Evaluating arguments

Andy J. Wills

Last week's workshops

- Horse-race game: Normal distribution
- Exam-hall bingo: Sample size and statistical power
- Shove ha'penny: Regression to the mean
- Good and evil: Illusory correlation

Some arguments

- Rate on a 1-6 scale (1 = Strongly agree; 6 = strongly disagree)
- "The gap in salary between men and women generally disappears when they are employed in the same position"
- "Students who drink alcohol whilst at university are more likely to become alcoholics in later life"
- "Religious people are generally more honest than non-religious people"

Some questions

- "The gap in salary between men and women generally disappears when they are employed in the same position"
- Would you have given the same answer if you were of the opposite gender?
- "Students who drink alcohol whilst at university are more likely to become alcoholics in later life"
- Would you have given the same answer if you were a drinker / non-drinker (delete as appropriate) ?
- "Religious people are generally more honest than non-religious people"
- Would you have given the same answer if you were a believer / non-believer (delete as appropriate) ?

Some answers (Stanovich & West, 2006)

- "The gap in salary between men and women generally disappears when they are employed in the same position"
- Males: 3.1, Females: 2.6, $p < .001$
- "Students who drink alcohol whilst at university are more likely to become alcoholics in later life"
- Drinkers: 2.7, Non-drinkers" 3.5, $p < .001$
- "Religious people are generally more honest than non-religious people"
- Believers: 3.3, Non-believers: 2.6, $p < .001$

My-side bias

- This is my-side bias - widespread and not always appreciated.
- Another example...

Perceived media bias (Vallone, Ross & Lepper, 1985)

- Pro-Israeli and pro-Arab students were shown 6 news segments of the 1982 killing of civilian refugees in Lebanon.
- Then both rated media bias in the same segments on a 1-9 scale.
- 1 (Anti-Israel) - 5 (neutral) - 9 (Pro-Israel)
- Pro-Israeli students: 3.0
- Pro-Arab students: 6.5
- Both groups believed the media reports were biased against their own viewpoint!

Perkins et al. (1991)

Asked participants about issues of social and political significance, e.g. "Would providing more money for state schools significantly improve the quality of teaching and learning?"
Participants had to:

1. Make an immediate decision.
2. Give their considered opinion, stating reasons for their opinion.
3. "Scaffolding" - Prompted by experimenter to consider all aspects, to look for arguments on both sides, to evaluate objectively.

Perkins et al. (1991)

- Considered opinion: 3 my-side reasons, 1 other-side reason.
- Very little improvement with age, experience, or level of formal education.
- Scaffolded: 6 on both sides

My-side bias answers

- My-side bias seems to have something to do with failing to consider counter-arguments.
- One way to combat my-side bias is to "scaffold yourself" with the aid of pen and paper. Write down the possibilities, write down the counter-arguments, be suspicious if the list for your preferred answer is much longer than the list for your non-preferred answer.

Weak arguments

Weak arguments are statements intended to support a conclusion, but which do not do so (or do so only very weakly).

Non-sequitur

- Latin - “it does not follow”
- Any invalid argument is a non-sequitur
  - All dogs are mammals.
  - All dogs bark.
  - Therefore, all mammals bark.

Equivocation

- A feather is light.
- What is light cannot be dark.
- Therefore, a feather cannot be dark.
  The equivocation fallacy is the typically the product of a word having more than one meaning, and that meaning not being specified.
- “Do women need to worry about man-eating sharks?”

Ad hominem

- Latin - “at the man”.
- Attacking the person instead of the argument.**Being a hypocrite does not make your claim false**.
- “How can you argue for vegetarianism when you wear leather shoes?”
- “Anyone over the age of thirty who believes in Socialism has no brain”.
- Highlighting weaknesses of character in your opponent (imagined or real) does not prove their position is wrong.
- “Dr. Bottle tells us not to drink and drive, but I know he always has a few pints before driving home [so it’s safe to ignore his advice]”.

Appeal to force

- Supporting one's argument by force or the threat of force.
- From the 14th century - "The clinching proof of my reasoning is that I will cut anyone who argues further into dogmeat" (de Tourneville, 1350).
- From the Reagan era (1980s) - "The President continues to have confidence in the Attorney General ... and you ought to have confidence in the Attorney General, because we work for the President and that is the way things are ... if anyone has a different view on [the Attorney General] he can tell me about it because we are going to have to discuss your status"

Begging the question

- In common usage "begs the question" means "raises the question", "evades the questions", or "ignores the question".
- In critical thinking, it has a narrower, somewhat different definition.
- Begging the question - Assuming the truth of a conclusion in order to provide support for it.
- For example, "Opium induces sleep because it has a soporific quality" ("soporific" means sleep-inducing).
- Thus, opium induces sleep because it induces sleep.
- Begging the question sometimes convinces because we don't notice the synonym.

Argument from ignorance

- "One cannot prove that God does not exist" (when used to support the existence of God).
- "One cannot prove this new teaching method will make things worse" (when used to support the conclusion that it will make things better).
- Fallacy: If a proposition has not been disproven, then it cannot be considered false and must therefore be considered true.
- Fallacy: If a proposition has not been proven, then it cannot be considered true and must therefore be considered false.
- Both are fallacious because the limits of one's understanding do not change what is true.

Infallible Flowchart of Argument Evaluation

1. Identify the conclusion.
2. Identify the premise or premises.
3. Identify the relationship between the premise(s) and conclusion.
   - Independent?
   - Conjoint?
   - Causal chain?
4. Do the premises support the conclusion?
   - Logical deduction?
   - Reasonable inference?
5. Are the premises true?

Evaluating an argument

"Contrary to what people think, a positive test for HIV is not necessarily a death sentence. For one thing, the time from the development of antibodies to clinical symptoms averages nearly ten years. For another, many reports are now suggesting that a significant number of people who test positive may never develop clinical AIDS".

1. Identify the conclusion

"Contrary to what people think, **a positive test for HIV is not necessarily a death sentence**. For one thing, the time from the development of antibodies to clinical symptoms averages nearly ten years. For another, many reports are now suggesting that a significant number of people who test positive may never develop clinical AIDS".

2. Identify the premise(s)

"Contrary to what people think, **a positive test for HIV is not necessarily a death sentence**. For one thing, *the time from the development of antibodies to clinical symptoms averages nearly ten years*. For another, many reports are now suggesting that *a significant number of people who test positive may never develop clinical AIDS*" .

3. Identify relationship between premises and conclusion

"Contrary to what people think, **a positive test for HIV is not necessarily a death sentence**. For one thing, *the time from the development of antibodies to clinical symptoms averages nearly ten years*. For another, many reports are now suggesting that *a significant number of people who test positive may never develop clinical AIDS*" .

Independent.

4. Do the premises support the conclusion?

"Contrary to what people think, **a positive test for HIV is not necessarily a death sentence**. For one thing, *the time from the development of antibodies to clinical symptoms averages nearly ten years*. For another, many reports are now suggesting that *a significant number of people who test positive may never develop clinical AIDS*" .

- Difficult to say - the conclusion is a bit vague to evaluate the extent to which it is supported by the first premise.
- The second premise seems more directly supportive of the conclusion.

5. Are the premises true?

"Contrary to what people think, **a positive test for HIV is not necessarily a death sentence**. For one thing, *the time from the development of antibodies to clinical symptoms averages nearly ten years*. For another, many reports are now suggesting that *a significant number of people who test positive may never develop clinical AIDS*".

- First premise - Mean incubation time in young adults is 10 years (Bacchetti & Moss, 1989).
- Second premise:
  - "Some people who test positive for HIV never develop AIDS"
  - False alarms?
  - "Some people who are HIV+ never develop AIDS"
  - Death by other causes?
  - Presence of "long-term non-progressors" (about 1 in 500 HIV+ are still asymptomatic after 12 years)

Evaluating the argument

"Contrary to what people think, **a positive test for HIV is not necessarily a death sentence**. For one thing, *the time from the development of antibodies to clinical symptoms averages nearly ten years*. For another, many reports are now suggesting that *a significant number of people who test positive may never develop clinical AIDS*".

- The first premise seems to be supported by scientific evidence, but the author's conclusion is too vague to be supported by the first premise.
- The second premise supports the conclusion, but it is too vague to be clearly evaluated. If the author refers to long-term non-progressors, then these do exist, but it seems too much of a leap from an approximately 1 in 500 chance of not developing symptoms for more than 12 years to "a significant number of people who test positive never developing AIDS".

Fox hunting

"It is wrong to cause unnecessary suffering to an animal. Fox hunting causes unnecessary suffering to the fox. It is therefore wrong to hunt foxes".

Steps 1 to 3

"*It is wrong to cause unnecessary suffering to an animal*. *Fox hunting causes unnecessary suffering to the fox*. **It is therefore wrong to hunt foxes**".

Co-joint.

4. Do the premises support the conclusion?

"*It is wrong to cause unnecessary suffering to an animal. Fox hunting causes unnecessary suffering to the fox.* **It is therefore wrong to hunt foxes**".

- Let's assume the conclusion is meant to be absolute - all fox hunting is wrong.
- If both premises are absolute, it's a case of logical deduction - the conclusion follows directly from the premises.
  - All [causing-unnecessary-suffering] is [wrong].
  - All [fox-hunting] is [causing-unnecessary-suffering].
  - Therefore, all [fox-hunting] is [wrong]
- If either of the premises is conditional ("fox hunting sometimes causes unnecessary suffering"), or if the conclusion is conditional, then it gets more complex. In many cases, it will be an inference rather than a deduction.

5. Are the premises true?

See some further discussion in the notes.

Enthymemes

"It is biologically natural for humans to eat animal flesh.
Therefore, it is morally permissible for humans to eat animal flesh".

- Missing premise: "Whatever is biologically natural for humans is morally permissible".

Infallible Flowchart of Argument Evaluation and Construction!

1. Identify the conclusion.
2. Identify the premise or premises.
3. Identify the relationship between the premise(s) and conclusion.
   - Independent?
   - Co-joint?
   - Causal chain?
4. Do the premises support the conclusion?
   - Logical deduction?
   - Reasonable inference?
5. Are the premises true?

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