $p = .021$, but, conversely, (b) faster trustworthiness than happiness responses (M = 1,149 vs. 1,290 ms, respectively) for the average of blended expressions with eyes turning from happy to non-happy (i.e., No. 2 to 7: Happy→Ne+Ha, etc.), $t(62) = 2.42$, $p = .019$, while (c) scores were equivalent across tasks for expressions without a final smile (i.e., Happy→Neutral).

Pearson correlation between responses in the happiness and the trustworthiness task were highly significant both for *judgment ratings*, $r(192) = .87$, $p < .0001$, and *reaction times*, $r(192) = .65$, $p < .0001$. As illustrated in Figure 4, an increase in perceived happiness was related to increased trustworthiness, and faster responses in the happiness task were related to faster responses in the trustworthiness task.

Discussion

The pattern of effects was similar for happiness and trustworthiness. Both judgments were sensitive to relatively small changes from happy to non-happy eyes in a face with a smiling mouth, and sensitive to differences in the nature of the eye expression: Directly threatening eyes (i.e., angry and disgusted) generally reduced happiness and trustworthiness more than non-threatening—yet negatively valenced—eyes (i.e., sad and fearful) did, which reduced happiness and trustworthiness more than non-threatening and non-negative eyes (i.e., surprised and neutral). In addition, also reaction times were sensitive to the eye expression, with unfolding non-happy eyes delaying judgments, relative to unfolding happy eyes. Such a common pattern was corroborated by the highly positive correlations: The happier a face was, the more trustworthy it looked like; and, the faster the decisions were for one task, the faster they were for the other. This is consistent with prior research showing that explicit (Centorrino et al., 2015; Engell et al., 2010; Johnston et al., 2010; Krumhuber et al., 2007;

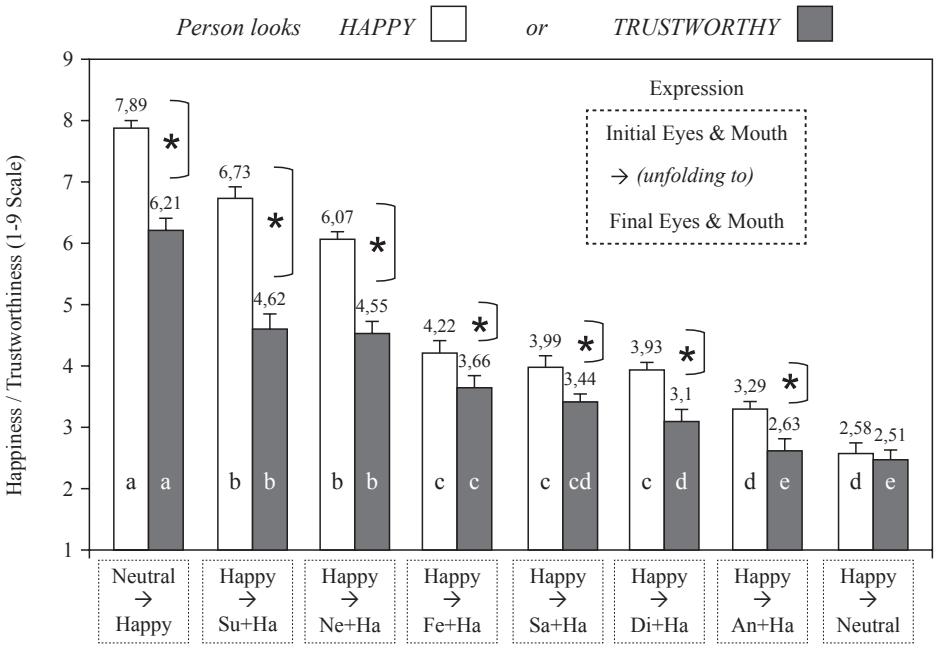

Figure 3. Mean happiness and trustworthiness judgment scores for each expression. A different letter indicates significant differences across expressions within each task, in multiple post hoc contrasts; bars with the same letter are equivalent. Vertical lines in bars indicate standard errors of the mean. Asterisks indicate significant differences between the happiness and the trustworthiness tasks. Su+Ha, Ne+Ha, Fe+Ha, Sa+Ha, Di+Ha, An+Ha: surprised, neutral, fearful, sad, disgusted, or angry eyes, and a smiling mouth

Table 2
Mean reaction times (ms) for happiness and trustworthiness judgments as a function of facial expression, and differences between tasks

	Happiness Task		Trustworthiness task		Difference
Expression	***M***	***SD***	***M***	***SD***	***p =***
No. 1: Neutral→Happy	776[a]	147	880[a]	199	.021
No. 2: Happy→Su+Ha	1,251[c]	275	1,177[b]	263	.27 *ns*
No. 3: Happy→Ne+Ha	1,378[c]	335	1,228[b]	251	.047
No. 4: Happy→Fe+Ha	1,292[c]	248	1,180[b]	198	.05
No. 5: Happy→Sa+Ha	1,270[c]	280	1,136[b]	242	.045
No. 6: Happy→Di+Ha	1,322[c]	301	1,143[b]	279	.016
No. 7: Happy→An+Ha	1,227[c]	274	1,027[b]	245	.003
No. 8: Happy→Neutral	937[b]	258	910[ab]	262	.69 *ns*

Note. Across expressions, within each task, scores with a different letter indicate significant differences in multiple post hoc contrasts; mean scores with the same letter are equivalent. Su+Ha, Ne+Ha, Fe+Ha, Sa+Ha, Di+Ha, An+Ha: surprised, neutral, fearful, sad, disgusted, or angry eyes (50% intensity), and a smiling mouth

Oosterhof & Todorov, 2009; Quadflieg et al., 2013) or inferred (Brewer et al., 2015; Hehman et al., 2015; Oosterhof & Todorov, 2008; Said et al., 2011) facial happiness is related to enhanced trustworthiness.

Beyond these similarities, however, our findings revealed that the eye expression makes a greater contribution to trustworthiness than to happiness. First, happiness judgments were *more* positive than trustworthiness judgments for all the expressions *with* a final *smile*, even when happy eyes unfolded to non-happy in the presence of a smiling mouth, but both judgments were *equivalent* for expressions *without* a final smile. This reveals that facial happiness is more dependent than trustworthiness on the presence of a smile, whereas trustworthiness is more sensitive to the eye expression. Second, happiness judgments were *faster* than trustworthiness judgments for expressions ending with happy eyes and a *smile* (i.e., when the "correct" response should be "happy" and "trustworthy"), whereas responses were generally faster for trustworthiness than for happiness when expressions ended with *non-happy eyes* and a smile (i.e., when the "correct" response should be "*not* happy" and "*un*trustworthy"). This means that non-happy eyes facilitate (hence the speeded "correct" responses) untrustworthiness detection. In contrast, a smiling mouth inhibits detection (hence the slower responses) of unhappiness in a face with non-happy eyes. Consistently, response times were equivalent across tasks for expressions lacking a final smile (thus without the cue driving happiness judgments).

The more important role of the eye expression for trustworthiness than for happiness in otherwise smiling faces fits with some prior research. First, in expression *categorization* tasks, the smiling mouth is more influential than the eyes (Beaudry, Roy-Charland, Perron, Cormier, & Tapp, 2014; Calder, Young, Keane, & Dean, 2000; Calvo, Fernández-Martín, & Nummenmaa, 2014). In contrast, in *affective processing* tasks (e.g., affective priming), the eyes are important for the evaluation of a smile as positively valenced and for judging genuine happiness (Calvo et al., 2012; Johnston et al., 2010; McLellan et al., 2010). Accordingly, assuming trustworthiness is an essential component of positive face valence (Aguado et al., 2011; Oosterhof & Todorov, 2008), it is reasonable that trustworthiness is particularly sensitive to expressive changes in the eyes: Small changes from happy to non-happy eyes in the presence of a smiling mouth must reduce trustworthiness ratings and speed up *un*trustworthiness more than happiness judgments. Second, the perceived authenticity of facial happiness or the

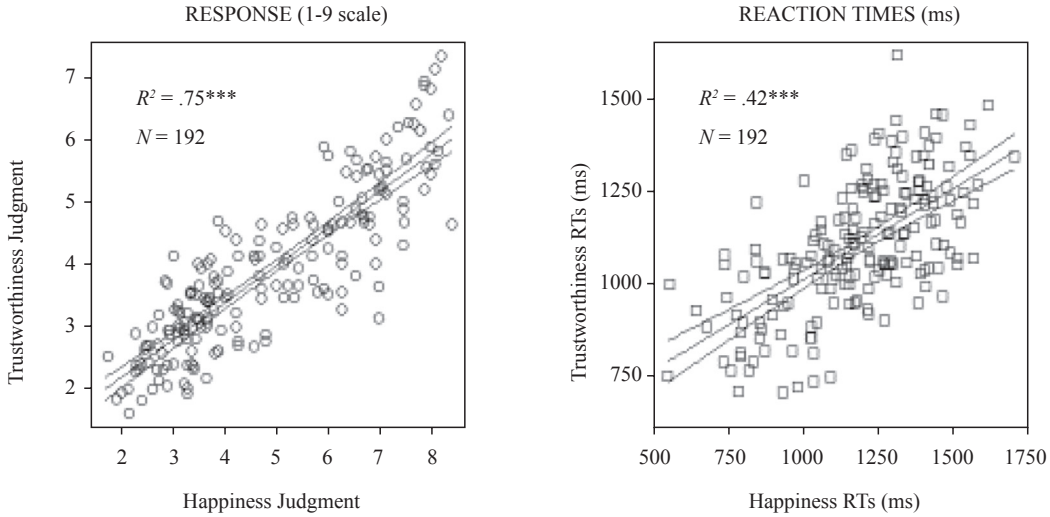

Figure 4. Relationship between happiness and trustworthiness judgments (response ratings and reaction times), with regression coefficients (R^2, amount of variance shared by happiness and trustworthiness judgments), and prediction of the mean at 95% confidence interval. *** $p < .0001$

genuineness of a smile are significantly related to trustworthiness (Krumhuber et al., 2007; Quadflieg et al., 2013), and predict actual trust behavior (Centorrino et al., 2015). To the extent that happy eyes contribute to smile "authenticity" or "genuineness", it is understandable that they convey trustworthiness, whereas non-happy eyes make the smile appear as fake and therefore would convey untrustworthiness.

The greater contribution of the eye expression to trustworthiness, in contrast with the greater dependence of happiness on the smiling mouth, suggests that the processing mechanisms are driven differently, depending on which sources of facial information are used preferentially. At a neural level, trustworthiness and happiness evaluation are thought to share the brain networks responsible for the processing of social- (superior temporal sulci, STS) and emotion-relevant (amygdala) information (Engell et al., 2010; Said et al., 2011). At the cognitive level, the recognition advantage of happy faces over other emotional expressions (see Nelson & Russell, 2013) has been attributed to the categorical distinctiveness of an otherwise visually salient smile (see Calvo & Nummenmaa, 2016). Visual saliency makes the smiling mouth readily accessible to processing due to enhanced sensory gain, and thus it can successfully compete with other facial cues for early attentional capture (Calvo, Beltrán, & Fernández-Martín, 2014). Distinctiveness, i.e., the particular shape of the smiling mouth that is uniquely associated with facial happiness, makes the smile highly diagnostic (because happy people often smile), and thus it can be used as a single feature and a shortcut for a quick categorization of a face as happy (Beltrán & Calvo, 2015; Calvo & Beltrán, 2014). In contrast, for trustworthiness, the smile would not have such a diagnostic value (as trustworthy people may smile as often as not). As a consequence, trustworthiness judgments could not depend on the smile alone, but rather rely on the congruence of the eye and the mouth expression. This implies that trustworthiness evaluation involves more holistic or configural face processing, instead of the more analytic processing of a single smiling mouth in facial happiness categorization. However, first, such differences are not dichotomous, but rather a matter of degree; and, second, both configural and analytic processing could be performed automatically.

In sum, the happier a face looks like, and the faster it is perceived as such, the more trustworthy the expresser will be judged by observers, and the faster such a decision will be reached. Importantly, however, beyond the high correlation between happiness and trustworthiness judgments, perception of facial happiness is more dependent on the smiling mouth, whereas perception of trustworthiness relies more on the eyes. Untrustworthiness judgments are especially sensitive—as reflected by faster reaction times—to incongruence between the eye and the mouth expression. In a nutshell, whereas a smiling mouth can "dazzle" observers to some extent and bias them to judge someone as happy, the smile needs happy eyes to a greater extent for judging a person as trustworthy.

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