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Consciousness and Cognition

journal homepage: www.elsevier.com/locate/concog

These two are different. Yes, they're the same: Choice blindness for facial identity



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ARTICLE INFO

Article history:

Received 24 October 2013

Revised 14 August 2015

Accepted 6 January 2016

Available online 12 January 2016

Keywords:

Choice blindness

Face recognition

Identification

Eyewitness

Confabulation

ABSTRACT

We examined the manipulability of face identity judgements by combining a sorting task for unfamiliar faces with a standard test of choice blindness. In Experiment 1, 50 participants completed a sorting task and then justified grouping specific pairs of photos together or apart. On manipulated trials, the presented pairings were different from those the participants had actually produced. Detection rates for these identity manipulations were strikingly low (~21%). Moreover, participants readily provided justifications for identity decisions that they had not made, typically referring to specific facial features. Experiment 2 was conducted along similar lines and confirmed that lower task difficulty and higher confidence in one's face identity judgements increase detection rates. We conclude that observers can easily be led to believe that they made identity judgements they did not make. As well as underscoring the fragility of unfamiliar face matching, our findings have implications for identity judgements in legal settings.

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1. Introduction

Individual faces do not have a fixed appearance. They vary considerably due to fluctuations in the facial surface (e.g., expression, ageing), environmental conditions (e.g., lighting), and image capture device (e.g., camera or perceiver; Jenkins, White, Van Montfort, & Burton, 2011). Such image variability makes matching or recognising unfamiliar faces a difficult and error-prone task (Burton & Jenkins, 2011; Johnston & Edmonds, 2009). In a recent demonstration of this, Jenkins et al. (2011) asked participants to sort 40 unfamiliar face images by identity, so that different images of the same person were grouped together. What the participants didn't know was that only two identities were present in the set – 20 photos of Person A and 20 photos of Person B. Surprisingly, none of the participants arrived at the correct solution (i.e., two identities). Instead, they perceived an average of *seven* distinct identities in the set. In a follow-up experiment, participants who were familiar with the two identities straightforwardly sorted the photos into two sets, almost without error. Together, these results illustrate the transformative effect of familiarity on face identification: It is very difficult to map naturally varying photos of *unfamiliar* faces onto the correct identities, even though the same task is easy when the faces are *familiar* (Jenkins & Burton, 2011).

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To date, studies of unfamiliar face matching have focused mainly on response-based measures of task difficulty such as error rate. Here we examine unfamiliar face matching in a confrontational setting designed to assess observers' commitment to their own identity decisions. This situation is potentially important for face identification in legal settings, where an observer's decision may be directly queried (Wells & Olson, 2003), and manipulation of the decision (whether deliberate or inadvertent) could have serious consequences.

Over the last decade, a number of studies have uncovered an intriguing phenomenon known as *choice blindness* (Johansson, Hall, Sikström, & Olsson, 2005) – apparent lack of insight into one's own decisions. In a typical choice blindness experiment, participants are asked to indicate their preference for one of two faces. Next, participants are confronted with their choice and asked to justify it. On critical trials, the participant's choice is secretly switched, so that the decision that the participant is asked to justify is opposite to the decision that he or she actually made. Choice blindness refers to the counterintuitive finding that only very few of these manipulations are detected at the time of presentation (concurrent detection). Indeed, participants readily report the reasoning behind decisions that they did not make. Even after they are informed about the manipulation, few report that they noticed anything untoward (retrospective detection). This surprising phenomenon appears to be robust across a wide range of stimuli and judgements (Hall, Johansson, Tärning, Sikström, & Deutgen, 2010; Johansson et al., 2005; Merckelbach, Jelicic, & Pieters, 2011; Sauerland, Sagana, & Otgaar, 2013).

In this paper, we examined the manipulability of identity judgements by combining a card-sorting task for unfamiliar faces with a standard choice blindness test across two experiments. After completing the card-sorting task, participants were asked to justify grouping specific pairs of photos together or apart. As in previous choice blindness manipulations, some of the presented pairings were markedly different from those that the participants had actually produced. We expected overall performance in the card-sorting task to be poor, in line with previous findings. However, our main interest was whether participants might fail to detect manipulations of their own decisions, demonstrating choice blindness for facial identity.

Experiment 2 is a conceptual replication of Experiment 1. The two experiments differ in task difficulty, which was lower in Experiment 2 by reducing the number faces and number of identities to be sorted by the participants. This way, we wanted to test whether lowered task difficulty reduces blindness effects. Additionally, the second experiment tested the idea that decisions in which subjects place much confidence make them relatively immune against blindness manipulations.

2. Experiment 1

2.1. Materials and methods

2.1.1. Participants

Fifty student participants (26 men, 24 women; $M_{\text{age}} = 23.46$, $SD_{\text{age}} = 2.49$) took part in the current study in exchange for course credit or a small reward.

2.1.2. Stimuli

Fifty face photographs were collected for the card-sorting task. The image set comprised 6–8 photos for each of seven Australian or British public figures (Fearne Cotton, Tess Daly, Jennifer Ellison, Johanna Griggs, Ada Nicodemou, Denise van Outen, Katie Ritchie) who were unknown to our Dutch participants (as confirmed in debriefing). All images were collected from the internet, using the individuals' names as Google Image search terms. We accepted only images that (i) exceeded 150 pixels in height, (ii) showed the face in roughly frontal aspect, and (iii) were free from occlusions. However, we did not constrain variability in facial factors (e.g., emotional expression), environmental factors (e.g., lighting conditions), and image factors (e.g., camera characteristics) that affect the appearance of a face photograph. All photos were colour-printed onto white card at a size of 38 mm wide \times 50 mm high and laminated for use in the experiment. Copyright restrictions prevent us from reproducing the complete image set here, but they can be obtained from the first author. Fig. 1 shows representative examples.

2.1.3. Stimulus selection

The particular image pairs that were presented in each manipulation condition were pre-selected on the basis of two pilot studies. The purpose of the first pilot study was to ensure that all four manipulations could actually be performed. For example, in order to administer the Different–Same–Same condition (DS–Same; the conditions will be explained below), a participant would have to incorrectly assign two images of the same person to two different groups. To find image pairs that could give rise to the critical errors, 54 adults (19 women, 35 men) used a 10-point Likert scale (0 = not at all similar; 9 = highly similar) to rate the similarity of 22 image pairs in an online survey. For each pair, the raters also indicated whether or not the two images showed the same person.

The second pilot study allowed us to equate image pairs for distinctiveness and memorability. Equating pairs on these measures is essential to rule out alternative explanations of apparent choice blindness effects (e.g., Meissner, Brigham, & Butz, 2005; Vokey & Read, 1992; Wickham, Morris, & Fritz, 2000). Twenty-five adults (9 females, 16 males) rated 42 images for distinctiveness and memorability using a 10-point Likert scale. Two separate measures of distinctiveness were taken. For the first measure, participants simply indicated how distinctive they found a face. For the second one, participants indicated

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