

**Subject:** Fwd: bioinformatics tute 1  
**From:** Alex Jackson <a1646282@student.adelaide.edu.au>  
**Date:** 21/09/15 13:49  
**To:** Alex Jackson <aj123@internode.on.net>

Begin forwarded message:

**From:** Adam Rohrlach <[a1077745@student.adelaide.edu.au](mailto:a1077745@student.adelaide.edu.au)>  
**Date:** 14 September 2015 11:28:29 am ACST  
**To:** Uni <[alex.jackson@student.adelaide.edu.au](mailto:alex.jackson@student.adelaide.edu.au)>  
**Cc:** Nigel Bean <[nigel.bean@adelaide.edu.au](mailto:nigel.bean@adelaide.edu.au)>, Jonathan Tuke <[jnotuke@gmail.com](mailto:jnotuke@gmail.com)>  
**Subject: Re: bioinformatics tute 1**

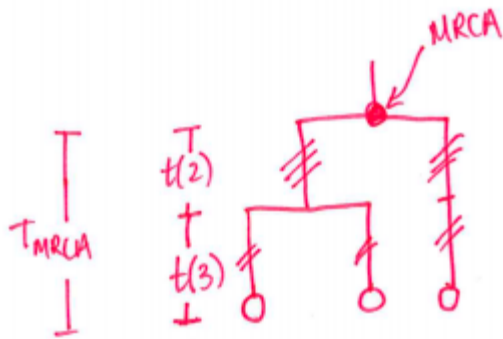
Hi Alex,

Your code looked pretty good, with only one error, and one stylistic suggestion. The amount of commenting in your code was great though! Jono would be proud.

The stylistic suggestion is, if you know that you're going to take 1000 random samples, then initialise Y with that knowledge in mind. That is, instead of "Y = NULL", use "Y = rep(0,1000)". That way R isn't continually making new vectors to replace old ones in the loop, but just replacing the values *in* the same vector (fundamentally). It didn't really matter here, but might be a good habit to get into for bigger data sets.

The error is just the interpretation of what the T(k) involve. Define Tb to be the total tree branch length. Your code sort of had  $T_b = 2 \cdot T(3) + T(2)$ . However, from the picture below, you can see that the branch that is furthest right is made up of  $T(3) + T(2)$ . Correctly, you got that there were two branches of length T(3), but then you only included one lot of T(2) (which I think you may have thought was the whole of the right branch).

So there is the two small branches ( $2 \cdot T(3)$ ), and then the little branch above them (T(2)), and finally the far right branch ( $T(2) + T(3)$ ), so  $T_b = 3 \cdot T(3) + 2 \cdot T(2)$ .



As you can see, I'm a gifted artist.

Good work,

Ben

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Ben Rohrlach,  
PhD Candidate, Mathematical Sciences  
B Ma Sc, M.Phil(Stat)  
The University of Adelaide  
SA 5005  
Australia

On 11 September 2015 at 21:04, Uni  
<[alex.jackson@student.adelaide.edu.au](mailto:alex.jackson@student.adelaide.edu.au)> wrote:

Hi Ben,

When you've got a bit of time could you please have a look at my attempt  
at the first bioinformatics tute and tell me if it looks okay?

Thanks,

Alex