



CRITICAL THINKING

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LECTURE 5

Argument to Best Explanation



Summary

In this week's lecture, you will learn:

- (1) **Argument to the Best Explanation (ABE)**
- (2) **The combined use of ABE and Analogical Argument**

Reminder: Nondeductive Success & Deductive Validity

An argument from premises Ps to conclusion C is **deductively valid** (i.e., valid)

=_{df} The truth of Ps logically **guarantees** the truth of C.

= Under the assumption that all Ps are true, there is exactly a 100% chance for C to be true.

i.e., **Conditional Probability** for C given Ps is exactly **100%**. (for short: $cp = 100\%$)

◆ Deductive validity is a matter of **all or nothing**. An argument cannot be more or less valid.

An argument from premises Ps to C is **nondeductively successful**

=_{df} The truth of Ps makes C **more likely** to be true than false.

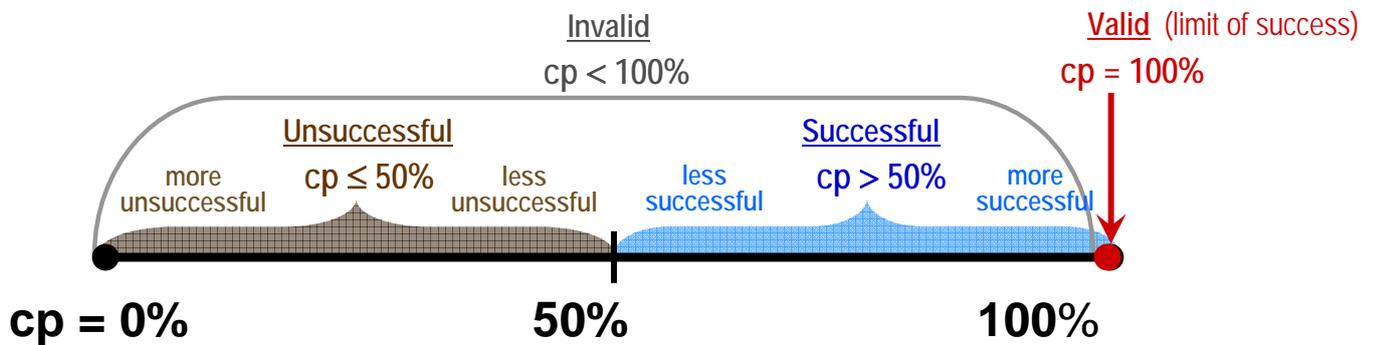
= Under the assumption that all Ps are true, there is a greater than 50% chance for C to be true.

i.e., **Conditional probability** for C given Ps is **greater than 50%**. (for short: $cp > 50\%$)

◆ Nondeductive success comes in **degrees**. An argument can be more or less nondeductively successful.

◆ If $cp = 100\%$, the argument is **successful** (because $cp > 50\%$) and also **valid** (because $cp = 100\%$).

◆ Deductive validity is said to be the “limiting case” of nondeductive success.



Part I. Argument to the Best Explanation (abbreviation: **ABE**)

A is the case.

Hypothesis B is the best explanation for A.

Hypothesis B is true.

- ABE is sometimes also called “**abductive argument**”.
- ABE is a nondeductively **successful** argument form (since best explanation = most likely explanation).
- ABE is an **invalid** argument form (for hypothesis B can be false even if it best explains A).

Argument (1)

P1. There is a clattering noise on the roof.

P2. That an *emu* is on the roof best explains the noise.

C. An emu is on the roof.



- Emus are almost never found on roofs.
- The ‘emu’ hypothesis is not the best explanation.
- **P2 is false.**
- Argument (1) is a bad ABE.

Argument (2)

P1. There is a clattering noise from the roof.

P2*. That a *possum* is on the roof best explains the noise.

C*. A possum is on the roof.



- Possums are often found on roofs.
- The ‘possum’ hypothesis is a better explanation.
- **P2* is more defensible.**
- Argument (2) is a better ABE.

◆ Both arguments have the form of ABE.

◆ The best explanation is the **most likely explanation**. We judge whether one explanation is more likely than another by what we know about the world from past experience.

◆ Is there any **alternative** hypothesis that would be at least as likely an explanation as the ‘possum’ hypothesis?

◆ What **new empirical information** (if added to the background of the story as an **suppressed premises**) will make the ‘possum’ hypothesis the most likely (i.e., the best) explanation?

A is the case.
Hypothesis B is the best explanation for A.

Hypothesis B is true.

P1. Saddam Hussein had WMD.
P2. That Saddam Hussein planned to invade other countries
best explains why he had WMD.

C. Saddam Hussein planned to invade other countries.

More Analysis

- ◆ For an argument to the best explanation to generate an acceptable conclusion (one that is more likely to be true than false), both of its premises need to be true, meaning:
 - (1) **The thing to be explained needs to be real in the first place.**
 - If the thing to be explained (A) turns out to be unreal, then no explanation should be required for it in the first place, and there is no reason to accept any hypothesis (B) put forward to explain it.
 - **Example:** Saddam Hussein didn't really have WMD. So we have no reason to accept the hypothesis that he had plans to invade other countries (even if that would be the best explanation if he were to have WMD.)
 - A hypothesis (B) should be accepted only if the thing to be explained (A) is real.
 - (2) **The hypothesis needs to be indeed the best explanation for the thing to be explained**, meaning:
 - No alternative hypothesis is better or equally good explanation for A.
 - If a hypothesis (e.g., the 'emu' hypothesis on the previous slide) is not the best explanation, then we have no reason to accept it.
- ◆ Hence, to challenge/reject an argument to the best explanation, we need to either (1) show that the thing to be explained (A) is unreal in the first place, or (2) provide an alternative hypothesis that is at least as good an explanation as the original hypothesis (B) put forward by the argument, or do both.
- ◆ **Note:** Even if the thing to be explained (A) is real and a hypothesis (B) best explains it, it is still logically possible for the hypothesis (B) to be false. For there is no logical guarantee that the best (i.e., the mostly likely) hypothesis is true! (For example: It is logically possible that an emu on the roof made the clattering noise – no matter how unlikely it is!)

Suppressed Format of ABE

After stating the 1st premise in an ABE (i.e., the thing that requires explanation), it is quite **common** that people **suppress the 2nd premise** (which says what hypothesis is the best explanation), and go straight to the conclusion to state the content of what they think of as the best explanation.

Suppressed Format

P. A woman pushed her car to a hotel and then bankrupted.

C. The woman was playing monopoly!

P. The grass is wet but the street is not wet.

C. The sprinkler was on.

P. Faye is married to her brother.

C. Faye is married to her step brother.

Full Format

P1. A woman pushed her car to a hotel and then bankrupted.

P2. That the woman was playing monopoly best explains P1.

C. The woman was playing monopoly.

P1. The grass is wet but the street is not wet.

P2. That the sprinkler was on best explains P1.

C. The sprinkler was on.

P1. Faye is married to her brother.

P2. That Faye is married to her step brother best explains why she is married to her brother.

C. Faye is married to her step brother

- ◆ Not all explanations are causal explanations (e.g., the explanation offered in the 3rd argument above isn't).
- ◆ One thing explains another thing to the extent that the truth of one makes intelligible the truth of another.
- ◆ **The best way to find out if an argument is a suppressed ABE** is to see if the conclusion can explain the premise.

ABE & Analogical Argument

- ✦ ABE is often used in **moral reasoning**.
- ✦ ABE is also often used to **complement and strengthen** an analogical argument.

- P1. **People like you and me** (primary analogue A1) have (F) a future that will be valuable to themselves and are (K) beings whom it is wrong to kill.
- P2. **Temporarily unconscious people** (primary analogue A2) have (F) a future that will be valuable to themselves and are (K) beings whom it is wrong to kill.
- P3. **Suicidal teenagers** (primary analogue A3) have (F) a future that will be valuable to themselves and are (K) beings whom it is wrong to kill.
- P4. **Infants and very young children** (primary analogue A4) have (F) a future that will be valuable to themselves and are (K) beings whom it is wrong to kill.
- P5. Many **human fetuses** (secondary analogue B) also have (F) a future that will be valuable to themselves.
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- C. Many **human fetuses** (secondary analogue B) are also (K) beings whom it is wrong to kill. (from P1, P2, P3, P4, & P5, by **analogical argument**)

Now, we should ask **why** feature F is relevant to feature K – i.e., why X having a future that will be valuable to X is **relevant** to the wrongness of killing X. Here is why, or so according to the argument:

- P1*. (A1) people like you and me, (A2) temporarily unconscious people, (A3) suicidal teenagers, and (A4) infants and very young children, are all (K) beings whom it is wrong to kill. (commonly accepted)
- P2*. The commonly accepted truth of P1* is **best explained** by the **hypothesis** that it is wrong to kill beings who have a future that will be valuable to themselves (i.e., the hypothesis that beings who have feature F also have feature K).
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- C*. The **hypothesis** "it is wrong to kill beings who have a future that will be valuable to themselves" is **true** (i.e., it is true that beings who have feature F also have feature K). (from P1 & P2, by **ABE**)

From Don Marquis, "Why abortion is immoral", *The Journal of Philosophy*, 86 (1989), pp. 183-202.

One more example

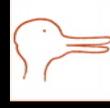
- P1. It is morally wrong for us to give less consideration to the pains suffered by (i) people of other races, (ii) people of other genders, (iii) people with lower intelligence, (iv) people with less abilities, than the consideration we would give to equal pains suffered by ourselves. (commonly accepted)
- P2. The commonly accepted truth of P1 is **best explained** by the **equality principle** – which states that equal pains (i.e., pains equal in intensity and duration) ought to be given equal moral consideration, regardless of who suffer the pains.
- P3. The **equality principle** is true. (from P1 & P2, by **ABE**)
- C1. Human pains and nonhuman pains ought to be given equal moral consideration when they are equal in intensity and duration.** (validly from P3)
- P4. Racism (primary analogue A1) gives less moral consideration (or none at all) to equal pains suffered by members of other races, and, as such, is (F) a violation of the equality principle and so racism is (K) morally wrong. (from P3)
- P5. Sexism (primary analogue A2) gives less moral consideration (or none at all) to equal pains suffered by members of other genders, and, as such, is (F) a violation of the equality principle and so sexism is (K) morally wrong. (from P3)
- P6. Speciesism (secondary analogue B) gives less moral consideration (or none at all) to equal pains suffered by members of other species, and, as such, is also (F) a violation of the equality principle.
- C2. Speciesism** (secondary analogue B) **is just as (K) morally wrong as racism and sexism.** (from P4, P5, & P6, by **analogical argument**)

From Peter Singer, *Practical Ethics*, Cambridge University Press (1979).

Summary

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