

# Logical Argument Mapping (LAM) – A Manual

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## 1. Three basic rules:

1. Structure your map according to an argument form (or scheme) whose logical validity is evident and generally accepted (e.g., *modus ponens*, *modus tollens*, alternative syllogism, disjunctive syllogism, conditional syllogism, etc., but also argument schemes that are transformed from invalid forms into valid ones like complete induction, argument from perfect authority, and argument from perfect analogy; see section 4 for a list)
2. Make sure that all your premises (reasons and warrants) are true, and provide further arguments for their truth if it is not evident
3. Make sure that all your premises are consistent with each other

## 2. The procedure of Logical Argument Mapping in seven steps

1. Formulate a claim: the central goal of your argument, a central thesis
2. Provide a reason for your claim
3. Select from a list of argument schemes whose formal validity you accept (see section 4 for a list) a scheme that provides the most convincing “warrant” for your argument
4. Transform your argument into a logical argument by adding what is missing, and by reformulating the elements of the argument (claim, reason, warrant) in such a way that its validity in accordance with the scheme becomes evident
5. Consider possible objections against both the reason and the warrant, formulate them, and link them to the elements of your map against which they are directed (see section 5 for some “conflict schemes” you should use for this purpose).
6. Decide whether to
  - a) develop new arguments against the objections, or
  - b) reformulate the original argument in such a way that it can be defended against the objection by, e.g.,
    - including exceptions into the warrant and limiting the scope of the claim (go then to step 3.), or
    - using a different argument scheme (go to step 3.), or
    - redefining the meaning of concepts used in the argument (go to step 1. or 2.)
  - c) give up the whole argument
7. In case of 6.c, start again with step 1. or 2.; in the other cases, do as described in 6.a and b.

### 3. The conventions for constructing LAM maps

#### 3.1. *Layout:*

- The structure of a LAM map is determined by Western reading habits that direct our attention from the top left corner of a page to the right and downwards
- Since the understanding of an argument is facilitated when we know the central claim from the very beginning, this claim is always located on top of the map in the left corner
- Starting from there, we work to the right and downwards to reconstruct the reasons and warrants in an ongoing process of argumentation

#### 3.2. *The ontology of LAM maps distinguishes statements and relations:*

- Statements are presented in two different text box forms: rounded rectangles and ovals. Based on their importance for cognitive change, the warrants are highlighted by using oval text boxes; everything else is presented in rounded rectangles
- The ground color specifies a coherent position, all statements in this color must be consistent according to rule 3 in the published article; objections and other considerations are presented in different colors
- Relations are represented by arrows. Each arrow must be specified by
  1. its function: “therefore” for arguments; “opposes,” “refutes,” “rejects,” “questions,” “supports,” etc. for other functions
  2. by naming the chosen logical argument scheme (S-R: rule of inference scheme) or a conflict scheme (S-C; examples are listed in section 3 below). This is important as a reminder that argument schemes can always be replaced by alternative schemes
  3. by naming the person/group/institution that claims this relation (AU=author). This allows us to develop conflicting argumentations on one map, or to represent arguments that are cited from other people

### 4. Logical argument schemes

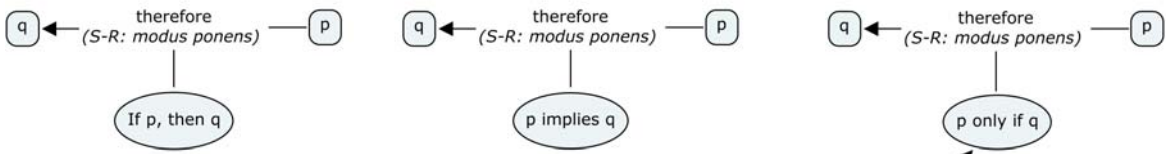
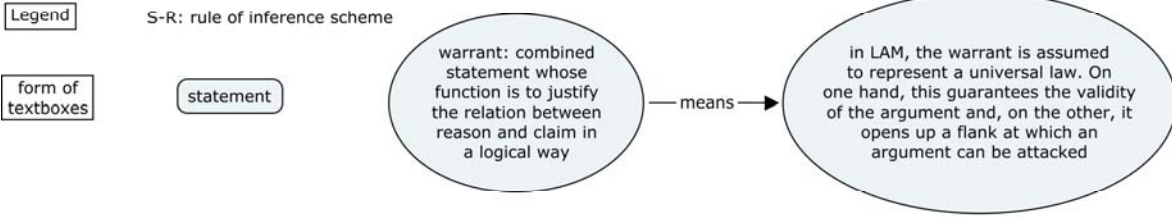
An argument is defined as “valid” (or “logically valid,” “deductively valid”) if and only if it follows an argument scheme that is valid. An argument scheme is valid if and only if it is impossible for any argument following this scheme to have true premises and a false conclusion.

The following logical argument schemes are valid:

(Note with regards to the examples that “validity” is not “truth”; for validity the truth of the premises is simply *presupposed*, even though you might doubt their truth in these concrete cases).

Logical argument schemes

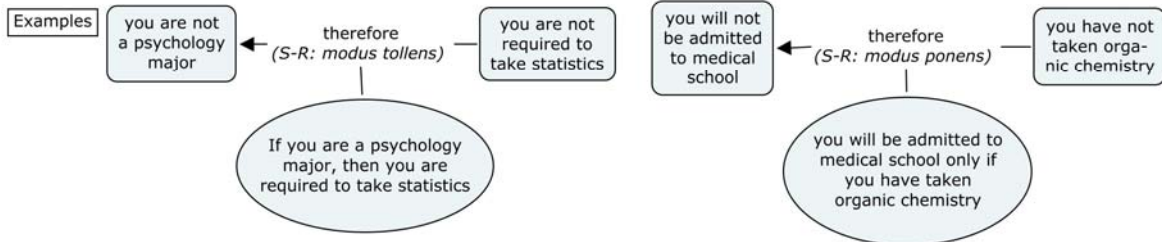
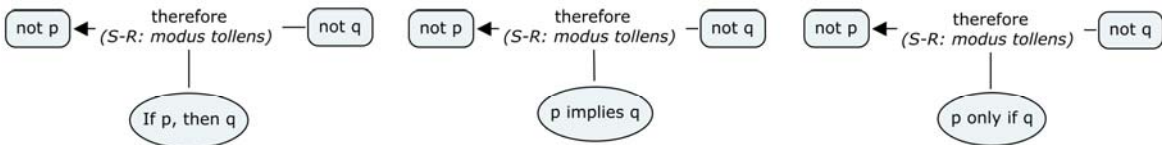
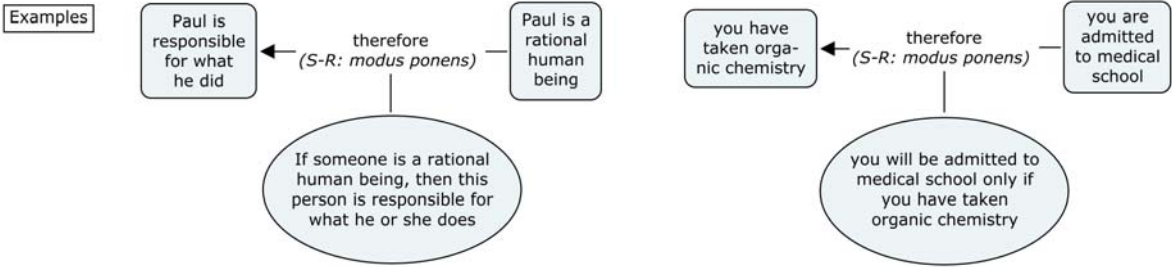
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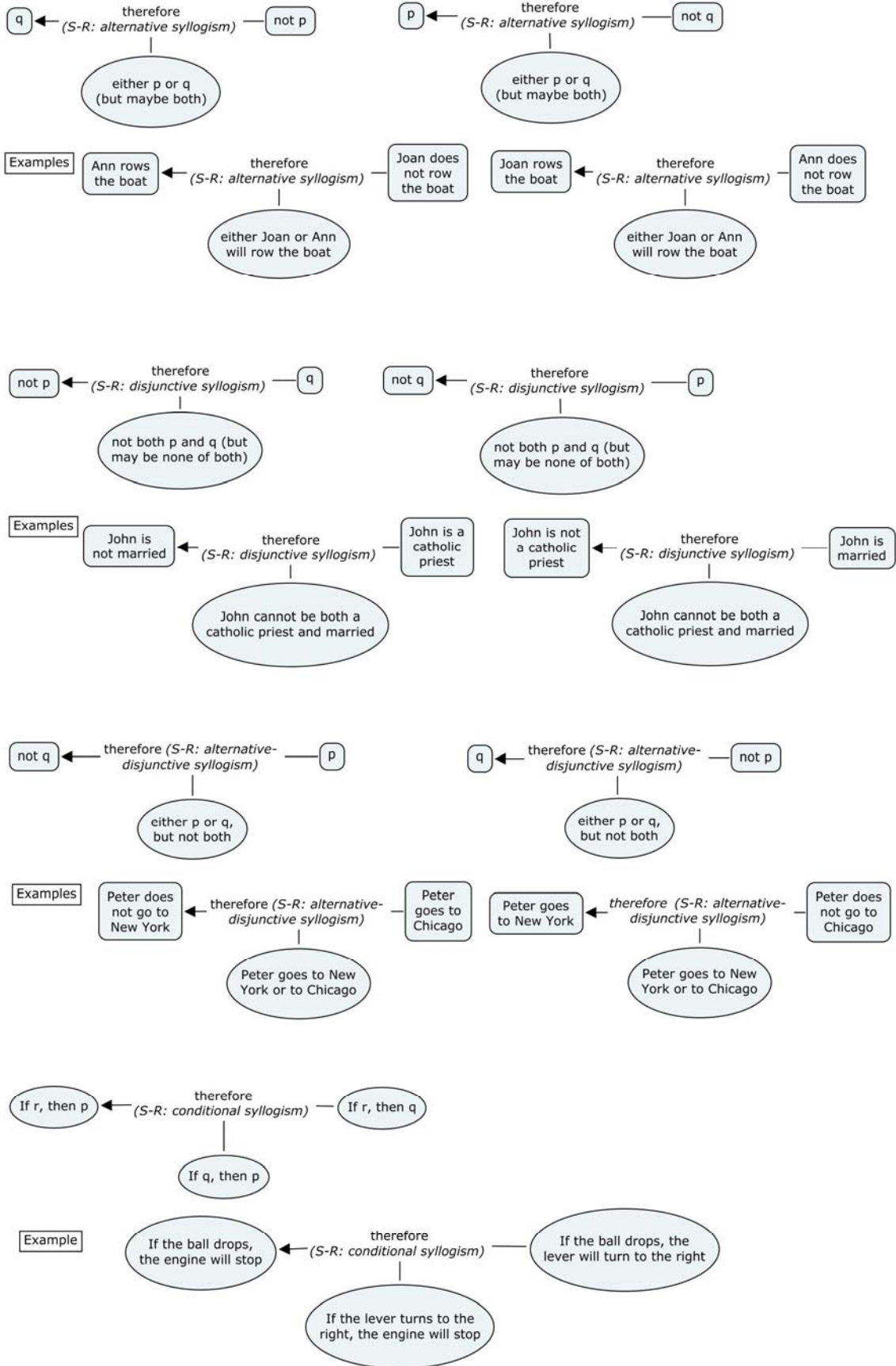


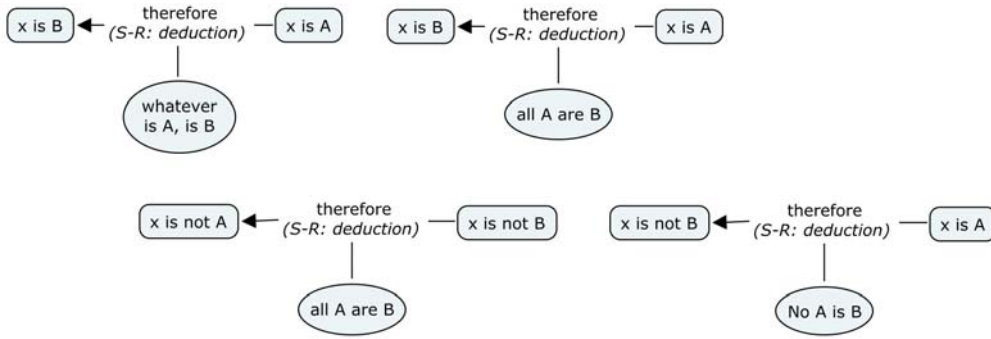
modus ponens can also be used for

- causal arguments
- pragmatic arguments (in which something is evaluated on the basis of the merits that are attributed to the consequences)

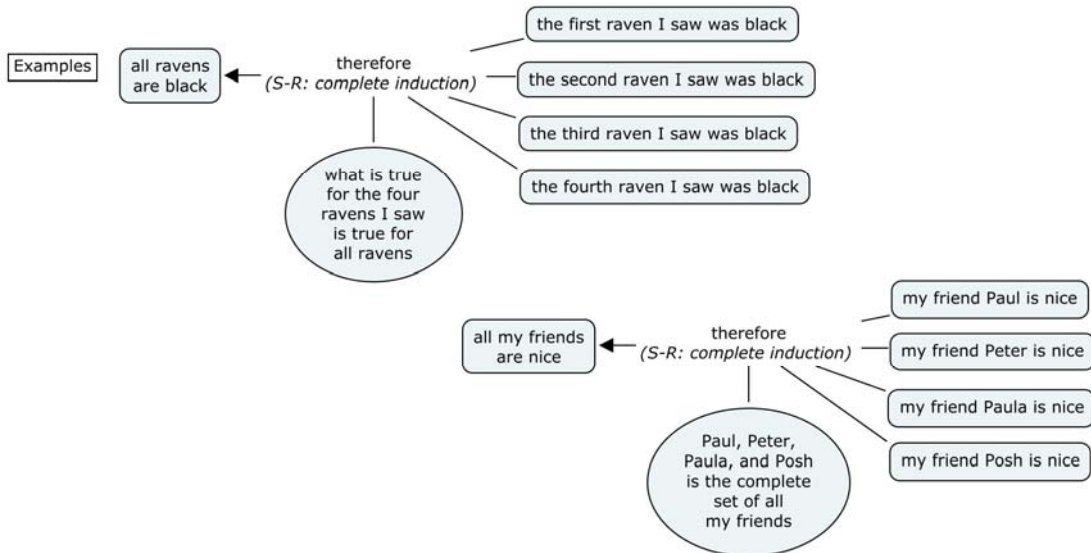
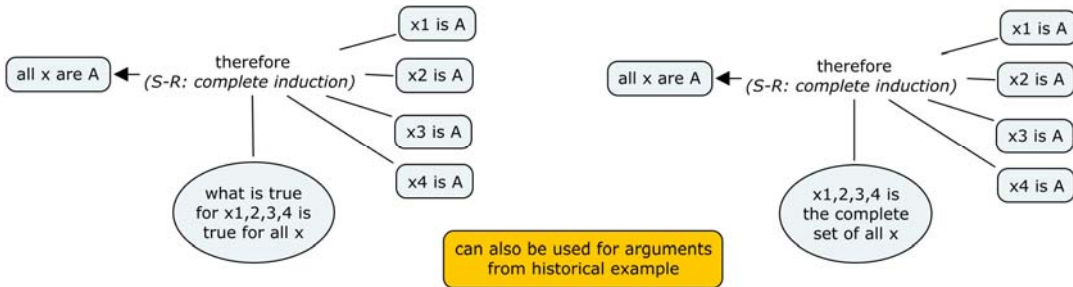
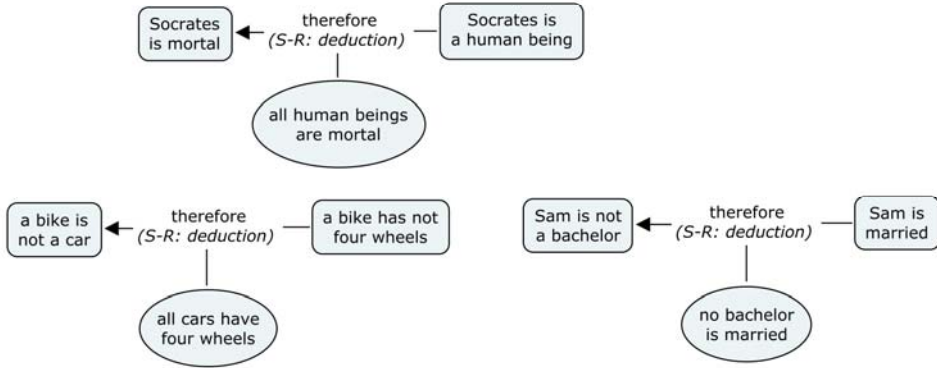
q is a necessary condition for p while p is a sufficient condition for q

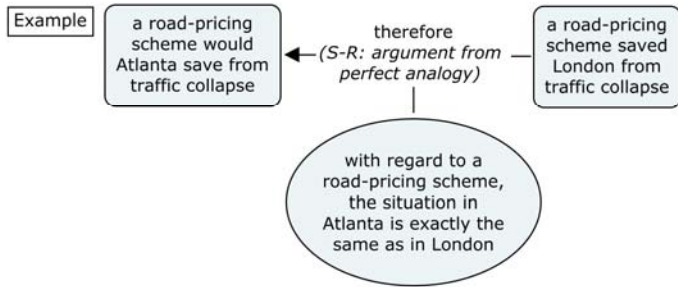
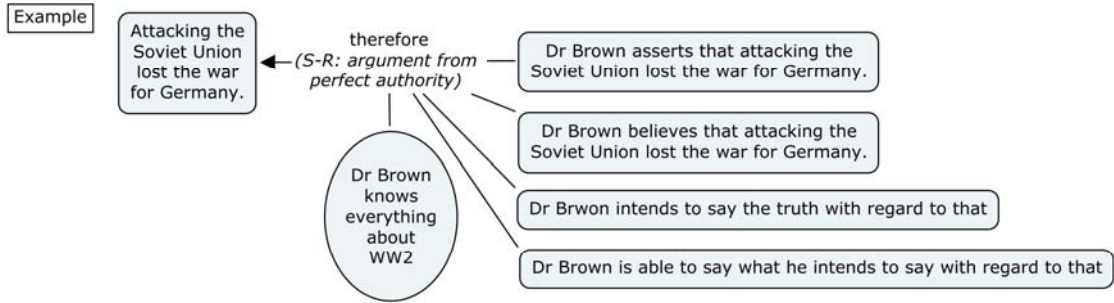
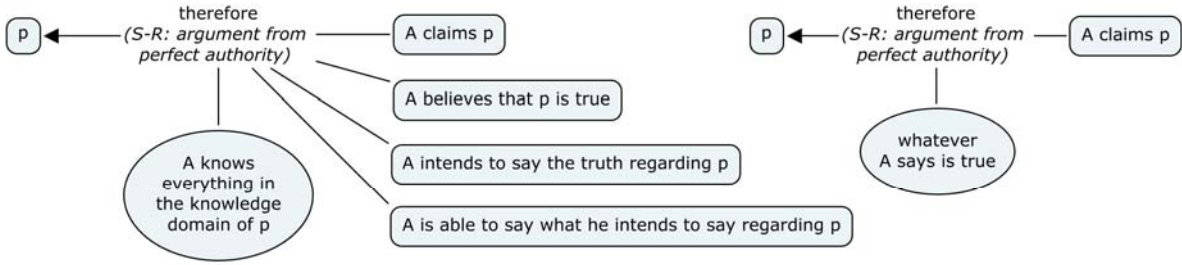






Examples





### 5. Conflict schemes

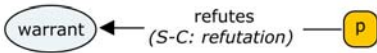
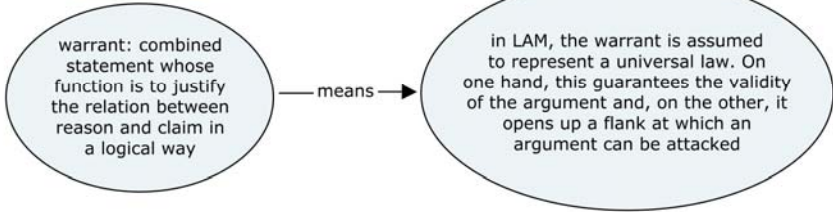
#### Conflict schemes (S-C)

Legend

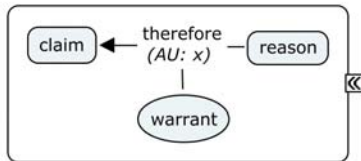
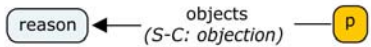
color of textboxes: a coherent argumentation (reconstructed)

a statement, or argument, that conflicts with a reason or a warrant

form of textboxes: statement

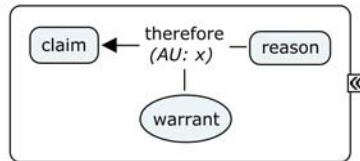


NOTE: since the warrant is supposed to represent a universal law, it can be refuted by one counter example



↑ questions (S-C: ad hominem AU=y)

x is always wrong

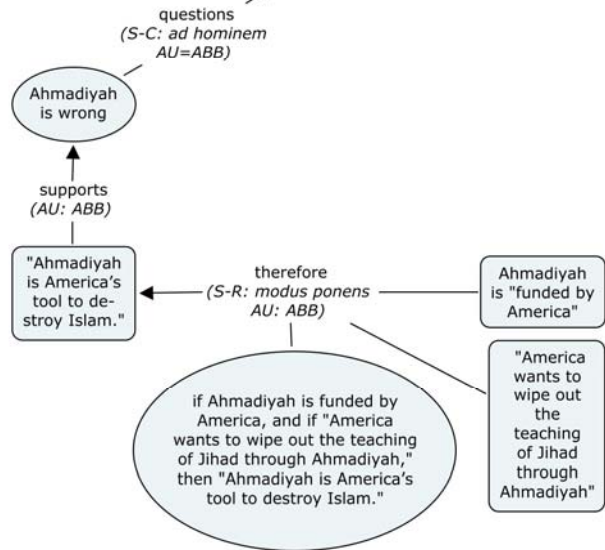
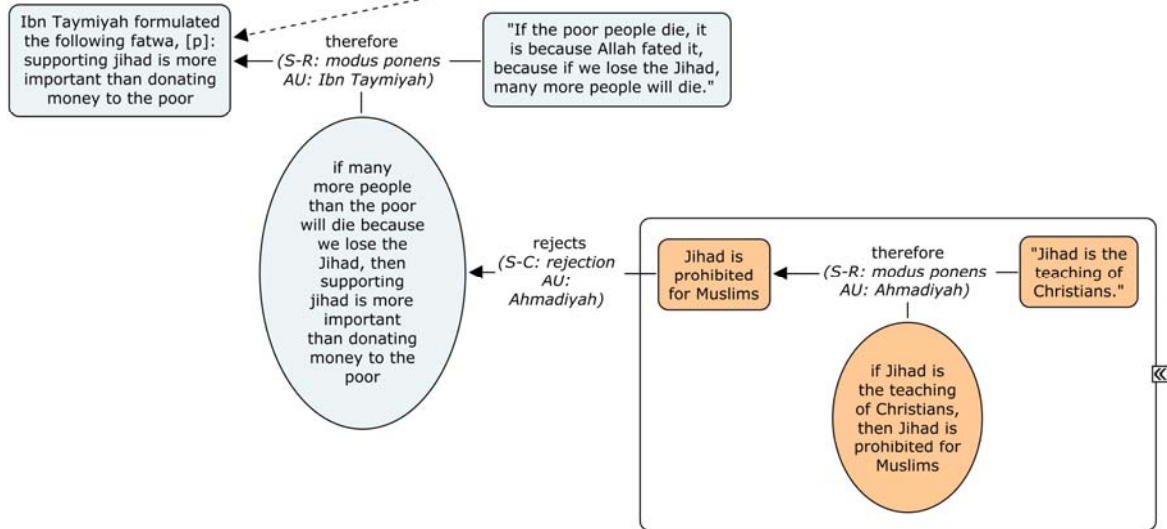
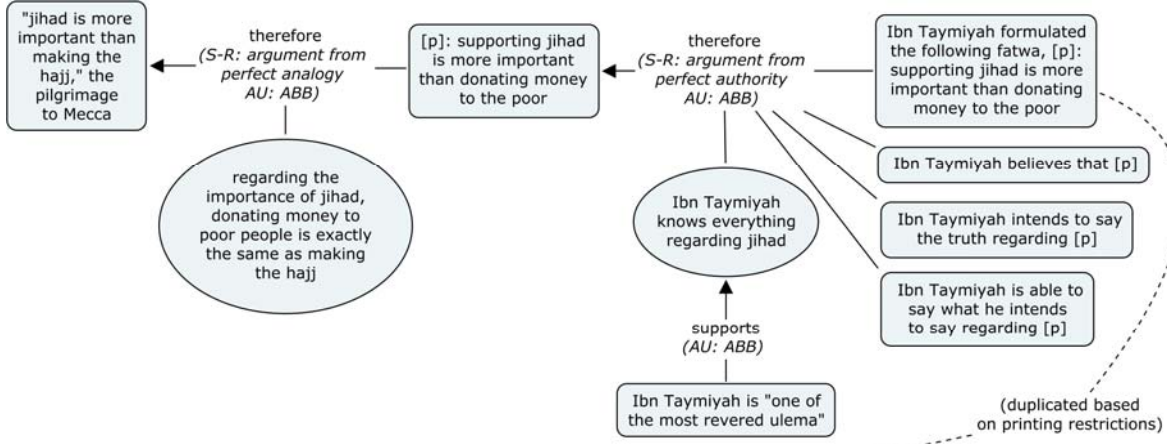


↑ questions (S-C: ad hominem AU=y)

x is not trustworthy

### 6. An example

LAM map of an argument that has been reconstructed based on the quote below from an interview with Abu Bakr Ba'asyir (ABB in the map). Everything that is not explicitly marked as a quote is based on my own interpretation. "AU" means "author of the argument," "S-R" "rules of inference scheme," "S-C" "conflict scheme." Created with Cmap, <http://cmap.ihmc.us/>





QUESTION: Is it acceptable to postpone a martyrdom action in order to make the hajj (pilgrimage to Mecca)?

ANSWER: A martyrdom action cannot be postponed in this case because jihad is more important than making the hajj. For example one of most revered ulema, Ibn Taymiyah, was asked by a rich person: "Hey Sheikh, I have so much money but I'm confused about donating my money because there are two needy causes. There are poor people who, if I don't help, will die of starvation. But if I use the money for this purpose, then the Jihad will lack funding. Therefore, I need your fatwa (religious decision) O Sheikh." Ibn Taymiyah replied: "Give all your money for jihad. If the poor people die, it is because Allah fated it, because if we lose the Jihad, many more people will die." There is no better deed than Jihad. None. The highest deed in Islam is Jihad. If we commit to Jihad, we can neglect other deeds. America wants to wipe out the teaching of Jihad through Ahmadiyah (an Islamic school of thought that believes that Pakistan's Mirza Ghulam Ahmad is the Prophet Muhammed's successor). Through this organization, America works. Why? Because Ahmadiyah prohibits its followers to undertake Jihad because (they argue) Jihad is the teaching of Christians. This organization originates from India. Its headquarters are in London, funded by America. Ahmadiyah is America's tool to destroy Islam, including JIL (Jaringan Islam Liberal = Islamic Liberal Network), an NGO in Jakarta that advocates a liberal form of Islam. It is funded by USAID.

From: Scott Atran, "Interview with Abu Bakr Ba'asyir. Full Interview in English and Bahasa Indonesia with the Alleged Leader of Jemaah Islamiyah, from Cipinang Prison, Jakarta, August 13 and 15, 2005," [http://www.sitemaker.umich.edu/satran/files/atranba\\_asyirinterview020905.pdf](http://www.sitemaker.umich.edu/satran/files/atranba_asyirinterview020905.pdf), accessed Jan 22, 2006 (2005), pp. 12-13.