**In Logic, what are Sound and Valid Arguments?**

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There are several types of arguments, and one of the most common are deductive arguments. Deductive arguments are those who contain a string of related statements that taken in totality prove or establish a conclusion.

Such deductive arguments can be attacked on two different fronts: 1) call into question the premises of the argument itself, 2) call into question the structure of the argument, specifically that the conclusion does not follow from the premises.

This leaves us with four different possibilities for any deductive argument:

1. Invalid and unsound: at least one premise is false, and conclusion does not follow from the premises. Example:

* All GPS satellites are positioned underwater.
* Everything positioned underwater becomes wet.
* therefore, GPS satellites are dry.

2. Invalid: premises may be true but conclusion does not follow from them. Example:

* Mangosteen is a fruit.
* Mangosteen is purple.
* Therefore, all fruit is purple.

3. Valid but unsound: conclusion follows from the premises but at least one of the premises is false. Example:

* All art movements started in India.
* Bauhaus was an art movement.
* Therefore, Bauhaus started in India.

4. Sound: all premises are true and conclusion follows from the premises. Example:

* Investment strategies may be profitable.
* "Dogs of the Dow" is an investment strategy.
* therefore, the "Dogs of the Dow" strategy may be profitable.

All premises are true and conclusion follows from the premises during sound and valid arguments.

Note that in all four of the examples above, the conclusion can be true. Even an invalid and unsound argument can have a true statement as its conclusion — it’s just that the conclusion may not follow from the premises, or that the premises that the conclusion is based on are not true. Let us imagine a non-sequitor, for example that is unsound and invalid, but the conclusion is true:

* **non-sequitor:**
* The Curse of the Bambino will never end.
* Sputnik was launched by China.
* Therefore, en-passant is a move in chess.

Also, **arguments themselves are neither true or false, they are to be judged on their validity and soundness.** It is the statements within an argument, namely the premises and conclusion that can have truth and falsity.

https://www.languagehumanities.org/in-logic-what-are-sound-and-valid-arguments.htm

***Voc:***

non-sequitor: An inference or conclusion that does not follow from the premises or evidence.

在逻辑学中，什么是合理论证和有效论证?

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论点有几种类型，最常见的是演绎论点。 演绎论点是那些包含一串相关的陈述，以整体证明或建立一个结论。

这种演绎论证可以从两个不同的方面来攻击:1)质疑论证本身的前提，2)质疑论证的结构，特别是结论不是从前提推导出来的。

这给我们留下了四种演绎论证的可能性:

1.  无效和不健全:至少有一个前提是假的，结论不能从前提得出。 例子:

所有的GPS卫星都被定位在水下。

所有放置在水下的东西都变湿了。

因此，GPS卫星是干的。

2.  无效:前提为真，但结论不成立。 例子:

山竹是一种水果。

山竹果是紫色。

因此，所有的水果都是紫色的。

3. 有效但不可靠:结论从前提中得出，但至少有一个前提是假的。 例子:

所有的艺术运动都始于印度。

包豪斯是一场艺术运动。

因此，包豪斯起源于印度。

4.  声音:所有前提都为真，结论由前提得出。 例子:

投资策略可能是有利可图的。

“道指之狗”是一种投资策略。

因此，“道指之狗”策略可能是有利可图的。

所有前提都是真的，结论从前提中得出，在合理有效的论证中。

注意，在上面的四个例子中，结论都可能是真的。 即使一个无效和不健全的论点，也可以有一个真命题作为它的结论，只是结论可能不是从前提中得出的，或者结论所基于的前提是不真实的。 让我们想象一个非sequitor，例如，它是不健全和无效的，但结论是真的:

non-sequitor:

孩子的诅咒永远不会结束。

Sputnik是中国发射的。

因此，顺道是国际象棋中的一步棋。

此外，论点本身既非真也非假，它们需要根据它们的有效性和合理性来判断。 它是一个论证中的陈述，即前提和结论，可以有真理和谬误。

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挥发性有机化合物:

非sequitor:不从前提或证据得出的推论或结论。