

# LOGIC EXERCISES: WEEK 1

## QUESTION 1

For each of these arguments, EITHER show that it is a good argument by reasoning from premises to conclusion, OR show that it is (formally) invalid by producing an argument of the same form which has true premises and a false conclusion.

- i. Wherever you find lions, you find vultures. There are no lions in Alaska, so there are no vultures either.
- ii. If the hog-sprocket is defective, the bendix is not going to function. And if the grunge pedal is defective, the thermoblaster is not going to function. If the cramp-iron is not working, it must be because the hog-sprocket is defective. And if the colour detector is not working, it must be because the grunge pedal is defective. The cramp-iron and the colour detector are not both working. So either the bendix or the thermoblaster is not going to function.
- iii. Most humans are Asian. And most Asians are Chinese. So most humans are Chinese.
- iv. Anybody with supernumary nipples is a witch. But Doris hasn't got supernumary nipples. So she isn't a witch.
- v. Some British citizens live in Northern Ireland. And some people in Northern Ireland support Sinn Fein. So some British citizens support Sinn Fein.

## QUESTION 2

Which of these forms are valid ones? For each one you claim to be invalid, justify your claim by producing a concrete instance which has true premises and a false conclusion.

- i. Most As are Bs. Most Bs are Cs. Therefore, most As are Cs.
- ii. Most As are Bs. Most Bs are Cs. Therefore, some As are Cs.
- iii. Some As are Bs. Some Bs are Cs. Therefore, some As are Cs.
- iv. No As are Bs. No Bs are Cs. Therefore, no As are Cs.

## QUESTION 3

Can a formally valid argument have:

- i. false premises and a true conclusion?
- ii. false premises and a false conclusion?
- iii. true premises and a false conclusion?
- iv. inconsistent premises?
- v. an inconsistent conclusion?

In each case either give examples, or explain why not.

#### QUESTION 4

Identify and explain the following ambiguities.

- i. Jeremy Fisher went to the bank.
- ii. The mouse tore up the stairs.
- iii. Mary had a little lamb.
- iv. One morning I shot an elephant in my pyjamas.
- v. Tweedledum and Tweedledee can't fit through the door.
- vi. Bob didn't answer the telephone because he was tired.
- vii. This is a pretty little girl's dress.
- viii. Cherie's sister sleeps with her husband.
- ix. I hit my brother.
- x. I only drink milk during Lent.
- xi. Claire will give books to Oxfam and money to Amnesty if she can.
- xii. Everyone at Lincoln loves someone at Hertford.
- xiii. People think I'm taller than I am.
- xiv. I want to buy a book.
- xv. Someone always spoils the fun.