

Graphical Syntax for Structables and their Mosaic Plots

Erich Neuwirth¹, Richard M. Heiberger^{2,*}

1. University of Vienna

2. Temple University

*Contact author: rmh@temple.edu

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A "structable" object is a representation in the **vcd** package in *R* of a k -dimensional contingency table. The structable object has an attribute "split_vertical" that carries two pieces of information: assignment of the factors to row or columns, and sequencing of the factors. The default plot of a structable is as a mosaic plot with recursive splits of the factors in the specified sequence. Each split is along the vertical or horizontal direction associated with the column or row assignment of its factor.

The printed display of a structable as a *flat* table in two dimensions shows the row and column assignment but is unable to illustrate the sequencing of the splits. As a consequence, multiple structables—and their associated mosaic plots—can yield the same printed flat table.

We have developed a graphical notation (with **RExcel** and **Rcmdr** implementations), and corresponding *R* functions with a command-line notation, that simplify the specification of the alternate sequencing of splits—hence alternate mosaic plots—associated with a printed flat table. The notation also permits re-assignment of factors from rows to columns. The primary *R* function is an `aperm` (array permutation) method designed for structables. It extends the permutation argument of the default `aperm` method for arrays and tables to include the "split_vertical" information that distinguishes the multiple structables associated with the same flat printed table.