1 Program 3dWilcoxon

1.1 Purpose

Program 3dWilcoxon was developed for nonparametric paired comparison of two treatments. This program performs the Wilcoxon signed-rank test for paired *AFNI* 3d datasets. Output includes the estimate for the treatment effect, and the normalized Wilcoxon signed-rank statistic, for each voxel.

Unlike the Wilcoxon-Mann-Whitney rank-sum test, which makes no assumption about the distribution of the populations, the Wilcoxon signed-rank test assumes that the population (differences between pairs of observations) has a symmetric distribution.

The Wilcoxon signed-rank test is the nonparametric counterpart of the paired data t-test. As such, program 3dWilcoxon roughly corresponds to program 3dttest, which may be used to compare paired samples, assuming that the underlying populations are normally distributed.

1.2 Further Details

For further details, see Section 2 of *Nonparametric Statistical Analysis of FMRI Data*, contained in file Nonparametric.ps.