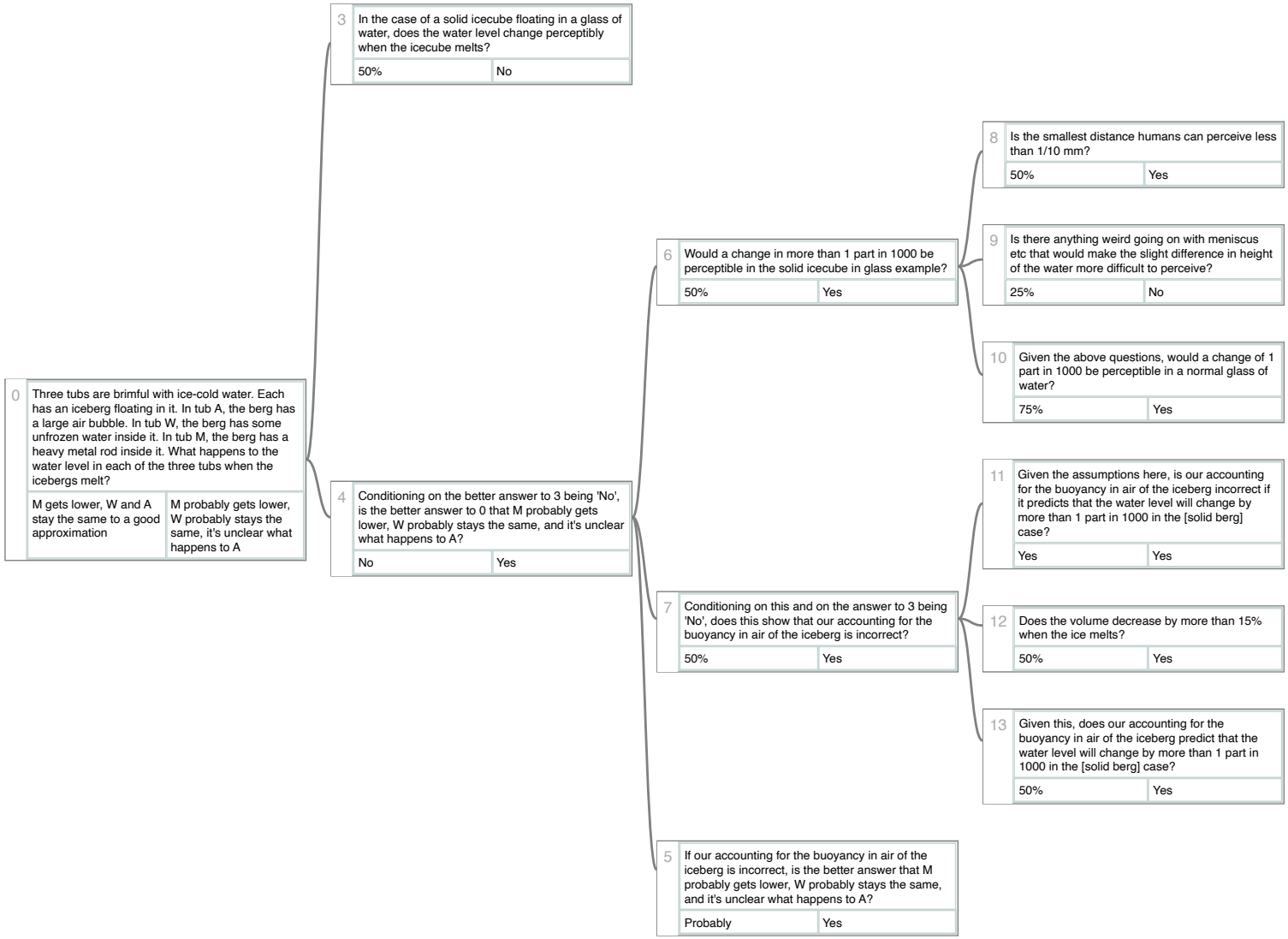
0
Three tubs are brimful with ice-cold water. Each has an iceberg floating in it. In tub A, the berg has a large air bubble. In tub W, the berg has some unfrozen water inside it. In tub M, the berg has a heavy metal rod inside it. What happens to the water level in each of the three tubs when the icebergs melt?
M gets lower, W and A stay the same to a good approximation
M probably gets lower, W probably stays the same, it's unclear what happens to A
3
In the case of a solid icecube floating in a glass of water, does the water level change perceptibly when the icecube melts?
50%
No
4
Conditioning on the better answer to 3 being 'No', is the better answer to 0 that M probably gets lower, W probably stays the same, and it's unclear what happens to A?
No
Yes
6
Would a change in more than 1 part in 1000 be perceptible in the solid icecube in glass example?
50%
Yes
8
Is the smallest distance humans can perceive less than 1/10 mm?
50%
Yes
9
Is there anything weird going on with meniscus etc that would make the slight difference in height of the water more difficult to perceive?
25%
No
10
Given the above questions, would a change of 1 part in 1000 be perceptible in a normal glass of water?
75%
Yes
7
Conditioning on this and on the answer to 3 being 'No', does this show that our accounting for the buoyancy in air of the iceberg is incorrect?
50%
Yes
11
Given the assumptions here, is our accounting for the buoyancy in air of the iceberg incorrect if it predicts that the water level will change by more than 1 part in 1000 in the [solid berg] case?
Yes
Yes
12
Does the volume decrease by more than 15% when the ice melts?
50%
Yes
13
Given this, does our accounting for the buoyancy in air of the iceberg predict that the water level will change by more than 1 part in 1000 in the [solid berg] case?
50%
Yes
5
If our accounting for the buoyancy in air of the iceberg is incorrect, is the better answer that M probably gets lower, W probably stays the same, and it's unclear what happens to A?
Probably
Yes