







A Visual Guide to Split-Apply-Combine in R

Legend

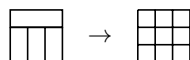
Symbols used in this document:

	vector/array		matrix
	array		contingency table
	factor		data-frame

A list is denoted by square brackets: $[\dots]$.

Reshaping

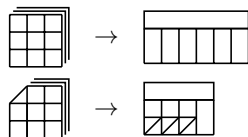
as.matrix Coerces a data-frame to a matrix.



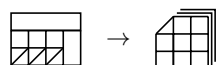
as.table Coerces an array to a contingency table.



as.data.frame Coerces an array or contingency table to a data-frame.



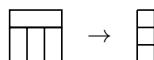
xtabs Coerces a data-frame to a contingency table.



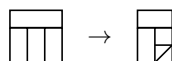
c Coerces an array or contingency table to a vector.



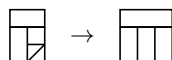
unlist Coerces a data-frame to a vector.



stack Concatenates the columns of a data-frame into a single column along with a factor. Non-vector columns are dropped.

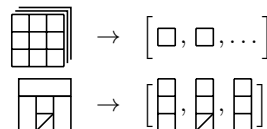


unstack Reverses the effects of **stack**.

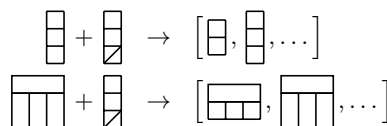


Splitting

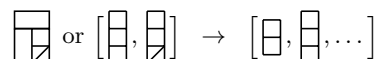
as.list Coerces a data-frame to a list of vectors.



split Divides a vector or data-frame into the groups defined by a factor.



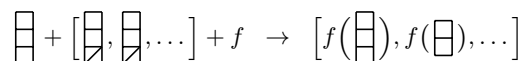
unstack Splits a vector or the column of a data-frame into the groups defined by a factor.



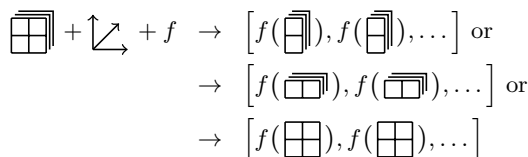
Applying

Some of the following functions may return an array instead of a list depending on the output of f .

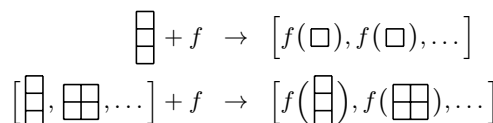
tabply Applies a function to each cell of a ragged array.



apply Applies a function to margins of an array.

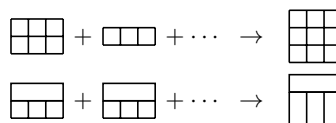


lapply Applies a function over a list or vector.

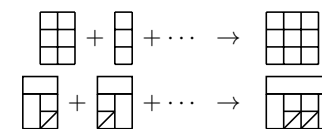


Combining

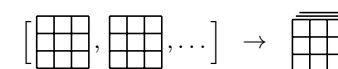
rbind Combines a sequence of vectors, arrays or data-frames by rows.



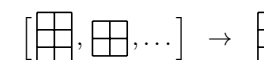
cbind Combines a sequence of vectors, arrays or data-frames by columns.



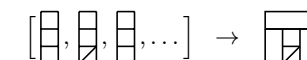
simplify2array Combines a list of arrays into a single array by adding more dimensions.



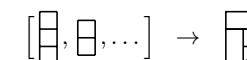
unlist Coerces a list of arrays to a vector.



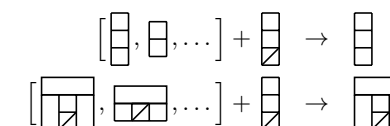
as.data.frame Coerces a list of vectors to a data-frame.



stack Coerces a sequence of vectors into a single-column data-frame along with a factor.



unsplit Combines a sequence of vectors or data-frames into a single vector or data-frame by interleaving rows according to a factor.



merge Merges two data-frames by common columns.



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