A Venn diagram is a device (tool) that allows us to distinguish between valid and invalid argument forms. It works not for argument forms in general but for special argument forms known as standard-form categorical syllogisms (SFCSs). Here is the procedure:

1. **If the categorical syllogism is not yet in standard form, put it into standard form.** There are two cases:

   a. **Natural language.** If the argument (categorical syllogism) is presented in natural language (such as English), either orally or in writing, you must first identify its conclusion. Having done that, you must identify its two premises. Rewrite the argument so that the major premise is listed first, followed by the minor premise, followed by the conclusion. For example, suppose you encounter the following argument and are wondering whether it’s valid:

   All smartphones are expensive devices. Some technological wonders are expensive devices. So some smartphones are technological wonders.

   The word “so” is a conclusion indicator, so what follows it is likely to be the conclusion. This means that “technological wonders,” which is the predicate of the conclusion, is the major term. The major term must appear in the first or major premise. We get this:

   Some technological wonders are expensive devices.
   All smartphones are expensive devices.
   \[\therefore\] Some smartphones are technological wonders.

   Let’s reduce the argument to its form by replacing class
terms (i.e., the content of the argument) with appropriate letters:

Some T are E.
All S are E.
∴ Some S are T.

We now have the skeleton or form of the argument, which you may recognize as IAI-2. Once you get to this point, you are ready for Step 2.

b. **Mood and figure.** If the argument (categorical syllogism) is already in standard form but is presented as a mood and figure, such as AAA-1, then you must reconstruct it before proceeding with the diagram. For example, AAA-1 comes out as:

All M are P
All S are M
∴ All S are P

Once you get to this point, you are ready for Step 2.

2. **Draw and label a three-circle Venn diagram.** Be sure to leave enough room in each of the eight areas for either shading or an “x” to be visible. Remember: A Venn diagram is a tool. As such, it doesn’t have to be pretty, but it does have to be useful. If your diagram is poorly drawn, it could lead you astray, which would defeat its purpose.

3. **Diagram the premises.** Strictly speaking, it does not matter which of the two premises is diagrammed first, but if the SFCS contains both a universal premise (“A” or “E”) and a particular premise (“I” or “O”), then it’s best to diagram the universal premise first. The reason for this is that it may obviate (i.e., make unnecessary) the moving of an “x” from one area of the diagram to another. Any time you have to move an “x,” you create the risk of error.

4. **Examine the Venn diagram.** If the conclusion of the SFCS is already diagrammed, after you have diagrammed the two
premises, then the SFCS is valid. If the conclusion of the SFCS is not already diagrammed, after you have diagrammed the two premises, then the SFCS is invalid. It’s as simple as that!

You may be wondering how the conclusion of a SFCS can be diagrammed if only its premises have been diagrammed. Recall the definition of “validity.” To say that a deductive argument is valid is to say that it is logically impossible for its premises to be true while its conclusion is false. In other words, the truth of the premises guarantees (necessitates, ensures) the truth of the conclusion. When you diagram the premises of a valid SFCS, the conclusion magically appears, which shows that it’s logically impossible to diagram its premises without diagramming its conclusion. The conclusion is implicit (hidden) in the premises.