OKAAPI QUICK GUIDE

For the beta version (okaapibeta)

This is a very brief guide to the beta version of the okaapi R package. The purpose of this guide is to provide a bit of information that can be useful when getting started with okaapi (specifically okaapibeta). See further below for where to find more information.

Note: the term 'traits' used in the package means node attributes (for example characteristics of individuals such as their age, gender, etc.).

WHAT TO USE OKAAPI FOR

The main purpose of the okaapi package is to generate networks (network matrices and plots) based on the preference model introduced in Brask et al. 2023. Depending on the user's interest, the package can be viewed as a tool for generating networks based on social preferences (or equivalent node attribute effects) or as a tool for generating networks with different structural properties. It can additionally be used to quantify network metrics (on any network) and to generate node attribute values.

WHICH FUNCTIONS TO USE

The okaapi package contains two main functions. These are the traitnet() function and the traitnetsmetrics() function (note that 'trait' refers to node attributes). The other functions are mostly helper functions, the main purpose of which is to be used (called) by the main functions. I have, however, made them available so that they can be called directly, as this could occasionally be useful.

Here is an overview of the purpose of each function. More specific information can be found in the documentation (the help file) of each function in R.

Function name	**Function purpose**
traitnet	Generate and plot a network based on the trait preference model
traitnetsmetrics	Measure network metrics on a set of trait preference networks
netmetrics	Measure network metrics on a single network
traitvalues	Generate trait (node attribute) values
traitnetsociat	Calculate social attraction values based on the trait preference model
traitnetbuild	Build a network matrix based on social attraction values
traitnetvisual	Plot a trait preference network
contincols	Create colours based on values, which can be used to colour a network

HOW TO USE THE FUNCTIONS

The help files for each function contain detailed descriptions of the input arguments. The input arguments should be easy to make correctly, and the functions also contain checks that can catch many types of potential errors in the arguments. There is, however, one thing that is good to be aware of (as it cannot be checked for). If you generate networks based on more than one trait (node attribute), then you need to follow this rule (which you would probably follow anyway without thinking of it):

input vectors that have one value for each trait must all have the value for the same trait in the same place.

For example, if we want to generate a network based on two traits, then all the information concerning one trait needs to be in the first place of each vector, and all the information concerning the other trait needs to be in the second place. We cannot just swap it around in one of the vectors, because the function assumes that all the values in place 1 fit together, and all the values in place 2 fit together.

Also note that if you use functions other than the two main functions mentioned above, then it is extra important to read the documentation about input arguments, to make sure the functions are used correctly.

WHERE TO GET MORE INFORMATION

- For information about specific functions in okaapi, see the help files in R for each function.
- For explanation about social preferences, see Brask et al. 2023.
- For information about the generative network model that the okaapi package is based on, see Brask et al. 2023.
- A more extensive guide to okaapi may become available in the future.

LITERATURE

Brask JB, Koher A, Croft DP & Lehmann S (2023). Linking social network structure and function to social preferences**.** *arXiv e-prints*, arXiv: 2303.08107