CAN PEOPLE DETECT IDEOLOGICAL STANCE FROM FACIAL PHOTOGRAPHS?

Tamsin K. Saxton, Sophie L. Hart, Lucy V. Desai and Thomas V. Pollet

Department of Psychology, Northumbria University, Newcastle, NE1 8ST, United Kingdom

tamsin.saxton@northumbria.ac.uk

ABSTRACT

Nonverbal cues are instrumental in animal social interactions, and humans place especial value on facial appearance and displays to predict and interpret others' behaviours. Several studies have reported that people can judge someone's political orientation (e.g. Republican vs Democrat) based on facial appearance at greater-than-chance accuracy. This begs the question of the granularity of such judgements. Here, we investigate whether people can judge one aspect of political orientation (attitudes to immigration) based on the facial photographs that politicians use to represent themselves on the European Parliament website. We find no evidence of such ability, and no evidence for an interaction between the judges' own attitudes to immigration and their accuracy. Many studies report facial manifestations of attitudinal and behavioural proclivities, and yet we should not lose sight of the fact that facial appearance may be a relatively impoverished cue relative to other potential sources of information.

INTRODUCTION

Humans are extremely adept at inferring social information from nonverbal cues, and in particular, from facial appearance and displays. Leaders' facial displays, incorporating emotional expressions and social signals, affect viewers' emotions and attitudes (Masters, Sullivan, Lanzetta, McHugo, & Englis, 1986) and are associated with political success (Masters, Sullivan, Feola, & Mchugo, 1987). Naïve observers' judgements of the competence of politicians from facial photographs predicts the outcome of actual elections (e.g. Todorov, Mandisodza, Goren, & Hall, 2005), while votes for faces that were manipulated to resemble politicians using specialist computer software, reflected voting outcomes in real elections (Little, Burriss, Jones, & Roberts, 2007). Indeed, naïve raters who are presented with the facial photographs of targets demonstrate some degree of accuracy in assessing elements of political ideology, such as the targets' political party membership (Jahoda, 1954; Olivola & Todorov, 2010b; Rule & Ambady, 2010), and position on the political spectrum (Samochowiec, Wänke, & Fiedler, 2010). Some studies, including very large-scale ones, have indicated that people's self-reported political affiliation is not associated with their accuracy in identifying the political affiliation of politicians' images (Olivola & Todorov, 2010b; Rule & Ambady, 2010), while others have found that people's political affiliation interacts with their judgement accuracy, perhaps based upon in-group/out-group discrimination (Samochowiec et al., 2010).

The ability to detect attributes such as political ideology from appearance likely draws from multiple sources. Political attitudes tend to be aligned with social and cultural dimensions, such as socioeconomic status and class (Jahoda, 1954), and those are apparent from social displays (see e.g. Fox, 2014). Photographs that are selected to convey certain information, such as the advertisement of oneself as a representative of a political party, may have been chosen to contain such characteristics that indeed communicate membership of that group (Todorov & Porter, 2014; Toma & Hancock, 2010). Some aspects of appearance indicate behaviours that could be relevant to political attitudes: for example, facial width-to-height ratio predicts behaviour towards in-groups versus out-groups (Stirrat & Perrett, 2012). Finally, personality traits that match appearance may arise when people are treated differently according to their appearance, internalise that treatment, and then act accordingly (see e.g. Zebrowitz, Collins, & Dutta, 1998).

The ability to quickly assess the attitudes and intentions of others, particularly those who wield power, has functional significance. If people can detect political ideology from facial photographs, this begs the question of the granularity of such judgements: can people also detect attitudes associated with an ideology? Here, we set out to investigate whether people can judge one element of politicians' ideology, namely their attitudes to immigration, based on the facial photographs taken from the European Parliament website. Following previous findings that own political affiliation interacts with judgement accuracy of others' political affiliation, we also examined whether naïve raters' own attitudes to immigration interacted with their ability to detect the politicians' immigration attitudes. We wanted to test the hypotheses that naïve raters would be able to detect political ideology at rates greater than chance, and that participants who were

strongly pro- or anti-immigration (i.e. scoring at either end of the scale) would be better able to discriminate pro- and anti-immigration politicians.

METHODS

Ethical approval for the study was granted by the university where the work took place. Our preregistration (including details of any deviations therefrom), data, and (additional) analyses are available from http://doi.org/10.17605/OSF.IO/Z7TYD.

Materials
We sourced photographs of Members of the European Parliament (MEPs) from the European Parliament website. The politicians were facing the camera, so their facial displays were readily apparent: they were typically smiling; make-up, and/or elements of the hairstyle that cover the face (e.g. longer fringes, beards, moustaches), were evident in some photographs. MEPs were selected if the views expressed on their party website, personal/professional website, or the European Parliament website record of their contributions, indicated a pro-immigration or anti-immigration stance. For instance, we included photographs of MEPs from the Europe of Nations and Freedom Group, whose website states, "Our European cultures, our values and our freedom are under attack […] threatened by mass immigration, by open borders…" (https://www.enfgroup-ep.eu/about/), and from the European United Left/Nordic Green Left, whose website states, "Europe must defend the rights of asylum seekers" (http://www.guengl.eu/policy/priority/civil-liberties-data-privacy-protecting-the-vulnerable). The second and third authors sourced as many MEPs as they could find within a reasonable time who were either pro- or anti-immigration, with the restriction that pro- and anti-immigration politician pairs should be matched for age and country. We assumed that UK participants might recognise one anti-immigration politician from the UK with a high media profile, and so excluded him. Photographs were cropped in Adobe Photoshop around the face and across the forehead. The faces were paired (10 male and 7 female pairs) to consist of one pro-immigration politician and one anti-immigration politician, from the same country, and approximately matched for age (mean age difference of 4 years; range 0 – 11 years). Another 21 face pairs were included in the survey but not the analysis because closer inspection of their attitudes to immigration, subsequent to data collection, revealed that they were not unambiguously pro- or anti-immigration.

Participants
The study was set up online, and advertised through social media accounts (e.g. Facebook and Twitter) and social networks of the second and fourth authors. 126 participants accessed the survey. We discarded 14 incomplete responses, 9 responses with one or more ambiguous face choices, and one participant who indicated an age under 18 years. The resultant 102 participants comprised 81 women and 21 men aged 18 – 76 (M=25 years, SD=11 years), 68 of whom indicated student status, and 88 of whom indicated living within the UK (while 7 gave a location outside of the UK, and 7 did not

respond). We therefore exceeded recommended sample sizes (N=40) based on previous work on this topic (Olivola & Todorov, 2010a).

Procedure

Participants identified which person in each pair was more likely to hold views opposing immigration. Pairs were displayed in randomised order. The anti-immigration party face was presented on the left in 8 cases, and on the right in 9 cases (note that the analysis models the error associated with every trial). Next, participants completed a version of the Classical and Modern Racial Prejudice Scale (Akrami, Ekehammar, & Araya, 2000), modified for use in the UK by amending reference to Swedes / Sweden to British people / the UK or Britain. We also amended "Immigrants get too little attention in the media" to "Immigrants' problems get too little attention in the media" because media attention could be either negative or positive. Finally, we amended "It is important to invest money in teaching immigrants their mother tongue" to "It is important to invest money in teaching children about immigrants' country's history", because investment in language-learning tends not to be a priority in the UK (Leslie & Russell, 2006), and because some immigrants to the UK would already have English as their mother tongue. Participants indicated, out of 5 choices (from 'Strongly agree' to 'Strongly disagree'), their reactions to items such as "I favour full integration of British people with immigrants" (Classical Prejudice Scale), and "It is easy to understand immigrants' demands for equal rights" (Modern Prejudice Scale). Fourteen of the questions asked about attitudes and beliefs around immigrants, one question asked about immigrant camps, and one asked about a multicultural Britain. These scales showed very good internal consistency (Cronbach's α: Classical Prejudice =.84; Modern Prejudice =.84; combined single scale =.90).

Analysis

All analyses were conducted in R 3.5.1 (R Development Core Team, 2015). After presenting descriptive analyses and binomial tests for the face pairs, our key analyses are Hierarchical Bayesian Regression Models where the stimulus chosen was modeled as a Bernoulli trial (correctly chosen or not), using the "BRMS" package in R (Buerkner, 2015). The estimation of each model was based on four chains, each containing 4,000 iterations (2,000 for a warm-up), using weakly informative priors. The models showed very good convergence based on $\hat{R}$. The random effect structure allowed for a random intercept associated with the participant and a random intercept associated with stimulus pair. Prejudice scores were centred prior to the analyses. We tested if a model including this variable performed better than the null model based on WAIC (Vehtari, Gelman, & Gabry, 2017). We also examined curvilinear effects.

RESULTS

Can people judge which politician opposes immigration?
There was no evidence that participants were able to consistently identify the politicians' alignment with anti-immigration policies (Figure 1): there was 1 pair where participants performed above chance, and 3 pairs where performance was below chance.
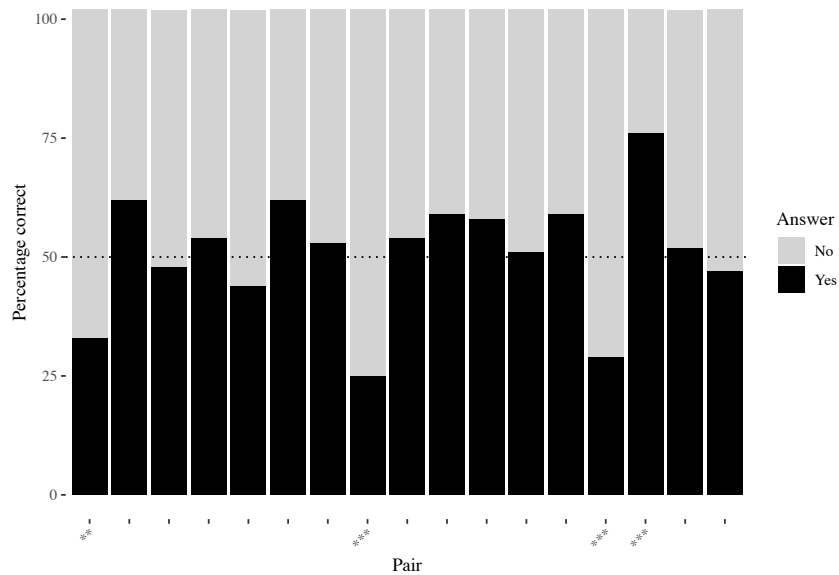

Figure 1: Percentage of participants who correctly guessed which face within each pair opposed immigration. **: $p = .01$, ***: $p = .001$, two-tailed binomial tests, adjusted for multiple testing via the Benjamini-Hochberg (1995) procedure.

Do people's attitudes to immigration correspond to their ability to judge which politician opposes immigration?
There was no suggestion of a relationship between face judgement accuracy and Classical Prejudice (95% Bayesian credible interval B=-0.004, 95%CI=-0.02—0.01; WAIC=2332.87) or Modern Prejudice scores (B=0.002, 95%CI=-0.02—0.01; WAIC=2333.14). These models did not perform better than a null model (WAIC=2330.87) (i.e. better performance would be a WAIC lower by at least 1 – 2 units; Anderson & Burnham, 2004; Raftery, 1995). Similarly, there was no suggestion of an effect when using the combined measure (B=-0.002, 95%CI=-0.01—0.01; Figure 2), and this model (WAIC=2332.50) did not perform better than the null model. There was also no suggestion that curvilinear effects improved fit (Classical Prejudice: WAIC=2334.26; Modern Prejudice: WAIC=2334.78; Combined Prejudice: WAIC=2333.87). None of these models outperformed a null model.
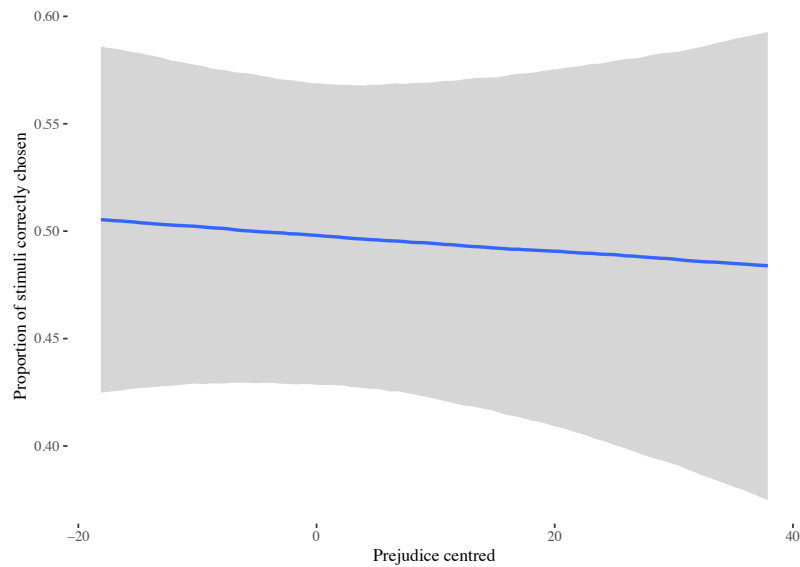
Figure 2: Marginal effects plot of prejudice level (centred) against proportion of stimuli judged correctly, with 95 % confidence interval.

DISCUSSION

Following previous findings that people can gauge political allegiance from facial appearance and displays at rates that exceed chance, we investigated whether people could judge politicians' views on immigration from their photographs. We found no evidence that they could. Further, we found no evidence that respondents' own attitudes to immigration interacted with their judgements of the photographs. Perhaps such a specialist topic as attitudes to immigration, which is a complex belief set imperfectly aligned with political allegiance, is not something easily gleaned from facial appearance.

Facial displays associated with leadership may vary sufficiently cross-culturally that they will be more salient to people within a culture. As such, American but not Japanese participants could guess at real election outcomes based on American politicians' faces, whereas Japanese but not American participants demonstrated some level of accuracy in relation to Japanese politicians (Rule et al., 2010). It might be that the salient markers of ideological stance differ sufficiently across the European Union that our predominantly UK-based raters were unable to detect them. Having said that, previous research has demonstrated that people can judge something about political allegiance from facial appearance even outside their immediate culture: Swiss participants demonstrated some accuracy in identifying political attitudes in relation to German politicians and vice versa (Samochowiec et al., 2010). Similarly, Swedes' and Americans' competence judgements of facial photographs of Finnish political candidates, and Swiss raters' competence judgements of French political candidates, predicted electoral outcomes (Antonakis &

Dalgas, 2009; Poutvaara, Jordahl, & Berggren, 2009). We did not directly assess the attitudes to immigration of the politicians whose photographs we used, which could introduce noise to the dataset if the politicians' views deviated from their party line. However, firstly, our forced-choice design compared individuals who should have held relatively opposing views. Even if some politicians were more centrist than their political allegiance might suggest, the views of the two politicians in a pair should still diverge from each other. Secondly, our set-up is similar to that of previous research that asked raters to classify individuals as Democrat or Republican without taking account of the range of political viewpoints within those parties.

Immigration is an emotive topic (Blinder, 2018), and our intention was not to focus on a provocative subject, but rather to understand whether the studies that have indicated that political party membership could be adduced from facial appearance could be extended to focus on one facet of political ideology. It is important to note too that our study focussed on the images that politicians used to represent themselves. The information in these photographs derives from a blend of biological and cultural sources, ranging across elements that are more or less changeable; the photographs portray facial shape, skin coloration, adiposity, facial emotional expression, elements of make-up and hairstyle choice, and so on, and the photographs themselves were of course those that had been selected for display online. Some previous work in this area has used highly controlled photographs to try to focus in on more constant aspects of facial appearance such as face shape, and the dimensions and position of facial features (e.g. Boothroyd, Jones, Burt, DeBruine, & Perrett, 2008; Penton-Voak, Pound, Little, & Perrett, 2006; Stirrat & Perrett, 2010). This work is particularly useful when attempting to focus more on the biological aspects of a possible link between behaviour and appearance. Other previous work in this area, along with our study, have used less controlled photographs, which might include more changeable aspects of facial appearance, together with more extraneous material (e.g. Rule & Ambady, 2008; Rule & Ambady, 2010; Todorov et al., 2005). This work is particularly useful when attempting to focus more on how cultural influences might link appearance with behaviour.

Even if we had found that naïve raters could pick out attitudes to immigration from those images, this would not imply that people could use facial appearance to gauge attitudes to immigration in other settings (Gelman, Mattson, & Simpson, 2018), where factors such as base rates (i.e. the proportion of people falling into a particular category; Olivola & Todorov, 2010b) must come into play, together with more immediately salient information such as someone's professed views. At a party conference of the European United Left/Nordic Green Left, facial appearance is unlikely to be an informative cue to assess whether someone is pro- or anti-immigration. However, our evidence indicates that even sensitive forced-choice measures, comparing individuals with distinctly differing views, are unlikely to provide participants with the robust ability to detect immigration attitudes from the photographs that politicians use to represent themselves.

REFERENCES

Akrami, N., Ekehammar, B., & Araya, T. (2000). Classical and modern racial prejudice: a study of attitudes toward immigrants in Sweden. *European Journal of Social Psychology, 30*(4), 521-532. DOI

Anderson, D., & Burnham, K. (2004). *Model selection and multi-model inference.* New York: Springer-Verlag. DOI

Antonakis, J., & Dalgas, O. (2009). Predicting elections: Child's play! *Science, 323*(5918), 1183-1183. DOI

Benjamini, Y., & Hochberg, Y. (1995). Controlling the false discovery rate: A practical and powerful approach to multiple testing. *Journal of the Royal Statistical Society. Series B (Methodological), 57*(1), 289-300. DOI

Blinder, S. (2018). UK public opinion toward immigration: Overall attitudes and level of concern. Retrieved from https://migrationobservatory.ox.ac.uk/resources/briefings/uk-public-opinion-toward-immigration-overall-attitudes-and-level-of-concern/

Boothroyd, L. G., Jones, B. C., Burt, D. M., DeBruine, L. M., & Perrett, D. I. (2008). Facial correlates of sociosexuality. *Evolution and Human Behavior, 29*(3), 211-218. DOI

Fox, K. (2014). *Watching the English: The Hidden Rules of English Behavior.* Revised and Updated: Nicholas Brealey.

Gelman, A., Mattson, G., & Simpson, D. (2018). Gaydar and the fallacy of decontextualized measurement. *Sociological Science, 5*(270-280). DOI

Jahoda, G. (1954). Political attitudes and judgments of other people. *The Journal of Abnormal and Social Psychology, 49*(3), 330-334. DOI

Leslie, D., & Russell, H. (2006). The importance of foreign language skills in the tourism sector: A comparative study of student perceptions in the UK and continental Europe. *Tourism Management, 27*(6), 1397-1407. DOI

Little, A. C., Burriss, R. P., Jones, B. C., & Roberts, S. C. (2007). Facial appearance affects voting decisions. *Evolution and Human Behavior, 28*(1), 18-27. DOI

Masters, R. D., Sullivan, D. G., Feola, A., & Mchugo, G. J. (1987). Television coverage of candidates' display behavior during the 1984 democratic primaries in the United States. *International Political Science Review, 8*(2), 121-130. DOI

Masters, R. D., Sullivan, D. G., Lanzetta, J. T., McHugo, G. J., & Englis, B. G. (1986). The facial displays of leaders: Toward an ethology of human politics. *Journal of Social & Biological Structures, 9*(4), 319-343. DOI

Olivola, C. Y., & Todorov, A. (2010a). Elected in 100 milliseconds: Appearance-based trait inferences and voting. *Journal of Nonverbal Behavior, 34*(2), 83-110. DOI

Olivola, C. Y., & Todorov, A. (2010b). Fooled by first impressions? Reexamining the diagnostic value of appearance-based inferences. *Journal of Experimental Social Psychology, 46*(2), 315-324. DOI

Penton-Voak, I. S., Pound, N., Little, A. C., & Perrett, D. I. (2006). Personality judgments from natural and composite facial images: More evidence for a "kernel of truth" in social perception. *Social Cognition, 24*(5), 607-640. DOI

Poutvaara, P., Jordahl, H., & Berggren, N. (2009). Faces of politicians: Babyfacedness predicts inferred competence but not electoral success. *Journal of Experimental Social Psychology, 45*(5), 1132-1135. DOI

R Development Core Team. (2015). *R: A language and environment for statistical computing. Vienna, Austria: R Foundation for Statistical Computing.* Retrieved from http://www.R-project.org/

Raftery, A. E. (1995). Bayesian model selection in social research. *Sociological Methodology, 25,* 111-163. DOI

Rule, N. O., & Ambady, N. (2008). Brief exposures: Male sexual orientation is accurately perceived at 50ms. *Journal of Experimental Social Psychology, 44*(4), 1100-1105. DOI

Rule, N. O., & Ambady, N. (2010). Democrats and Republicans can be differentiated from their faces. *PLoS ONE, 5*(1), e8733. DOI

Rule, N. O., Ambady, N., Adams, R. B., Ozono, H., Nakashima, S., Yoshikawa, S., & Watabe, M. (2010). Polling the face: prediction and consensus across cultures. J*ournal of Personality and Social Psychology, 98*(1), 1-15. DOI

Samochowiec, J., Wänke, M., & Fiedler, K. (2010). Political ideology at face value. *Social Psychological and Personality Science, 1*(3), 206-213. DOI

Stirrat, M., & Perrett, D. I. (2010). Valid facial cues to cooperation and trust: Male facial width and trustworthiness. *Psychological Science, 21*(3), 349-354. DOI

Stirrat, M., & Perrett, D. I. (2012). Face structure predicts cooperation: Men with wider faces are more generous to their in-group when out-group competition is salient. *Psychological Science, 23*(7), 718-722. DOI

Todorov, A., Mandisodza, A. N., Goren, A., & Hall, C. C. (2005). Inferences of competence from faces predict election outcomes. *Science, 308*(5728), 1623-1626. DOI

Todorov, A., & Porter, J. M. (2014). Misleading first impressions: Different for different facial images of the same person. *Psychological Science.* DOI

Toma, C. L., & Hancock, J. T. (2010). Looks and lies: The role of physical attractiveness in online dating self-presentation and deception. *Communication Research, 37*(3), 335-351. DOI

Vehtari, A., Gelman, A., & Gabry, J. (2017). Practical Bayesian model evaluation using leave-one-out cross-validation and WAIC. *Statistics and Computing, 27*(5), 1413-1432. DOI

Zebrowitz, L. A., Collins, M. A., & Dutta, R. (1998). The relationship between appearance and personality across the life span. *Personality and Social Psychology Bulletin, 24*(7), 736-749. DOI