

## **Main Paper**

### **HYPNOTICALLY SUGGESTED ANAESTHESIA AND THE CIRCLE-TOUCH TEST: A REAL-SIMULATING COMPARISON**

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#### **Abstract**

Real, hypnotized and simulating, unhypnotized subjects were given the suggestion that the area inside a circle on the palm of their hand was anaesthetized. They were then given the paradoxical instruction that when touched where they felt it they should say 'yes', and when touched where they did not feel it they should say 'no'. Real and simulating subjects responded similarly to both kinds of test trials. Typically, subjects gave no response at all when touched in the area of suggested anaesthesia. Thus, contrary to claims in the literature, the circle-touch test did not allow the detection of subjects who were simulating hypnosis.

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The circle-touch test (CTT) involves suggesting to hypnotized individuals that the area inside a circle is anaesthetized, and then testing their responses to touches inside and outside the circle. The experimenter tells subjects that, when touched where they feel it, they should say 'yes' and, when touched where they do not feel it, they should say 'no'. According to Arons (1967), Orne et al. (1984) and Watkins (1984) this instruction presents a paradox to subjects, and leads to differential responding by hypnotized subjects compared to those faking hypnosis. Arons (1967), who first described the CTT, claimed it reliably detected subjects faking hypnosis; however, he presented no empirical support for this claim. Orne et al. (1984) reported a use of the CTT in a single case study; however, they indicated that procedural problems limited its utility in that case. Eiblmayr (1987) conducted the first empirical investigation of the CTT. She tested high, medium and low hypnotizable subjects in a variant of the real-simulating model (Orne, 1959). She touched subjects either inside the circle, outside the circle or not at all, and found that hypnotic and simulating subjects did not differ in their responses when touched inside the circle.

In the present experiment, high and low hypnotizable subjects were administered another variant of the CTT, in a strict application of the real-simulating model (Orne,

1959). In contrast to the procedure employed by Eiblmayr (1987), no catch trials were included. Although Arons (1967), Orne et al. (1984) and Watkins (1984) have not established a canonical procedure for the CTT, it was hypothesized that this variant would produce the expected pattern of response differentiating reals from simulators.

## METHOD

### *Subjects*

Subjects were 40 undergraduate psychology students at Macquarie University selected on the basis of extreme scores (9–12 and 0–3) on both the 12-item Harvard Group Scale of Hypnotic Susceptibility, Form A (HGSHS:A; Shor and Orne, 1962) and the 12-item Stanford Hypnotic Susceptibility Scale, Form C (SHSS:C; Weitzenhoffer and Hilgard, 1962). There were 21 (3 male and 18 female; age: mean = 21.71, s.d. = 6.27) high hypnotizable subjects (HGSHS:A: mean = 10.57, s.d. = 0.68; SHSS:C: mean = 10.75, s.d. = 0.97) and 19 (5 male and 14 female; age: mean = 25.10, s.d. = 8.70) low hypnotizable subjects (HGSHS:A: mean = 1.42, s.d. = 0.77; SHSS:C: mean = 1.17, s.d. = 1.10).

### *Procedure*

The first experimenter instructed high and low hypnotizable subjects according to the real-simulating model. He told all subjects they would be tested by another experimenter. Simulators were told that their task was to fool this experimenter into believing they were deeply hypnotized. He told them that: the other experimenter did not know who was hypnotized and who was faking, and if he found out he would stop the session immediately; the task was difficult, but intelligent people could do it; and they should not let on they were faking until they returned to him.

The second experimenter administered an hypnotic induction, six test items (hands moving together, arm rigidity, age regression, double visual hallucination, CTT and negative visual hallucination; for details, see Bryant and McConkey, 1989; McConkey et al. 1989) and an awakening procedure. For the CTT, the experimenter drew a circle of approximately 1 inch (2.5 cm) diameter on the subjects' right palm, and suggested that they were losing all sensation inside the circle and could not feel anything inside the circle. When subjects reported experiencing numbness inside the circle, the experimenter said he would touch them a number of times. He said they should say 'yes' when they felt the touch, and 'no' when they did not. The experimenter then touched subjects with a pressure aesthesiometer in a predetermined random pattern of 12 times inside and 12 times outside the circle; the interval between touches was 4 seconds. The entire test session was recorded on videotape. A third experimenter, also blind to subject status, viewed these videotapes and recorded whether subjects responded 'yes' (Y), 'no' (N) or gave no response (NR) on each trial.

Finally, subjects returned to the first experimenter. He conducted a brief post-experimental inquiry, answered any questions, and ended the session.

## RESULTS

Sixteen (76.19%) reals and 19 (100%) simulators reported anaesthesia, a significant difference favouring simulators ( $\chi^2(1) = 5.17, P < 0.01$ ). For these subjects, Table 1 presents the mean number of times that they responded Y, N or gave NR when touched inside and outside the circle. A  $2 \times 2 \times 3$  (grouping  $\times$  location  $\times$  response)

mixed-model analysis of variance yielded a significant main effect for response ( $F[2,64] = 26.68, P < 0.001$ ), and a significant interaction effect between location and response ( $F[2,64] = 121.55, P < 0.001$ ). Subjects responded Y or NR more than N. When touched inside the circle, subjects gave NR more than Y or N; when touched outside the circle, subjects responded Y more than N or NR. There was no significant difference in pattern of response between reals and simulators.

Although there were no differences between reals and simulators in the number of responses in each category, there might still have been group differences in the number of subjects per group giving at least one anomalous N response. In fact, however, no group differences appeared. Reals and simulators typically gave NR, and responded N only a few times, when touched inside the circle; nine (56.25%) reals and nine (47.37%) simulators responded N at least once when touched inside the circle. Reals and simulators rarely responded Y when touched inside the circle. Inspection of the videotape indicated these Y responses occurred when the touch was close to the circle perimeter.

Table 1. Mean Number of Responses

Group	Inside circle			Outside circle		
	Y	N	NR	Y	N	NR
Real ( $n = 16$ )	0.31	2.75	8.94	10.25	0.19	1.56
Simulating ( $n = 19$ )	0.72	3.17	8.11	11.00	0.00	1.00

Note: Y = 'yes', N = 'no', and NR = no response. Subjects were touched 12 times inside and 12 times outside the circle.

The same pattern of results was obtained in a second experiment involving high- and low-imagery subjects in an adaptation of the real-simulating model to the imagination context.\*

## DISCUSSION

In summary, hypnotized and simulating subjects responded similarly on the CTT. They typically gave no response when touched in the area of suggested anaesthesia. This finding is not consistent with the claim that the CTT discriminates hypnotized from faking subjects (Arons, 1967; Orne et al., 1984; Watkins, 1984). However, it is consistent with the results of the only previous empirical investigation of the CTT (Eiblmayr, 1987). Thus, regardless of whether the CTT includes catch trials, the procedure does not appear to reliably discriminate hypnotized subjects from those faking hypnosis.

At the same time, it should be noted that colleagues who have substantial experience in clinical and forensic hypnosis have argued for the appropriateness of the CTT and similar procedures (Arons, 1967; Orne et al., 1984; Watkins, 1984). The core of this argument concerns the way in which hypnotized, but not faking, subjects are said to display a tolerance of logical incongruity, or 'trance logic' (Orne, 1959). As with the CTT, however, classic tests of trance logic (e.g. age regression, double hallucination, transparency) have not always distinguished between hypnotized and faking subjects (Sheehan, 1977; Spanos, 1986)\*.

\*For procedural details, contact McConkey regarding the manuscript 'Trance logic in hypnosis and imagination' by K.M. McConkey, R.A. Bryant, B.C. Bibb and J.F. Kihlstrom, that has been submitted for publication.

The most appropriate way to operationalize such classic tests of trance logic has been an issue of debate, and the CTT is no exception. The procedures used by Arons (1967), Orne et al. (1984), Eiblmayr (1987) and the present experiment all differ in terms of the precise wording of the suggestion, the presence or absence of catch trials, and what the subject is told about the magnitude of the test stimulus. At this point, a well-defined canonical procedure for the CTT does not yet exist, and there are arguments to be made for and against those procedures employed to date. However, our aim here is not to analyse the procedures used in applications of the CTT but rather to point to the need for an appropriate procedure to be provided by those who advocate the utility of the test.

Whether the CTT distinguishes between hypnotized and simulating subjects has stimulated its application to date. Laying this application aside, however, the CTT can be seen as an interesting phenomenon in its own right, and one that may be useful in exploring other theoretical issues. For instance, Tataryn and Kihlstrom (1989) demonstrated that suggestions for hypnotic anaesthesia result in changes in tactile thresholds, and the magnitude of the threshold change is positively associated with hypnotizability. They also noted that high hypnotizable subjects often reported post-experimentally that they 'knew' they had been touched even though they did not 'feel' anything. These findings suggest that some form of the CTT may serve as a useful measure of implicit perception in hypnotic phenomena (Kihlstrom, 1990).

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