International Selection, Cognitive Sciences, 2013

I First exercise [8 points]

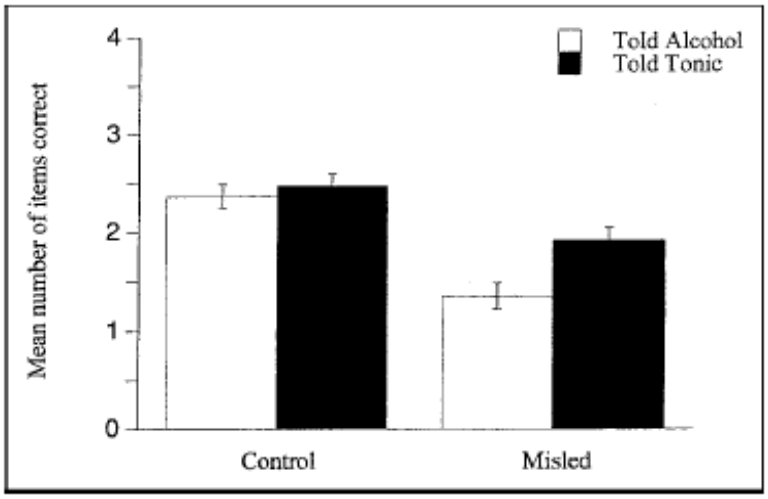
In an article of 2003, *Absolut© memory distortions*, Assefi et Garry study the effect of the suggestion of alcoholic consumption on memory. **The article is given as a reference, but it is not necessary to read it to do the exercise.**

The design is as follows:
1- all participants are given a non-alcoholic soda in a social context (the experimental room is set up as a bar...). Half of them are told that their drink contains alcohol (participants are weighed so as to give them the adequate "dose" of alcohol, their drinks are poured from vodka bottles, their glasses smell like alcohol... This procedure is classic and robust: participants in this condition are convinced that they drank alcohol, even though they don't have any alcohol in their body.)
2- Then participants are shown a picture about a fictitious shoplifting scene. In the picture, there are 8 critical items (a white candle, a blue notebook, etc.)
3- Participants read a description about the scene they saw, in which there are misleading informations for 4 of the critical items (the candle is yellow in this description...)
4- Participants are given a forced choice on the critical items (Was the candle yellow / white? etc). For each question they are also requested to rate their confidence in their responses (1 = not confident at all, … 5 = very confident).

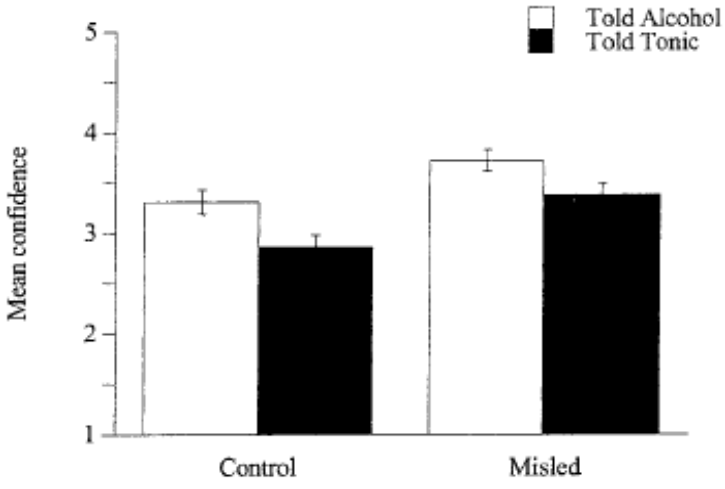
The mean number of correct items as well as confidence are shown in the two graphs below, according to the experimental conditions ("Control": the description of the scene on the detail is correct, "Misled": the description on the item is incorrect / "Told Alcohol" participants are lead to believe that they drank alcohol, "Told Tonic": they believe, which is true, that they drank a soda.

Questions:

1- Describe and discuss the effects that appear in the graphs. All "visible" differences are statistically significant.
2- Would it be possible to better report the data by means of Signal Detection Theory? How? Why?
3- In an experiment of 1986, Nelson and collaborators found that real alcohol consumption was detrimental to general information retrieval (eg: "What is the capital city of Burundi?") in a laboratory task on a computer, and that it created an over-confidence bias; however, the mere suggestion of alcoholic consumption had no effect whatsoever on memory or confidence.
4- What improvement concerning the design of Assefi and Garry does that suggest?
5- How can the results be reconciled?



Number of correct items



Mean confidence

II Exercise II [8 points]

Read Anderson & Green (2001) « Suppressing unwanted memories by executive control », *Nature*, 410, 366—369.

A/ Comprehension

1- What is the baseline? Why is it necessary, and why is it not sufficient to compare the “respond” and “suppress” conditions? On Figure 1a, what is the percentage of correct recall in the baseline condition?2- Make a list of the critiques that the authors have identified, and for each of them, recall the experimental controls. Can you think of other analogous limits to the paradigm, and if so, what are the adequate controls?
3- The authors develop three possible models (Figure 2). What is the evidence in favor of the “suppression model”?

B/ Commentary

Comment freely. You can rely, if you will, on the following questions.
1- Within the same “think / no-think” paradigm, is a different test of the suppression hypothesis possible?
2- If suppression occurs, does that mean that participants have completely forgotten the suppressed words or their meanings?
3- What is the role of emotions in this model of suppression?
4- What are the limits of this paradigm as an experimental test of Freud's notion of suppression? What are its merits?

III Exercise [4 points]

In an article of 1950 “Computing machinery and intelligence”, Alan Turing sets up a test for determining whether a machine thinks: if, in a blind dialogue, a human being is unable to determine whether his or her interlocutor is a machine or is human, then one could say that this machine thinks. Discuss the rationale of this test. In *The Signal and the noise* (2012), Nate Silver contends that Gary Kasparov lost in his 1997 match against IBM's Deep Blue because a bug of the software made him think that the computer had “superior intelligence”. Discuss.