Exercise 1.2
Deductive and Inductive Arguments

Determine whether each of the following is a deductive or an inductive argument. Identify the premises and the conclusion.

1. Some civil servants are not chosen on the basis of ability since some bureaucrats are not chosen on the basis of ability and all bureaucrats are civil servants.

   Deductive (a categorical syllogism)

2. "Rooftop sightings in the Clinton section of Manhattan on a recent morning: one plastic great horned owl at 402 West 46th Street, no pigeons; one plastic great horned owl at 503 West 47th Street, no pigeons; two plastic great horned owls, not courting, at 461 West 47th Street, no pigeons.

   "'The owls work,' said Sarah Weinberg, whose brownstone on West 46th Street bore no trace of pigeons. 'A month ago we could not stand outside the door because of all this gook falling from the sky.'" [New York Times, October 29, 1986]

   Inductive

3. If a moving object does possess acceleration, that is, if a in formula F=ma is not zero, then the force F cannot be zero. Now an object falling to Earth from some height does possess acceleration. Hence some force must be acting. [Morris Kline, Mathematics in Western Culture]

   Deductive - modus tollens

4. "Dr. John F. Beary III, director of the Georgetown University Medical Group, . . . argues that [physical exams should be given to people under age 40 every other year and to those over 40 annually. 'People take their car in for servicing every few months without complaint,' he says. 'Why shouldn't they take similar care of their bodies.'" [U.S. News & World Report, August 11, 1986]

   Inductive - arguing by analogy (weak in this case)

5. The inkspots I get when I type must be partly due to the carriage of the typewriter, because even after I cleaned the keys, I still got some spots, though not as many.

   Inductive
6. Any metal that can oxidize at normal temperature will rust. But some steel contains chromium, and is therefore rustproof.

Deductive - a categorical syllogism

Suggested reconstruction:
All metals which can oxidize at normal temperatures rust.
Metals with chromium cannot oxidize at normal temperatures.
Therefore, metals with chromium do not rust.

7. In the early 1770s, the American colonies came to a crisis point: they would obtain full and fair representation in the English Parliament, or else they would seek independence. But they would receive full representation only if the existing Parliament were willing to accept a diminution of its power, and it was not. So the outcome was rebellion.

Deductive - disjunctive syllogism

R or I
Not R
Therefore I

8. If certainty is possible, then some method is infallible. No method is infallible. Therefore, certainty is not possible.

Deductive - Modus tollens

9. Self esteem appears to be at least a necessary condition for happiness. All the happy people I've known, whatever their other differences in personality and goals, seem to have basic self-esteem, whereas people who don't have that trait never seem to be happy.

Inductive