Metric or non-metric plots?

The **Analyse>Bootstrap Averages** routine allows both metric and non-metric options for the MDS ordination of the bootstrap average regions. However, *m*MDS is the recommended choice, and the default. The motivation for constructing a region plot for the group means, rather than just the point estimates of a simple means plot, is to allow interpretation of the among-group structure in relation to the uncertainty in the positions of group means (exactly as we use interval estimates in univariate studies). It is useful to be able to visualise that, for example, along a line connecting two group means A and B, the degree of uncertainty in mean A is about 20 dissimilarity units, in mean B it is about 10 (perhaps B has more replicates or smaller innate dispersion – no assumption of common dispersion or balanced designs need to be made, see later) but at their closest point the two regions are still 20 dissimilarity units apart. This requires the linear measurement scale of a metric MDS (*m*MDS, not *n*MDS or even *tm*MDS, see Section 8). *m*MDS solutions at the level of replicate samples can often be very poor, with high stress and representation of the among-group structures compromised by the need to display sampling error in full – this is why we use the much more flexible *n*MDS. But at the level of group means and their greatly reduced sampling variability by averaging, *m*MDS is often of acceptable stress (even with many bootstraps) and very interpretable.

Revision #2
Created 11 November 2024 02:14:10 by Arden
Updated 26 February 2025 04:24:12 by Abby Miller