

Attacking an argument

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The only thing worth striving for is happiness. It is the role of the state to help its citizens achieve their ultimate goals and realise themselves. **But capitalism cannot make people happy because a capitalist society is exploitative, and there can be no happiness in such an environment.** Therefore, we should not have a capitalist society.

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- **Attack the truth of the premises:** We could argue that happiness is not the only thing worth striving for.
Or we might argue that the state has some more minimal purpose such as the protection from physical harm.
- **Attack the reasoning:** It doesn't follow that happiness cannot exist in an exploitative environment. For example, exploiting my workers might make me lots of money and this might make me very happy.

Some arguments

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\mathbb{P}_1 Some vampires are
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\mathbb{P}_2 Some werewolves
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\mathbb{C} Therefore, some
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\mathbb{P}_2 Anything white is
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\mathbb{C} We conclude that the
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Definitions

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Definition (Modal validity)

An argument is **valid** if there is no possible world in which the premises are all true yet the conclusion is false.

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Not valid. There is a
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there are five vampires and
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whom are bloodthirsty yet
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Valid. In any world in which
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P_2 Anything white is
made of cheese

C We conclude that the
moon is made of cheese.

Valid. In any world in which
the moon is white and all
white things are cheese, the
moon has to be cheese as
well.

**So every good argument is
valid, but not every valid
argument is good!**

Further examples

\mathbb{P}_1 Mr Moore-Bridger is
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\mathbb{P}_2 Mr Moore-Bridger is
not in this room

\mathbb{C} Sheffield is on an
island in the Indian
ocean.

Further examples

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\mathbb{P}_1 Wherever you find
leaves, you find trees

\mathbb{P}_2 There are no leaves
in Antarctica

\mathbb{C} So there are no trees
in Antarctica either.

Taking it further

Symbolic logic allows us to *calculate* whether an argument is valid, mathematically.

\mathbb{P}_1 All men are mortal

\mathbb{P}_2 Socrates is a man

\mathbb{C} Socrates is mortal.

\mathbb{P}_1 $\forall x(\sigma^{\circ}x \rightarrow Mx)$,

\mathbb{P}_2 $\sigma^{\circ}s$,

\mathbb{C} Ms .

$\sigma^{\circ}x$: x is male

Mx : x is mortal.