**dendextend: an R package for scientific visualization of dendograms and hierarchical clustering**

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This poster introduces the **dendextend** package [1] for extending the palette of functions and methods for the dendrogram class in the R statistical environment.

A dendrogram is a tree diagram which is often used to visualize a hierarchical clustering of items. Dendrograms are used in many disciplines, ranging from Phylogenetic Trees in computational biology to Lexomic Trees in text analysis. Hierarchical clustering in R is commonly performed using the hclust function. When a more sophisticated visualization is desired, the hclust object is often coerced into a dendrogram object, which in turn is modified and plotted. While base R comes with several very useful methods for manipulating the dendrogram object (namely: plot, print, [[, labels, as.hclust, cophenetic, reorder, cut, merge, rev, and str), still - the current palette of functions leaves a lot to be desired.

The **dendextend** R package offers functions and methods for dendrogram class objects in R, allowing for easier manipulation of a dendrogram's shape (via rotate, prune), color and content (via functions such as set, labels_colors, color_branches, etc. function). The package also provides S3 methods for functions such as labels<-, cutree, and more. **dendextend** also provides the tools for comparing the similarity of two dendrograms to one another either graphically using a tanglegram plot, or statistically with association measures ranging from cor_cophenetic to Bk_plot, while enabling bootstrap and permutation tests for comparing the trees.

Since tree structure often requires the use of recursion, which can be slow in R, some of the more computationally intensive aspects of the **dendextend** package can be handled with its sister package, **dendextendRcpp** [2], which overrides several basic functions (namely: cut_lower_fun, heights_per_k.dendrogram, labels.dendrogram), with their C++ implementation.
References

http://cran.r-project.org/web/packages/dendextend


http://cran.r-project.org/web/packages/dendextendRcpp