

Philosophy of the Human Person

Lecture #12

Probable Reasoning

a. Definition & Kinds of Probable Reasoning

probable reasoning—reasoning in which the truth of the premises provides good reason for, but does not guarantee, the truth of the conclusion

preview of the forms

Form	Direction of Reasoning	Compare & Contrast with	
Generalization	from part to whole	Isp	$\square Asp$
Retroduction	from effect to cause	$p \square q, q$	$\square p$
Analogy	from case to case	$a \text{ is } x, b \text{ is like } a$	$\square b \text{ is } x$

under what circumstances do premises like those give good reason for the conclusion that they cannot guarantee?

the “some” must be a representative sample

p must be the best explanation of q

b must be like a in respects relevant to x -ness

b. Evaluation of Probable Reasoning

since probable reasoning does not attempt to *guarantee* the truth of the conclusion (even when its premises are true), it is not evaluated in terms of validity or invalidity

probable arguments are evaluated as strong or weak

unlike validity, strength is a matter of degree

how strong is strong enough?

that depends on what is at stake

e.g., in the courts, a jury may only convict of a crime if the case for guilt is “beyond a reasonable doubt” (but the prosecutor does *not* have to provide a deductively valid argument)

in a civil suit, a jury may award damages on the basis of the preponderance of evidence

one cannot distinguish formal from content-based (“material”) considerations in evaluating probable reasoning

one has to know something about the subject matter to make an evaluation

c. Generalization

example

“On the basis of exit polls taken in key precincts throughout the state, our network is ready to declare that John Smith has been elected governor.”

characterization—argument from “some” to “all”

schema

Facts: Some X are P

Warrant: Those X’s are typical of X’s in general
(or, they are a representative sample of the entire population)

Conclusion: So (probably), all X are P

Evaluation of generalizations

the facts—did the collector actually measure what he set out to measure?

for surveys, did the respondents tell the truth?

e.g., did we find out what party people support or what party they say they support?

the warrant—two main criteria for adequacy of sample

absence of bias

a sample is bias-free if there’s nothing about the selection procedure that makes the sample systematically different from the population as a whole

recognizing bias requires knowledge of population

whom does a telephone poll leave out?—5% of population

whom does taking telephone numbers from the directory leave out?

30% of telephone subscribers unlisted by choice

20% of listing out of date

(telephone polls avoid this by random digit dialing and other techniques)

sufficient size

this is a technical matter, but our intuitions are not reliable about this

for large populations

absolute sample size, not sample fraction, is the key

very large samples quickly reach point of diminishing returns

i.e., large increases in sample size bring only slight increase in accuracy

hence, Gallup Polls seek 1000–1500 respondents

in general for large populations

(regardless of whether population is 100,000 or 100 million)

1500 respondents gives margin of error of $\pm 3\%$

4000 respondents gives margin of error of $\pm 2\%$

d. Analogical Reasoning

Two examples
from law

- facts: The Supreme Court struck down laws requiring public school students to recite the Pledge of Allegiance (*W. Va. St. Bd. of Education v. Barnette*).
- warrant: A law requiring teachers to lead students in the Pledge is like a law requiring students to recite it.
- conclusion: (probably) A law requiring teachers to lead students will be struck down also.

from ethics

John Calvin's argument for the permissibility of war

"If kings have been entrusted with the power to preserve the tranquillity of their own territories...and if they justly punish those robbers, whose injuries have only extended to a few persons, shall they suffer a whole district to be plundered and devastated with impunity? For there is no difference, whether he who in a hostile manner invades, disturbs and plunders the territory of another to which he has no right, be a king, or one of the meanest of mankind; all persons of this description are equally to be considered as robbers and are to be punished as such."

analysis

- facts: Kings have a right to use law enforcement to punish robbers.
- warrant: Using military force against plundering armies (waging war) is like using law enforcement to punish robbers.
- conclusion: (arguably) Kings have a right to wage war.

Generalization of the form

- Facts: Thing *a* has property *x*
- Warrant: Thing *b* is like thing *a* in respects relevant to *x*-ness
- Conclusion: (Probably) thing *b* has *x* also

Evaluation

general questions

- are the premises true?
- is *b* really like *a* in the respects cited?
- are there important respects in which the cases differ?
- are those similarities and differences relevant to the predicate?

evaluation of the above arguments

example from law

- in what ways is requiring teachers to lead the Pledge like requiring students to recite it?
- in what ways are the two requirements different?
- which is more relevant to questions of constitutionality?

example from ethics

- is war different from law enforcement in respects relevant to moral appraisal?

e. Retroductive Reasoning (“Argument to the best explanation”)

Example from ordinary life

facts: The car won’t start. The headlight switch is on but the lights aren’t.

warrant: The best explanation of those facts is that the headlights were left on and ran down the battery

conclusion: (probably) The headlights were left on and ran down the battery

Generalization of the form

Facts: ...

Warrant: The best explanation of the facts is some theory

Conclusion: (probably) the theory is true.

Evaluation

are the facts true?

criteria of “the best explanation”

(1) the theory predicts the facts with reasonable accuracy (i.e., $T \square F$)

(2) the theory is a reasonably good explanation

i.e., it has at least some of the following features

(a) simplicity or elegance

(b) scope (i.e., applicability to a wide array of problems)

(c) external consistency

(3) the theory is better than any other theory that predicts the facts

i.e., it does better with respect to those features than other theories

example—alternative explanations for why the car won’t start

non-comparative evaluations of some options

X1. the lights were left on & ran down the battery—fits 1, 2a, 2c

X2. you left the lights on, the fuse blew, and the battery happened to have a hole in it—fits 1 & 2c, but violates 2a

X3. an enemy of yours came by and cut the wires to the ignition motor, took out your headlight bulbs, and pulled the switch on so you wouldn’t catch on as quickly to what had happened—fits 1, violates 2a & 2c

comparative evaluation—X1 does best (hence, meets 3)

verdict—X1 is the best explanation (the warrant in the original argument)