

# Which of these arguments are valid? Which are sound?

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An argument is *valid* just in case, were its premises true, its conclusion would have to be true. Or, to put the same point another way: an argument is valid just in case it is impossible for its premises to be true and its conclusion false.

An argument is *sound* just in case it is both valid and has all true premises.

Try to figure out which of the following arguments are valid, and which are sound:

1. All philosophers are annoying.
2. Socrates is a philosopher.

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C. Socrates is annoying.

1. All philosophers are annoying.
2. Socrates is annoying.

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C. Socrates is a philosopher.

1. Either Notre Dame will win the National Championship, or USC will win the National Championship.
2. USC will not win the National Championship.

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C. Notre Dame will win the National Championship.

1. Today is Tuesday.

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C. Today is Tuesday.

1. If the moon is made of cheese, it will soon become moldy.
2. The moon will not soon become moldy.

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C. The moon is not made of cheese.

Suppose that Sentence 1= “Sentence 1 is not true.” Then consider the following argument:

1. Sentence 1 is true or sentence 1 is not true.
2. If Sentence 1 is true, then Sentence 1 is not true.
3. If Sentence 1 is not true, then Sentence 1 is true.

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C. Sentence 1 is true and not true.

Sometimes we talk not about whether particular arguments are valid or invalid, but about whether certain *forms* of argument are valid or invalid. An example of a form of argument is:

1. If  $p$ , then  $q$ .
2.  $p$ .

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C.  $q$ .

You can think of ' $p$ ' and ' $q$ ' here as standing for sentences. When we ask whether the above argument form is valid, we are asking whether, *no matter what sentences we plug in for  $p$  and  $q$* , we would get a valid argument. Often, when evaluating a philosophical argument, it is useful to take a step back and ask: is this a valid form of argument?

Which of the following are valid forms of argument?

1. If  $p$ , then  $q$ .
2.  $q$ .

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C.  $p$ .

1. If  $p$ , then  $q$ .
2. Not  $q$ .

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C. Not  $p$ .

1.  $p$  or  $q$ .
2. Not  $p$ .

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C.  $q$ .

Sometimes arguments are valid, but do not seem to be of a valid form. An example might be:

1. My shirt is bright red all over.

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C. My shirt is not bright green all over.

So if an argument is not of a valid form, that doesn't automatically mean that the argument is invalid. But if the argument *is* of a valid form, that does automatically mean that the argument is valid.

Often, we begin with an intuitive argument that is not stated in premise/conclusion form. To see whether this informal argument is any good, it often helps to try to find a more formal statement of the argument. Try to re-state the following informal argument in premise/conclusion form so that it is valid:

“If God were all good, he would stop suffering from happening if he could, and if God were all powerful he could stop all suffering from happening. But nothing which was not all powerful and all good could be God. So, since suffering happens, God must not exist.”

Suppose I had asked you to restate this informal argument in premise/conclusion form so that it is not only valid, but also sound. Would that be a fair assignment?