

While Peter Thompson was pressing his nose against the boiler room window in York, I was an undergraduate student at the University of Manchester. At the beginning of my final year, I visited the library in search of some inspiration for a project. Browsing the current issues of *Perception* the title “Margaret Thatcher – a new illusion” caught my eye. The paper made an immediate impression. It was commendably short, well-illustrated and entertaining. So a third year project on recognising upside-down faces was born.

In the event, Thompson’s illusion inspired not just a student project but a life long interest for me. After graduating, I went to Nottingham University to do a PhD on face recognition. One experiment required stimuli for a task in which people decided whether a stimulus was a face. It was based on jumbled faces, in which the position of the eyes, nose or mouth had been swapped. In those days ‘cut and paste’ required nothing more complicated than a pair scissors and a tube of glue. I settled down one afternoon with a collection of photographs spread out on the kitchen table, and set about them with the scissors. After a while I walked around the table, which was in the middle of the kitchen, to switch the kettle on. Turning round and looking back at my handiwork, I was surprised to see the grotesque expression of the Thatcher illusion staring back at me. In this image I had swapped the position of the eyes and mouth but left them in their normal orientation. The grotesque expression only appeared when the face was viewed upside-down, rather than when only viewed upright as in Thompson’s illusion. Parks (1983) had suggested that the Thatcher Illusion was influenced by the orientation of ‘a familiar, encompassing frame’ and

demonstrated that an inverted letter is more prominent in upright text than it is in inverted text. The figure I had inadvertently created showed that the frame given by the external features of a face was irrelevant (Valentine & Bruce, 1985).

Yin (1969) provoked interest in recognition of upside-down faces by suggesting that a disproportionate effect of inversion on face recognition was evidence that face recognition was a 'special' process (see Valentine, 1988 for a review). The Thatcher illusion was influential in establishing the view that inversion disrupted processing of the configural properties of faces. As a result, inverted faces are routinely used as a control for the 'special' processing of configural information. By the end of the 1980's the debate on the status of face processing as a 'special' process appeared to have ended with a realisation that the answer rather depends on what is meant by 'special' (Ellis and Young, 1989), only for it to re-emerge amongst cognitive neuroscientists as the expertise hypothesis (e.g. Gauthier, & Bukach, 2007). In contrast to the behavioural data, neuro-imaging data show only limited effects of inversion. Both upright and inverted faces provoke an N170, an event related potential (ERP) associated with face processing, although it is a little larger and a little slower for inverted faces (de Haan, Pascalis & Johnson, 2002). Inverted faces also strongly activate the fusiform face area, associated with processing upright faces (Kanwisher, Tong & Nakayama, 1998).

Thompson (1980) has been cited over 150 times. Studies have shown that children, children with autism, and infants are sensitive to 'Thatcherisation' of faces (Rouse, Donnelly, Hadwin & Brown, 2004; Donnelly, & Hadwin, 2003, Lewis, 2003; Bertin & Bhatt, 2004). The N170, is larger for upright Thatcherised faces than for normal faces but smaller for inverted Thatcherised faces (Carbon, Schweinberger, Kaufman & Leder, 2005). Reaction time to detect Thatcherisation gradually increases

with increasing rotation from the upright (Lewis, 2001) but the N170 shows a non-linearity with orientation (Carbon et al., 2005).

The ability of the Thatcher illusion to inspire has endured. I still show it in my introductory lecture on face processing, although no longer using Margaret Thatcher's face. It reliably provokes surprise, laughter and buzz of conversation ... and students wanting to do a project of face processing.

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