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Influencing choice without awareness

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ABSTRACT

Forcing occurs when a magician influences the audience's decisions without their awareness. To investigate the mechanisms behind this effect, we examined several stimulus and personality predictors. In Study 1, a magician flipped through a deck of playing cards while participants were asked to choose one. Although the magician could influence the choice almost every time (98%), relatively few (9%) noticed this influence. In Study 2, participants observed rapid series of cards on a computer, with one target card shown longer than the rest. We expected people would tend to choose this card without noticing that it was shown longest. Both stimulus and personality factors predicted the choice of card, depending on whether the influence was noticed. These results show that combining real-world and laboratory research can be a powerful way to study magic and can provide new methods to study the feeling of free will.

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1. Introduction

People make innumerable decisions every day. Although rational considerations often shape these decisions, subtle situational factors can also play a significant role. For example, the order of items can influence everything from food choices to donor compliance (Thaler & Sunstein, 2008). Despite such influences, however, people generally feel they have full conscious control over their choices (Wegner, 2003).

Previous studies have examined many of the subtle factors that influence decisions in everyday life. For example, moving food to a less convenient location reduces its consumption (Rozin, Scott, Dingley, Urbanek, & Kaltenbach, 2011), as does eating off of smaller (Wansink, 2007) or coloured plates (Bruno, Martani, Corsini, & Oleari, 2013). Even simply being asked to memorise a long number makes one more likely to choose cake over salad (Shiv & Fedorikhin, 2011). Although these situational factors reliably influence behaviour, most people disregard them and instead claim to have made the decision freely (e.g., Wansink & Sobal, 2007).

To study this feeling of free choice in the presence of an objective influence, one needs a method to influence decisions in a powerful yet subtle way. Magic offers one such possibility – *forcing* – which occurs when the magician influences the decisions made by the audience, without their awareness (Kelley, 1980; Kuhn, Amlani, & Rensink, 2008). For example, ‘pick a card’ tricks often depend on the audience feeling that they have a free choice of card, although in reality the magician controls this decision.

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Magicians commonly use two types of forcing. *Physical forcing* involves manipulating an object to make particular outcomes more probable. For instance, spreading a deck of cards in a certain way can make spectators more likely to choose a card in the middle rather than in other positions. In contrast, *mental forcing* exploits psychological tendencies. For example, asking someone to choose any tool or any playing card tends to bring predictable candidates to mind, such as a hammer or the Ace of Spades (Banachek, 2000; Olson, Amlani, & Rensink, 2012).

Despite the magician's influence, spectators generally feel that they have a completely free choice. In other words, they can have subjective free choice without objective free choice. Although many scientists and philosophers have examined objective free choice (e.g., Libet, Gleason, Wright, & Pearl, 1983), relatively few have studied its subjective counterpart (Filevich et al., 2013; Wegner, 2003). Here we examine the subjective feeling of free choice in conditions where forcing has imposed constraints on selection.

Forcing in magic can be more precisely defined as increasing the probability of a particular outcome of a decision, without one's awareness of the influence. It differs from social persuasion, which is usually less discreet; a salesperson, say, can be quite overt when persuading someone to buy a product. It also differs from the use of *nudges* (Thaler & Sunstein, 2008) which attempt to shape decisions while maintaining objectively free choice.

The present study examines forcing in the context of the *visual riffle force*, in which the magician flips through a deck while the spectator visually selects one of the cards. Using a combination of physical and psychological forcing that we call *salience forcing*, the magician makes one card more salient than the rest which then causes the spectator to choose it.

One previous study has tested salience forcing (Shalom et al., 2013). A magician performed a visual riffle force and showed one card longer than each of the rest; about half (45%) of participants chose that card. In a second condition, participants watched videos of a magician riffling cards and were asked to choose a card from each video. People tended to choose the cards that were presented the longest (21%) or were in the last position of the series (15%). The present study extends these findings to determine which factors explain salience forcing.

Our investigation proceeds in two stages. Study 1 tests salience forcing in an environment intermediate between the stage and the laboratory. Study 2 examines a more abstract and controllable version of this method in a conventional laboratory. Together, these studies combine the realism of performance with the power of controlled experiment to explore the mechanisms underlying subjective free choice in the presence of objective influences.

2. Study 1: salience forcing in an intermediate environment

In a magic performance, many situational factors influence spectators, such as the personality of the magician, expectations created by the setup, and pressures to conform (e.g., Demacheva, Ladouceur, Steinberg, Pogossova, & Raz, 2012; Kuhn & Martinez, 2012). Thus, if an effect fails to occur in the laboratory, it is difficult to tell whether the failure was due to some characteristic of the experiment or to these situational factors. By testing the effect in an intermediate environment, we could minimise contextual factors like expectations and pressures while still reproducing the salience forcing that magicians use on stage.

2.1. Methods

A professional magician (co-author J.O.) approached student-aged individuals or small groups on university campuses and on the streets of Vancouver, Canada. He asked them if they would like to participate in a brief psychology study. A total of 119 were approached; all but one participated.

The magician took out a deck of Bicycle Playing Cards (United States Playing Card Company, Erlanger, KY). He spread the cards and ensured that the participant knew the names of the different suits (i.e., Spades, Hearts, Clubs, and Diamonds). The magician then asked the participant to choose a card by glancing at one as he flipped through the deck. He raised the deck to just under the participant's eye level and riffled through it (see Fig. 1). The entire riffle took around half a second. One of the cards – the *target card* – was intentionally shown longer than the rest; it was likely the only card that was clearly visible. In each trial, the target card was either the Two of Clubs, Ten of Clubs, or Ten of Hearts. None of these cards were extreme on any of their perceptual or cognitive properties such as visibility or memorability (Olson et al., 2012); thus, any effect would likely be due to the duration of their presentation. The magician then asked the following questions, waiting for each answer before moving on to the next:

1. Which card did you choose?
2. Did you feel that you had a free choice of any card, or did you feel that I influenced you to choose any particular card?
3. [For the last 64 participants:] Why did you choose that card?

The magician then revealed the selected card in an unexpected location (e.g., in his pocket) and subsequently debriefed the participant.

To reduce confusion, the deck never contained the target's *pair card*, the card of the same value and colour. When the Ten of Hearts was the target, for example, the deck lacked the Ten of Diamonds. Thus, we could count those who chose the pair card (8%) as having chosen the target, since presumably that was their intention.

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