



# ASQ CRE Prep course

Lesson III. A. 7. h.

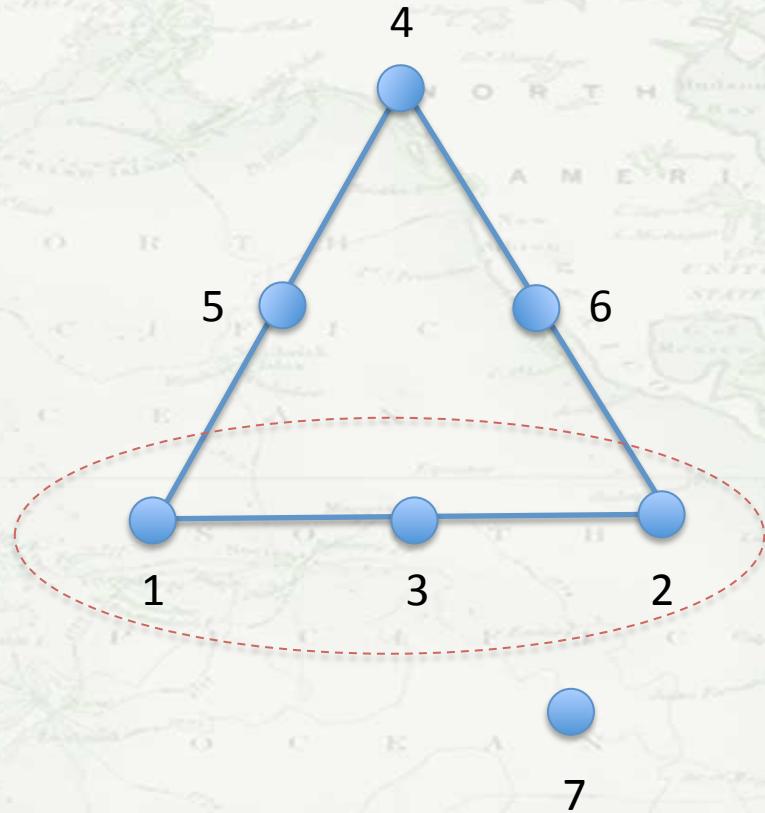
Design of Experiments

Adjusting the Design

# One factor with 4 Levels

**Add a factor with 4 levels to L8 array**

- 1. Select 3 interacting columns**



# One Factor with 4 Levels

**2. Select two columns  
and ignore the third**

run	1	2	3
1	1	1	
2	1	1	
3	1	2	
4	1	2	
5	2	1	
6	2	1	
7	2	2	
8	2	2	

# One Factor with 4 Levels

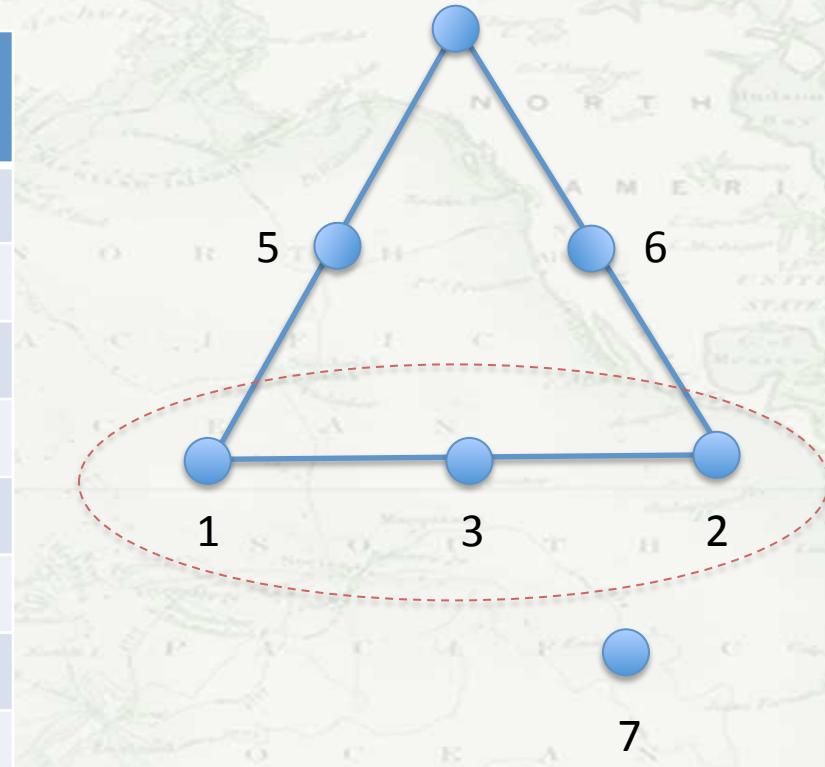
## 3. Combine columns

Old Levels		New Level
1	1	1
1	2	2
2	1	3
2	2	4

run	1	2	3
1	1	1	1
2	1	1	1
3	1	2	2
4	1	2	2
5	2	1	3
6	2	1	3
7	2	2	4
8	2	2	4

# One Factor with 4 Levels

run	1	2	3	4	5	6	7
1	1		1	1	1	1	1
2	1		2	2	2	2	2
3	2		1	1	2	2	2
4	2		2	2	1	1	1
5	3		1	2	1	2	
6	3		2	1	2	1	
7	4		1	2	2	1	
8	4		2	1	1	1	2



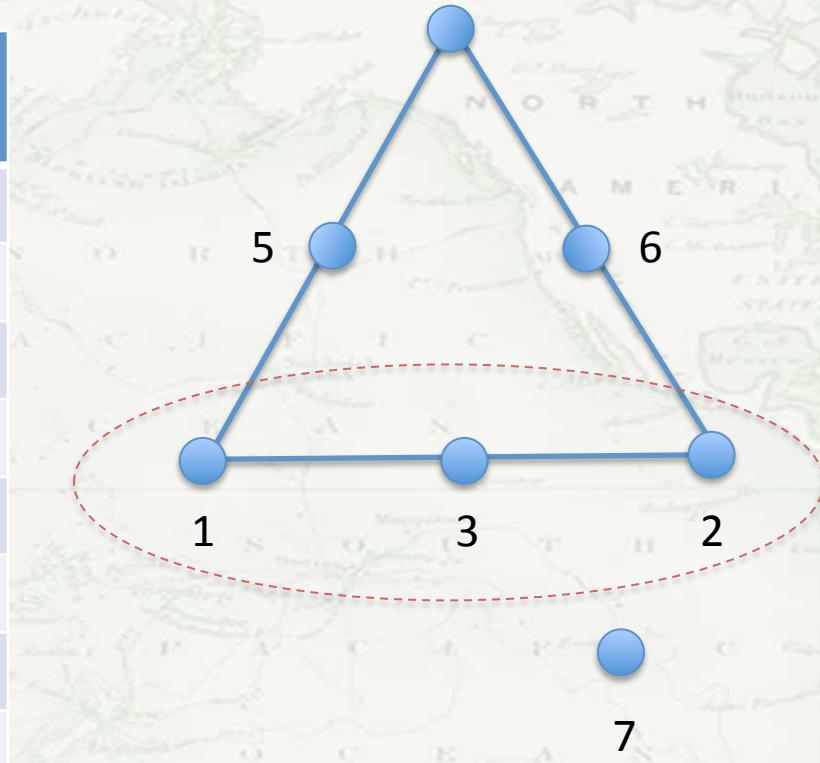
# One Factor with 3 Levels

**Same steps as for 4 levels**

**Downgrade 4 levels to 3 by changing 4's to 3's**

# One Factor with 3 Levels

run	1	2	3	4	5	6	7
1	1		1	1	1	1	1
2	1		2	2	2	2	2
3	2		1	1	2	2	2
4	2		2	2	1	1	1
5	3		1	2	1	2	
6	3		2	1	2	1	
7	3		1	2	2	1	
8	3		2	1	1	2	



This was mostly  
Taguchi's  
approach



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Lesson III. A. 7. i.

Design of Experiments

Classical DOE