

Formal Fallacies

Often, arguments are flawed because of what the statements in the argument *say*. A bad argument is often one which *assumes* something controversial, or the conclusion *claims* something that isn't supported by what the premises say.

But weirdly, sometimes the flaw in an argument is explained by the *form* or *shape* of the argument. In such cases, logicians say that the argument commits a *formal fallacy*.

Warning: If an argument is fallacious, it does not follow that its conclusion is *false*. To say otherwise is to commit the “fallacy fallacy.” (!) After all, I can give a bad argument for a conclusion that happens to be true: “The moon is made of ranch dressing. So, Mexico is in North America.” Thus, if you find a fallacy, it doesn't show the conclusion is false. Rather, it means that the argument does not effectively *prove* its conclusion.

Affirming the Consequent

Arguments of the following form are cases of affirming the consequent:

- (1) If A, then B**
- (2) B**
- (3) So, A**

Example:

- (1) If I ever hear someone call Bieber a “bad boy” again, I'm going to scream.
- (2) I am going to scream.
- (3) Therefore, I again heard someone call Bieber a “bad boy.”

Even though (1)-(3) may all be true, the argument is not deductive. After all, it is *possible* that the conclusion is false, even if (1) is true and I am going to scream anyway (just because it is an enjoyable pastime).

What's especially notable is that the argument is invalid even if we were talking about, say, Ashton Kutcher. Ditto if I was threatening to pee my pants instead of scream. More broadly, the argument fails to be deductive mainly because of its **form** or **shape** rather than its *content*. For the most part, it does not matter what sentences you put in for ‘A’ and ‘B’. The result is inevitably a *formal fallacy*.

The name of the fallacy reflects this: The problem is that premise (2) *affirms* the “form” that occurs as the *consequent* of (1).

Unfortunately, however, things are a bit more complicated than this. For there are a few arguments of this form which *are* deductively valid. That's because the meanings of

words sometimes “take up the slack,” thus rendering deductive what is (strictly speaking) a formal fallacy. Example:

- (1) If Snoopy is a dog, then he is a canine.
- (2) Snoopy is a canine.
- (3) Therefore, Snoopy is a dog.

So there are exceptions where a formal “fallacy” is actually legitimate piece of deduction. Still, these cases are relatively uncommon. Normally, an instance of affirming the consequent will be deductively invalid.

People often affirm the consequent because it seems *very similar* to a formally valid argument type, namely, **modus ponens** (see the handout on Famous Forms). The difference is that modus ponens affirms the *antecedent* of the conditional rather than the consequent. (Also, modus ponens concludes the consequent, rather than the antecedent.)

Denying the Antecedent

Arguments of the following form are cases of denying the antecedent:

- (1) If A, then B**
- (2) Not A**
- (3) So, Not B**

Example:

- (1) If Ann Coulter is a conservative Christian, she is a Republican.
- (2) Ann Coulter is not a conservative Christian.
- (3) She is not a Republican.

A = Ann Coulter is a conservative Christian

B = Ann Coulter is a Republican

As before, this fallacy gets its name from what’s happening in premise (2). Here, the *antecedent* of premise (1) is being *denied*. (And from that, the consequent is then denied.)

Again, normally such arguments are deductively invalid. But here too, there are few instances of this argument-form which are deductively valid. E.g.:

- (1) If 5 is even, then 7 is even.
- (2) 5 is not even.
- (3) Therefore, 7 is not even.

But such cases are the exception.

Like affirming the consequent, people sometimes deny the antecedent since it seems *very similar* to a formally valid argument type. In this case, the valid argument schema is **modus tollens**. (See handout on Famous Forms). The difference is that, with modus tollens, the *consequent* is denied in the minor premise. (Subsequently, the denial of the antecedent is inferred.)

Hasty Dismissal

Arguments of the following form are hasty dismissals:

- (1) **Either A or B**
- (2) **A**
- (3) **So, Not B**

Example:

- (1) Either the generator or the distributor is defective.
- (2) The generator is defective.
- (3) Therefore, the distributor is not defective.

In this case, you're hastily dismissing the possibility of a defective distributor. After all, it could be that *both* the generator and distributor are defective, where both are a cause of the breakdown.

Once again, there are cases of the fallacy that are not really "fallacious." Consider the following:

- (1) Taj is an 'only child' or has a sister.
- (2) Taj has a sister.
- (3) So, Taj is not an 'only child'.

In this case, the first premise mentions *mutually exclusive* possibilities. So it is not hasty to dismiss one possibility once you know that the other possibility obtains.

(The argument might still have other flaws. But the point is that it is not a fallacious case of hasty dismissal. *If* the premises are true in this case, the conclusion deductively follows.)

As with other formal fallacies, people commit a hasty dismissal since the reasoning looks *very similar* to a formally valid argument type. In this case, the valid form in question is called **disjunctive syllogism**. (See handout on Famous Forms). But unlike with hasty dismissal, disjunctive syllogism *denies* a disjunct rather than affirms one. (Plus, disjunctive syllogism concludes in favor of the other disjunct rather than against it.)