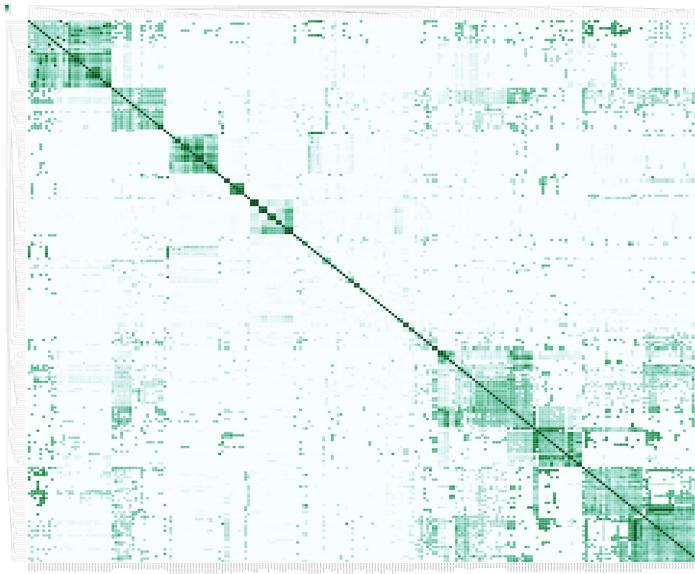
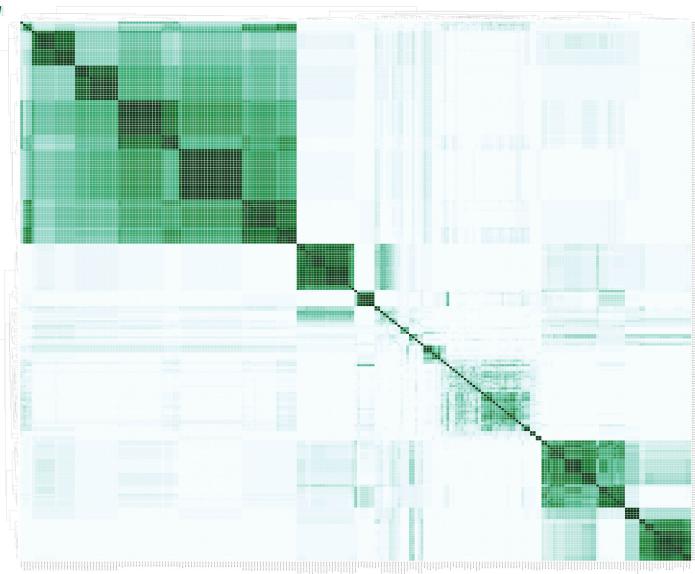


GUSTO (Growing up in Singapore towards healthy outcomes) analysis

- Raw Dataset: 24988 rows and 315 columns
- After processing: 1171 rows (1171 infants) and 233 columns (variables about the infants and their parents)
- Creation of a crosscat generator:
 - Analysis of 32 models for 100 iterations
- The following slides show:
 - Overall dependence probabilities between pairwise variables of the dataset
 - Zooms on subset of variables of interest

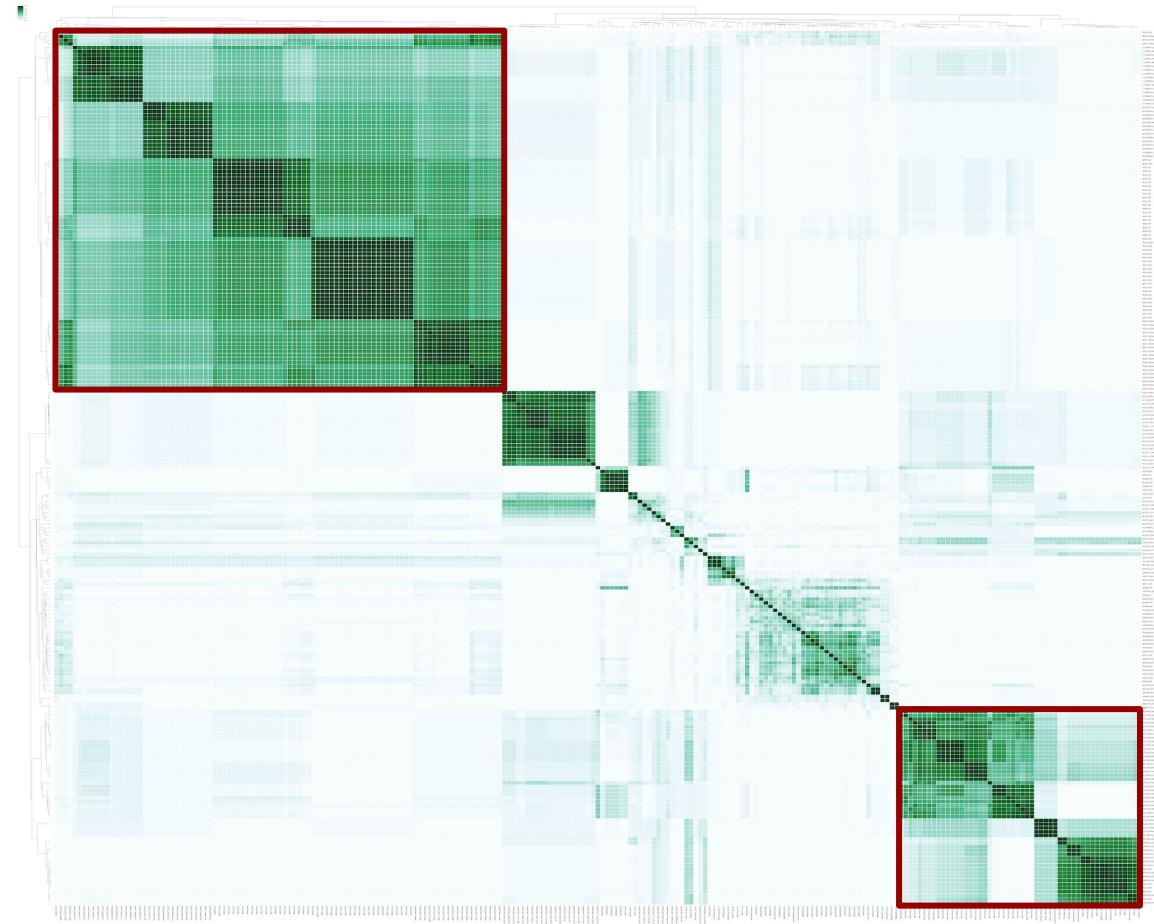
Variable label	Description
DELIV	At Delivery
PREGW26	At Pregnancy week 26
M3	At Month 3
M26	At Month 26
M48	At Month 48
M_	Mother
F_	Father

Dependence probability vs Significant Correlation



Overall dependency heatmap

- We will focus on the two largest clusters of pairwise dependent variables



Top left

Variable name	Description
BDI01	Beck Depression Inventory-Sadness
BDI02	Beck Depression Inventory-Pessimism
BDI03	Beck Depression Inventory-Past Failure
BDI04	Beck Dep Inv-Loss of Pleasure
BDI05	Beck Dep Inv-Guilty Feelings
BDI06	Beck Dep Inv-Punishment Feelings
BDI07	Beck Depression Inventory-Self-Dislike
BDI08	Beck Dep Inv-Self-Criticalness
BDI09	Beck Dep Inv-Suicidal Thoughts/Wishes
BDI10	Beck Depression Inventory-Crying
BDI11	Beck Depression Inventory-Agitation
BDI12	Beck Dep Inv-Loss of Interest
BDI13	Beck Depression Inventory-Indecisiveness
BDI14	Beck Depression Inventory-Worthlessness
BDI15	Beck Depression Inventory-Loss of Energy
BDI16	Beck Dep Inv-ChangesSleep Pattern
BDI17	Beck Depression Inventory-Irritability
BDI18	Beck Dep Inv-Changes Appetite
BDI19	Beck Dep Inv-Concentration Difficulty
BDI20	Beck Dep Inv-Tiredness or Fatigue
BDI21	Beck Dep Inv-Loss of Interest in Sex
BDITOT	Beck Depression Inventory-Total Score



At Month 3



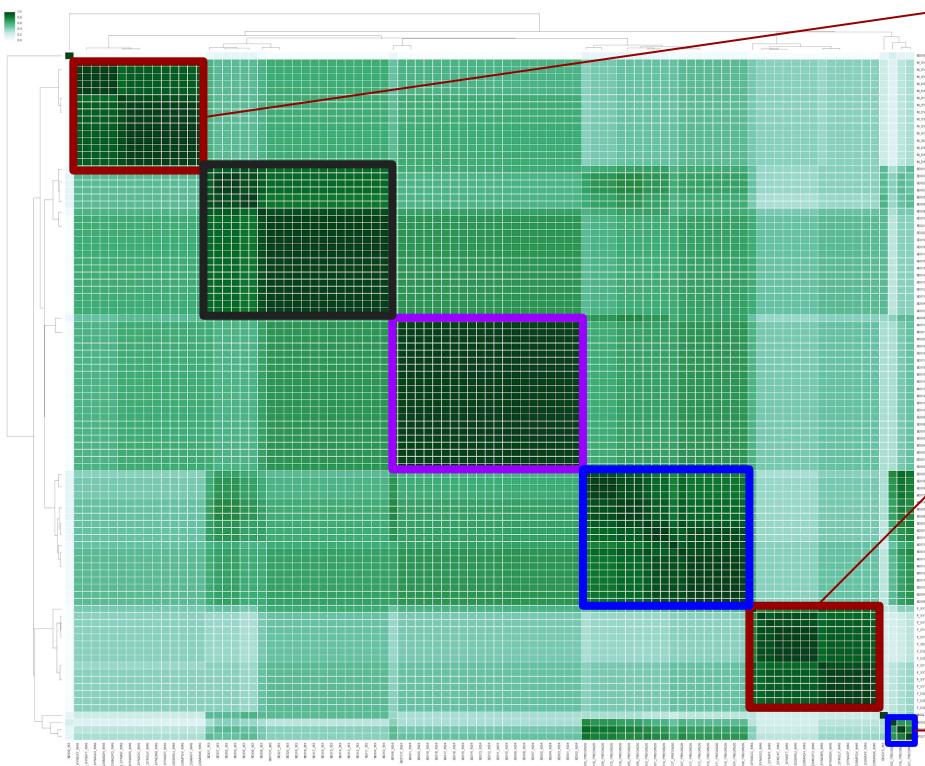
At Month 24



At Month 48



At Pregnancy week 26



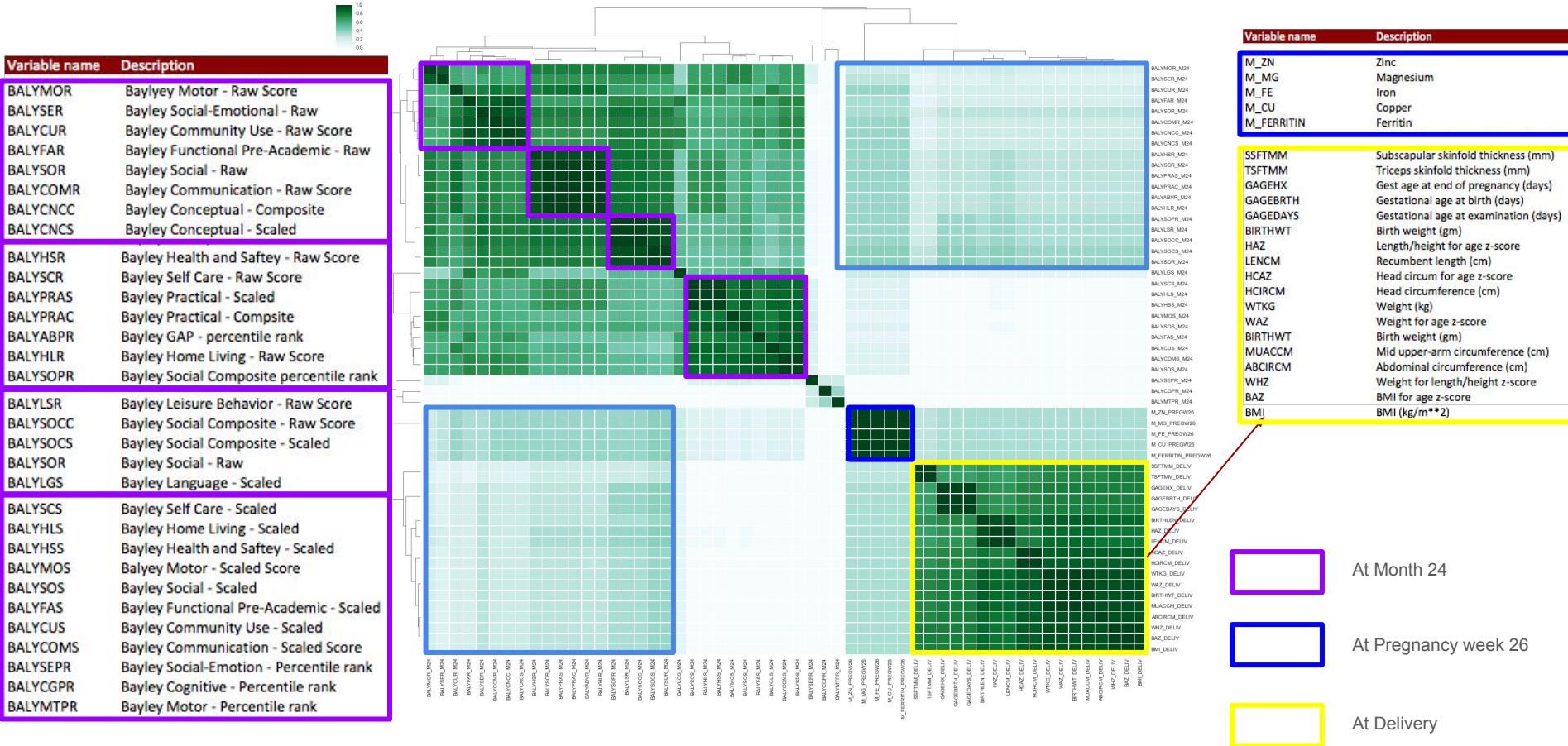
Variable name	Description
F_SYNEXT_M48	Syndr Externlz Prob Raw Tot Eval=FATH
F_SYNATT_M48	Syndr Attention Prob Raw Tot Eval=FATH
F_SYNAGG_M48	Syndr Aggr Behav Raw Tot Eval=FATH
F_DSMAHD_M48	DSM AttnDefic/Hyper Prob RawTot Ev=FATH
F_DSMPD_M48	DSM Oppos Def Prob Raw Tot Eval=FATH
F_SYNINT_M48	Syndr Intrnlz Prob Raw Tot Eval=FATH
F_SYNWDR_M48	Syndr Withdrawn Raw Tot Eval=FATH
F_SYNSOC_M48	Syndr Somatic Compl Raw Tot Eval=FATH
F_SYNSLP_M48	Syndr Sleep Prob Raw Tot Eval=FATH
F_SYNEMR_M48	Syndr Emotion Rear Raw Tot Eval=FATH
F_SYNADP_M48	Syndr Anxious/Depr Raw Tot Eval=FATH
F_SDSMSU_M48	Synd and DSM Total Score Sum Eval=FATH
F_DSMPDV_M48	DSM Pervasiv Dev Prob Raw Tot Eval=FATH
F_DSMAFF_M48	DSM Affective Prob Raw Tot Eval=FATH
F_DSMANX_M48	DSM Anxiety Prob Raw Tot Eval=FATH

Variable name	Description
M_SYNEXT_M48	Syndr Externlz Prob Raw Tot Eval=MOTH
M_SYNATT_M48	Syndr Attention Prob Raw Tot Eval=MOTH
M_SYNAGG_M48	Syndr Aggr Behav Raw Tot Eval=MOTH
M_DSMAHD_M48	DSM AttnDefic/Hyper Prob RawTot Ev=MOTH
M_DSMPD_M48	DSM Oppos Defian Prob Raw Tot Eval=MOTH
M_SYNINT_M48	Syndr Intrnlz Prob Raw Tot Eval=MOTH
M_SYNWDR_M48	Syndr Withdrawn Raw Tot Eval=MOTH
M_SYNSOC_M48	Syndr Somatic Compl Raw Tot Eval=MOTH
M_SYNSLP_M48	Syndr Sleep Prob Raw Tot Eval=MOTH
M_SYNEMR_M48	Syndr Emotion Rear Raw Tot Eval=MOTH
M_SYNADP_M48	Syndr Anxious/Depr Raw Tot Eval=MOTH
M_SDSMSU_M48	Synd and DSM Total Score Sum Eval=MOTH
M_DSMPDV_M48	DSM Pervasiv Dev Prob Raw Tot Eval=MOTH
M_DSMAFF_M48	DSM Affective Prob Raw Tot Eval=MOTH
M_DSMANX_M48	DSM Anxiety Prob Raw Tot Eval=MOTH

Variable name	Description
BDI02_PREGW26	Beck Depression Inventory-Pessimism
BDI16_PREGW26	Beck Dep Inv-ChangesSleep Pattern
BDI21_PREGW26	Beck Dep Inv-Loss of Interest in Sex

Bottom Right

Weak evidence of dependencies

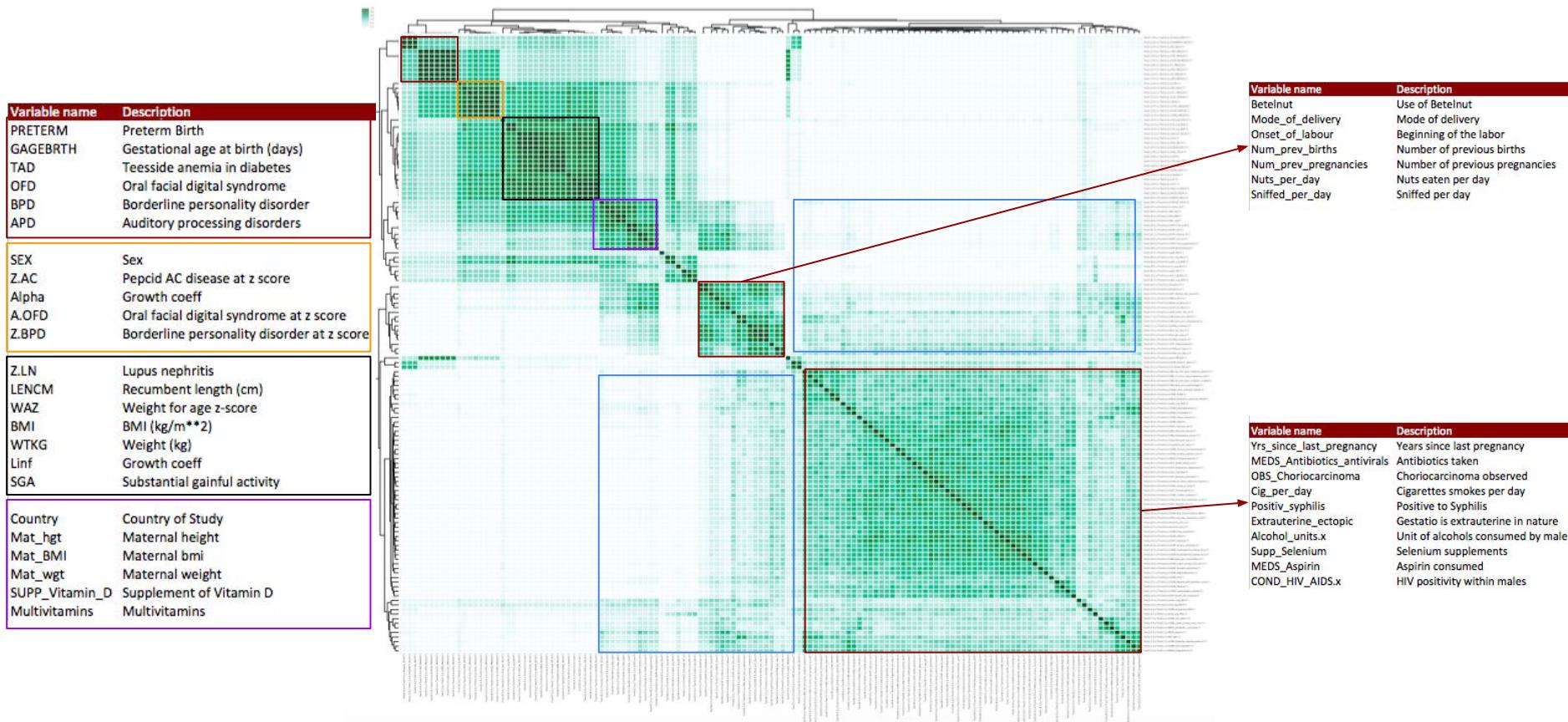


INTERGROWTH and INTERBIO Analyses

- INTERGROWTH:
 - Description of normal fetal growth and newborn outcomes
 - Study from 2009 to Present on 4448 children
 - Brazil, China, India, Italy, Oman, UK, USA
- INTERBIO:
 - Characterization of sustainable growth rate and intrauterine growth restriction
 - Study from 2011 to present on 2803 children
 - Brazil, Kenya, Pakistan, South Africa, Thailand, UK
- Creation of a crosscat generator:
 - Subsample of 2000 observations
 - Around 100 variables
 - Analysis of 32 models for 50 iterations

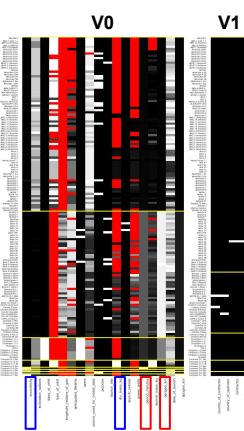
Overall dependency heatmap

Weak evidence of dependencies



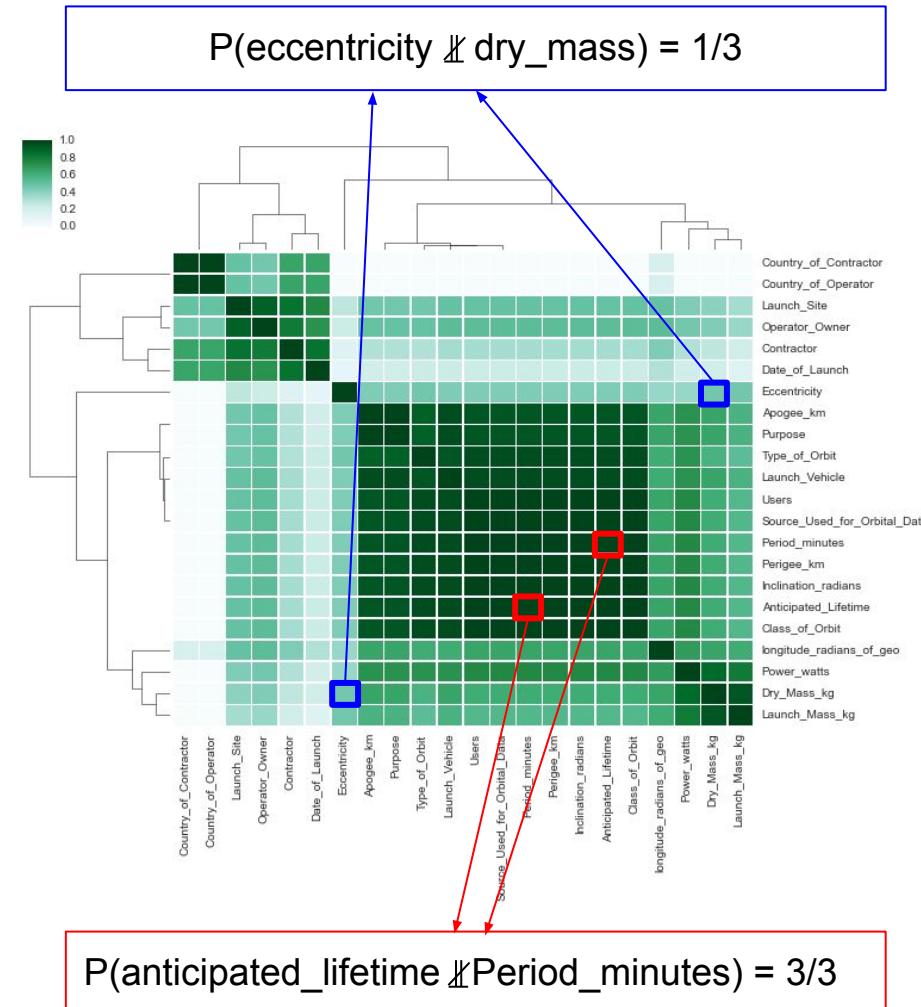
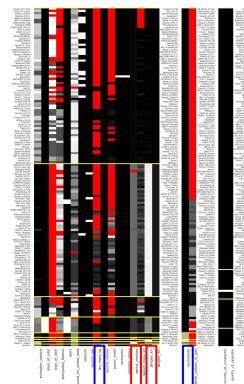
Earth Satellites dataset

- Raw Dataset: 1167 rows and 23 columns
- Working on a subsample of 150 random satellites and all the variables (23)
- Study about states in Crosscat and cluster assignments



Anticipated_lifetime
and Period_minute

Eccentricity and Dry_mass





Cluster 0 (low lifetime)

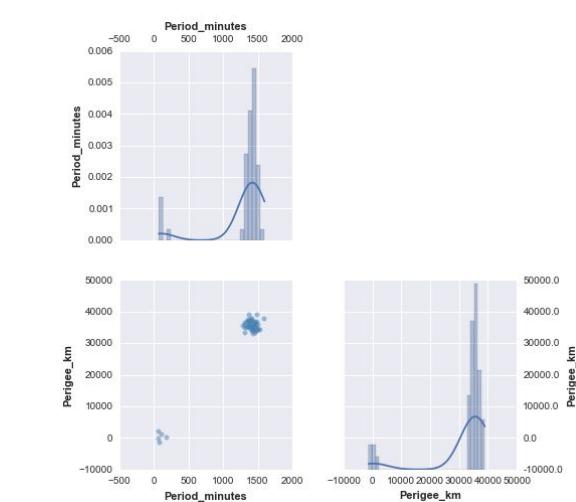
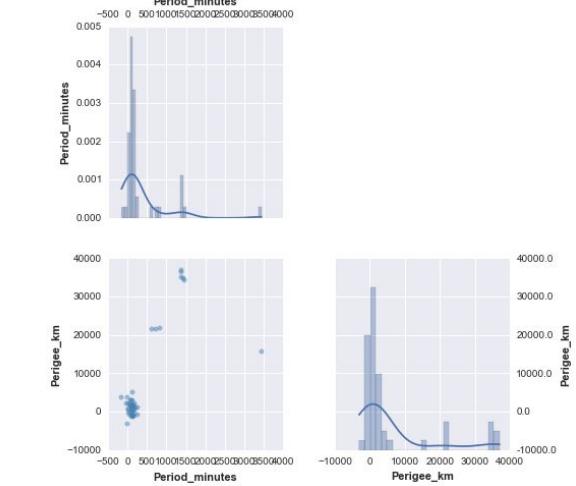
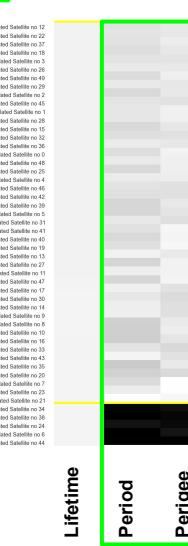
Simulation of Period and Perigee given cluster 0 or cluster 1

And

Creation of a new generator (new views new clusters)



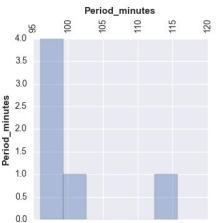
Cluster 1 (high lifetime)



V0
Eccentricity
Inclination
Class of Orbit
Type of Orbit
Lifetime
Users
Purpose
Source Used
Period
Perigee
Apogee

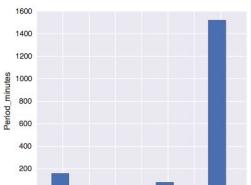
V1
Longitude
Country of contractor
Launch site
Country of operator
Launch vehicle
Contractor
Operator owner
Date of launch

V2
Dry mass
Power watts
Launch mass



Cluster 0

```
BQL(SELECT Period_minutes,  
FROM table WHERE  
Anticipated_Lifetime=3)
```



Cluster 1

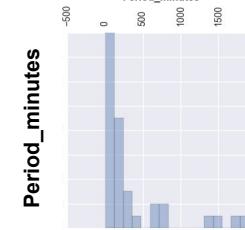
```
BQL(SELECT Period_minutes,  
FROM table WHERE  
Anticipated_Lifetime=15)
```



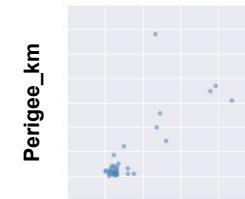
Period
Perigee



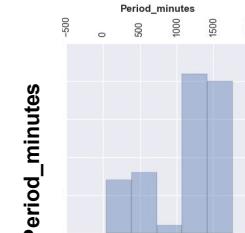
Period
Perigee



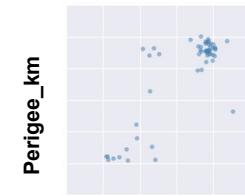
Period_minutes



Perigee_km

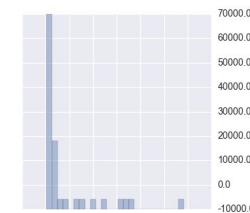


Period_minutes



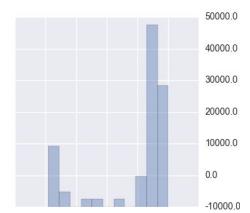
Perigee_km

```
BQL(SIMULATE  
Period_minutes,  
Perigee_km FROM  
generator GIVEN  
Anticipated_Lifetime=3)
```



Perigee_km

```
BQL(SIMULATE  
Period_minutes, Perigee_km  
FROM generator GIVEN  
Anticipated_Lifetime=15)
```



Perigee_km

OLD HEATMAPs (with codebook but without some variables)



Cluster 0 (low lifetime)

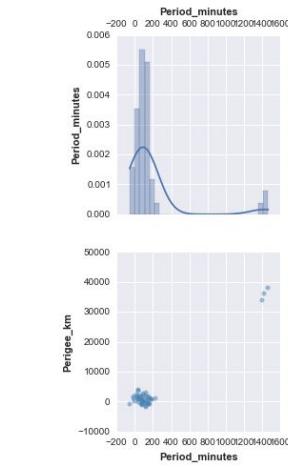
Simulation of Period and Perigee given cluster 0 or cluster 1

And

Creation of a new generator (new views new clusters)

Cluster 1 (high lifetime)

V0	Eccentricity Inclination Class of Orbit Type of Orbit Lifetime Users Purpose Source Used
V1	Longitude Country of contractor Launch site Country of operator Launch vehicle
V2	Dry mass Power watts Launch mass





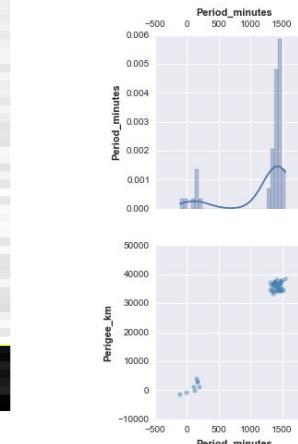
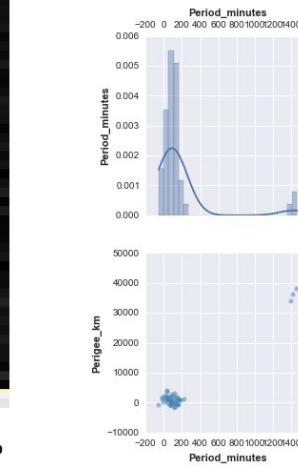
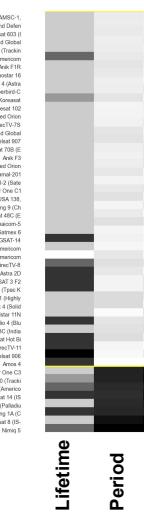
Cluster 0

Simulation of Period and Perigee given cluster 0 or cluster 1

And

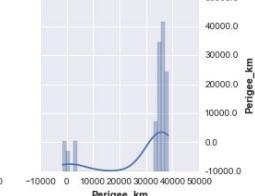
Creation of a new generator (new views
new clusters)

Cluster 1

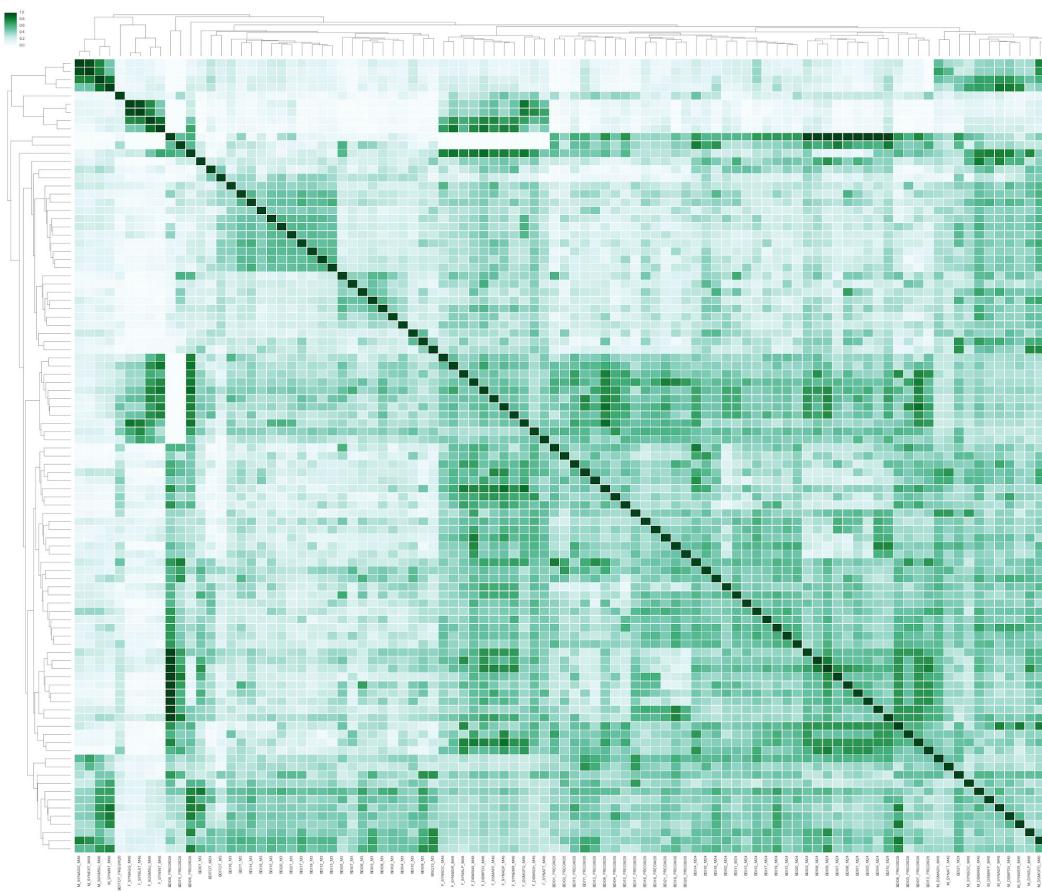


```
BQL(SELECT Period_minutes,
      Perigee_km
     FROM table
    WHERE
      Period_minutes = (SIMULATE
                         Period_minutes
                        FROM gpmcc
                      GIVEN
                        Anticipated_Lifetime=3
                      LIMIT 60))
```

```
BQL(SELECT Period_minutes,
      Perigee_km
     FROM table
    WHERE
      Period_minutes = (SIMULATE
                         Period_minutes
                        FROM gpmcc
                      GIVEN
                        Anticipated_Lifetime=15
                      LIMIT 60))
```

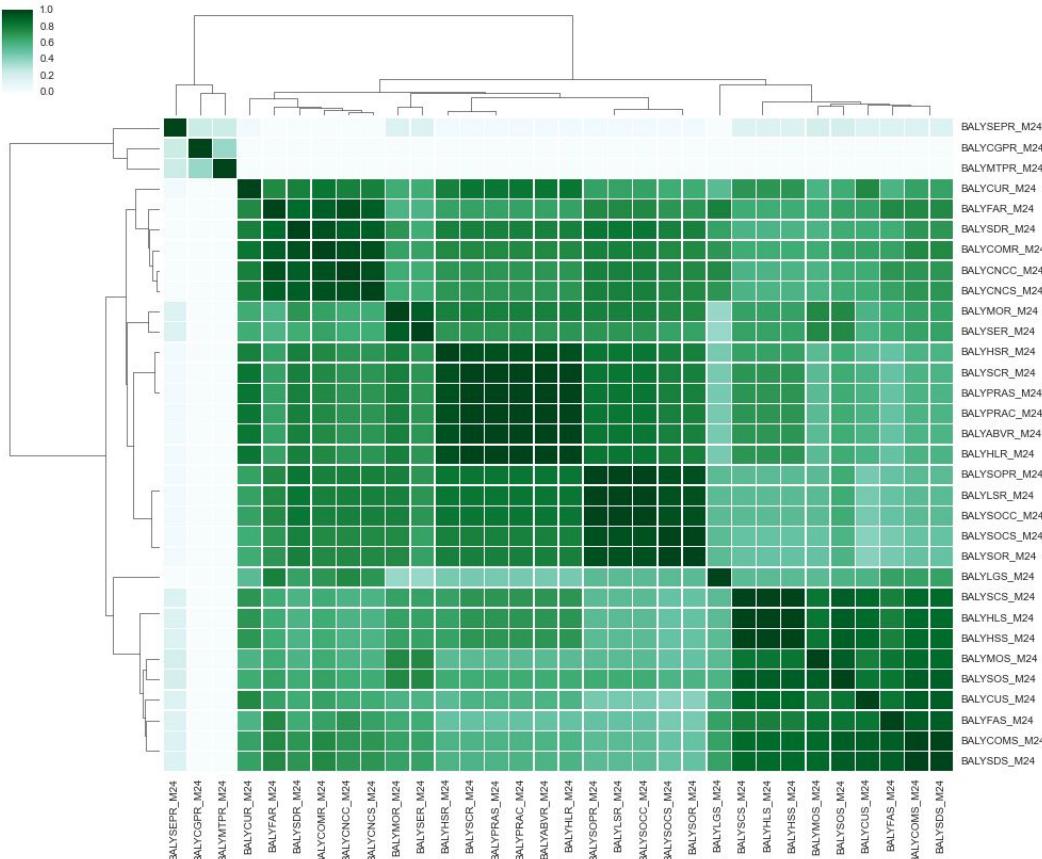


Top left (Correlation)



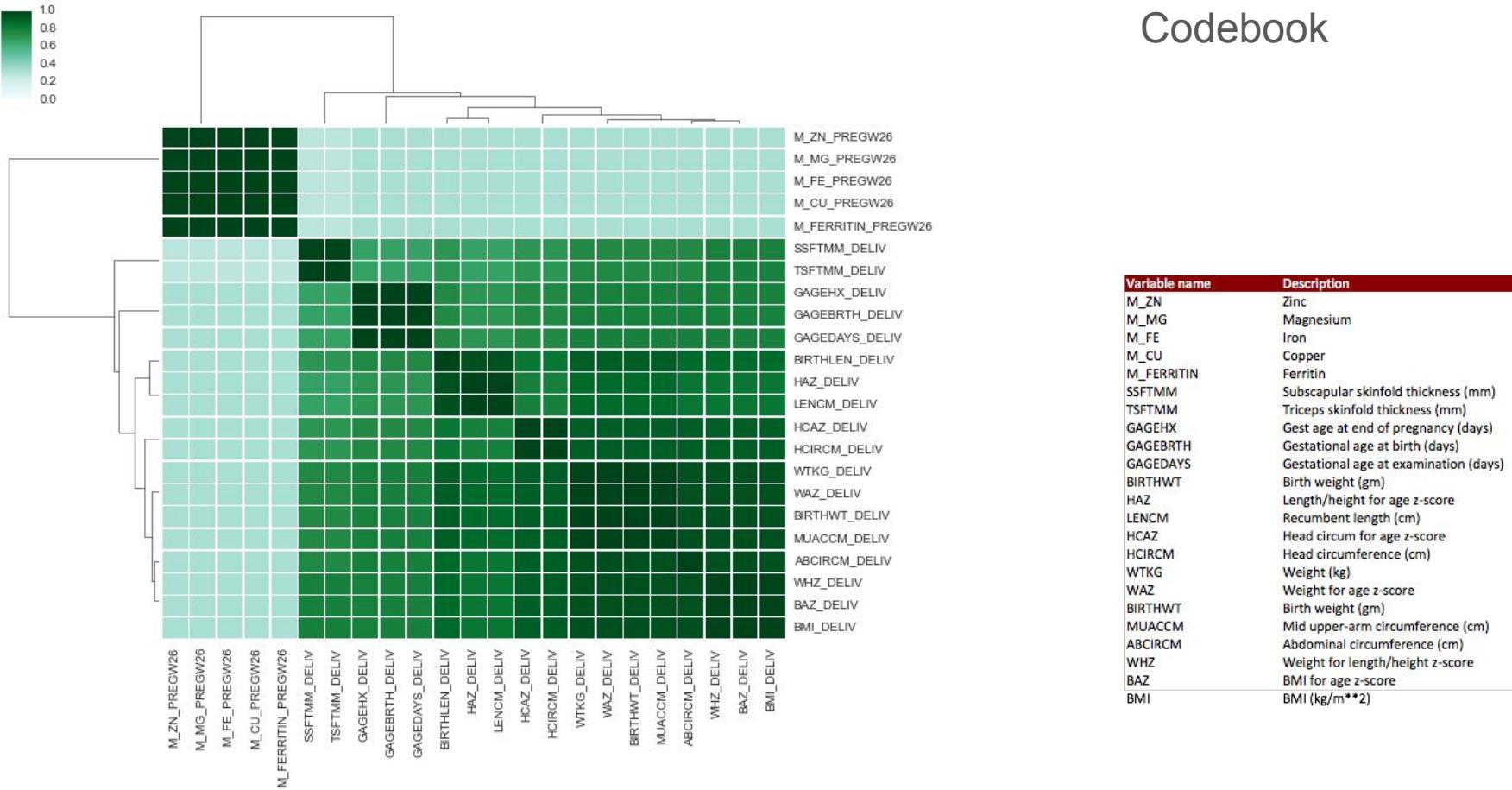
Zoom1

Codebook



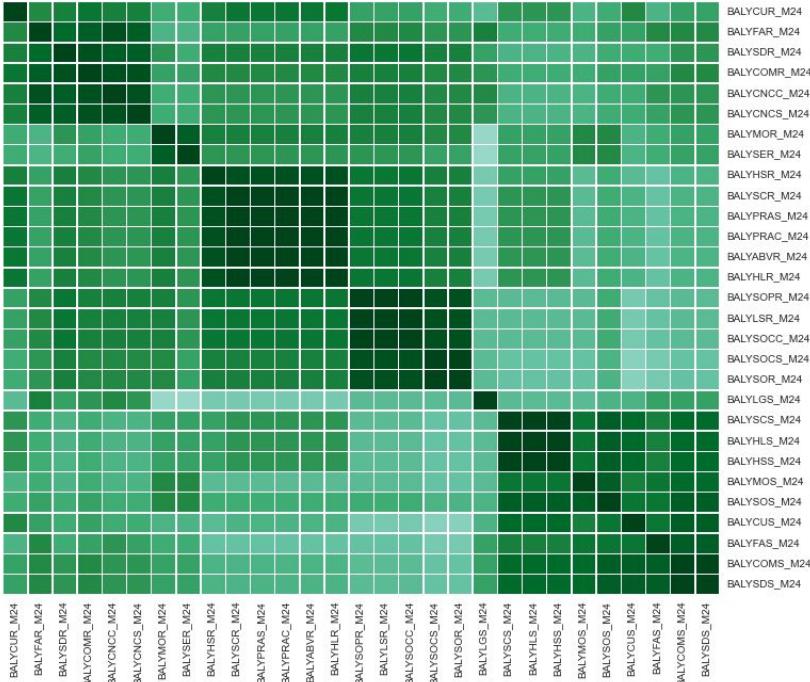
Zoom2

Codebook



Zoom1

Codebook

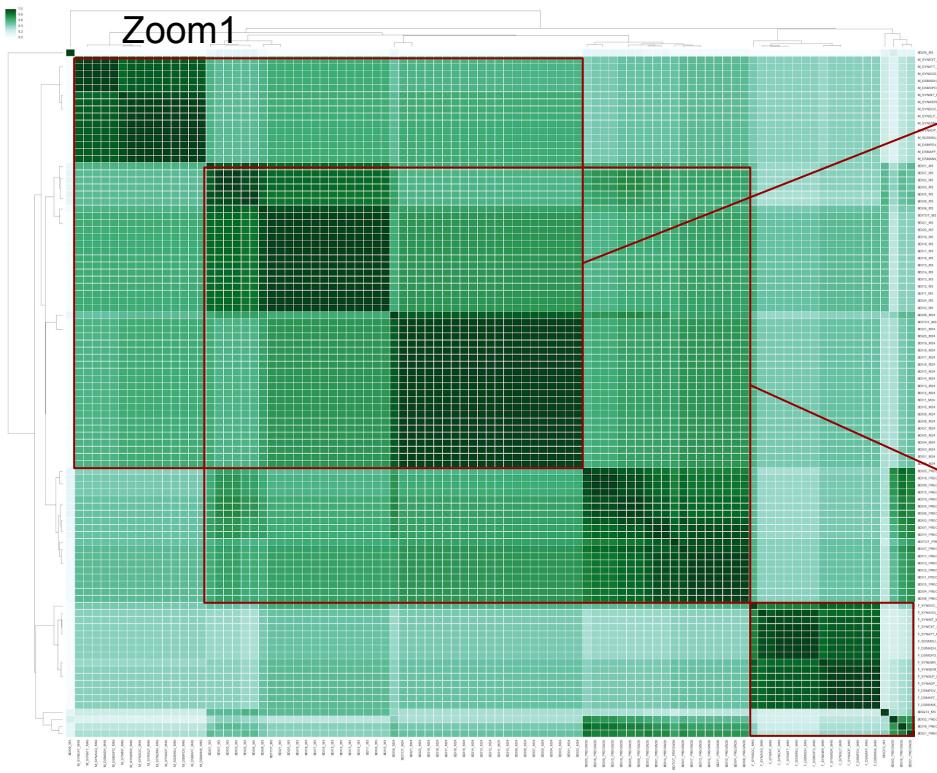


General heatmap (32 models and 500 iterations)

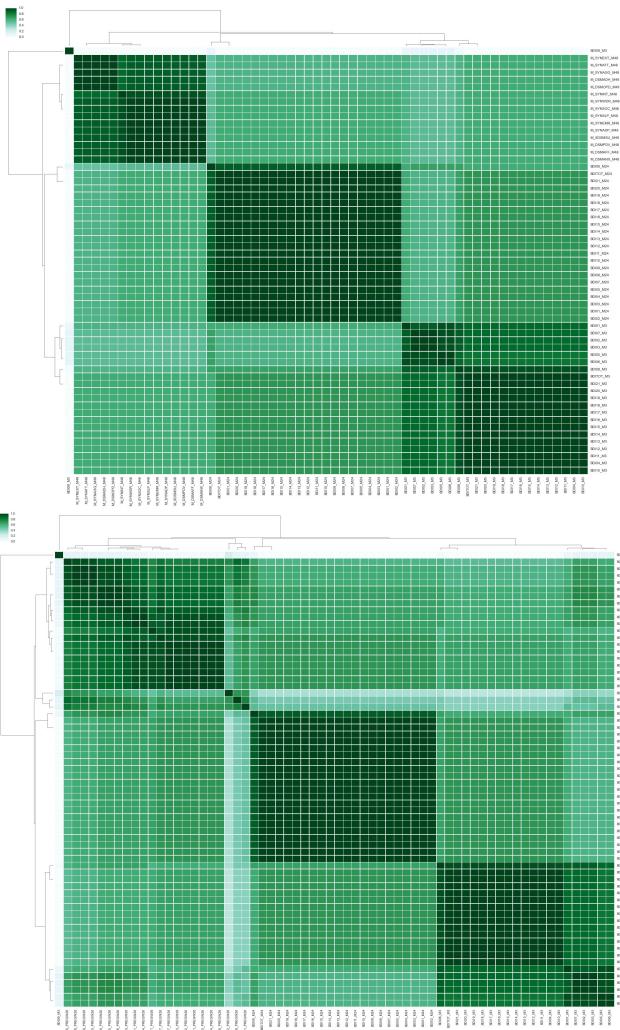
Too big to display:
check it here:

<https://drive.google.com/open?id=0B43-7VUTGemONHdYjZ6VkJzMxc>

Top left



Zoom1



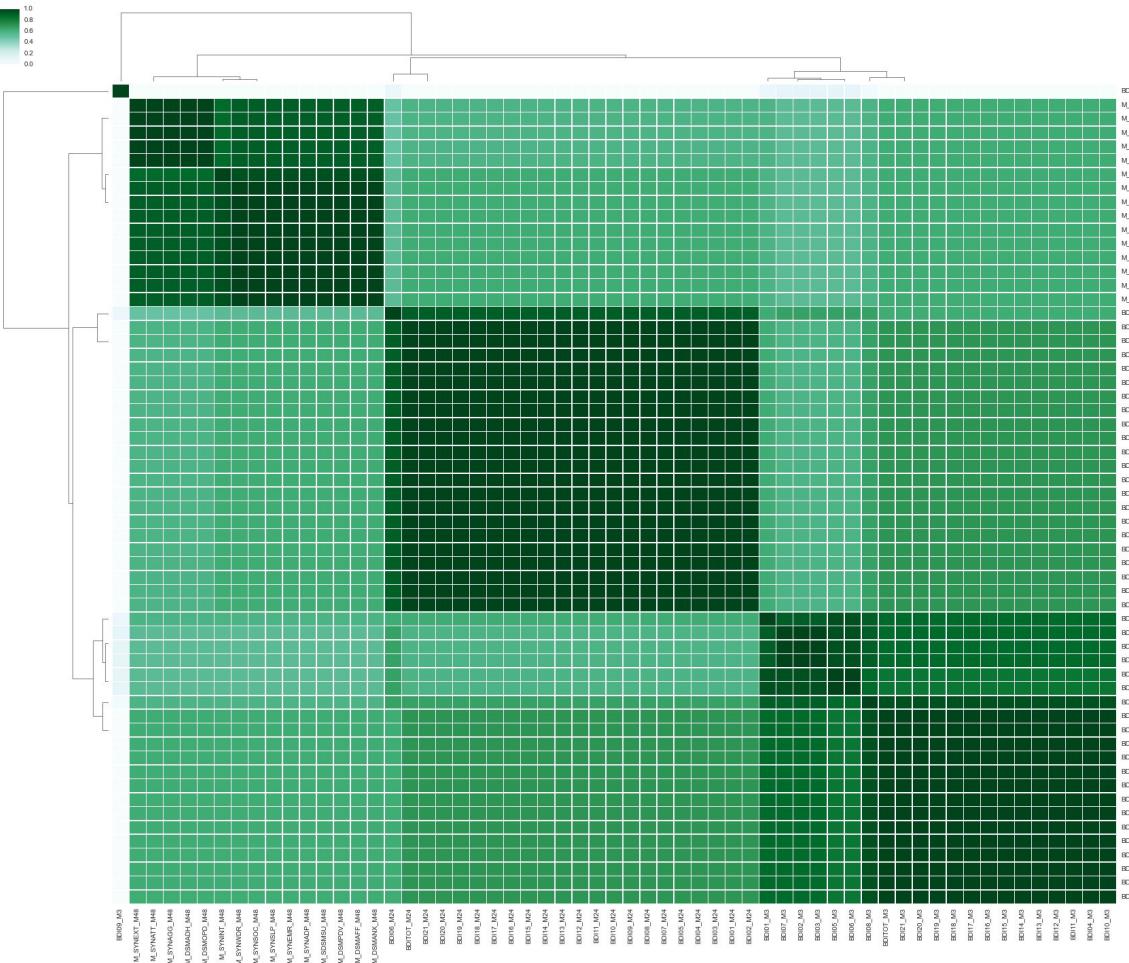
Zoom2

Zoom3

Zoom1

M3, M24, M48

Codebook



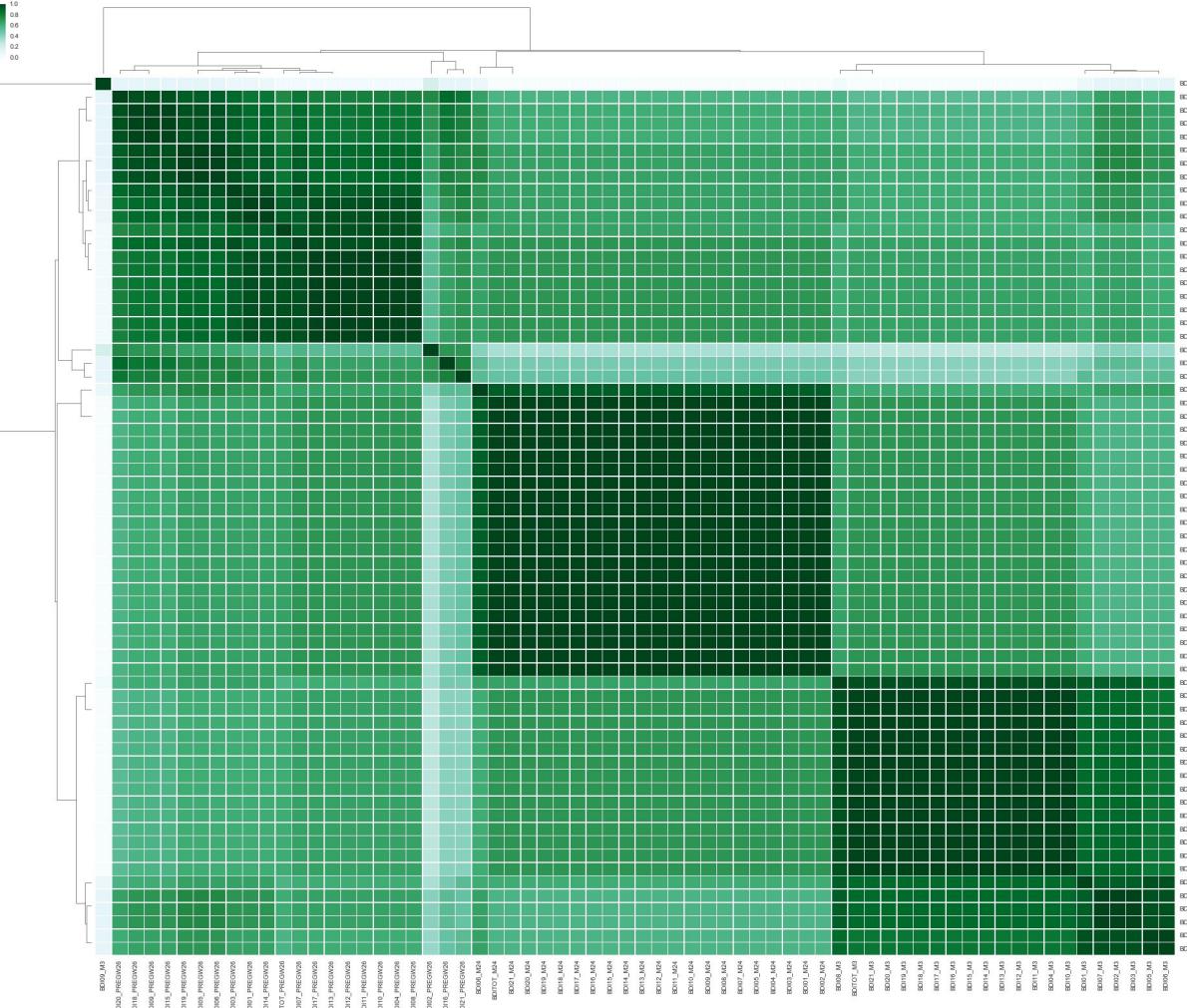
BDI09_M3
M_SYNEXT_M48
M_SYNATT_M48
M_SYNAGG_M48
M_DSMAIG_M48
M_DSMAOPD_M48
M_SYNINT_M48
M_SYNWDR_M48
M_SYNSOC_M48
M_SYNADP_M48
M_SYNMR_M48
M_DSMADH_M48
M_DSMOPD_M48
M_SYNDPD_M48
M_SYNADL_M48
M_SOMADL_M48
M_DSMOPFD_M48
M_SYNFLG_M48
M_SYNBLG_M48
M_SYNEMR_M48
M_SYNADP_M48
M_SOMBLG_M48
M_DSMFLG_M48
M_DSMADP_M48
M_DSMANX_M48
M_DSMAGF_M48
M_DSMAMF_M48
M_DSMANX_M48
M_DSMAGF_M48
BDITOT_M24
BDI01_M24
BDI02_M24
BDI03_M24
BDI04_M24
BDI05_M24
BDI06_M24
BDI07_M24
BDI08_M24
BDI09_M24
BDI10_M24
BDI11_M24
BDI12_M24
BDI13_M24
BDI14_M24
BDI15_M24
BDI16_M24
BDI17_M24
BDI18_M24
BDI19_M24
BDI20_M24
BDI21_M24
BDITOT
M_SYNSOC
M_SYNEMR
M_SYNWDR
M_SYNSLP
M_SYNADP
M_DSMPDV
M_DSMAFF
M_DSMANX
M_SYNAGG
M_SYNINT
M_SYNEXT
M_SYNATT
M_SDMSMS
M_DSMADH
M_DSMPD

Variable name	Description
BDI01	Beck Depression Inventory-Sadness
BDI02	Beck Depression Inventory-Pessimism
BDI03	Beck Depression Inventory-Past Failure
BDI04	Beck Dep Inv-Loss of Pleasure
BDI05	Beck Dep Inv-Guilty Feelings
BDI06	Beck Dep Inv-Punishment Feelings
BDI07	Beck Depression Inventory-Self-Dislike
BDI08	Beck Dep Inv-Self-Criticalness
BDI09	Beck Dep Inv-Suicidal Thoughts/Wishes
BDI10	Beck Depression Inventory-Crying
BDI11	Beck Depression Inventory-Agitation
BDI12	Beck Dep Inv-Loss of Interest
BDI13	Beck Depression Inventory-Indecisiveness
BDI14	Beck Depression Inventory-Worthlessness
BDI15	Beck Depression Inventory-Loss of Energy
BDI16	Beck Dep Inv-ChangesSleep Pattern
BDI17	Beck Depression Inventory-Irritability
BDI18	Beck Dep Inv-Changes Appetite
BDI19	Beck Dep Inv-Concentration Difficulty
BDI20	Beck Dep Inv-Tiredness or Fatigue
BDI21	Beck Dep Inv-Loss of Interest in Sex
BDITOT	Beck Depression Inventory-Total Score
M_SYNSOC	Syndr Somatic Compl Raw Tot Eval=MOTH
M_SYNEMR	Syndr Emotion Recac Raw Tot Eval=MOTH
M_SYNWDR	Syndr Withdrawn Raw Tot Eval=MOTH
M_SYNSLP	Syndr Sleep Prost Raw Tot Eval=MOTH
M_SYNADP	Syndr Anxious/Depr Raw Tot Eval=MOTH
M_DSMPDV	DSM Pervasiv Dev Prob Raw Tot Eval=MOTH
M_DSMAFF	DSM Affective Prob Raw Tot Eval=MOTH
M_DSMANX	DSM Anxiety Prob Raw Tot Eval=MOTH
M_SYNAGG	Syndr Aggr Behav Raw Tot Eval=MOTH
M_SYNINT	Syndr Intrnlz Prob Raw Tot Eval=MOTH
M_SYNEXT	Syndr Externlz Prob Raw Tot Eval=MOTH
M_SYNATT	Syndr Attention Prob Raw Tot Eval=MOTH
M_SDMSMS	Synd and DSM Total Score Sum Eval=MOTH
M_DSMADH	DSM AttnDefic/Hyper Prob RawTot Ev=MOTH
M_DSMPD	DSM Oppos Defian Prob Raw Tot Eval=MOTH

Zoom2

Codebook

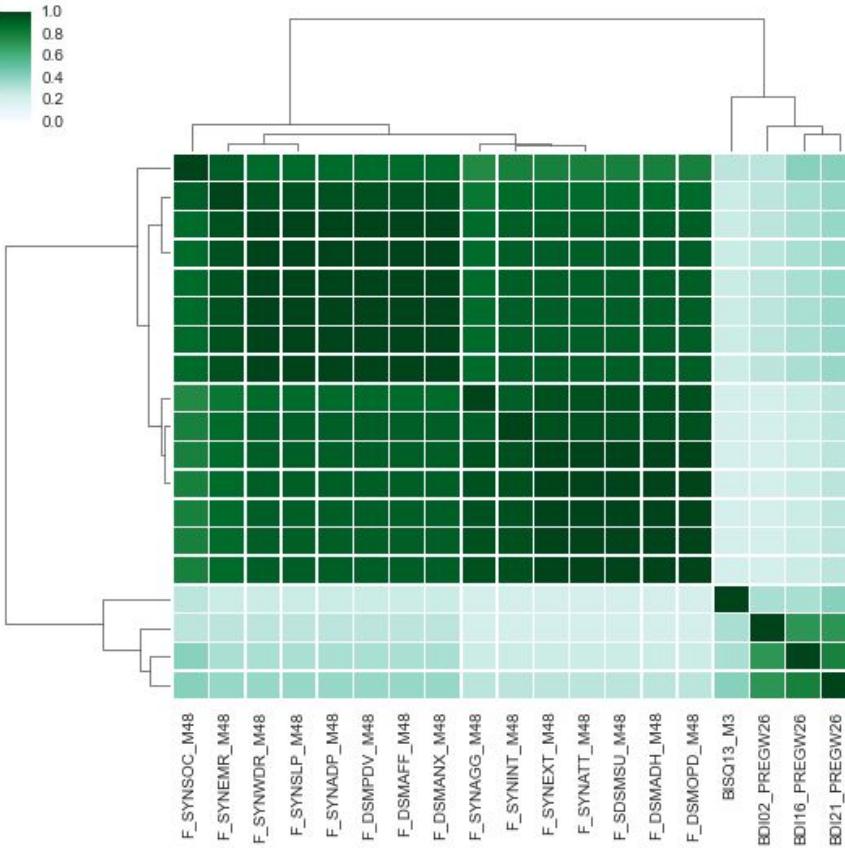
Variable name	Description
BDI01	Beck Depression Inventory-Sadness
BDI02	Beck Depression Inventory-Pessimism
BDI03	Beck Depression Inventory-Past Failure
BDI04	Beck Dep Inv-Loss of Pleasure
BDI05	Beck Dep Inv-Guilty Feelings
BDI06	Beck Dep Inv-Punishment Feelings
BDITOT_M24	Beck Depression Inventory-Self-Dislike
BDI07	Beck Dep Inv-Self-Criticalness
BDI08	Beck Dep Inv-Suicidal Thoughts/Wishes
BDI09	Beck Depression Inventory-Crying
BDI10	Beck Depression Inventory-Agitation
BDI11	Beck Dep Inv-Loss of Interest
BDI12	Beck Depression Inventory-Indecisiveness
BDI13	Beck Depression Inventory-Worthlessness
BDI14	Beck Depression Inventory-Loss of Energy
BDI15	Beck Dep Inv-ChangesSleep Pattern
BDI16	Beck Depression Inventory-Irritability
BDI17	Beck Dep Inv-Changes Appetite
BDI18	Beck Dep Inv-Concentration Difficulty
BDI19	Beck Dep Inv-Tiredness or Fatigue
BDI20	Beck Dep Inv-Loss of Interest in Sex
BDI21	Beck Depression Inventory-Total Score
BDITOT	Beck Depression Inventory-Total Score



M3, M24, PREGW26

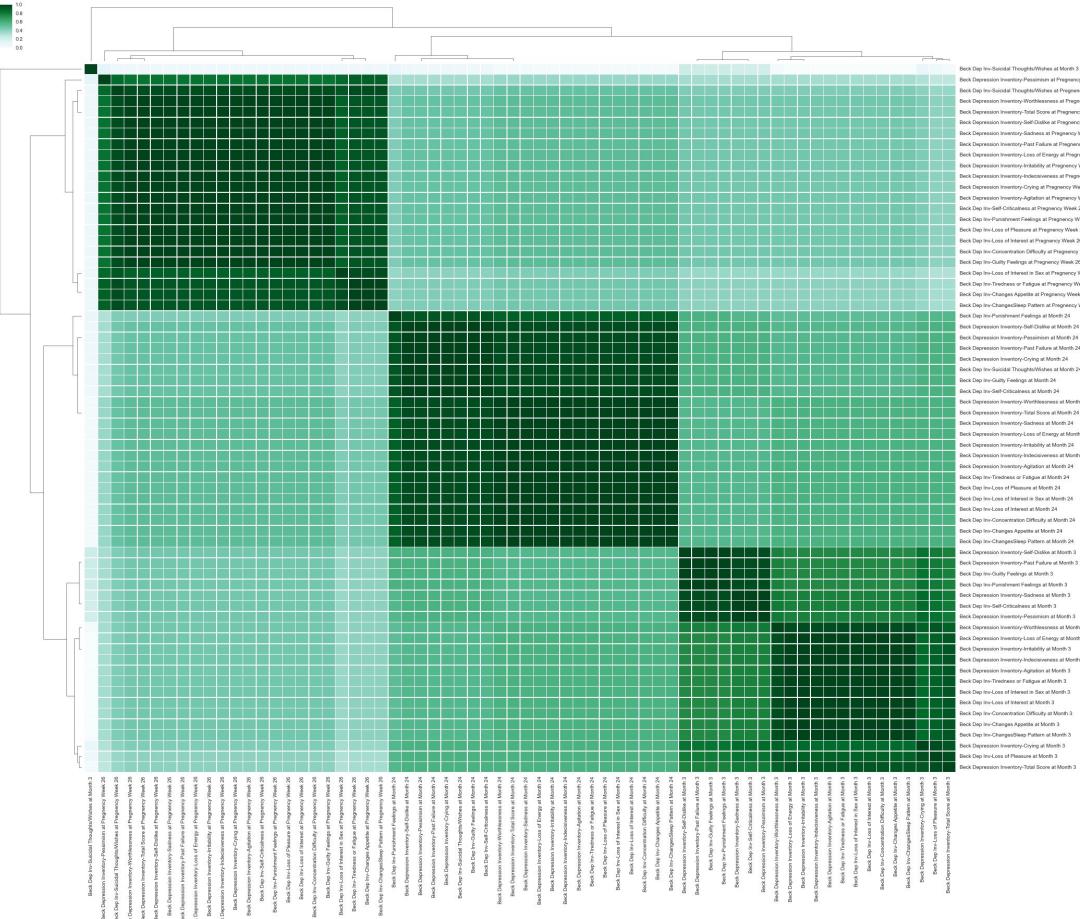
Zoom3

Codebook

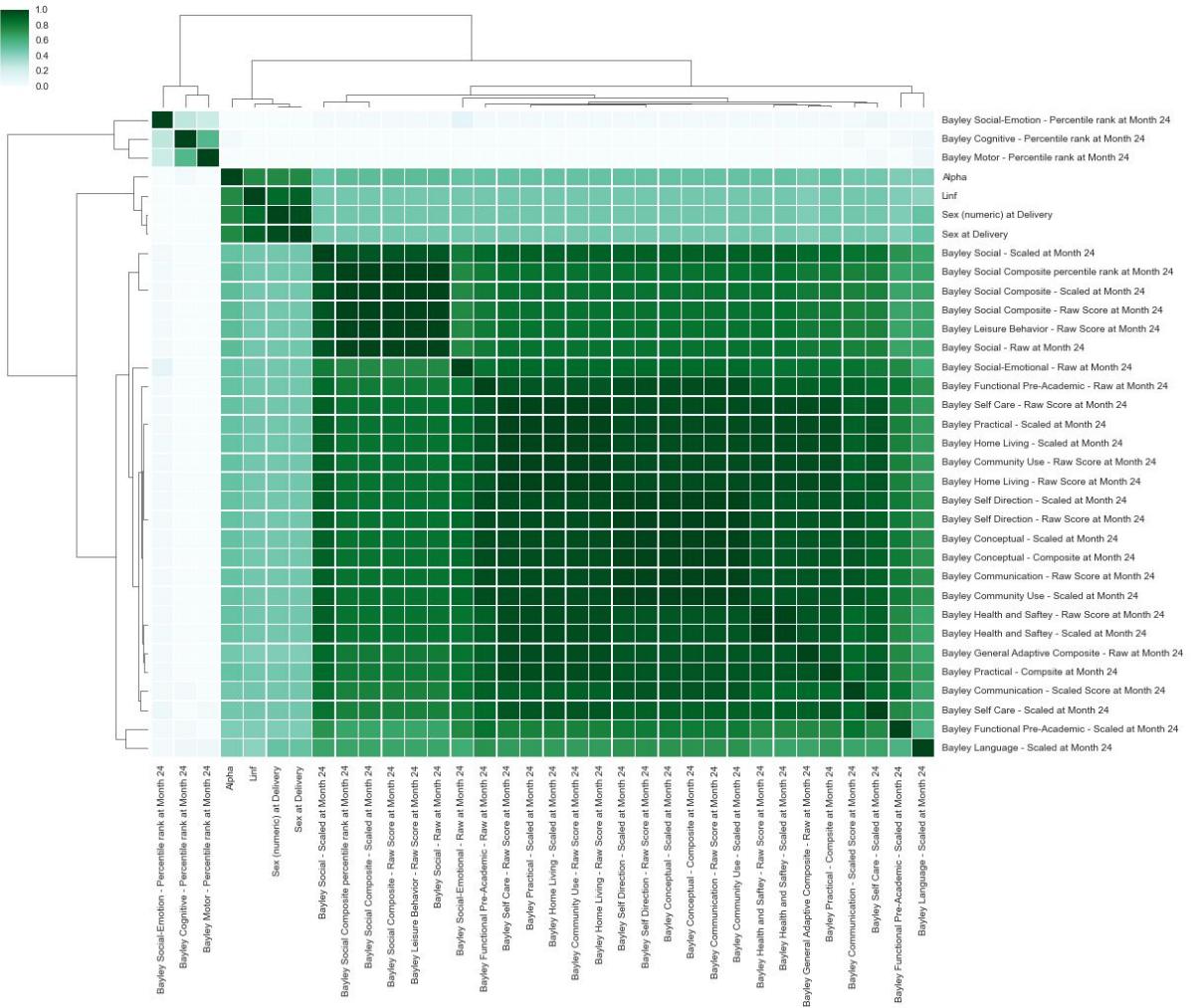


Variable name	Description
F_SYNSOC	Syndr Somatic Compl Raw Tot Eval=FATH
F_SYNEMR	Syndr Emotion Reac Raw Tot Eval=FATH
F_SYNWDR	Syndr Withdrawn Raw Tot Eval=FATH
F_SYNSLP	Syndr Sleep Prob Raw Tot Eval=FATH
F_SYNADP	Syndr Anxious/Depr Raw Tot Eval=FATH
F_DSMPDV	DSM Pervasiv Dev Prob Raw Tot Eval=FATH
F_DSMAFF	DSM Affective Prob Raw Tot Eval=FATH
F_DSMANX	DSM Anxiety Prob Raw Tot Eval=FATH
F_SYNAGG	Syndr Aggr Behav Raw Tot Eval=FATH
F_SYNINT	Syndr Intrnlz Prob Raw Tot Eval=FATH
F_SYNEXT	Syndr Externlz Prob Raw Tot Eval=FATH
F_SYNATT	Syndr Attention Prob Raw Tot Eval=FATH
F_SDSMSU	Syndr and DSM Total Score Sum Eval=FATH
F_DSMADH	DSM AtnDefic/Hyper Prob RawTot Ev=FATH
F_DSMPD	DSM Oppos Def Prob Raw Tot Eval=FATH
BISQ13	BISQ-Child's sleep a problem?
BDI02	Beck Depression Inventory-Pessimism
BDI16	Beck Dep Inv-ChangesSleep Pattern
BDI21	Beck Dep Inv-Loss of Interest in Sex

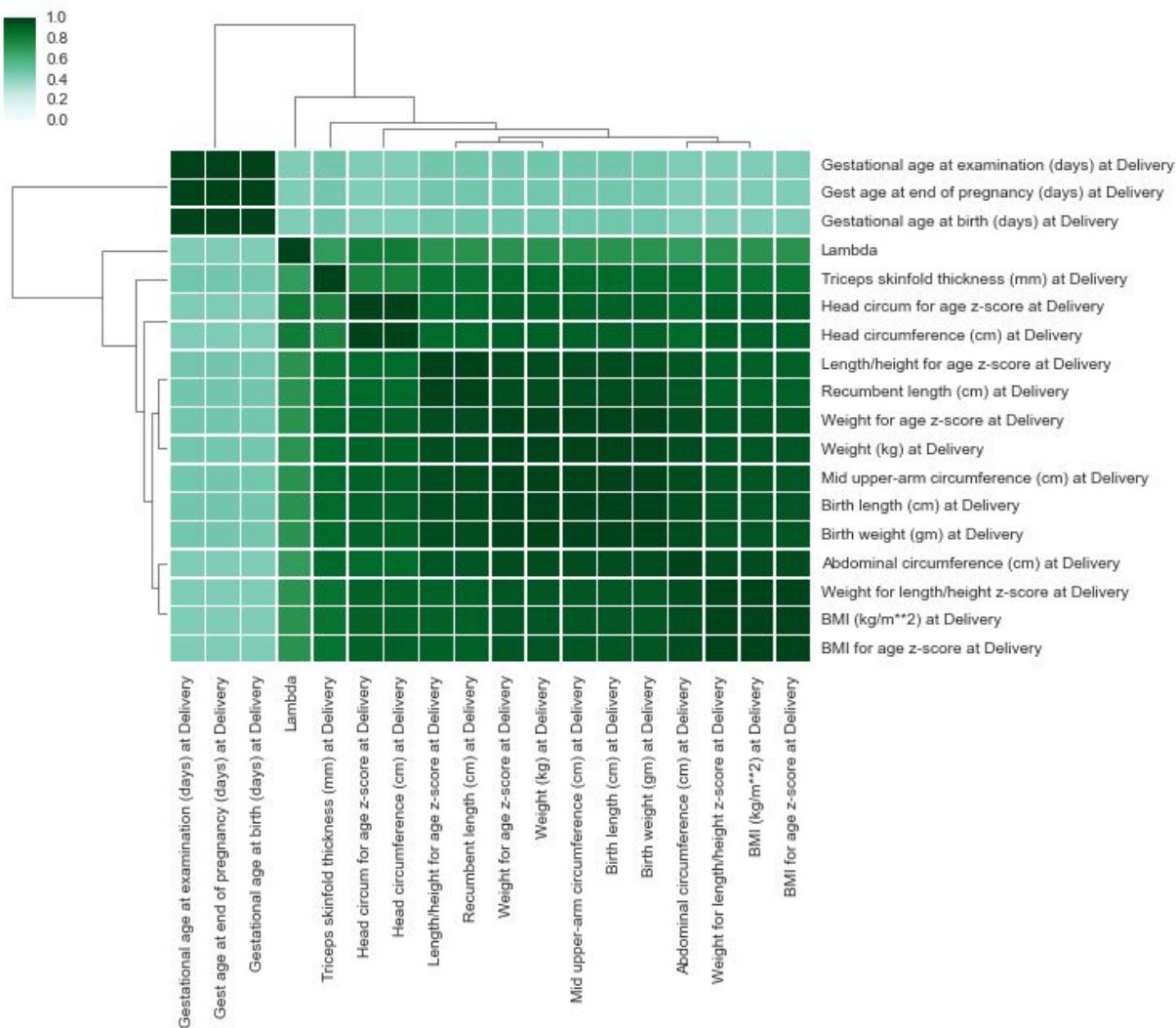
Block 1



Block 2



Block 3



Block 4

