



Advanced Topics in Card Sorting

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Advanced Topics

- ▶ Subgroups
- ▶ Deviants
- ▶ Navigational alignment



Scope

- ▶ Manual (where practical)
- ▶ EZSort / EZCalc
- ▶ Websort.net
- ▶ SynCaps V1
- ▶ SynCaps V2 (upcoming release)



Subgroups

- ▶ EZSort / EZCalc and SynCaps include the notion of anonymous subgroups:

Vegetables

Carrots

Onions

Leeks

Lettuce

Tomatoes

Subgroup





Subgroups

- ▶ Subgroups tantalize researchers with the prospect of a three-level hierarchy: groups, subgroups and items
- ▶ The reality is not as promising
 - Subgroups are a means of refining groups but the analysis is still only monothetic (based on how often items appear together)



Proximity Matrix for Single Participant

	Beaujolais	Cabernet Sauvignon	Cava	Champagne	Chardonnay	Claret	Merlot	Muscat	Pinot Grigio	Riesling	Syrah	White Zinfandel
Beaujolais	1				1	1					1	
Cabernet Sauvignon	1	1			1	1					1	
Cava			1									
Champagne			1	1								
Chardonnay					1		1	1	1		1	
Claret	1	1				1					1	
Merlot	1	1			1	1					1	
Muscat					1			1	1			1
Pinot Grigio					1		1	1	1			1
Riesling					1		1	1	1			1
Syrah	1	1				1	1				1	
White Zinfandel					1		1	1	1			1



Proximity Matrix for All Participants

	Beaujolais	Cabernet Sauvignon	Cava	Champagne	Chardonnay	Claret	Merlot	Muscat	Pinot Grigio	Riesling	Syrah	White Zinfandel
Beaujolais		9	3	2		11	11	1	4	1	9	
Cabernet Sauvignon	9		1	1	2	10	9	2	4	1	10	1
Cava	3	1		9	2	3	1	4	1	1	1	2
Champagne	2	1	9		1		1	3	2	1		
Chardonnay		2	2	1			1	8	6	11	2	11
Claret	11	10	3				10	1	5		10	1
Merlot	11	9	1	1	1	10			4	2	10	1
Muscat	1	2	4	3	8	1			5	8	2	8
Pinot Grigio	4	4	1	2	6	5	4	5		6	3	7
Riesling	1	1	1	1	11		2	8	6		2	12
Syrah	9	10	1		2	10	10	2	3	2		2
White Zinfandel		1	2		11	1	1	8	7	12	2	



Subgroups

- ▶ For EZSort / EZCalc and SynCaps subgroups affect the values added to the proximity matrix:
 - 2 added for items in same subgroup
 - 1 added for items in same group

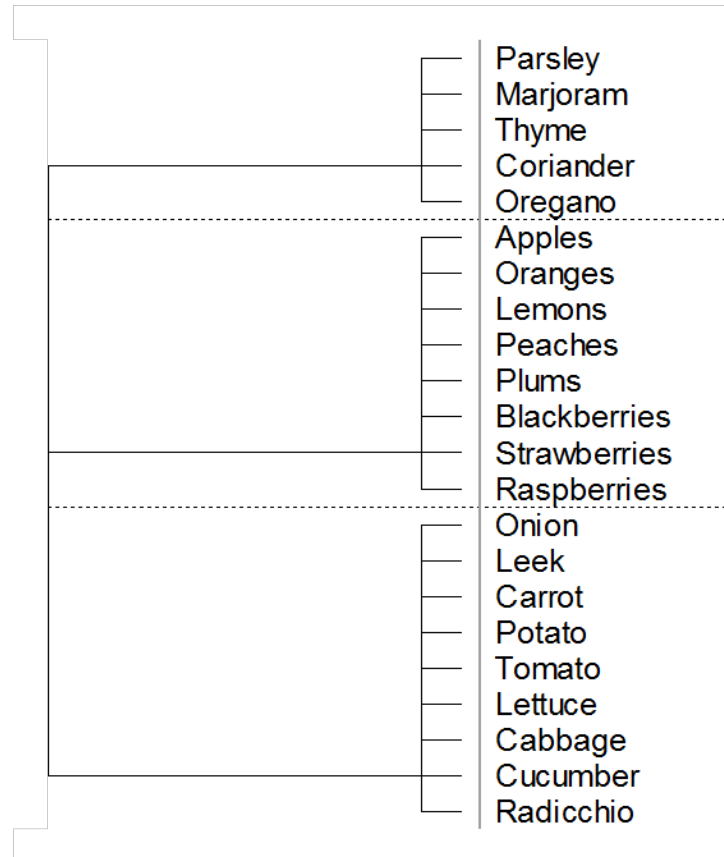


Proximity Matrix for Single Participant (with Subgroups)

	Beaujolais	Cabernet Sauvignon	Cava	Champagne	Chardonnay	Claret	Merlot	Muscat	Pinot Grigio	Riesling	Syrah	White Zinfandel
Beaujolais	1					1	2				1	
Cabernet Sauvignon	1	1				2	1				2	
Cava			1									
Champagne			2	1								
Chardonnay					1			2	2	2		1
Claret	1	2				1	2				2	
Merlot	2	2				2	1				2	
Muscat					2			1	2	2		1
Pinot Grigio					2		2	1	1	2		1
Riesling					2		2	2	1	1		1
Syrah	1	2				2	2				1	
White Zinfandel					1			1	1	1		1



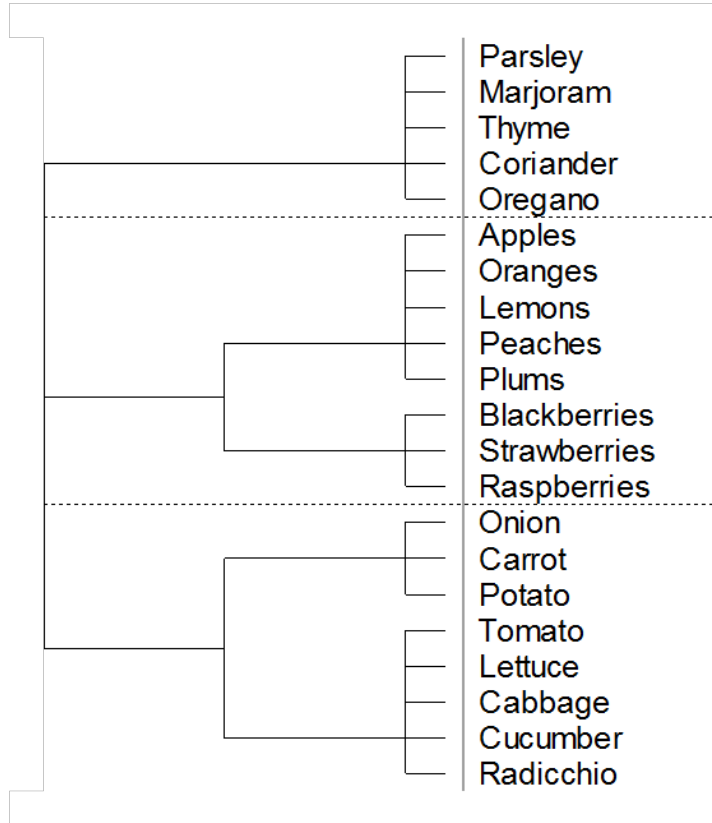
Dendrograms (SynCaps)



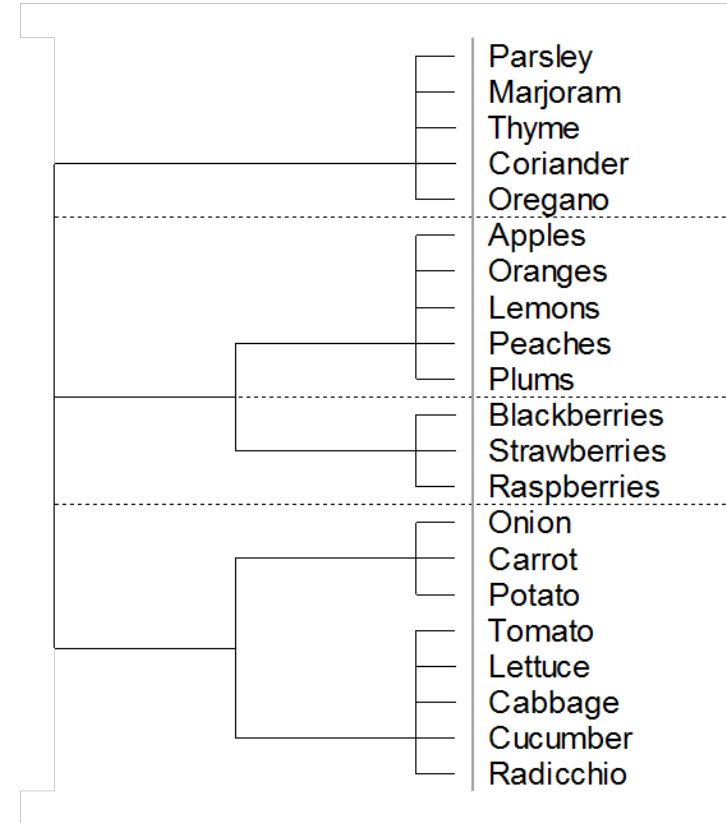
**Single Participant
(no subgroups)**



Dendrograms (SynCaps)



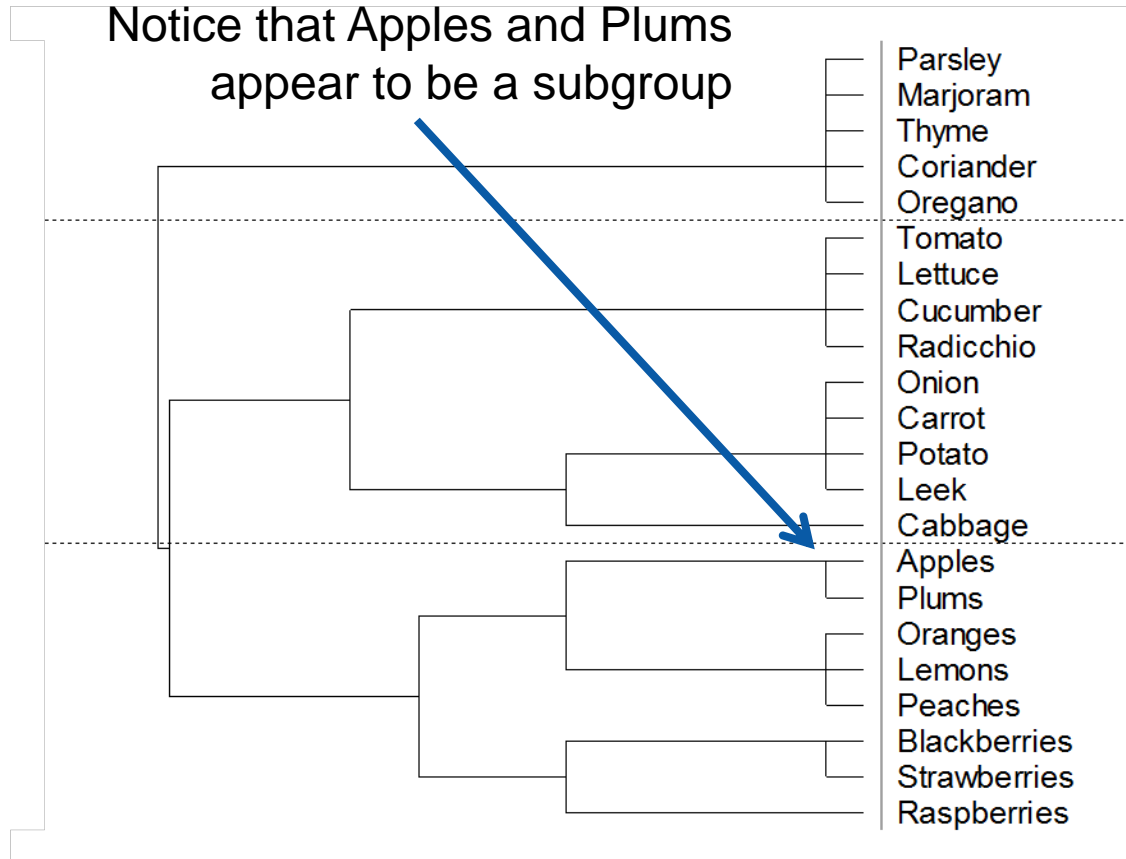
**Single Participant
(two subgroups)**



**Two Participants
(no subgroups)**



Dendrograms (SynCaps)



**Three Participants
(subgroups and noise)**

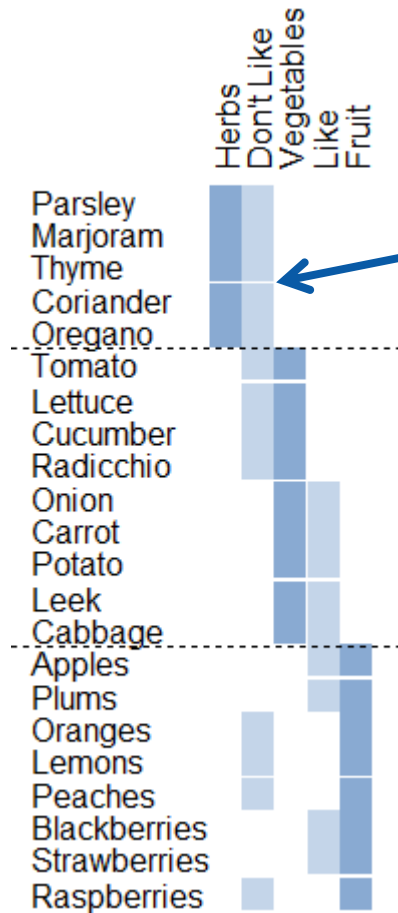


Dendrograms

- ▶ The ‘hierarchy’ of a dendrogram only shows how frequently items were grouped together
- ▶ For well-aligned results, dendrograms appears to reflect a ‘real’ hierarchy
- ▶ Unfortunately, in practical use, this is rarely the case – further examination of the results is needed



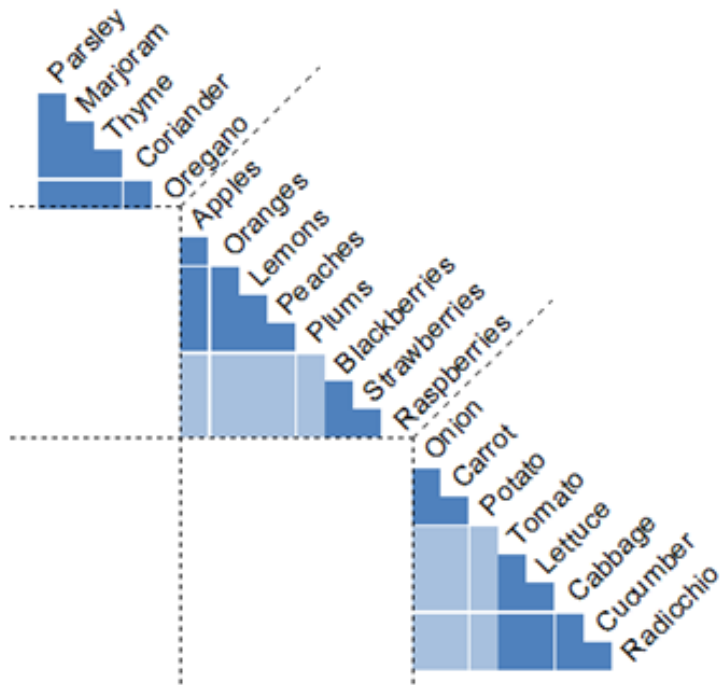
Items x Groups (SynCaps V2)



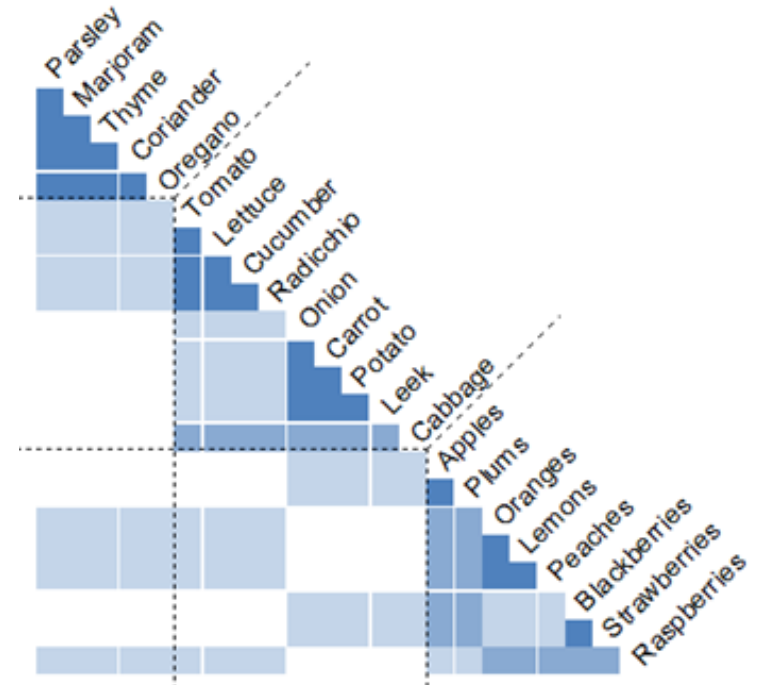
Breaks are for ease of reading only (they occur every three rows or columns)



Pairs Map (SynCaps V2)



Ideal Results



Deviant Results



Subgroups Summary

- Open sorts
 - Subgroups are no substitute for multiple sorts at different levels
- Semi-open and closed sorts
 - Participants will be given some (semi-open) or all (closed) group names
 - Subgroups can be safely used to refine understanding
- Remember that in EZCalc / EZSort and SynCaps, subgroups are unnamed



Dealing with Deviants

► Deviants

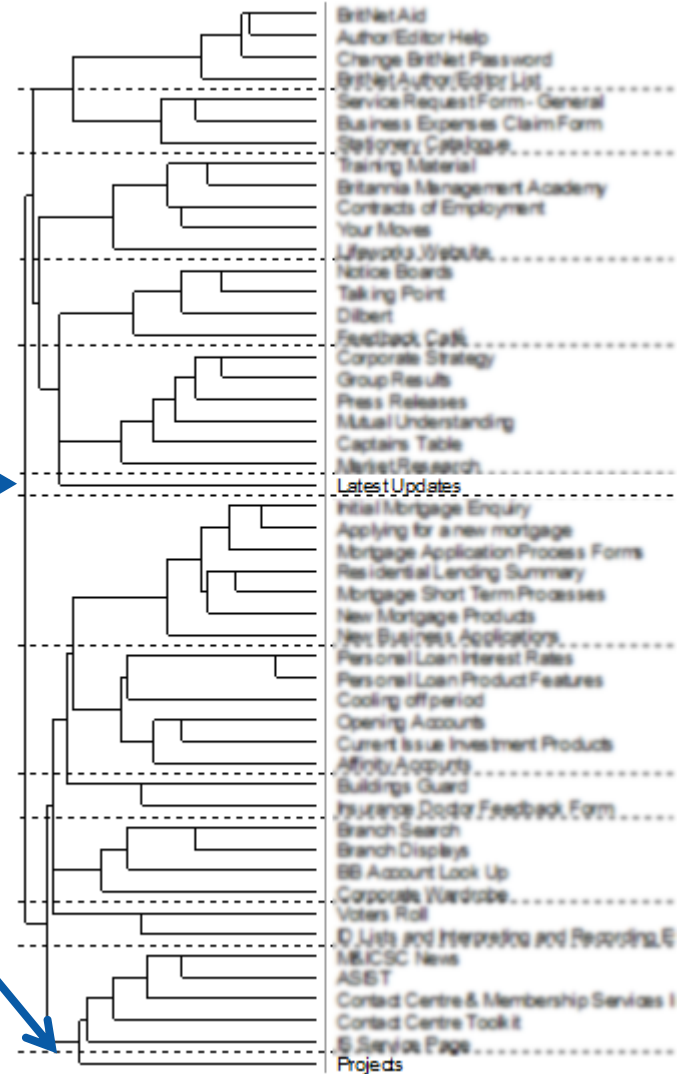
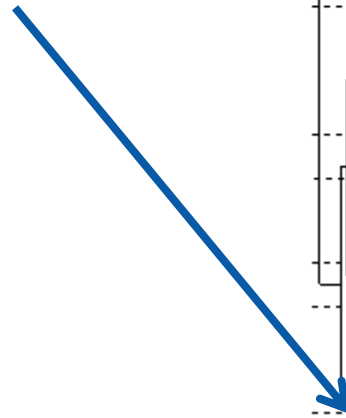
- Participants whose approach varies dramatically from others
- Items that participants do not group consistently

► In traditional cluster analysis no analysis is performed on participants. Deviant items appear only as weakly grouped.



Deviant Items

‘Latest Updates’ and
‘Projects’ have very
week relationships
with other items





Deviant Participants

- ▶ Deviant participants have performed the sorting task very differently to their peers:
 - Very different number of groups
 - Extreme quality of fit (SynCaps)
 - Very low alignment (SynCaps)



Quality of Fit

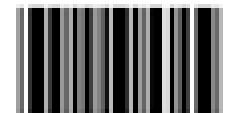
- ▶ In Computer-Aided Paper Sorting (Caps), each item can be marked with a quality of fit to its group
- ▶ The fit is averaged across items and participants
- ▶ Average participant fit can reveal extremes

Fit

Perfect



Good



Fair





SynCaps Participant File

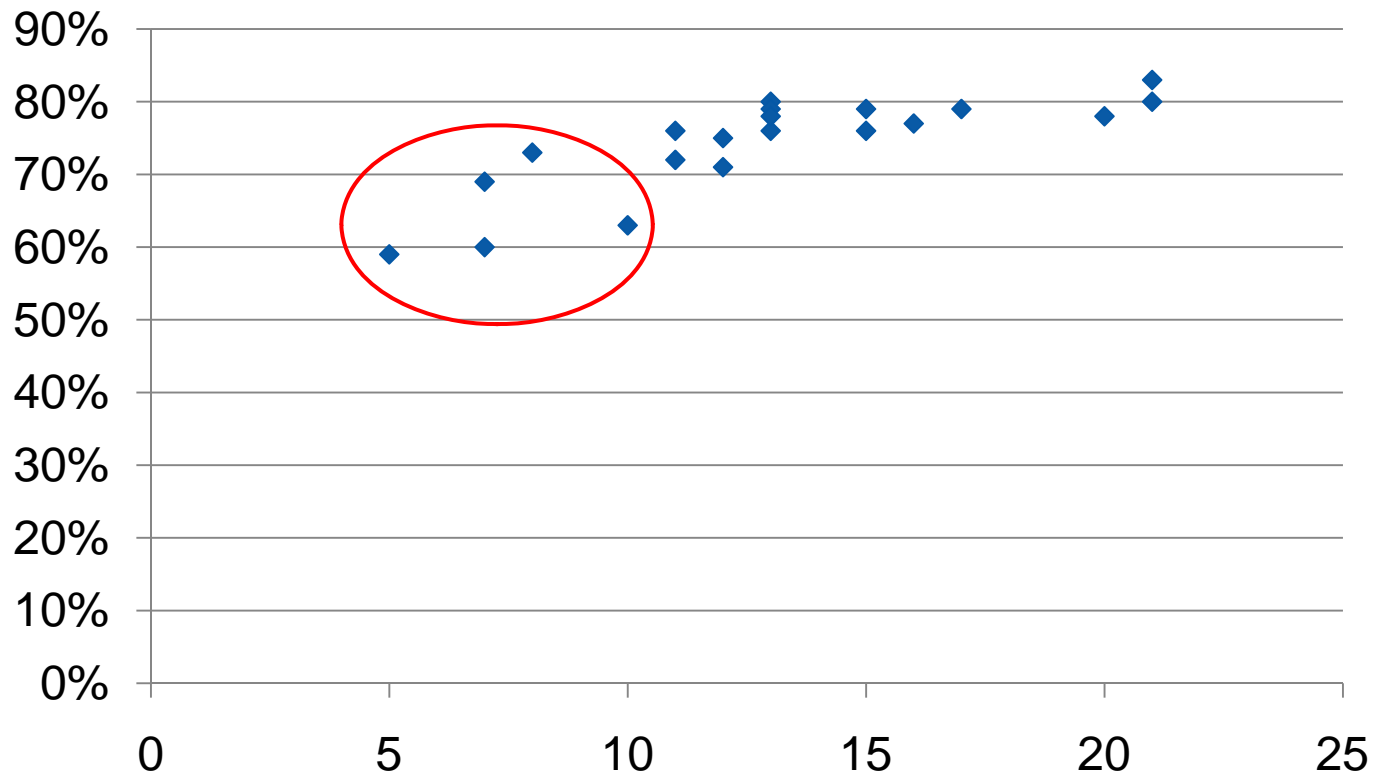
Groups	Items	Pairs	AveSize	%AveAlign	%ExpertAlign
21	50	59	2.4	80%	73%
10	50	190	5	63%	59%
13	50	95	3.8	78%	69%
15	50	106	3.3	76%	67%
5	50	310	10	59%	50%
7	50	302	7.1	60%	52%
12	50	145	4.2	71%	65%

AveAlign shows agreement between participants



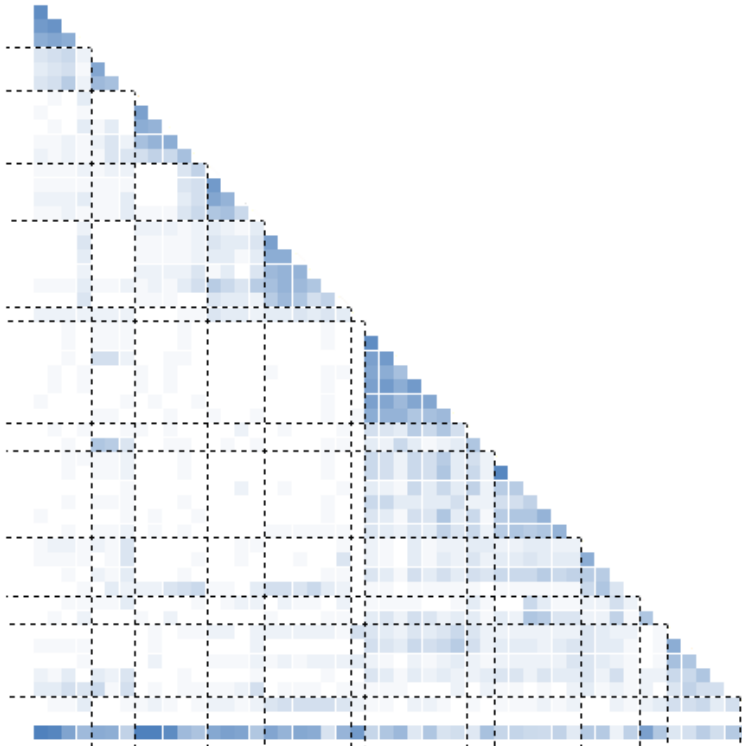
Participant Scattergram (Excel)

%AveAlign by Group Count

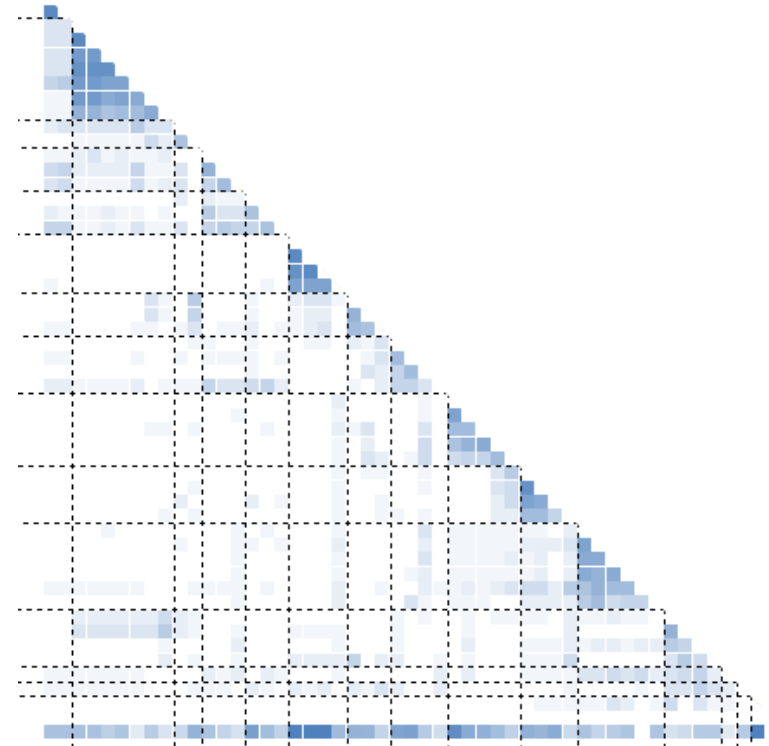




Pairs Maps (SynCaps V2)



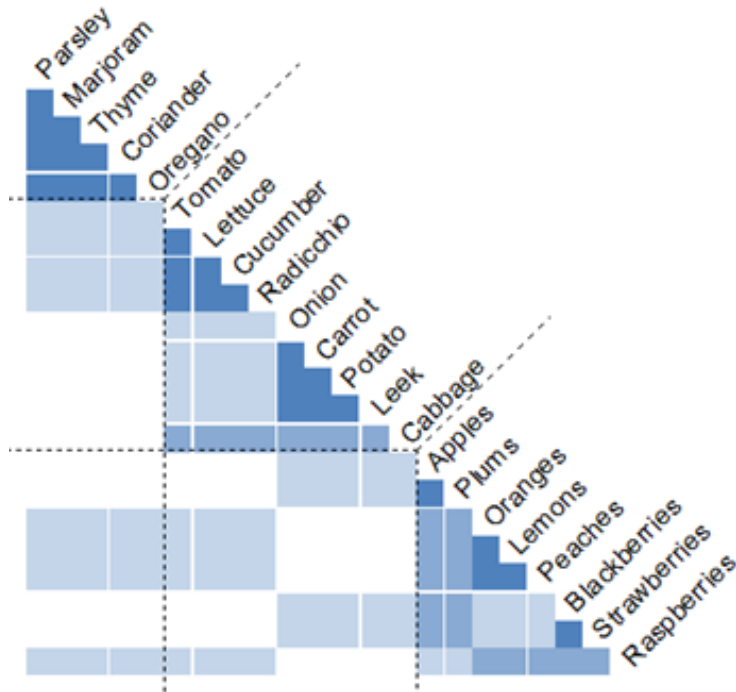
All Participants



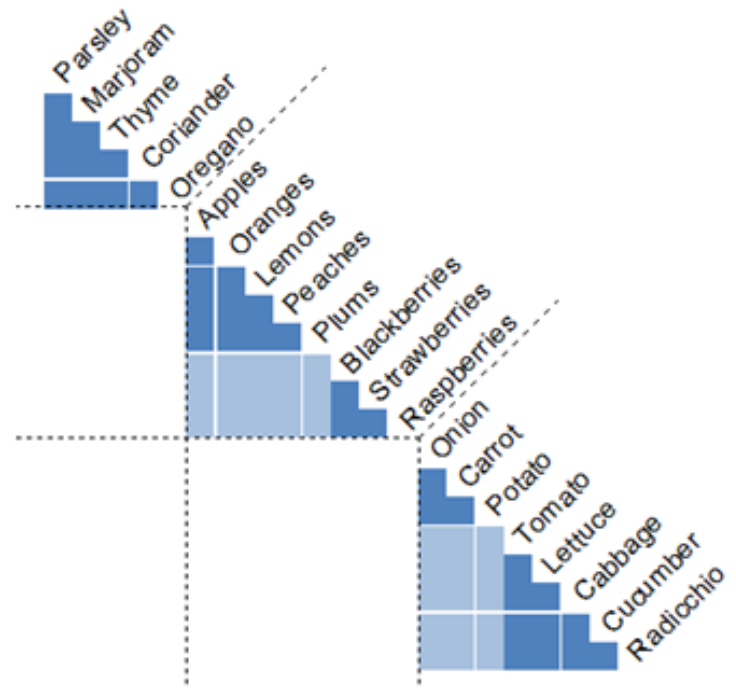
**Participants with
More than 10 Groups**



Pairs Map Reminder



Deviant Results

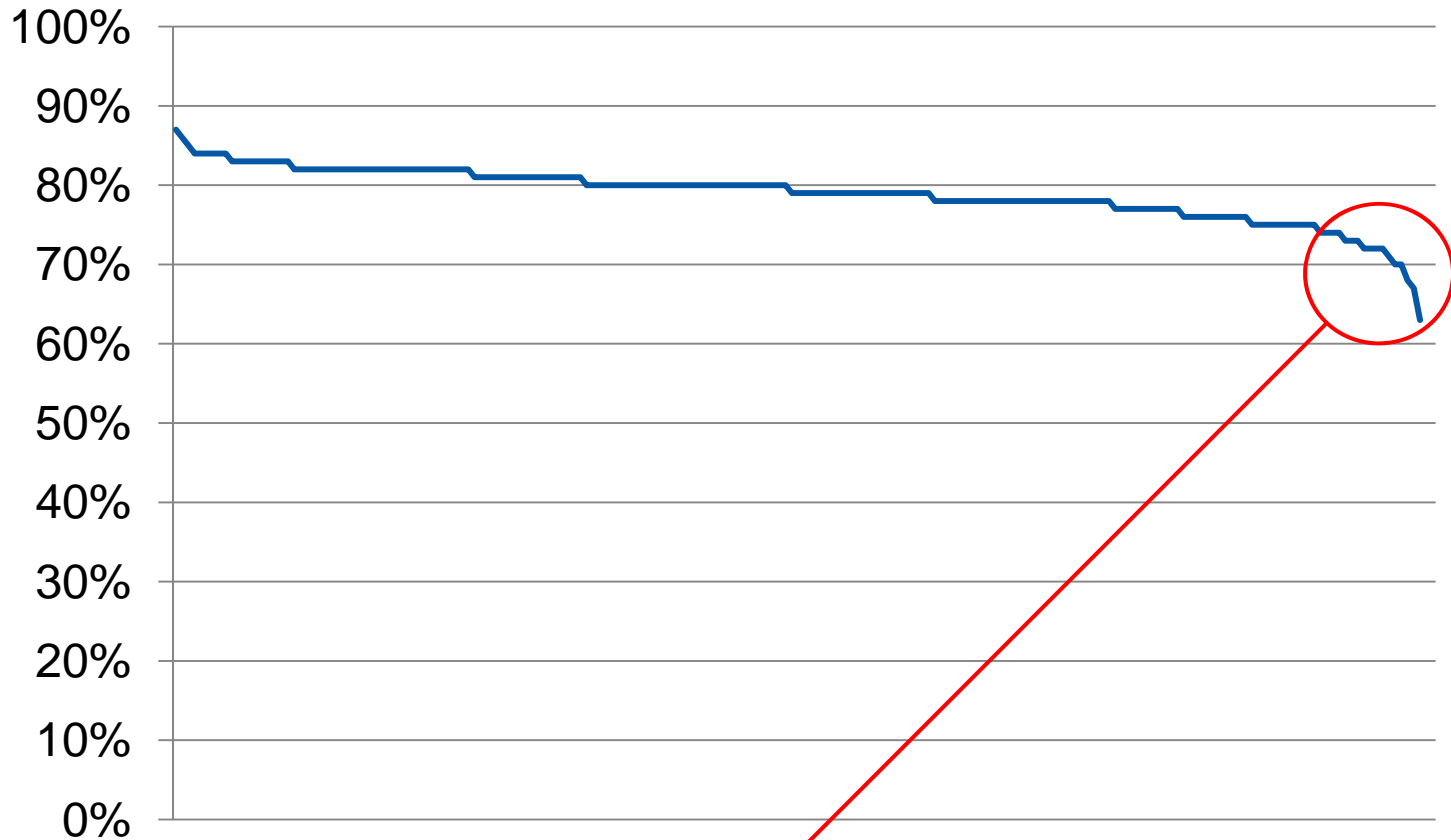


Ideal Results



Deviants (200 Participants)

%AveAlign



Participants who may have been 'in it to win it'



Navigational Alignment

- ▶ The SynCaps participants file includes two measures of alignment:
 - Average alignment: how similar each participant is relative to the average across all participants
 - Expert alignment: how similar each participant is relative to an 'expert' result
- ▶ When the 'expert' result is the current information architecture, we call the measure 'navigational alignment'

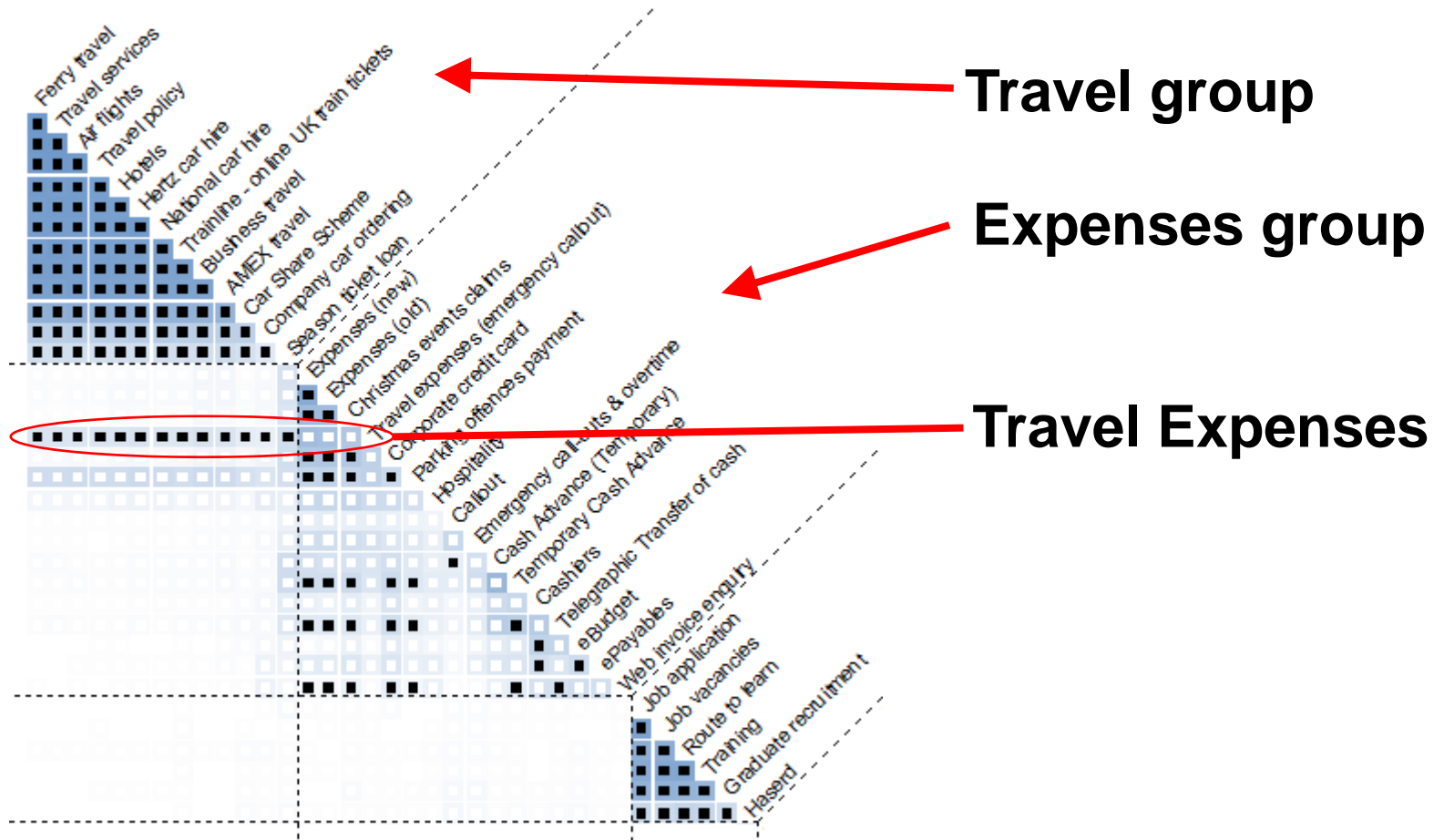


Navigational Alignment

- ▶ The pairs maps (SynCaps V2) is adjusted to shown the 'expert' results set as follows:
 - ▣ Participant
 - 'Expert'



Navigational Alignment





SynCaps V1

- ▶ Data & processing
 - Bar code or keyboard data entry
 - Simple file format
 - EZSort / EZCalc data supported
- ▶ Output files
 - Cards, items, participants, proximity matrices (weighted and unweighted)
- ▶ Chart
 - Dendrogram



New to SynCaps V2

- ▶ Data capture & processing
 - Ad hoc items
 - Collapse items or groups
 - Duplicate items
- ▶ Charts
 - Pairs map (with 'expert' markers)
 - Items x groups
 - Multi-page printing



Workshops

- ▶ Advances in Card Sorting (Workshop)
 - London, 12 May 2008
 - Edinburgh, 28 May 2008
- ▶ Attendees will receive a fully licensed copy of SynCaps V2

www.csadvances.com

www.syntagm.co.uk (design courses)