

**COMMENTARY**

# Trait impressions from faces depend on the goals of the perceiver

Chujun Lin<sup>1</sup>  | Ralph Adolphs<sup>2</sup> 

<sup>1</sup>Department of Psychological and Brain Sciences,  
Dartmouth College, Hanover, New Hampshire, USA

<sup>2</sup>Division of Humanities and Social Sciences,  
California Institute of Technology, Pasadena,  
California, USA

**Correspondence**

Ralph Adolphs, Division of Humanities and  
Social Sciences, California Institute of Technology,  
Pasadena, California, USA.  
Email: [radolphs@caltech.edu](mailto:radolphs@caltech.edu)

**Abstract**

Trait impressions from faces formed in the real world likely depend on the circumstances in which a face is seen, in particular, on the goal of the perceiver in that circumstance. This goal dependency is typically not incorporated into laboratory studies, an omission that has limited our understanding of trait impressions from faces.

**KEYWORDS**

face perception, goal-directed behavior, impression formation, naturalistic paradigm

Sutherland and Young review comprehensively what we know about trait impressions from faces. We find little with which to disagree in this masterful overview, but in this commentary, we would like to raise an important omission in most of the literature on this topic: Findings are in general limited to a *goal-neutral paradigm*. While much recent effort has been made to increase the diversity of face stimuli and of perceiver groups, we would like to emphasize that it is equally essential to incorporate perceivers' goals – which will surely vary, depending on the context in which a face is seen.

A goal-neutral paradigm uses procedures where participants are presented with a stimulus in the absence of the goal-defining context in which the stimulus would typically occur in the real world. For instance, face images are shown in isolation on a computer screen, and participants are asked to evaluate the face on traits (by rating the face on given trait words or freely describing the face using their own words). Participants are not told why they would want to form trait impressions from the face. This approach has been used in the vast majority of existing studies (Sutherland & Young, 2022), including our own (Lin et al., 2021). However, in real life, people navigate the social world with specific goals and intentions (Custers & Aarts, 2010; Kruse & Degner, 2021). We argue that in the real world, perceivers' goals would modify the trait impressions made from faces.

The different goals a perceiver may have likely influence trait impressions from faces through multiple mechanisms. For instance, a perceiver looking through profile photos on a dating website hoping to find a romantic partner is more likely to think about impressions of the traits they would like in a romantic partner. Prioritization of that subset of traits most relevant to a goal is likely ubiquitous in everyday situations. This view is consistent with findings from multiple lines of empirical research. For instance, people playing trust games form impressions of trustworthiness from targets' faces (FeldmanHall et al., 2018). People making decisions about which political candidates to vote for form impressions of competence from candidates' faces (Lenz & Lawson, 2011). People trying to infer the mental states of others in different contexts utilize different trait-impression cues from faces: for example, inferences of mental

states along the valence dimension are shaped by face impressions of warmth more than competence (Lin et al., 2022; Lin & Thornton, 2021). A very fruitful domain for future research would be to specify in greater detail at what level(s) of processing the effect occurs. It could be a perceptual attentional effect, or one of accessibility of trait information in memory, or even a post-judgement effect merely on deliberated behaviour. Likely it is a combination of all of these that unfold dynamically, analogous to many 'bottom-up' and 'top-down' interactions that have been described in other domains (Mazer & Gallant, 2003).

Integrating a perceiver's goals may be key to understanding how the brain generates trait impressions from faces in the real world. While people can use hundreds of different words to describe trait impressions from faces, most of these trait impressions can be summarized by just a few core dimensions (Sutherland & Young, 2022). It is plausible that the brain spontaneously forms trait impressions along these core dimensions upon seeing a face and uses a combination of these core dimensions to generate goal-afforded trait impressions under different contexts. Future neuroimaging studies could test this hypothesis by examining whether the neural patterns of a certain trait impression formed under a certain perceiver's goal could be reconstructed as the sum across the neural patterns of the core trait dimensions weighted by each core trait dimension's relevance to the perceiver's goal in the given context. Electrophysiological measures would even provide the temporal resolution to see how this process unfolds in time.

Integrating perceivers' goals may also help reconcile the various theories about the underlying dimensions that describe trait impressions from faces. For instance, it remains debated whether warmth or morality is the predominant dimension of trait impressions. Sutherland and Young suggest that the lack of evidence for the dissociation between the sociability-related and morality-related trait impressions in face perception research (compared with research on trait impressions from behaviour and familiar others) may be attributed to the lack of information from unfamiliar faces (Sutherland & Young, 2022). However, it could also be that the lack of evidence for such a dissociation may instead be a result of the goal-neutral paradigm in the field. Sociability and morality might well emerge as two different facets of warmth in trait impressions from faces when sociability-related goals and morality-related goals are introduced.

Prior research suggests that face features alone predict a substantial amount of the variance in trait impressions from faces (Keles et al., 2021). Once again, these findings are likely to have been inflated by the goal-neutral paradigm with which both the training and test data were collected. Perceivers' goals likely influence both the utilization of visual cues and the activation of stereotypes, even when forming impressions of the same trait from the same face. Existing findings on how a specific trait impression corresponds to a specific type of faces (Sutherland & Young, 2022) might not provide a complete picture of trait impressions from faces in the real world (Stolier et al., 2018). Future research triangulating the face feature space, trait concept space, and perceiver goal space may be key to understanding the neural, psychological, and computational basis of naturalistic trait impressions from faces.

## **AUTHOR CONTRIBUTIONS**

C.L. and R.A. wrote the paper.

## **CONFLICT OF INTEREST**

All authors declare no conflict of interest.

## **DATA AVAILABILITY STATEMENT**

None.

## **ORCID**

Chujun Lin  <https://orcid.org/0000-0002-7605-6508>

Ralph Adolphs  <https://orcid.org/0000-0002-8053-9692>

## REFERENCES

- Custers, R., & Aarts, H. (2010). The unconscious will: How the pursuit of goals operates outside of conscious awareness. *Science*, 329(5987), 47–50. <https://doi.org/10.1126/science.1188595>
- FeldmanHall, O., Dunsmoor, J. E., Tompary, A., Hunter, L. E., Todorov, A., & Phelps, E. A. (2018). Stimulus generalization as a mechanism for learning to trust. *Proceedings of the National Academy of Sciences*, 115(7), E1690–E1697. <https://doi.org/10.1073/pnas.1715227115>
- Keles, U., Lin, C., & Adolphs, R. (2021). A cautionary note on predicting social judgments from faces with deep neural networks. *Affective Science*, 2(4), 438–454. <https://doi.org/10.1007/s42761-021-00075-5>
- Kruse, F., & Degner, J. (2021). Spontaneous state inferences. *Journal of Personality and Social Psychology*, 121(4), 774–791. <https://doi.org/10.1037/pspa0000232>
- Lenz, G. S., & Lawson, C. (2011). Looking the part: Television leads less informed citizens to vote based on Candidates' appearance. *American Journal of Political Science*, 55(3), 574–589. <https://doi.org/10.1111/j.1540-5907.2011.00511.x>
- Lin, C., Keles, U., & Adolphs, R. (2021). Four dimensions characterize attributions from faces using a representative set of English trait words. *Nature Communications*, 12(1), 5168. <https://doi.org/10.1038/s41467-021-25500-y>
- Lin, C., Keles, U., Thornton, M. A., & Adolphs, R. (2022). How trait impressions of faces shape subsequent mental state inferences [registered report stage 1 protocol]. <https://doi.org/10.6084/m9.figshare.19664316.v1>
- Lin, C., & Thornton, M. A. (2021). Linking inferences of traits and mental states: Evidence for bidirectional causation. *PsyArXiv*. <https://doi.org/10.31234/osf.io/ysn3w>
- Mazer, J. A., & Gallant, J. L. (2003). Goal-related activity in V4 during free viewing visual search: Evidence for a ventral stream visual salience map. *Neuron*, 40(6), 1241–1250. [https://doi.org/10.1016/S0896-6273\(03\)00764-5](https://doi.org/10.1016/S0896-6273(03)00764-5)
- Stolier, R. M., Hehman, E., & Freeman, J. B. (2018). A dynamic structure of social trait space. *Trends in Cognitive Sciences*, 22(3), 197–200. <https://doi.org/10.1016/j.tics.2017.12.003>
- Sutherland, C. A. M., & Young, A. W. (2022). Understanding trait impressions from faces. *British Journal of Psychology*, 113, 1056–1078. <https://doi.org/10.1111/bjop.12583>

**How to cite this article:** Lin, C., & Adolphs, R. (2022). Trait impressions from faces depend on the goals of the perceiver. *British Journal of Psychology*, 00, 1–3. <https://doi.org/10.1111/bjop.12618>