

# Logic Worksheet 1

|                    |                  |
|--------------------|------------------|
| Your name:         | Mark (out of 5): |
| Logic class (A–F): |                  |
| Logic class tutor: |                  |

## Reading

§§1–5 of forall $\chi$ :Cambridge 2013–14.

## Self-marked exercises

Do the following practice exercises from forall $\chi$ :Cambridge 2013–14.

- §1 (just write the conclusion)
- §2 Parts A and B
- §3 Part A
- ★ §5 Parts D and E

Exercises marked with a ‘★’ will be covered in the lecture on the day before the worksheet is due. When you have completed them, carefully check your answers against the answers available at <http://www.nottub.com/forallx.shtml>. Correct your own work *in red*, for the marker to review. In the box below, write something that you now firmly understand, as a result of doing these exercises:

Understand:

And in this box, write something that you want to know more about:

Want to know more about:

How you fill out these boxes will help to guide your logic class.

## Further exercises

A. Could there be:

1. Jointly inconsistent sentences, all of which are true?
2. Jointly inconsistent sentences, all of which are false?
3. A valid argument, all of whose premises are inconsistent?
4. An invalid argument, where the premises of the argument together with the conclusion are inconsistent?

In each case: if so, given an example; if not, explain why not.

B. ★ Using the following symbolisation key:

- B*: Businesses will do something (about climate change)
- C*: Climate change will occur
- D*: The world is doomed
- E*: We cut carbon emissions by 60%
- G*: Governments intervene (on climate change)
- S*: Scientists are right (about climate change)

Symbolise the following sentences:

1. Businesses will not do anything and climate change will occur.
2. Scientists are right: in the event of climate change, the world is doomed.
3. If governments do not intervene, then businesses will do nothing and the world is doomed.
4. The world is doomed, since we will not cut carbon emissions by 60% whether or not governments intervene.
5. Only if businesses do something will we cut carbon emissions by 60%.
6. If scientists are right, then we will avoid climate change if and only if we cut carbon emissions by 60%.
7. Without government intervention, we are doomed unless scientists are wrong.
8. There are only two options, and they are exclusive: either we cut carbon emissions by 60%, or the world is doomed.