i-PERCEPTION a Pion publication
i-Perception (2010) volume 1, pages 28 – 30
dx.doi.org/10.1068/i0402 ISSN 2041-6695 perceptionweb.com/i-perception

SHORT AND SWEET

Face-to-face coalition

Timothy J Andrews
Department of Psychology, University of York, York YO10 5DD; e-mail: ta505@york.ac.uk
Peter Thompson
Department of Psychology, University of York, York YO10 5DD; e-mail: p.thompson@psych.york.ac.uk
Received 29 July 2010, in revised form 6 September 2010; published online 18 October 2010

Abstract. The perception and recognition of familiar faces are thought to depend critically on an analysis of the internal features of the face. However, other studies have shown that combining highly familiar internal features with an inappropriate set of familiar external features produces a composite face whose identity is dominated by the external features. Here, we show that this illusion depends on the distinctiveness of the external features.

Although recognizing human faces is a simple process for most people, the differences between faces are small compared with the variation that occurs between many nonface objects. The mechanisms underlying face recognition are thought to focus on the internal features of the face (Valentine 1991; Maurer et al 2002; Yovel and Kanwisher 2004), with the ability to make use of differences in internal features improving as faces become familiar (Hancock et al 2000; Burton et al 2005). For example, behavioural studies have shown that internal features are more salient than external features when recognizing familiar faces but that perceivers make use of both internal and external features when matching unfamiliar faces (Ellis et al 1979; Young et al 1985; O'Donnell and Bruce 2001; Bonner et al 2003).

Despite the clear importance of the internal features in the perception and recognition of faces, other studies have suggested the importance of holistic processing, in which both the internal and external features of the face are combined to create an overall representation (Young et al 1987; Andrews et al 2010; Axelrod and Yovel 2010). The importance of the external features of the face is clearly illustrated in the Presidential Illusion (Sinha and Poggio 1996), which appears to show an image of the Bill Clinton and Al Gore. However, closer inspection reveals that the internal features of the former President and Vice-President are identical; Bill Clinton's eyes, nose, and mouth have been digitally superimposed onto Al Gore's face! Nevertheless, the external features of Al Gore and the appropriate context are salient enough for us to misperceive this composite image as Al Gore [see also Sinha and Poggio (2002)]. Here, we have asked whether a similar effect can be found for political leaders in the UK.

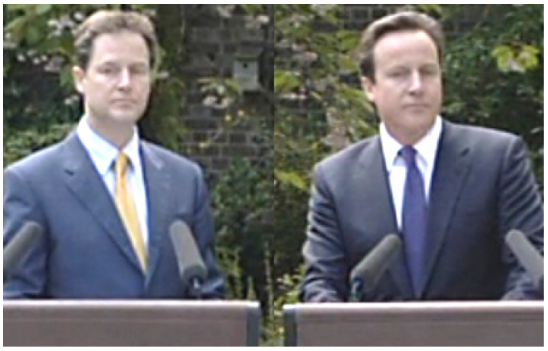

Figure 1. Nick Clegg on David Cameron (source: YouTube).

In May 2010 David Cameron and Nick Clegg formed a coalition government between the Conservative Party and the Liberal Democrats. They gave a press conference to outline the basis of this coalition in the garden of 10 Downing Street. Figure 1 shows an image from this press conference. Most naïve observers report that the image on the right is the Prime Minister (David Cameron). However, on closer inspection, the internal features of both faces are seen to be identical. The image on the right was generated by digitally superimposing Clegg's internal features onto the external features of Cameron. It would appear that the external features of Cameron and the context of the scene influence the perception of this composite face.

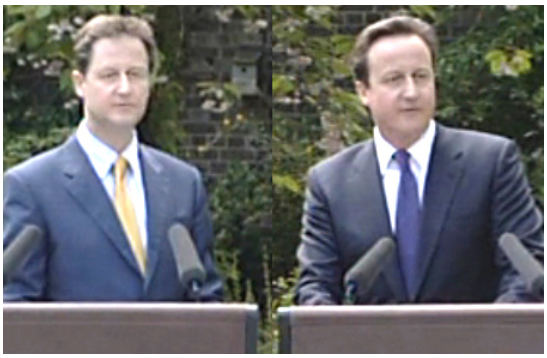

Figure 2. David Cameron on Nick Clegg (source: YouTube).

Does the illusion work in reverse? Figure 2 shows an image in which Cameron's internal features have been superimposed on Clegg's external features. In this instance the composite image (left) does not carry a good likeness of Clegg or Cameron. One interpretation of why the illusion does not work in reverse is that Cameron's external features are more distinct than Clegg's external features. So, when the internal features of Clegg are superimposed onto Cameron, Cameron's external features influence our perception of facial identity. However, because the external features of Clegg are less salient, a similar effect does not occur when Cameron's internal features are superimposed onto Clegg's external features.

To test this possibility, we masked the internal features of Cameron and Clegg, along with eighteen other well-known male celebrities and showed the images to naïve observers. Twenty-three of the twenty-five participants recognized the external features of David Cameron, but only four participants recognized Nick Clegg's external features. Interestingly, Clegg was misidentified as Ed Balls, David Milliband, Nick Griffin, Rob Lowe, David Duchovny, and Peter Jones! Together, these observations suggest that different regions of faces can be differentially distinct or salient for particular individuals.

References

Andrews T J, Davies-Thompson J, Kingstone A, Young A W, 2010 "Internal and external features of the face are represented holistically in face-selective regions of visual cortex" *Journal of Neuroscience* **30** 3544–3552 doi:10.1523/JNEUROSCI.4863-09.2010 ◂

Axelrod V, Yovel G, 2010 "External facial features modify the representation of internal facial features in the fusiform face area" *NeuroImage* **52** 720–725 doi:10.1016/j.neuroimage.2010.04.027 ◂

Burton A M, Jenkins R, Hancock P J B, White D, 2005 "Robust representations for face recognition: The power of averages" *Cognitive Psychology* **51** 256–284 doi:10.1016/j.cogpsych.2005.06.003 ◂

Bonner L, Burton A M, Bruce V, 2003 "Getting to know you: How we learn new faces" *Visual Cognition* **10** 527–536 doi:10.1080/13506280244000168 ◂

Ellis H D, Shepherd J W, Davies G M, 1979 "Identification of familiar and unfamiliar faces from internal and external features" *Perception* **8** 431–439 doi:10.1068/p080431 ◂

Hancock P J B, Bruce V, Burton A M, 2000 "Recognition of unfamiliar faces" *Trends in Cognitive Sciences* **4** 330–337 doi:10.1016/S1364-6613(00)01519-9 ◂
Maurer D, Le Grand R, Mondloch C J, 2002 "The many faces of configural processing" *Trends in Cognitive Sciences* **6** 255–260 doi:10.1016/S1364-6613(02)01903-4 ◂
O'Donnell C, Bruce V, 2001 "Familiarisation with faces selectively enhances sensitivity to changes made to the eyes" *Perception* **30** 755–764 doi:10.1068/p3027 ◂
Sinha P, Poggio T, 1996 "I think I know that face" *Nature* **384** 404–404 doi:10.1038/384404a0 ◂
Sinha P, Poggio T, 2002 "United we stand" *Perception* **31** 133–133 doi:10.1068/p3101no ◂
Valentine T, 1991 "A unified account of the effects of distinctiveness, inversion and race in face recognition" *Quarterly Journal of Experimental Psychology* **43A** 161–204 ◂
Young A W, Hay D C, McWeeny K H, Flude B M, Ellis A W, 1985 " Matching familiar and unfamiliar faces on identity and expression" *Perception* **14** 737–746 doi:10.1068/p140737 ◂
Young A W, Hellawell D, Hay D C, 1987 "Configurational information in face perception" *Perception* **16** 747–759 doi:10.1068/p160747 ◂
Yovel G, Kanwisher N, 2004 "Face perception: domain specific, not process specific" *Neuron* **44** 889–898 ◂