PTS stats course for biogeochemical processes

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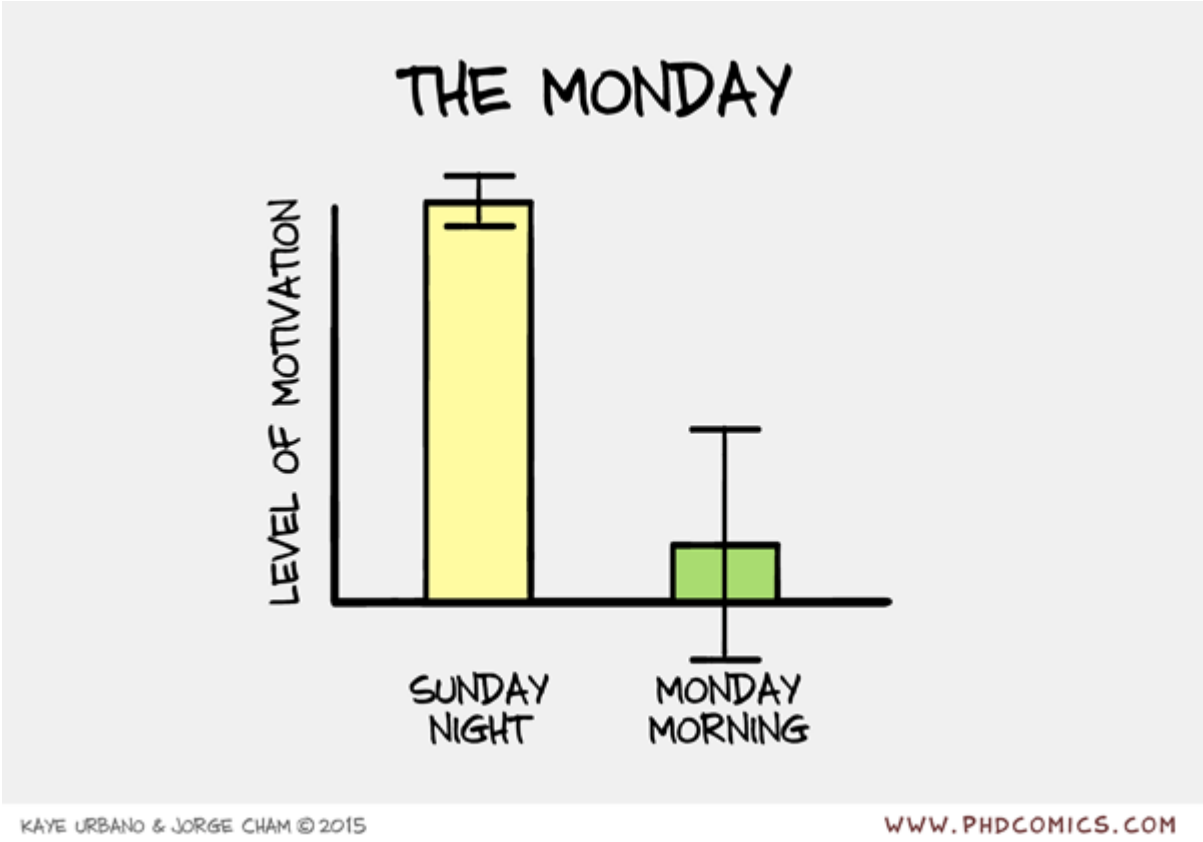


Session 1

1.1 Conditions

1.2. Significance

1.3. Decision tree

1.4. Significance letters

1.5 Data arrangement

1.6. Short assignment:

1.1. Conditions

- Test need to fulfill certain conditions in order to be valid

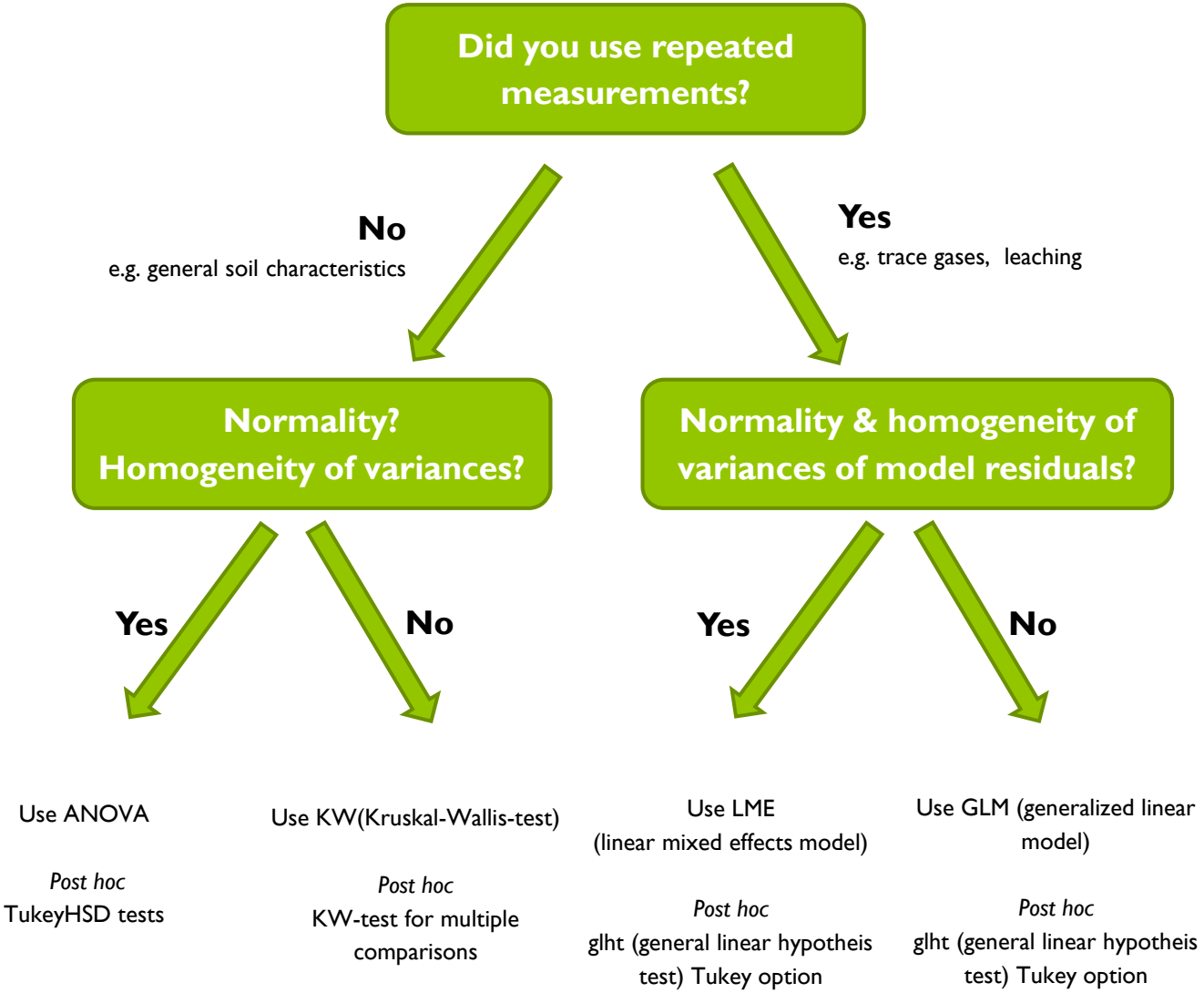
- Reason:
  - Stats should be correct and replicable
  - Wrong stats often get rejected

1.2. Significance

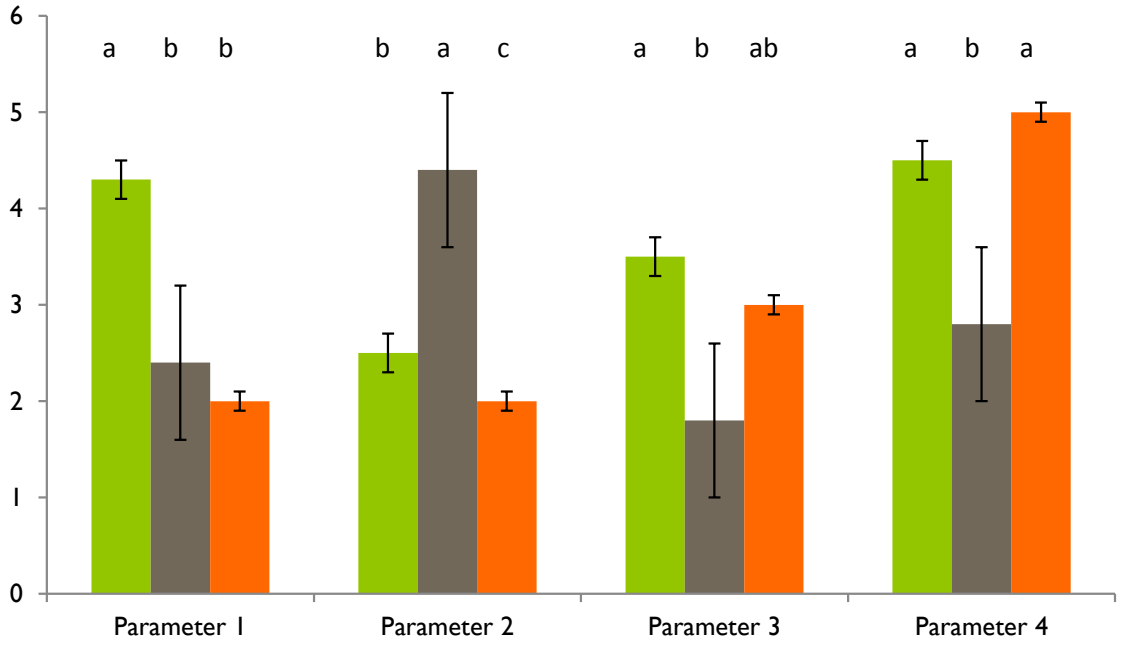
- Null-hypothesis assumes groups to be equal
- Differences become significant at $p \leq 0.05$
  - Marginally significance at $p \leq 0.10$

1.3. Decision tree

Just to show – stats are complex!



1.4. Significance letters



1.5. Data arrangement

site	distance	productivity	shading
Aachen	1m	1.7	65
Aachen	1m	1.9	61
Aachen	1m	2.0	63
Aachen	1m	1.6	70
Aachen	4m	2.3	40
Aachen	4m	2.2	39
Aachen	4m	2.3	42
Aachen	4m	2.0	45
Aachen	7m	3.1	20
Aachen	7m	3.2	22
Aachen	7m	2.8	21
Aachen	7m	2.7	19
Berlin	1m	3.4	90
Berlin	1m	2.8	92
Berlin	1m	4.1	94
Berlin	1m	2.2	90
Berlin	4m	4.3	38
Berlin	4m	5.9	40
Berlin	4m	3.2	32
Berlin	4m	4.2	35
Berlin	7m	2.7	16
Berlin	7m	6.3	20
Berlin	7m	4.0	18
Berlin	7m	4.2	16

Site	distance	day	Productivity	shading	
Aachen	1m	1	1.7	65	
Aachen	1m	15	2.1	48	
…					

Repeated measurements

1.6. Short assignment

- Install R, get it running, arrange own data and choose the correct test.
- Think about what you want to compare!