Example 4. Not all philosophers are sociopaths. So some philosophers aren’t sociopaths.

**Classical proof of validity:**

1. An argument is valid if and only if its conclusion is true if all of its premises are true. (classical validity)
2. Suppose that the premise, “Not all philosophers are sociopaths,” is true. (hypothesis)
3. Then “All philosophers are sociopaths” is false. (2, notC)
4. So for some member $d$ of the domain, “$d$ is a sociopathic philosopher” is false. (3, allC)
5. So, for that same member $d$ of the domain, “$d$ is a not a sociopathic philosopher” is true. (4, notC)
6. So, the conclusion, “there exists an $x$ such that $x$ is a philosopher and $x$ is not a sociopath,” is true (5, someC)
7. So, if the premises are true, then the conclusion is true (2-6)
8. ∴ The argument is valid (1,7)

**Intuitionist proof of invalidity:**

1. An argument is valid if and only if its conclusion is proven if all of its premises are proven. (intuitionist validity)
2. Consider a possible situation in which the following is proven:
   a. There is no procedure that, given any $n$, produces a proof of the sentence “$n$ is a philosopher and $n$ is a sociopath.”
   b. There is no construction of an item $n$ and a proof that “$n$ is a philosopher and $n$ is not a sociopath.”

   [See if you can say why this situation is consistent. If it helps, imagine a hypothetical scenario that helps to explain how these two statements could be consistent.]
3. There is a proof that there is no proof for the statement, “All philosophers are sociopaths.” (2a, allI)
4. There is a proof of the premise that “Not all philosophers are sociopaths.” (3, notI)
5. There is a proof that there is no proof of the statement “There exists a philosopher who is not a sociopath.” (2b, someI)
6. So the conclusion, “There exists a philosopher who is not a sociopath,” is unproven (5).
7. So it is possible for the premise to be proven and the conclusion to be unproven (4,6)
8. ∴ The argument is invalid. (1,7)