Hey all, I just wanted some clarification on what is considered a subheap. In this article, https://en.wikipedia.org/wiki/Binomial_heap under the first section titled ‘Binomial Heap’ It shows 4 trees going from order 0 to 3. I am wondering does this example have 6 subheaps or 10? Sorry if this is vague, I am probably over analyzing.

Are you referring to subheap inception? A subheap within a subheap? Thats a good question.

I believe it means the number of trees in the root list, so the number of differently-ordered trees you have in your entire binomial heap.

But those are trees no? A subheap is the extensions below a tree I thought.

The practice questions provided define subheaps as being each of those level 0 roots. So each root key is the root of a subheap. If that makes sense.

So, the number of roots in the root list is the same as the number of subheaps?
Subject: Re: Subheaps  
Posted by cewrobel on Wed, 19 Oct 2016 19:29:50 GMT

From what I understand, yes.

Subject: Re: Subheaps  
Posted by btlindow on Wed, 19 Oct 2016 21:24:20 GMT

This question pertains to #6 on binomial heaps. After a series of merges, I came to the situation where I had three subheaps of degree two, each with different root values. Which two do I merge together and which one do I leave by itself? The binomial heap visualization tool found on Google shows the two with the two larger root values merging (or the right two in the list). I am not following the logic behind it and wondered if anybody had any insight that I am missing.

Subject: Re: Subheaps  
Posted by cewrobel on Wed, 19 Oct 2016 21:38:11 GMT

Hm, not sure why but we’re ending up with different heaps. After I change 5 to -infinity, bubble it up, and extract min, I am left with 5 subheaps, 2 1-degree, 1 2-degree, and 2 3-degrees. I finish merging them and end up with the answer being 1 (F). Are you doing #6 with the resulting binomial heap from #5? I believe we’re supposed to answer #6 with a new heap of inserting 0-12.

Subject: Re: Subheaps  
Posted by btlindow on Wed, 19 Oct 2016 23:26:41 GMT

I drew it. At step 5 I have 3 x 2-dimensions and I am not sure which to merge together.

File Attachments
1) merges.jpg, downloaded 21 times

Subject: Re: Subheaps  
Posted by cewrobel on Thu, 20 Oct 2016 00:05:18 GMT

Ah, I see what you’re doing. Notice from step 2 to step 3 you are reordering the root keys on the right side from 0-2-1 to 1-2-0. I’m not sure if that is allowed. If you keep the 0-2-1 order and scan from left to right, the degree 3 subheaps with root keys 0 and 8 will merge before you get to the case of 3 degree 3 subheaps and everything will work out.
I hit page 2 on my Google Search and actually found a decent step by step and it made a lot more sense. Thanks for the help!