1 Program 3dANOVA2

1.1 Purpose

Program 3dANOVA2 was developed to perform two-factor (or two-way) analysis of variance on *AFNI* 3-dimensional data sets. Through the command line inputs, the user specifies which *AFNI* data sets are to be used in the analysis, and to which factor levels they belong. Various output options are available, including the F-test for factor interaction, F-test for equality of factor level means, estimation of individual factor level means, estimation of the difference between two factor level means, and estimation of contrasts. For the "fixed effects model" (described below), additional output includes estimation of individual cell (treatment) means, differences in cell means, contrasts in cell means, and their corresponding statistics. The resulting output may be stored either as multiple *AFNI* two sub-brick datasets, or as a single *AFNI* "bucket" type dataset.

Program 3dANOVA2 requires **equal sample sizes** for all combinations of factor levels.

1.2 Further Details

For further details, See Section 2 of *Analysis of Variance for FMRI Data*, contained in file 3dANOVA.ps.