Suppressed premises

Philosophy and Logic
Section 4.3
Where were we?

*Analyze inferences*: find the conclusion, and find all the claims explicitly advanced as reasons for believing the conclusion.

Two avenues of criticism

- Are all the premises true?
- Is the *inference* valid?
  (eg, would the truth of all the premises guarantee the truth of the conclusion?)
Criticizing inferences

This is hard to do, since an inference is an intangible relation, not vivid to anyone who has not computed a truth table.

The simplest approach is to ask: what claims would we have to add to this argument to make it valid?

– The inference then drops out of the picture
– Criticism of the argument becomes relatively easier: criticism of a collection of claims.
Suppressed premises

The goal: a valid argument form.

Usually we need to add premises that are not explicit in order to do this. These are suppressed premises.
A definition

suppressed premises =df. premises that are not explicit in the argument, but are required in order to make it valid.

Anyone who thinks the argument is valid is committed to these premises.
How common are these?

Consider the age of the following word:

en·thy·meme noun. Logic.

An argument in which one of the premises or the conclusion is not stated explicitly.

Latin enthýmêma, from Greek enthumêma, a rhetorical argument, from enthumeisthai, to consider: en-, in. See EN-² + thumos, mind.

The word made its appearance about 130 generations ago: your great-great-[*repeat 125 times*]-grandparents may have used the same word.
The awful truth about ordinary arguments

Most arguments you encounter in everyday life are enthymemes.
  Most leave some premises unstated.
  Few are deductively valid as written.

Why?
Two possible reasons

a. The premise is so obviously true that you do not need to mention it.
   (this reason is praise-worthy: you save your audience some time and tedium)

b. The premise is so implausible that you do not want to mention it.
   (this reason is reprehensible: you attempt to persuade your audience with an argument you believe to be unsound)
The Principle of Charity

The argument should be reconstructed to be as strong and as convincing as possible.

The alternative: a straw man.

To attack a straw man =df. to attack a weak version of the argument, when clearly there are stronger versions around.
Why be charitable?

If you attack a straw man, you are attacking a weak version of the argument, when clearly there are stronger versions around.

Either you don’t know about those versions, or you are pretending they do not exist.

So “That’s a straw man” means, bluntly “Either you are incompetent or you are dishonest.” Ouch!
A terminological note

A strong *argument* =df. An argument that is difficult to refute.

– Example: it is hard to cast doubt on the premises, and the inference is valid.

A strong *statement* =df. One that commits the author to a lot. It is a bold claim, with few hedges or qualifications.
A weak argument =df. One that is easy to refute. Its premises are less plausible, or its inference is bad.

A weak statement =df. One that does not commit the author to very much.

– It is harder to refute. It has added hedges or qualifications. By not saying much, it does not risk much.
A consequence

To make an argument strong, add the weakest claims you can.

– The weaker the claim, the less is added, and the harder it is to refute.

– So when you add suppressed premises, try to add the weakest claim that will make the argument valid.
How to add suppressed premises

1. Produce a “mechanical” (truth table) solution.

2. Edit the mechanical solution.
   
   Try to make the claim you have produced as weak as possible (as plausible as possible) while retaining the validity of the argument.
1. The truth table solution

a. Look at the particular premises & the conclusion. Note any truth functional connectives.

b. Match the argument form to the closest standard form that you can.

c. Figure out what the missing premise for that standard form would be.

d. Substitute the needed phrases to produce the suppressed premise.
Key to the kingdom: truth table forms

Modus ponens:

\[ P \supset Q \]

\[ P \]

\[ \quad \quad \quad \quad \quad \]

\[ Q \]
Key to the kingdom: truth table forms

So if we have an argument that looks like:

\[ P \supset Q \]

? 

\[ \text{------------} \]

\[ Q \]

Then we should add the premise:
Key to the kingdom: truth table forms

\[ P \supset Q \]
\[ P \]

\[ \quad Q \]

Modus ponens!
Key to the kingdom: truth table forms

If we have an argument that looks like:

? 
P 
------------ 
Q 

Then we should add the premise:
Key to the kingdom: truth table forms

\[ P \supset Q \]

\[ P \]

\[ \longrightarrow \]

\[ Q \]

Modus ponens!
The core strategy

Note the sentential connectives. Note the ones in the premises and in the conclusion.

Scan very carefully for repeated sentential components. Look for ones that aren’t exactly identical, but mean more or less the same thing.

Then match what you have to the closest available standard form.
The standard forms

Modus ponens
Modus tollens
Hypothetical syllogism
Disjunctive syllogism
Dilemma

Use of these can successfully patch up 95.2% of all ordinary language arguments.
A wrinkle

Modus tollens:

\[ P \implies Q \]

\[ \sim Q \]

\[ \sim P \]
A wrinkle

Suppose we have just:

\[ ? \]

\[ \sim Q \]

\[ \sim P \]

We would add, as a suppressed premise:
A wrinkle

\[ P \Rightarrow Q \]
\[ \sim Q \]

\[ \sim P \]

Modus tollens
A wrinkle

But the forms also suggest that given:

\[ ? \]

\[ \sim Q \]

\[ \sim P \]

We could add, as a suppressed premise:
A wrinkle

\[ \neg Q \Rightarrow \neg P \]

\[ \neg Q \]

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\[ \neg P \]

Modus ponens! Which is correct?
Which is correct?

Either one! The reason:

\[(P \supset Q) \equiv (\neg Q \supset \neg P)\]

Any answer equivalent to a correct answer is correct.
Another wrinkle: extended use of a form

If we have an argument that looks like:

\[
\begin{align*}
P \\
Q \\
\hline
R
\end{align*}
\]

Add the premise:
Another wrinkle: extended use of a form

\[(P \land Q) \supset R\]

\[
\begin{align*}
P \\
Q \\
\text{--------}
R
\end{align*}
\]

Modus ponens! This is better than:
Another wrinkle: extended use of a form

\[ P \supset R \]

\[ P \]

\[ Q \]

\[ \text{(stronger than it needs to be)} \] or \[ \text{than:} \]
Another wrinkle: extended use of a form

Q ⊃ R
P
Q

------------
R

Also stronger. (P & Q) ⊃ R makes use of ALL the premises!
A more difficult example

Hypothetical syllogism:

\[ P \Rightarrow Q \]
\[ Q \Rightarrow R \]

\[ P \Rightarrow R \]
A more difficult example

Hypothetical syllogism:

\[
\begin{align*}
P \supset Q \\
Q \supset R \\
\hline
P \supset R
\end{align*}
\]

The form puts together links in a chain. Premises are: If (1) then (2). If (2) then (3). Conclusion is always: If (1) then (3).
A more difficult example

So if you have just:

\[ Q \supset R \]

\[ \hline \]

\[ P \supset R \]

You need to add:
A more difficult example

\[ P \implies Q \]
\[ Q \implies R \]

\[ \therefore P \implies R \]

Hypothetical syllogism
A more difficult example

If you have just:

\[ P \supset Q \]

\[ \quad \]

\[ P \supset R \]

You need to add:
A more difficult example

\[ P \supset Q \]
\[ Q \supset R \]
\[ \therefore P \supset R \]

Hypothetical syllogism
Another difficult form

Dilemma:

\[ P \lor Q \]

\[ P \supset R \]

\[ Q \supset R \]

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\[ R \]
Another difficult form

So if we have just:

? 

\[ P \supset R \]
\[ Q \supset R \]

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\[ R \]

The best thing to add, as a suppressed premise, is
Another difficult form

\begin{align*}
P \lor Q \\
P &\Rightarrow R \\
Q &\Rightarrow R \\
\hline
& \Rightarrow R \\
\text{Dilemma!}
\end{align*}
Another difficult form

Why not:

\[ P \]
\[ P \Rightarrow R \]
\[ Q \Rightarrow R \]

[---]

\[ R \]

Answer: \((P \lor Q)\) is weaker than \(P\).
Another difficult form

Similarly, given:

\[ P \lor Q \]
\[ P \supset R \]
\[ ? \]

\[ \]

\[ R \]

The *weakest premise* to add is *not*
Another difficult form

\[ P \lor Q \]

\[ P \supset R \]

\[ P \]

\[ \quad \]

\[ R \]
Another difficult form

Or, for that matter, *not*

\[ P \lor Q \]

\[ P \supset R \]

\[ \sim Q \]

\[ \sim Q \]

\[ R \]
Another difficult form

But is, instead:

\[ P \lor Q \]
\[ P \supset R \]
\[ Q \supset R \]

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\[ R \]

(Dilemma)
Danger, Will Robinson!

Be careful that you don’t match the argument to an invalid form:

- affirming the consequent
- denying the antecedent
- affirming a disjunct

This can be surprisingly easy to do!