**Guide to the Toolbox Readings**

This set of readings, which we have posted online, will hopefully give you a head start in dealing with the team assignments during the Toolbox. This year our focus will be on *Using Model Cases to Deal with Dubious Claims.* Each presenter will focus on classic or exemplary cases of skeptical criticism. Ideally, each skeptic’s toolbox will contain a large number and variety of such cases. So when a skeptic encounters a new claim or case he or she can try to find one or more cases in the toolbox that may prove helpful in coping with the new case.

For purposes of this brief discussion let us refer to a model or exemplary case as the source case. The new case to be evaluated will be called the target case. In coping with a new, dubious claim how do we proceed? More importantly, how *should* we proceed? This question occupied early workers in artificial intelligence.

The programmers attempted to write programs consisting of a large number of rules. The idea was that for each possible situation, the computer would find a rule that it could apply to help solve the problem. This rule-based approach turned out to be intractable. Even if the programmer could, in principle, supply the computer with a rule to cope with every situation, the number of rules required would exceed the capacity of even the largest computer.

The programmers then asked themselves how humans cope with new problems. They discovered what most cognitive psychologists already knew. People tend to cope with new situations by comparing them with situations they already are familiar with. In other words, humans cope with new problems by comparing them with familiar problems for which they know a solution. This approach became known as case-based reasoning.

To be successful, a person using case-based reasoning needs to have A supply of relevant cases in memory (Toolbox). When the person encounters a new claim or case (a target case), he or she can search through memory to find one or more cases that are similar in some way to the new case. Hopefully, these source cases can provide suggestions about how to deal successfully with the new claim.

I have included one reading, THE TABLE-TURNING DELUSION.., to illustrate just one of the ways that the misapplication of the source case can misfire in dealing with the target case. Faraday, concerned and curious about the widespread practice and belief in table-turning, decided to test it in his laboratory. He was able to obtain the services of two individuals who could make a small table move just by resting their hands lightly on the table top. They insisted they were not deliberately pushing the table and that the table moved of its own powers, presumably by some spirit force.

As you can read in Faraday’s report, he devised a brilliant arrangement that could detect whether the table moved of its own accord or whether the sitter inadvertently was pushing it with his hands. His ingenious apparatus unequivocally revealed that the sitters were unconsciously pushing the table.

Soon after Farady published his findings, a Philadelphia newspaper asked Professor Robert Hare to respond to a letter they had received about how tables apparently moved during séances. Hare referred to Faraday’s experiment and told the questioner that Faraday had conclusively shown that the table movements during séances were caused by inadvertent pushes by the sitters. A reader challenged Hare to come to a séance to see for himself.

What Hare witnessed at the séance was a variety of table movements that he felt could not possibly be explained by Faraday’s report. As a result, Hare continued to attend séances at which tables moved in startling manners. He decided that some unknown, spiritual power was at work. He not only became a convert to spiritualism, but he also claimed to discover mediumistic powers in himself. He claimed that was able to converse with the spirits of Newton and Jesus among others.

This account raises just one of the cautions one must keep in mind in using a source case to deal with a target case. Faraday’s experiment restricted itself to just one type of table movement which is created by unconscious application of ideo-motor action. Faraday may not have realized that the type of explanation he discovered in his laboratory applied only to a small number of cases of table movements in séances.

The majority of table gyrations produced during séances were caused by one or more deceptive mediums who used a variety of ingenious deceptions to create the illusion of tables levitating, gyrating, and undergoing other bizarre activities allegedly by spirit forces. So when Hare witnessed tables behaving in ways that could not possibly be explained by ideo-motor action, and because he had no idea of the trickery behind these antics, he jumped to the conclusion that because Faraday’s explanation could not account for what he witnessed, the spiritual explanation must be correct.

During the Toolbox, participants will be divided into four or more teams. Each team will be assigned one or more target cases to evaluate. The presenters will cover cases in their talks which will provide source cases which the teams can use as guides to evaluating the target cases.

What follows is a brief guide to the readings. Each reading is relevant to the presentation of one of the faculty members.

JIM ALCOCK: Relevant reading: *benveiste article* (this is misspelled in the list of readings: it should read *benveniste* *article.*

Jim’s presentation will deal with a few classic cases of science gone astray. He would like the team which uses the cases he discusses as examples, to focus on this 1988 paper by Benveniste and his colleagues. The paper was published in the prestigious journal *Nature* and garnered world-wide attention because it produced evidence in support of homeopathy.

Although Jim believes it is an important paper worth having a team evaluate, he is rightly concerned that the article is filled with highly technical terminology and is almost completely unreadable by all but highly trained experts in the area. Yet he feels competent that if team members ignore the opaque jargon, they can focus on how the tests were carried out and be able to evaluate how trustworthy the results are.

I agree with Jim that the jargon is intimidating. I suspect that all but the most fearless of our participants will want to steer clear of this assignment. I am considering asking for such fearless participants to volunteer for the team that tackles this assignment. If enough fail to volunteer, I may try to find a way to entice a few others to tackle this forbidding assignment.

LINDSAY BEYERSTEIN: Relevant reading: Hoaxes by Journalists; The Hoax Project.

At this writing, I have no idea of what Lindsay will talk about in her Toolbox presentation. I arbitrarily assigned a title to her talk, *Models of Journalistic Misinformation and Hoaxes,* when I sent in the information for the brochure. However, given that Lindsay is our expert on journalism, these two readings should be relevant. Anyway, I am sure you will find them worth reading.

HARRIET HALL: Relevant reading: Acupuncture\_Asthma; Blood pressure changes…

Both these articles will serve as target cases for teams to examine. Harriet will describe some suitable source or model cases during her talk.

RAY HYMAN: Relevant reading: Rhine\_1929\_JAbnormaland Social; Rhine\_1929\_2ndReport\_Lady

These two articles were the first publications by J.B. Rhine on parapsychology. They deal with his studies of the horse, Lady Wonder, who was famous for her ESP powers. They will serve as the target case for teams to work on after they hear my presentation which will focus on the classic case of Pfungst’s methodical and thorough examination of Clever Hans, the horse that became famous at the beginning of the Twentieth Century.

The reading “Clever Hans-Google Play” includes the entire book by Pfungst. You probably will not have to time to read it before the Toolbox. However, it provides a useful reference. I would suggest, for those of you who want to understand this classic, that you at least scan the first four chapters to get an idea of the impressive detail and completeness of Pfungst’s classic investigation. I do not know of any other case that can match if for its exhaustive and masterful approach to dealing with a dubious claim.

The reading Ballantyne\_2002\_Clever\_Hans provides you with a shorter and accessible account of the investigation of Clever Hans. The reading Ideomotor\_Hyman\_1999 provides an overview of the mischief that has taken place in many fields as a result of people’s unawareness of the role of ideo-motor action in many areas.

The reading THE TABLE-TURNING DELUSION provides you with Faraday’s description of the his experiment on table turning. Finally, the reading Christopher\_ESP\_1970 is a chapter on animal psychics from a book by the magician and writer Milbourne Christopher. I recommend that you read this *after* your team has produced its own evaluation of Rhine’s reports on his tests of Lady Wonder.