Implication, Validity, and Conditionals

1 Implication

Implication is a relation between propositions. One proposition (or a set of propositions) *implies* another if the truth of the first proposition guarantees the truth of the second. For instance,

- Ruth smells and she needs a bath.

implies

- Ruth needs a bath.

This is a relation between one proposition and another. Here's an example where a set of propositions implies another proposition:

- Ruth smells.
- Ruth needs a bath.

imply

- Ruth smells and she needs a bath.

2 Validity

An argument is *valid* when the truth of the premises guarantee the conclusion. That means an argument is valid when its premises imply the conclusion. So we can take the above examples and produce arguments that we know are valid:

- Premise: Ruth smells and she needs a bath.
- Conclusion: Ruth needs a bath.

and

- Premise 1: Ruth smells.
- Premise 2: Ruth needs an bath.
- Conclusion: Ruth smells and she needs a bath.

3 Conditionals

A conditional tells us that one proposition implies another. So, a conditional is true as long as it is not the case that its antecedent is true, and its conclusion false. So, the following conditional is true:

- If Ruth smells and she needs a bath, then Ruth smells.

That conditional is trivially true, of course. But more interesting conditionals can be used to construct interesting, valid arguments. Take this one, for instance:

- If Corey arrives home, Ruth will wag her tail.

If this conditional is true, then it is not the case that the antecedent is true and the consequent false. If we suppose the antecedent is true, then we can safely conclude that the consequent is true as well. So, we can construct the following valid argument:

- Premise 1: If Corey arrives home, Ruth will wag her tail.
- Premise 2: Corey is arriving home.
- Conclusion: Ruth is wagging her tail.

Since the premises imply the conclusion, the argument is a valid one.