

## Logical or Not?

If pigs had wings, they'd fly.

Pigs don't fly if the weather is bad.

If pigs had wings, the sensible person would carry an umbrella.

Therefore:

If the weather is bad, the sensible person would carry an umbrella.

*Is the deduction logically valid?*

## Logical or Not?

The logic is wrong. If the weather is bad, then pigs don't fly. As a consequence, we don't know whether they have wings. So we don't know whether to carry an umbrella.

It may seem strange that a deduction can be illogical when – as here – the conclusion is entirely sensible. Actually, this is very common. For example:

$$2 + 2 = 22 = 2 \times 2 = 4$$

is nonsense as far as logic goes, but it gives the right answer. All mathematicians know that you can give false proofs of correct statements. What you *can't* do – if mathematics is logically consistent, as we fervently hope – is give correct proofs of false statements.