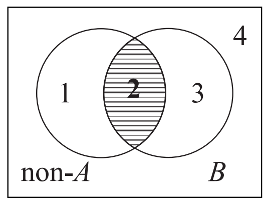
My 2-Circle Venn Diagram Technique: A Detailed Example

This handout explains my 2-circle diagram technique for determining the logical relationships between standard form categorical claims. Basically, this just involves working through an example in detail. As far as I know, this technique is original to me, and is different than the way Hurley does these problems. You may also do these the way Hurley does, if you prefer. This is just an alternative, which I think is more principled and methodical. I will now work through an example, in detail. I include much more detail than you really need, just to make sure that you understand each small step in the procedure (on quizzes and tests, all that's required are the two final diagrams, and the answer to the question about their logical relationship).

Detailed Example: What is the logical relationship between the following two standard-form categorical claims?

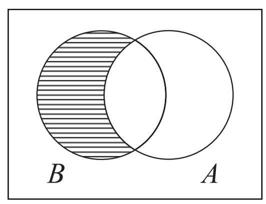
(i) No non-A are B.
(ii) All B are A.

Step 1: Draw the Venn Diagram for one of the two claims (it doesn't matter which one you start with). I'll draw the diagram for (i) first. Here, I use the numbers 1–4 to label the four regions of the diagram. And, I always label the left circle with the subject term of the claim, and the right circle with the predicate term of the claim. In this case, the subject term of (i) is "non-A" and the predicate term of (i) is "B." Since (i) is an **E** claim, we *shade the middle region* (in this case, region #2).



(i) No non-A are B.

Step 2: Draw the Venn diagram for the second claim — without numbers. The subject term of (ii) is "B" and the predicate term of (ii) is "A". And, since (ii) is an **A** claim, we *shade the left region*. No numbers in the four regions, yet ...

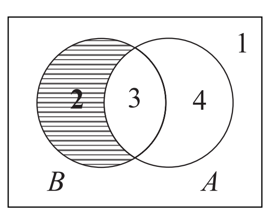


(ii) All B are A. (*no #'s yet*)

Step 3: Determine which classes of things the numbers 1–4 represent in the (i)-diagram. This step and the next are where the ***logic*** gets done! The following table summarizes the classes denoted by 1–4 in the (i)-diagram above. Remember, the class of things *outside non-X* is the same as the class of things *inside X* (and, *vice versa*: "*inside non-X*" = "*outside X*").

# in (i)-diagram	Class of objects denoted by # in (i)-diagram
1	objects inside non-A and outside B (hence objects outside A and outside B)
2	objects inside non-A and inside B (hence objects outside A and inside B)
3	objects outside non-A and inside B (hence objects inside A and inside B)
4	objects outside non-A and outside B (hence objects inside A and outside B)

Step 4: Place the numbers 1–4 in the appropriate regions in the diagram for claim (ii). Again, this is where the ***logic*** gets done! Begin with the left region of the (ii)-diagram. This region corresponds to objects inside B and outside A. Which number belongs there? Our table above tells us that the number "2" corresponds to those objects inside B and outside A. The middle region of the (ii)-diagram corresponds to those objects that are inside both A and B. That's the class denoted by the number "3" in the (i)-diagram. The right region of the (ii)-diagram corresponds to those objects that are inside A but outside B. That's where the number "4" sits in the (i)-diagram. Finally, the outer-most region of diagram (ii) corresponds to the objects that are outside both A and B. That's the region numbered "1" in the (i)-diagram. Thus, the *final* (ii)-diagram:



(ii) All B are A. (*final*)

☞ *All regions with the same numbers have the same markings in the* (i) *and* (ii) *diagrams*. So, (i) ***is equivalent to*** (ii). ❑