Philosophy 101

(3/1/11)

- **Quiz #2 to be returned today (end of class)**
  - **Quiz #2 solutions posted**
- **HW #2 solutions posted**
- **HW #3 due *this* Thursday**
- **Chapter 4 — *Strong* Arguments**
  - **Combining the concepts from chapters 2 & 3 to yield an account of *argument strength*.**
  - **Deductive strength**
  - **Inductive strength (and "defeat")**
  - **Some questions and examples from Ch. 4**

Chapter 4: Strong Arguments 1

- **Deductive Strength**
  - If an argument is valid, it is good — *from a logical perspective*. But, validity is only *part* of the story.
  - Ideally, an argument would be valid *and* it would also have premises that are (known to be) true (*viz.*, it would be *sound*).
  - More generally, we will speak of the *strength* of arguments.
  - The basic idea is that an argument will be *strong for a person S* just in case the argument is *both* (a) *well-formed,* and (b) *it is rational for S to believe all of the arguments premises*.
  - We will have one definition of strength for valid arguments, and a different definition of strength for cogent arguments.
    - We'll discuss the deductive/valid case first (it's simpler).

Chapter 4: Strong Arguments 2

- **Deductive Strength**
  - We define *deductive strength* as follows:

D4.1: An argument is *deductively strong* for a person if and only if
1. it is deductively valid; and
2. it is reasonable for the person to believe all the argument's premises.

- If an argument is not deductively strong, then we say it is deductively *weak*. There are two main ways in which an argument may be deductively weak for a person *S*.
  - The argument may be *invalid*.
  - It may not be rational for *S* to believe *all* of its premises.
    - This includes cases in which it is reasonable to believe *each* premise *individually*, but *not* when taken *altogether*.

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- **Deductive Strength**
  - It is important that we require that it is rational for *S* to believe *the conjunction of all of the premises*, and not merely rational for *S* to believe *each* premise, *taken individually*.
  - Here is an example that illustrates the importance of this:
    - Suppose you enter a lottery, which has exactly one winner and 1 million tickets. For *each* ticket # *i*, it would be rational for you to believe that ticket #*i* will lose.
    - But, it is *not* rational for you to believe that *all* the tickets will lose, since this *contradicts* the setup of the case, in which it is assumed that there is *exactly one winning ticket*.
    - This kind of case is sometimes called the *lottery paradox*.

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- **Deductive Strength**
  - What should we say about *circular* arguments, such as this?

    1. The earth is round.
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    2. Therefore, the earth is round.

  - First, we must ask whether the argument is *valid*.
    - Yes, it is clearly valid (*why* is "*p*, therefore *p*" *valid*).

  - Then, we must ask whether *it would be rational for us to believe the premise*.
    - In this case, it would indeed be rational for us to believe the premise (assuming we have the usual evidence).

  - So, this argument *is deductively strong*. [But, is it *useful*?]

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- **Inductive Strength**
  - Inductive strength is a bit more complicated than deductive strength. This is because of the phenomenon of ***defeat***.
    ➡ If an argument is deductively valid, then adding premises to that argument *can never render the argument invalid*. (I.e., a valid argument *can never be defeated by adding premises*.)

  - Why not? Let's think about the definition of validity.
    - An argument with premises *P* and conclusion C is *valid* iff the conjunction (*P* & not-*C*) is *logically impossible*.

  - Now, suppose we have a valid argument with premises *P* and conclusion *C*. That is, (*P* & not-*C*) is logically impossible. Now, *add another premise* (*Q*) to the argument.
    - The resulting argument will *also* be valid, since the conjunction (*Q* & *P* & not-*C*) will *also* be impossible. *Why*?

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- **Inductive Strength**
  - *Cogent* arguments, on the other hand, *can* be defeated (rendered *ill-formed*) by adding premises to it.

  - Consider an example. Start with this *cogent* argument:

    1. Boris is a student at State U.

    2. Most of the students at State U. voted.

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    3. Boris voted.

- We can turn this into an *ill-formed* argument, *just by adding premises to it*. Consider adding the following two premises:
  - No student who was out of town on voting day voted.
  - Boris was out of town on voting day.

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- **Inductive Strength**
  - Now, we have the following *4*-premise argument:

1. Boris is a student at State U.
2. Most of the students at State U. voted.
3. No student who was out of town on voting day voted.

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4. Boris was out of town on voting day.

5. Boris voted.

- This 4-premise extension of the original argument is *ill-formed*.
- In fact, *its conclusion must be false, given the truth of its premises*!
- This is an extreme case of an argument being ***defeated***.

- **Inductive Strength**
  - Because cogent arguments can be *defeated*, we need a more complicated definition of *inductive strength*.

  - In order for an inductive argument to be *strong* (for a person *S*), it must *not be defeated by the person's total evidence*. More precisely, we have the following definition:

D4.3: An argument is *inductively strong* for a person if and only if
1. the argument is cogent;
2. it is reasonable for the person to believe all the premises of the argument; and
3. the argument is not defeated by the person's total evidence.[1]

- Clause (3) means that *if we were to add the agent's total evidence to the argument, it would not (thereby) be rendered ill-formed*.

- **Deductive *vs* Inductive Strength**
  - The deductive strength of a valid argument (for a person *S*) depends *only on how strongly S's evidence supports its premises*.

  - The inductive strength of an argument (for a person *S*) depends on *three distinct factors*:
    1. *How cogent* the argument is.
    2. How strongly *S*'s evidence supports its premises.
    3. The extent to which S's evidence undermines the argument ("defeat" can come in *degrees of undermining*).

  - We will not attempt to say (*in general*) precisely how these three factors go together to determine inductive strength.

  - Rather, we will examine arguments on a *case-by-case basis* when we asses the inductive strength of arguments.

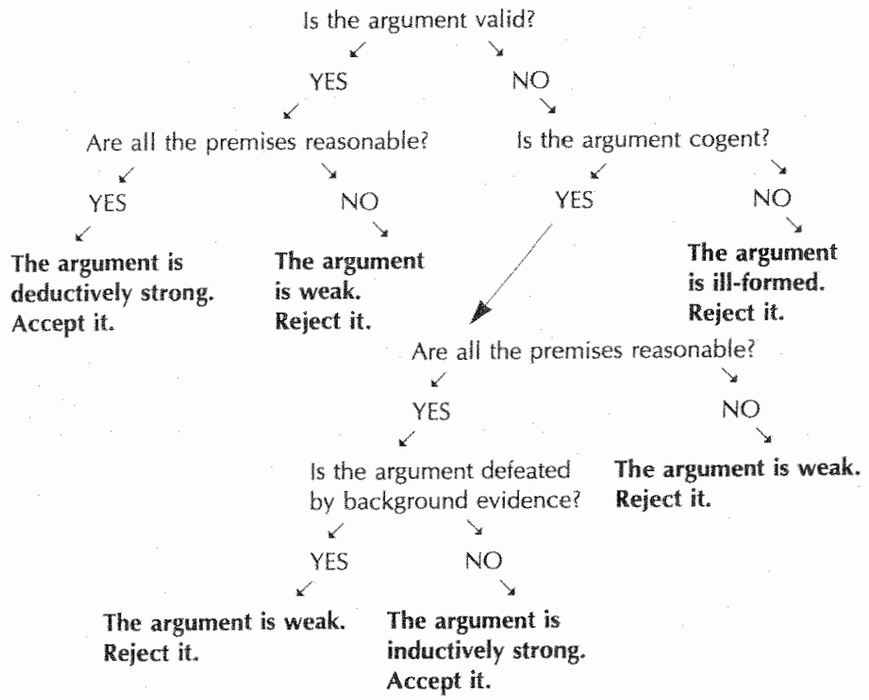
Deductive Strength

1. Requires deductive validity and reasonable premises.
2. The strength of a valid argument is proportional to the reasonableness of the conjunction of all its premises.
3. Strength can vary from person to person, depending on the evidence the people have.

Inductive Strength

1. Requires cogency, justified premises, and not being defeated by one's total evidence.
2. Can vary from one person to another, depending on the person's evidence.
3. Does not guarantee the truth of the conclusion.
4. Degree of inductive strength depends on how cogent the argument is, how reasonable the premises are, and the effects of total evidence on the argument.
5. When an argument is inductively strong for a person, then it is reasonable for the person to believe its conclusion.
6. Arguments that are not strong for a person are weak for that person.

Figure 4.1 Flowchart for Argument Evaluation



• Some Questions about Argument Strength

1. Suppose that you are uncertain about whether Tricky Dick is an honest person. You decide to ask him, and he says that he is. On this basis, you construct the following argument:

1. Tricky Dick says that he is honest.
2. If Tricky Dick says that he is honest, then Tricky Dick is honest.

3. Tricky Dick is honest.

Evaluate this argument. [use the "flowchart" above]

2. Evaluate the following argument:

1. Most Americans cities get more than fifteen inches of rainfall each year.
2. Tucson is an American city.

3. Tucson gets more than fifteen inches of rainfall each year.

• More Questions about Argument Strength

1. Why *doesn't* the definition of *d*eductive strength include a "no defeater" clause?

2. Make up examples of arguments that fit the following descriptions. Your examples should be clear and simple, not highly controversial and overly complicated. Write the arguments out in standard form and state their patterns.
   a. An argument that is inductively strong for many ordinary people now but was weak for ordinary people years ago.
   b. An argument that is inductively weak for many ordinary people now but was strong for ordinary people years ago.

3. Are *all* deductively strong arguments stronger than *all* inductively strong arguments?
   - That is, can an inductively strong argument (A1) be stronger (for a person) than a deductively strong argument (A2) is?
     - If so, Can you give an example pair <A1,A2>?
     - [**Hint**: both deductive and inductive strength depend on *how well one's total evidence supports the premises*.]

• More Questions about Argument Strength

1. Evaluate the following argument:

1. Blue is Blythe's favorite color.
2. Violets are blue.
3. Roses are red.

4. Blythe likes violets more than she likes roses.

2. Evaluate the following argument:

1. All bachelors are unmarried men.
2. All unmarried men live alone.

3. All bachelors live alone.