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FACULTY OF PSYCHOLOGY
AND EDUCATIONAL SCIENCES

DEPARTMENT OF DATA ANALYSIS
RESEARCH GROUP FMRI META-ANALYSIS

UPDATE

Han Bossier – 01/02/2017

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HIERARCHICAL MODELS

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RSFMRI: DESIGN

Design 1	Design 2	Design 3	Design 4
1000 FC	1000 FC	**1000 FC**	**HCP**
One site (Cambridge)	Multiple sites: one group	Multiple sites: within site	(Un)related subjects
Total: 198 subjects	Total: 500 to 800 subjects	Total: 500 to 800	Total: 900 subjects
N = 20	N = 20	N = 20 (depending on site)	N = 20
K = 5	K = 25	K = 14 (depending on quality)	K = 35
3000 iterations	No control for site	See next table.	No control for fam. struct.
100 subjects/iteration	3000 iterations	/	3000 iterations
/	500 subjects/iteration	/	700 subjects/iteration
- limited	- site: influence?	- Inducing between site-variability. Not in research question, though realistic MA.	- Family structure: influence?

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Design 5	Design 6
HCP	Sampling voxels
Unrelated subjects only	Any dataset
Total: +/- 180	Total: +∞
N = 20	N = 20
K = 5	K = 35
3000 iterations	3000 iterations
100 subjects/iteration	700 subjects/iteration
- limited	- inter-subject variability => losing spatial structure
	- Will (prob.) not align

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1000 FC: SITE AND N

Site	Sample Size
Baltimore	N = 23
Bangor	N = 20
Beijing	N = 198
Berlin	N = 26
Cambridge	N = 198
Cleveland	N = 31
Dallas	N = 24
ICBM	N = 86
Leipzig	N = 37
Orangeburg	N = 20
Oulu	N = 103
Oxford	N = 22
Saint Louis	N = 31
Atlanta	N = 28
TOTAL	N = 847

DESIGN

- Influence on research question.
- What do we expect?
- MA: weighted variance
- GLM: approximate multivariate noncentral t-distribution
  - See previous reports.

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