

Outputs from the **ACEfit** function of APACE software for the **ACE** model

Filename	Description	Comments/Caveats
Basic summaries		
Stdev.nii	Phenotypic standard deviation	Computed and saved if image-wise inference is made.
Heritability		
h2_dist.pdf	Cumulative distribution of all in-mask h^2	
h2_hist.pdf	Histogram of positive in-mask h^2	Percentage of positive h^2 is provided.
ACE_A_h2.nii	Narrow sense heritability, h^2	Computed and saved if image-wise inference is made.
ACE_A_LRT.nii	Likelihood ratio test (LRT) statistic for testing $H_0: h^2=0$	Basis for all thresholding procedures. Computed and saved if image-wise inference is made.
ACE_A_LRT_vox_Pasym.nii	$-\log_{10}(\text{P-value})$ for testing $H_0: h^2=0$ using large sample parametric null distribution	Not trustworthy except for very large samples. Computed and saved if image-wise inference is made.
Common Environment		
ACE_C_c2.nii	Estimate of c^2 , shared environmental component	Computed and saved if image-wise inference is made.
ACE_C_LRT.nii	LRT statistic for testing $H_0: c^2=0$	Computed and saved if image-wise inference is made.
ACE_C_LRT_vox_Pasym.nii	$-\log_{10}(\text{P-value})$ for testing $H_0: c^2=0$ using large sample parametric null distribution	Not trustworthy except for very large samples; note that no permutation test is possible for c^2 . Computed and saved if image-wise inference is made.
Error		
ACE_E_e2.nii	Estimate of e^2 , unique error component	Computed and saved if image-wise inference is made.

Additional outputs from permutation inference of APACE software for the **ACE** model

Filename	Description	Comments/Caveats
Heritability		
H0dist_mean.pdf	Null distribution of mean of all in-mask h^2	Permutation-based p-value is displayed in plot title.
H0dist_wh2.pdf	Null distribution of variance-weighted average of all in-mask h^2	Permutation-based p-value is displayed in plot title.
H0dist_median.pdf	Null distribution of median (Q2) of all in-mask h^2	Permutation-based p-value is displayed in plot title.
H0dist_q3.pdf	Null distribution of the third quartile (Q3) of all in-mask h^2	Permutation-based p-value is displayed in plot title.
H0dist_mGTmedian.pdf	Null distribution of mean of in-mask $h^2 \geq Q2(h^2)$	Permutation-based p-value is displayed in plot title.
H0dist_mGTq3.pdf	Null distribution of mean of in-mask $h^2 \geq Q3(h^2)$	Permutation-based p-value is displayed in plot title.
Pvals_h2.mat	Permutation-based p-values for summary statistics	Heritability summary measures include mean, variance-weighted average, Q2, Q3, mean of $h^2 \geq Q2(h^2)$, and mean of $h^2 \geq Q3(h^2)$.
H0dist_test_statistic.pdf	Null distribution of maximum LRT statistic	Permutation-based p-value is displayed in plot title. Only produced if image-wise inference is made.
h2_FDRplot.pdf	Scatter plot of voxel/element-wise FDR-adjusted p-values vs. expected p-values for heritability	Only produced if image-wise inference is made.
ACE_A_LRT_vox_P.nii	$-\log_{10}(\text{P-value})$ for testing $H_0: h^2=0$ using nonparametric permutation-based null distribution	Only produced if image-wise inference is made.
ACE_A_LRT_vox_FWE.nii	Voxel/element-wise FWE-corrected $-\log_{10}(\text{P-value})$ for testing $H_0: h^2=0$ using nonparametric permutation-based null distribution	Only produced if image-wise inference is made.
ACE_A_LRT_vox_FDRP.nii	Voxel/element-wise FDR-adjusted $-\log_{10}(\text{P-value})$ for testing $H_0: h^2=0$ using nonparametric permutation-based null distribution	Only produced if image-wise inference is made.
H0dist_cluster_size.pdf	Null distribution of maximum suprathreshold	Permutation-based p-value is

	cluster size	displayed in plot title. Only produced if image-wise cluster inference is made.
ACE_A_LRT_clus.nii	Suprathreshold cluster size on LRT statistic for testing $H_0: h^2=0$	Cluster forming threshold of $u=2.706$, the large permutation-based sample $\alpha=0.05$ threshold. Only produced if image-wise cluster inference is made.
ACE_A_LRT_clus_FWEF.nii	Cluster FWE-corrected $-\log_{10}(\text{P-value})$ (size statistic)	Only produced if image-wise cluster inference is made.
H0dist_cluster_mass.pdf	Null distribution of maximum suprathreshold cluster mass	Permutation-based p-value is displayed in plot title. Only produced if image-wise cluster inference is made.
ACE_A_LRT_mass.nii	Suprathreshold cluster mass on LRT statistic for testing $H_0: h^2=0$	Cluster forming threshold of $u=2.706$, the large permutation-based sample $\alpha=0.05$ threshold. Only produced if image-wise cluster inference is made.
ACE_A_LRT_mass_FWEF.nii	Cluster FWE-corrected $-\log_{10}(\text{P-value})$ (mass statistic)	Only produced if image-wise cluster inference is made.
Pvals_Max_h2.mat	Permutation-based p-values for maximum statistics	Permutation-based p-value for maximum LRT statistic is saved if image-wise inference is made. Permutation-based p-values for maximum cluster size and maximum cluster mass are saved if image-wise cluster inference is made.
Pairwise Correlation		
H0dist_Tstat_rMZ_rDZ.pdf	Null distribution of 2-sample t-statistic for testing $H_0: r_{MZ}=r_{DZ}$	Permutation-based p-value is displayed in plot title.
H0dist_Diff_rMZ_rDZ.pdf	Null distribution of mean difference between r_{MZ} and r_{DZ} for testing $H_0: r_{MZ}=r_{DZ}$	Permutation-based p-value is displayed in plot title.
H0dist_Tstat_rDZ_rSib.pdf	Null distribution of 2-sample t-statistic for testing $H_0: r_{DZ}=r_{Sib}$	Permutation-based p-value is displayed in plot title.
H0dist_Diff_rDZ_rSib.pdf	Null distribution of mean difference between r_{DZ} and r_{Sib} for testing $H_0: r_{DZ}=r_{Sib}$	Permutation-based p-value is displayed in plot title.
Pvals_AgHe.mat	Permutation-based p-values for 2-sample t-statistics and mean differences	P-values for testing $H_0: r_{MZ}=r_{DZ}$ and $H_0: r_{DZ}=r_{Sib}$ are saved.

Outputs from the **ACEfit** function of APACE software for the **AE** model

Filename	Description	Comments/Caveats
Basic summaries		
Stdev.nii	Phenotypic standard deviation	Computed and saved if image-wise inference is made.
Heritability		
h2_dist.pdf	Cumulative distribution of all in-mask h^2	
h2_hist.pdf	Histogram of positive in-mask h^2	Percentage of positive h^2 is provided.
AE_A_h2.nii	Narrow sense heritability, h^2	Computed and saved if image-wise inference is made.
AE_A_LRT.nii	Likelihood ratio test (LRT) statistic for testing $H_0: h^2=0$	Basis for all thresholding procedures. Computed and saved if image-wise inference is made.
AE_A_LRT_vox_Pasym.nii	$-\log_{10}(\text{P-value})$ for testing $H_0: h^2=0$ using large sample parametric null distribution	Not trustworthy except for very large samples. Computed and saved if image-wise inference is made.
Error		
AE_E_e2.nii	Estimate of e^2 , unique error component	Computed and saved if image-wise inference is made.

Additional outputs from permutation inference of APACE software for the **AE** model

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AE_A_LRT_vox_P.nii	$-\log_{10}(\text{P-value})$ for testing $H_0: h^2=0$ using nonparametric permutation-based null distribution	Only produced if image-wise inference is made.
AE_A_LRT_vox_FWE.nii	Voxel/element-wise FWE-corrected $-\log_{10}(\text{P-value})$ for testing $H_0: h^2=0$ using nonparametric permutation-based null distribution	Only produced if image-wise inference is made.
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H0dist_Tstat_rDZ_rSib.pdf	Null distribution of 2-sample t-statistic for testing $H_0: r_{DZ}=r_{Sib}$	Permutation-based p-value is displayed in plot title.
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Pvals_AgHe.mat	Permutation-based p-values for 2-sample t-statistics and mean differences	P-values for testing $H_0: r_{MZ}=r_{DZ}$ and $H_0: r_{DZ}=r_{Sib}$ are saved.