In this assignment, you should discuss basic concepts of philosophy of science as described in Okasha’s book *Philosophy of Science – A Very Short Introduction*. I expect you to write at least one page in response to each of the three questions below, and I expect you to be able to invent your own examples for illustration, rather than repeating examples from the book. Whenever relevant, you should also try to relate the discussion to language technology. (As background reading for the last question, you may want to look at Lillian’s paper “I’m sorry Dave, I’m afraid I can’t do that”: *Linguistics, Statistics, and Natural Language Processing circa 2001*, available from the course home page.)

1. Deduction, induction and inference to the best explanation are different types of reasoning used in science (and elsewhere). Compare the three types of reasoning, noting important similarities and differences. Discuss their role in science, and explain how they relate to Hume’s problem.

2. The notion of explanation is generally considered fundamental to science. Explain Hempel’s covering law model of scientific explanation, and discuss the problems of symmetry and irrelevance. Do you think that Hempel’s model is relevant for language technology? Why (not)?

3. The nature of scientific progress is a prominent theme in the philosophy of science. Describe the main ideas behind Kuhn’s account of paradigms and revolutions in science, and explain how it contrasts with the older positivist tradition. Discuss whether the shift towards statistical methods in language technology can be described as a paradigm shift in Kuhn’s sense.