Necessary Assumption Challenge Explanation   16.3.12

First, translate.

> *So retina scanners store information about the blood vessel patterns in people's eyes so it can recognize any pattern it's seen before. Every eye has a completely unique blood vessel pattern, so retina scanners can always be used to see if they've ever scanned someone's retina before.*

Ahh... finally a stimulus about our dystopian future! I've read enough YA novels to know this never ends well, but we do have some hope with these retina scanners. They're trying to prove that the scanners will always be able to identify the retina of any person it's ever scanned before, but what if people's eyes change? Yeah, you won't get any false positives because everyone's eyes are different, but you could get a ton of false negatives when the machines maybe don't recognize the changed eye.

What if someone gets an eye disease that changes the blood vessels in their eyes? What if they initially get scanned during allergy season when they have super red eyes with a bunch of popping blood vessels? What if their eye gets cut somehow? Then the scanner probably wouldn't detect a match! But it would still be the same eye.

LOOPHOLE   What if the pattern of blood vessels in someone's eye can change enough to trick the scanner?

Now we see it's Necessary Assumption, which is great since we already have a Loophole. We know they're assuming that the patterns of blood vessels in someone's eyes don't change enough to trick the retina scanner.

NA   Eye blood vessel patterns won't change enough to trick the retina scanner.

Let's go find our NA in the answer choices.

A)   *So eye diseases don't change blood vessels enough to make them unrecognizable to the retina scanner. Does this have to be true? Yes!* **A** *is almost exactly our negated Loophole. It has to be true if the scanner is to always identify every retina that it's scanned before. It can't be vulnerable to changing retina patterns.* **A** *is provable.*

B)   *So no person has a different blood vessel pattern in their left vs. right eye. Does this have to be true? No, the stimulus is only comparing individual eye to individual eye. It doesn't claim any matches between right and left eyes, so we can't prove* **B** *necessarily true. We don't have the ammunition we need in the stimulus, so* **B's** *not provable*

C)   *So there are enough retina scanners to store everyone's retinas. Does this have to be true? No, the stimulus is only claiming that the scanner will be able to recognize the pattern of a retina it's scanned before. That could be 10 retinas total for all we know. It doesn't have to store the whole world. The conclusion doesn't require* **C** *to be true, so it's not provable.*

D)   *So the number of blood vessels in different retinas doesn't change, but the patterns change. Does this have to be true? No, the number of blood vessels across retinas could totally change. One person could have one blood vessel while another has 25 blood vessels; it doesn't matter as long as the retina scanner is picking up the matching pattern.* **D** *is not provable.*

E) *So no one's retina has been scanned by two or more retina scanners. Does this have to be true? No, each of these scanners would just pick up these retinas again and everything stays the same. It doesn't matter if more than one scanner has to meet this matching burden. The conclusion contends that each individual scanner does its job, not that there's any obligation to have scanners not overlap.* **E** *isn't provable.*

A is the correct answer. It absolutely has to be true for the conclusion to be valid.

Necessary Assumption Challenge Explanation   15.3.12

First, translate.

> *So organic farming proponents say that chemical fertilizers and pesticides are harmful to wildlife. But if we want the same amount of food, we have to use a bunch more land for organic farms instead of chemical farms. Therefore, organic farming leaves less habitat for wildlife.*

Hippie organic farms take up more space than chemical farms, so the author is saying they leave less habitat for local wildlife. But what if the wildlife could live on the organic farm? It could be this whole unified ecosystem where butterflies and deer live amongst the organic, fair trade, ethically produced strawberries. Yeah, chemical farms probably aren't suitable habitat extensions for wildlife, but blissful harmony is kinda organic's whole thing. It's totally conceivable that the wildlife could live on the organic farm, meaning they wouldn't lose any habitat at all.

LOOPHOLE   What if the organic farm is a suitable habitat for the wildlife?

Now we see it's NA and we're off to the races. The author is assuming that organic farms are not suitable habitat for wildlife. This has to be true if the organic farms lead to a habitat reduction.

NA   Organic farms aren't suitable wildlife habitat.

Awesome, let's go find our NA in the answer choices!

A)   *So chemical fertilizers and pesticides pose no threat to wildlife. Does this have to be true? No, the conclusion is only about organic farms leading to habitat reduction. You have to stay focused on what you can prove on NA, and we definitely cannot prove that **A** has to be true. It's out.*

B)   *So wildlife living near chemical farms will not eat or drink anything with the chemicals. Does this have to be true? No, the wildlife could totally get exposed to the chemicals and nothing happens to our conclusion. **B** doesn't affect whether organic farms lead to a habitat reduction. We can't prove that **B** has to be true, so it's not our NA.*

C)   *So the only disadvantage for chemical fertilizers is how they affect wildlife. Does this have to be true? No, chemicals could have a ton more downsides than just how they affect wildlife. What about the possibility that people could ingest them and get sick? We can't prove **C**.*

D)   *So the same crops are on both chemical and organic farms. Does this have to be true? No, they could do different crops. The claim is that organic farming leaves less room for wildlife habitat when producing the same **amount** of food. We don't need a crop-for-crop match to achieve a pound-for-pound match. All we need is the amount, so **D** is not provable.*

E)   *So organic farms are not suitable wildlife habitats. Hey hey hey! That's our negated Loophole! We can prove that **E** definitely has to be true. Otherwise, the conclusion falls apart. **E** is provable.*

E is the correct answer. It absolutely has to be true if the conclusion has any shot at validity.