Argument Mapping 4: Identifying and Mapping Assumptions

One of the hardest parts of understanding and evaluating an argument is to identify the many unspoken components of it. Every argument includes a number of assumptions that, even if unstated, are nevertheless logically necessary for the claim to be true. Every reason is in fact made up of not one statement, but of at least two separate statements that *together* form a single reason. *Both* of these statements must be true or the reason overall is false. Each of these reason statements is called a <u>premise</u>, and together they are called <u>co-premises</u>, because they work together as a *single* reason. Here is the "Socrates is mortal" example (Map 4.1):



Putting the map above in prose form: "How do we know that Socrates is mortal (asking the AQ)? We know that Socrates is mortal because Socrates is a man (i.e. is human)." But of course there is one important unstated assumption that must also be true for this claim to be true. Therefore the argument map above (one claim and one reason with only a single premise shown) is not yet complete, as only *one* of the necessary premises is indicated. Map 4.2 adds:



The other necessary premise is obvious, and undoubtedly you've already figured it out. We can also see it by recalling the two-term requirement that demands that the terms between the claim and reason boxes match up (or cancel each other out). Map 4.3:



Socrates is mortal, and Socrates is a man, so the two Socrates terms (term 1) match up in the claim and one of the reason copremises, yet we still need to find how being mortal (2) and being a man (3) relate to the argument. Obviously, the unstated assumption is the combination of these two (2+3) – "A man is mortal" or "All men are mortal." After all, if someone can be a man (i.e. human) and yet be immortal, then this is not a good reason to

believe that Socrates is mortal. These two premises (Socrates is a man; All men are mortal) together form a single reason, and logicians call this process of identifying the unstated copremise 'finding the middle term,' i.e. the middle (often unstated) term that connects the two statements together.

In an argument map this logical relationship is indicated by an arrow connecting *both of them (together)* pointing to the claim they support. I've included red underlining to identify each of the main terms in each box, but usually this is not necessary. The result would look like what we see in Map 4.3:



Note how the underlined terms now cancel each other out, making it a valid (logically strong) argument. Map 4.4:



It is also critical to note the way we draw this argument map, 4.5:



The difference, of course, is that the two statements in this second map ("Socrates is a man" and "All men are mortal") are *not* connected together by a single line, which indicates that they are serving as two *separate* reasons rather than as two co-premises of a single reason (i.e. that's the way an argument map distinguishes between the two). It is a very different thing to say there is one reason to believe something is true (the first map),

versus there being two reasons to believe something is true (the second map). This second map above is therefore incorrect. Be sure to understand the difference between these two ways of connecting reasons and claims – I've illustrated the general structure here (Maps 4.6 and 4.7):



Map 4.6 has two separate, *independent* reasons to believe its claim is true – it is possible, for example, that the first reason might be true but the second one might be false. Map 4.7 has only one reason, which is either true or false. All other things being equal, the first claim would be stronger because it has more types of evidence, i.e. more reasons to believe it is true. Notice that the two reasons in Map 4.6 do not have their copremises showing, which is preferable. So to do so, the map would look like Map 4.8:



Or take another example. Our initial John as quarterback map looked like this (4.9-4.10):



As we know, 4.9 is incomplete, however, because we need to 'find the middle term,' i.e. find what additional statement (copremise 2) will connect John being a good quarterback with John throwing 39 touchdown passes last season – the answer will go in the ? copremise box of Map 4.10 above. The answer of course is what we see in 4.11:



As with the Socrates example, notice how the terms match up in Map 4.11. "John" is found twice, as is being a good quarterback ("is a good quarterback"), as is "threw/throwing 39 touchdown passes last season." Note as well how the (often unstated) copremises are usually more general than the first copremise: 'Socrates is this' (a specific person) and 'any person being this is that'; so too 'John (a specific person) did this' and 'anybody doing this is that.' We call the first, more specific copremise (relating to John or to Socrates) the minor premise, whereas the second, more general copremise (relating to humanity or good quarterbacks in general) is the major premise. Most of the time, the major premise will be the unstated one, usually because it is assumed that everybody knows that. Nevertheless, these unstated copremises are usually the most important (and often the most contentious) part of the argument. In the Socrates example, there is probably little doubt that Socrates was a man/human (assuming he was a real person at all), but there is a bit more doubt as to whether mortality is an inherent trait of humanity if/when medical science allows people to live forever, will they still be human? Similarly with the quarterback example, the key premise is whether 39 touchdown passes is enough to make someone a good quarterback or not - it's relatively straightforward to know how many touchdowns John threw (though there are a number of unstated assumptions to go along with that, e.g. the recordbooks are correct...). In this quarterback case particularly, we would want to add additional support to the argument by saying how we know that 39 passes last season was good, i.e. answer the Assertibility Question for this reason. Doing so, the reason for the main claim also serves in turn as a claim for the reason below it. A map of the resulting argument could look like this, Map 4.12:



Here we have expanded Map 4.11 slightly by adding another layer, providing a single multi-premise reason to believe that 39 touchdowns was a good number for last season. This time the single reason we've added has three copremises instead of two, and each of them must be true for the claim above it to be true. Check and you'll see that the terms of the three copremises and the middle claim all match up as well. The usually unstated copremise, and in this case likely the most contentious one, would be the middle one. The last copremise is a definition, so it normally remains unstated as well.

Each claim-reason pair is then, at its simplest, composed of a 'triangle': one claim and a single two-copremise reason. Map 4.13:



We call this a <u>simple argument</u>, and it is the building block for all arguments, and for our argument maps as well. You can (and should) in turn ask how we know the reasons given themselves are true, and on it goes – until you reach a reason that is uncontested. As we know already, real arguments can be much more complicated than a simple argument of one claim and one reason, and argument mapping is most useful in these cases. Here are a few more examples (Maps 4.14 and 4.15), still relatively simple. We'll discuss far more complicated ones throughout the term.



Make sure that you understand how these examples work – what is the main claim? how many reasons are there to believe the main claim and what are they? Which are the copremises? Which are the minor and major premises? What are the main terms in each reason? Do the terms match up?...

Although the simplest argument has only two copremises, there is no strict limit on the number of copremises a single reason can have (and of course no limit on the number of reasons to believe any particular claim). However, if you have more than three or four copremises in a single reason it is likely that your argument map needs to be modified and some of those copremises moved to other parts of the argument. In such cases, you should particularly look to categorize similar reasons under a more general reason (we'll discuss this later).

Practically, there are two rules that we can use to make sure that a reason really supports the claim above it – that the various terms match up and cancel each other out. Together the two rules are a way of matching up the terms to make sure each term is mentioned in at least two of the boxes (and in only two of the boxes if at all possible).

1. Rabbit Rule (RR)

This rule applies vertically, between a claim and each of its reasons, and is combined with the Holding Hands rule mentioned in #2. For each claim-reason pairing, you must first identify all of the terms in each box. Then, you make sure that every term mentioned in the claim is found in one of the other copremises. As the saying goes, "You can't pull a rabbit out of a hat," just as you can't show that John is a good quarterback if you don't mention something in your reason about John and something else about good quarterbacking. Map 4.16 shows how it works:



If a claim has more than one reason, you apply the rabbit rule to *each reason separately*. First you apply the rabbit rule to the claim and reason 1, and then you apply the rabbit rule to the claim and reason 2.

In the map below (4.17), the Rabbit Rule says that since you have the terms "Fred" and "likes fish" in the claim, in each reason you need to have both of these terms as well. So for the red reason, we find "Fred" in the first (minor) copremise and "like fish" in the second (major) copremise. The same applies to the blue reason.



2. Holding Hands (HH)

This rule applies horizontally in an argument map. Within each reason, a term stated in one copremise must be mentioned in one of the other copremises *in that same reason* (*if it is not in the claim above it* – see the Rabbit Rule #1). The terms must 'hold hands' within a single reason *if they are not already accounted for by the Rabbit Rule*. Remember that this only applies to copremises within the same reason – do not jump from one reason to another with this rule. Map 4.17 shows how it works:



In the following example, all the terms mentioned in copremise 1 of the red reason should also be found in copremise 2 (*or* in the claim above it, as per Rabbit Rule). Similarly, the terms of blue copremise 1 below should also be found in blue copremise 2. Applying the Holding Hands rule gives you the connection between eating fish in the two copremises of the red reason, and praising fish in the two copremises of the see in Map 4.18.



Remember that both RR and HH apply to each simple argument, even if it is part of a larger argument map. In the map below, there are 4 simple arguments that are linked together to form a larger argument. You need to apply the RR and HH rules to each of these four groupings independently (Map 4.18).



The Holding Hands and Rabbit Rules are a simple way to remember to make sure that each term is mentioned in both the reason and the claim, and that there are no 'gaps' in the logic of an argument. In fact, it's a semi-mechanical way of figuring out *any* simple argument's unstated copremises. If you know two of the three boxes in a simple argument, you can easily figure out what the other copremise *must* be, if the argument is to be logically valid. If the claim is that "X is Y", and the reason is that "X is Z", you know by definition that the unstated copremise must be "Y is Z." This way, the Rabbit Rule is obeyed since the reason "X is Z" contains the X mentioned in the claim "X is Y", and the "Y is Z" copremise contains the Y mentioned in the claim "X is Y." Holding Hands then finishes it up, as Z being in the first copremise, it must also be in the second copremise as well. Thus you have a nice solid triangle, with each of the terms accounted for in two separate boxes and no two boxes repeating exactly the two terms found in another.

Key Terms

<u>Premise</u> – a statement that is part of a reason to believe that a claim is true.

<u>Copremise</u> - A part of a reason that, when combined with one or more other copremises, works to provide evidence for how we know a claim is true.

<u>Minor premise</u> – A copremise that refers to one of the terms in a claim, and is usually quite specific, e.g. a specific person (mentioned in the claim) does X, or a specific event/object (mentioned in the claim) is X...

<u>Major premise</u> – A copremise that refers to one of the terms in a claim, and is usually more general than the minor premise it is paired with. For example, 'people who do X are Y', or 'a specific event/object that is X is Y'...

<u>Rabbit Rule (RR)</u> – a rule that makes us match up the terms between a claim and its reason.

<u>Holding Hands (HH)</u> - a rule that makes us match up the terms between copremises within the same reason.