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SUMMARY KEYWORDS

interval, venn diagram, endpoint, union, intersection, venn, breaking, green, case, put, covered, include, helpful, diagram, left, description, considered, overlap, red, draw

SPEAKERS

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Welcome. In the last lecture, we talked about intersections of intervals. So in that case, we looked at what was in the overlap. In this case, we want to look at what's in like the combination with the union of the intervals. I left up the interval Venn diagram kind of description, because we're still going to use that here. Okay, so to get started, so our question now is, I'm going to do two intervals. So I'm going to take the interval, I'm going to take the same two intervals as last time, actually, to be specific. So I'm going to take the interval 3, 7, like this, I know I want to switch this over to be the union with the interval 4.5, 8. And I want to know what I get. So again, we want to draw the same picture. So this is kind of a Venn diagram.

So again, I start out I have I put in 3, and 7. And then I put in 4.5 And 8, and then I'm going to put above I have this is closed, so I put closed above, and then the other one down below, okay? And now in this circumstance, we need something that's in at least one of them, okay. So breaking this down, well, and what's the answer? So we're looking for something. So looking for what's in, so what's in, now we want at least one of them. So at least one of them, so it can be in both, that's okay. There has to be at least one of them. And so, I look at this, and I see, okay, well to be, you know, if I start at 3, right? I'm in there, and I keep going because I'm still in red. Here I would stop, but everything's taken over by green until oops, I don't actually include 8. So I go like this. Okay, so the answer is going to end up being 3 oops, yeah, 3 and then 8 is going to open. So this will end up being our answer. And then let's just kind of break it down.

So breaking it down right. Okay. Um, so, everything between 3 and 8. So, everything between 3 and 8 is either, right, covered by red above or green below, either covered by red or green below. Below, okay, so is in. Okay, um, so we just need to worry about the endpoints again, right? 3 is in this interval, so is in, okay. So 3 is in, remember only has to be in one of them. So 3 is in 3, 7. So is in, right, um, and 8 is a neither of them actually. Right? So that one ends up out. Right? It's too big, to even be considered to be between 3 and 7, right? Because it's larger than the right endpoint. And for the other one, it's just because it's an open interval. Okay, so eight is in neither interval, so is out, and we're done. Okay. So again, when we're looking at the union of intervals, we want to make sure that we're including everything that's in at least one of them right with the intersection, it had to be in

both. With the union it only has to be in one of them. Okay. So we can kind of do the Venn diagram, which can be a little helpful so that you can kind of figure out what's covered by what. Okay, so I hope that made some sense. And I'll see you in the next lecture.