



## Card Sorting Part 2: Basic Analysis (Online & Paper Sorts)

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# Free 60-Minute Card Sorting Webinars

1. Preparing paper sorts: 24-Jan-13
- 2. Basic card sort analysis (online and paper sorts): 31-Jan-13**
3. Advanced analysis (SynCaps V3): 7-Feb-13

Check our SynCaps Webinars page to download slides and recordings ([www.syncaps.com](http://www.syncaps.com))

# Resources

- Free
  - Interactions article *Playing Your Cards Right* (ACM Digital Library and [www.syntagm.co.uk/design/articles](http://www.syntagm.co.uk/design/articles))
  - Interaction Design Encyclopedia entry on card sorting ([bit.ly/ixd-card-sorting](http://bit.ly/ixd-card-sorting))
  - Presentations, videos and free SynCaps V1 software ([www.syncaps.com](http://www.syncaps.com))
  - Caps (Computer-Aided Paper Sorting) videos on YouTube: just search for 'caps card sorting' (also on the [Syntagm web site](http://www.syntagm.co.uk))
- Courses
  - CHI 2013, Paris: 30 April, 14:00-17:20 ([chi2013.acm.org](http://chi2013.acm.org))
  - Guerrilla UCD Webinar 7 ([www.guerrillaucd.com](http://www.guerrillaucd.com))

# Questions

- If you're watching the live webinar, use the GotoWebinar Question Interface
- If you're watching a recording, or questions occur to you after the webinar, email me:  
[william.hudson@syntagm.co.uk](mailto:william.hudson@syntagm.co.uk)
- You can join our card sorting email list / discussion group by emailing  
[caps-subscribe@mailman.syntagm.co.uk](mailto:caps-subscribe@mailman.syntagm.co.uk)

# Topics

- Data capture from paper sorts
- Online sorting
- Analysis spreadsheets
- Dendrograms
- Items x Items analysis
- Items x Groups analysis
- Nested Groups analysis

# Data Capture From Paper Sorts

- All editions of SynCaps use the same simple file format (including V1, which is free)
- Data can easily be typed in. For larger volumes/frequent use, consider a bar code scanner.
- Captured data is saved in a simple text file
- Note that SynCaps V1 does not support ad-hoc items (they need to be assigned item numbers)
- Nested groups are specific to SynCaps V3

# Barcode Scanner



Any barcode scanner that reads 'code 39' will work  
but we supply a suitable model in the UK & EU  
(see [www.syntagm.co.uk/design/cardsortshop.shtml](http://www.syntagm.co.uk/design/cardsortshop.shtml))

# Simple Data File

- SynCaps data files are conceptually in two parts
  - Optional **header** with pre-defined items and groups (items must be pre-defined in SynCaps V1)
  - Mandatory **body**, starting with the first participant (which may be a reference/expert sort)
- The first letter of each line determines what kind of data it is: Item, Group, Sub-group or Participant
- Blank lines are ignored (SynCaps V3 also ignores lines starting with / or !)



GDry White  
GFull-Bodied Red  
GSparkling  
IBejolais  
ICabernet Sauvignon  
ICava  
IChampagne  
IChardonnay  
IClaret  
IMerlot  
IMuscat  
IPinot Grigio  
IRiesling  
ISyrah  
IWhite Zinfandel

---

## Header

PReference  
G3  
I4F3  
I3F3  
G1  
I12F1  
I10F2  
I5F3  
I9F2  
I8F3  
...

## Body

GСухое белое  
GКрасное  
GIгристое  
IБожоле  
IКаберне Совиньон  
IКава  
IШампанское  
IШардонне  
IКларе  
IМерло  
IМускат  
IПино Грджо  
IРислинг  
ISира  
IBелый Зинфандел

## Header

---

PReference

G3  
I4F3  
I3F3  
G1  
I12F1  
I10F2  
I5F3  
I9F2  
I8F3  
...

## Body

(SynCaps uses Unicode  
so it is easy to perform  
sorts in multiple languages)

```

1  GDry White
2  GFull-Bodied Red
3  GSparkling
4  IBeajolais
5  ICabernet Sauvignon
6  ICava
7  IChampagne
8  IChardonnay
9  IClaret
10 IMerlot
11 IMuscat
12 IPinot Grigio
13 IRiesling
14 ISyrah
15 IWhite Zinfandel
16 PReference
17  G3           {Sparkling}
18    I4F3       {Champagne}
19    I3F3       {Cava}
20  G1           {Dry White}
21    I12F1      {White Zinfandel}
22    I10F2      {Riesling}
23    I5F3       {Chardonnay}
24    I9F2       {Pinot Grigio}
25    I8F3       {Muscat}
26  G2           {Full-Bodied Red}
27    I11F2      {Syrah}
28    I2F3       {Cabernet Sauvignon}
29    I6F3       {Claret}
30    I7F2       {Merlot}
31    I1F1       {Beajolais}

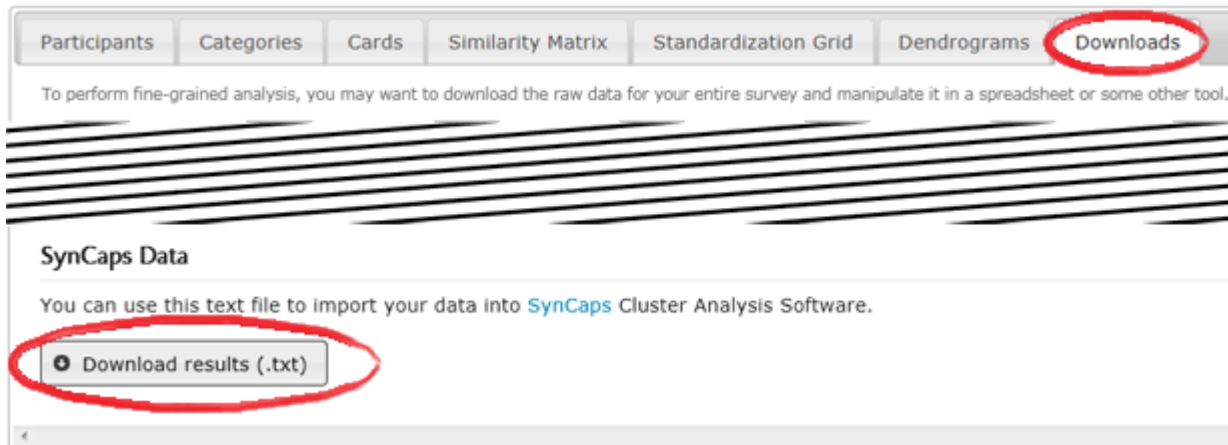
```

SynCaps V3 includes its own syntax editor

# Online Sorting

- Both of the most popular online card sorting services (WebSort and OptimalSort) will export data in SynCaps format
- Most online card sorting services now also provide analyses similar to SynCaps V2, but not
  - Customizable charts, quality of fit / frequency of use, reference / expert sorts or items split between groups (provided by all versions of SynCaps)
  - Anonymous participants in charts (SynCaps V3)
  - Nested groups (SynCaps V3)
  - Participant analysis and filtering (SynCaps V3)
  - SPSS cluster analysis scripts (SynCaps V3)
- You can use SynCaps to combine or compare paper and online sorts

# Online Sorting – OptimalSort



The screenshot shows the OptimalSort interface with several tabs: Participants, Categories, Cards, Similarity Matrix, Standardization Grid, Dendrograms, and Downloads. The Downloads tab is highlighted with a red circle. Below the tabs, there is a text instruction: "To perform fine-grained analysis, you may want to download the raw data for your entire survey and manipulate it in a spreadsheet or some other tool." A large blacked-out area obscures the main content. Below this, the "SynCaps Data" section is visible, with the text: "You can use this text file to import your data into [SynCaps](#) Cluster Analysis Software." A button labeled "Download results (.txt)" is circled in red.

From [www.syntagm.co.uk/design/cardsortonline.shtml](http://www.syntagm.co.uk/design/cardsortonline.shtml)

# Online Sorting – WebSort

The screenshot shows the WebSort interface. At the top, there are tabs for 'Items', 'Categories', 'Settings', and 'Results (18)'. On the right side of the top bar, there are links for 'study link' and 'rss feed'. Below the tabs, there is a table with two columns: 'Participant' and 'Tag'. The table is currently empty. To the right of the table, there is a 'Downloads' section. It has a dropdown menu labeled 'Other Downloads' and a 'Reload' button. Below this, there is a yellow warning box with the text: 'Downloads for most result screens are found on the upper-right corner of each screen. Below are other files for advanced users. PLEASE NOTE: These files contain all participants from this study, ignoring the participant selection on the left.' Below the warning box, there are two download options: 'SynCaps' and ''Old School' Text File'. The 'SynCaps' option is circled in red. Below the 'SynCaps' option, there is a description: 'An output file compatible with the desktop analysis software written by William Hudson of [Syntagm](#).' Below the ''Old School' Text File' option, there is a description: 'The tab-delimited txt file from days gone by... Column 1: participant. Column 2: category name. Columns 3-N: items in the category.'

Participant	Tag
-------------	-----

select all tags...

Other Downloads Reload

Downloads for most result screens are found on the upper-right corner of each screen. Below are other files for advanced users. PLEASE NOTE: These files contain all participants from this study, ignoring the participant selection on the left.

- ✦ **SynCaps**  
An output file compatible with the desktop analysis software written by William Hudson of [Syntagm](#).
- ✦ **'Old School' Text File**  
The tab-delimited txt file from days gone by...  
Column 1: participant.  
Column 2: category name.  
Columns 3-N: items in the category.

Delete

From [www.syntagm.co.uk/design/cardsortonline.shtml](http://www.syntagm.co.uk/design/cardsortonline.shtml)

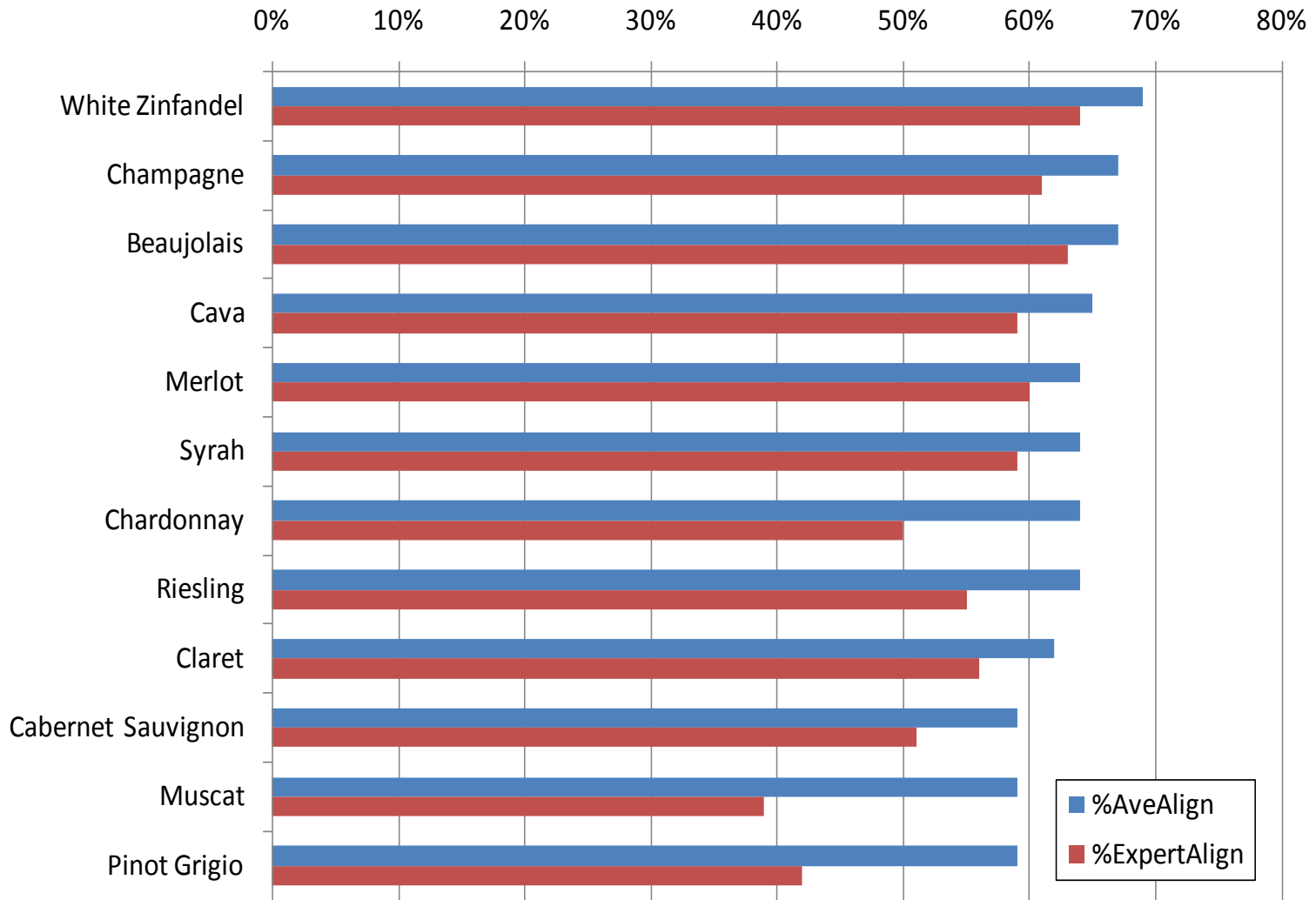
# Analysis Spreadsheets

- All versions of SynCaps produce the following spreadsheets (as .csv files)
  - Cards
  - Items
  - Matrix (unweighted similarity matrix)
  - Participants
  - Weighted matrix
- SynCaps V3 also produces
  - Participant matrix
  - SPSS script for cluster analysis of weighted matrix
- Some of these are also produced by online sorting services

# Analysis Spreadsheets

- The Items and Participants spreadsheets include two 'alignment figures'
  - AveAlign – how similar the sort results are for an item or participant compared with the average
  - ExpAlign – how similar the sort results are compared with an expert or reference sort (you supply the expert or reference sort as the first participant, if you wish to have one)
- A variety of useful charts and analyses can be performed on the spreadsheets – see the ['Instructions for Processing' document in the Combined Download zip file](#)



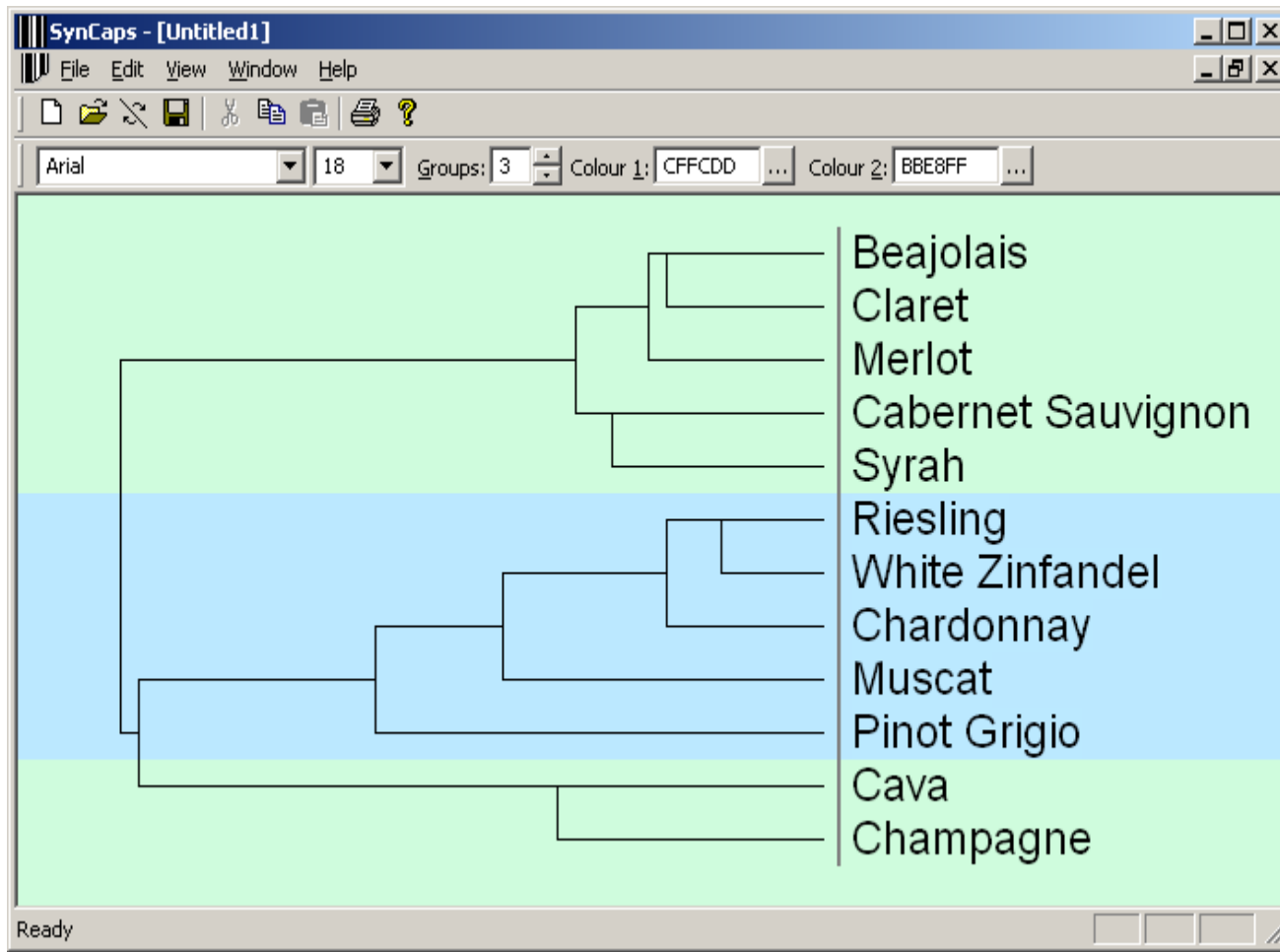


Example of Items Spreadsheet Analysis

# Dendrograms

- Dendro is Latin (from Greek dendron) for 'tree'
- Dendrograms are a very common way of showing the results of hierarchical cluster analysis
- Note that the hierarchy is based entirely on how often items appeared together in the same groups – it is not a taxonomic hierarchy!
- Cluster analysis and the resulting dendrograms take no notice of group names

# Dendrograms

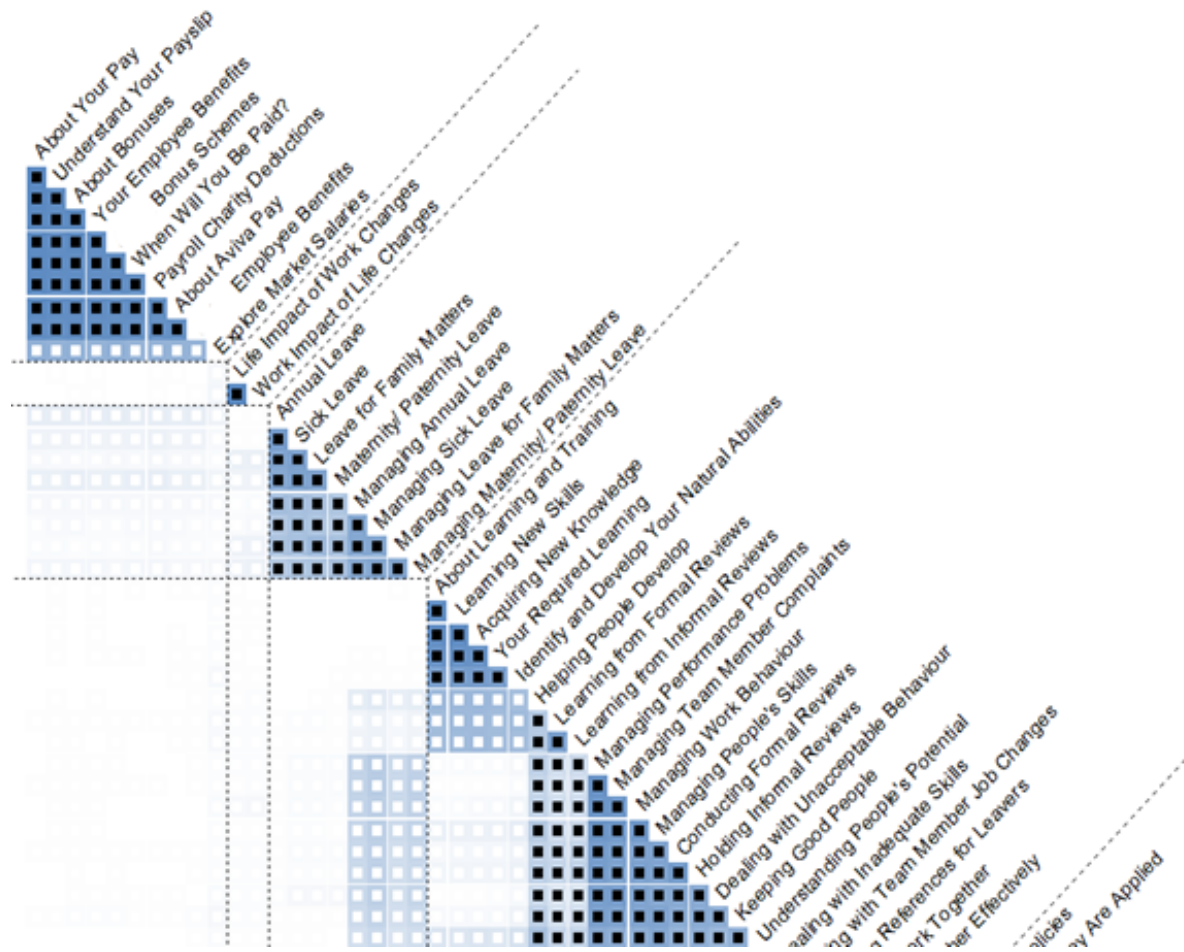


Dendrogram from SynCaps V1 (free)

# Other Charts

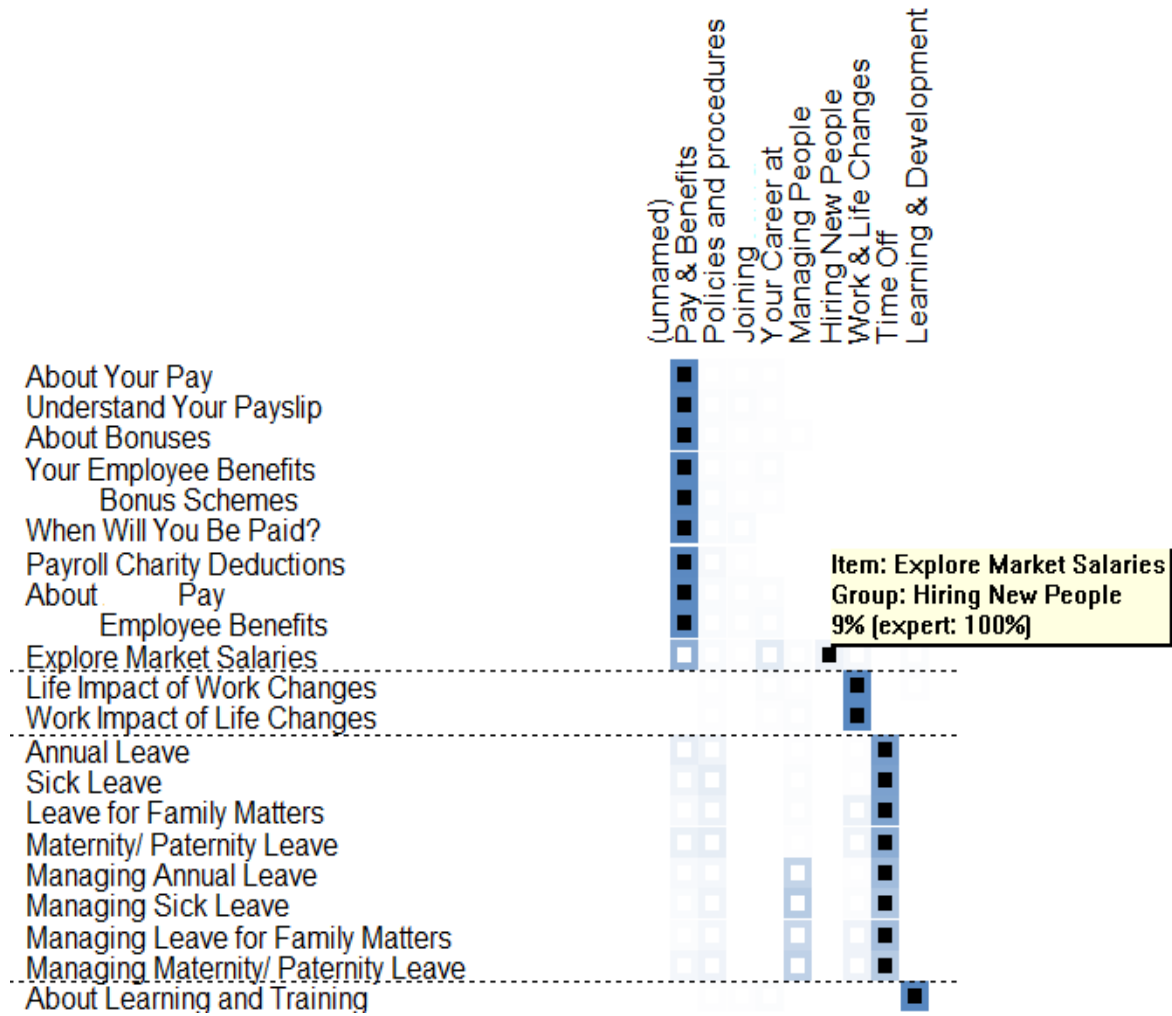
- SynCaps V2/V3 and online
  - Items x Items (sometimes called ‘pairs map’ or ‘similarity chart’)
  - Items x Groups
  - SynCaps has option to use reference/expert sort
- SynCaps V3 only
  - Nested Groups

# Items x Items (Pairs Map / Similarity)



Pairs map from SynCaps V2  
(Black markers show existing IA)

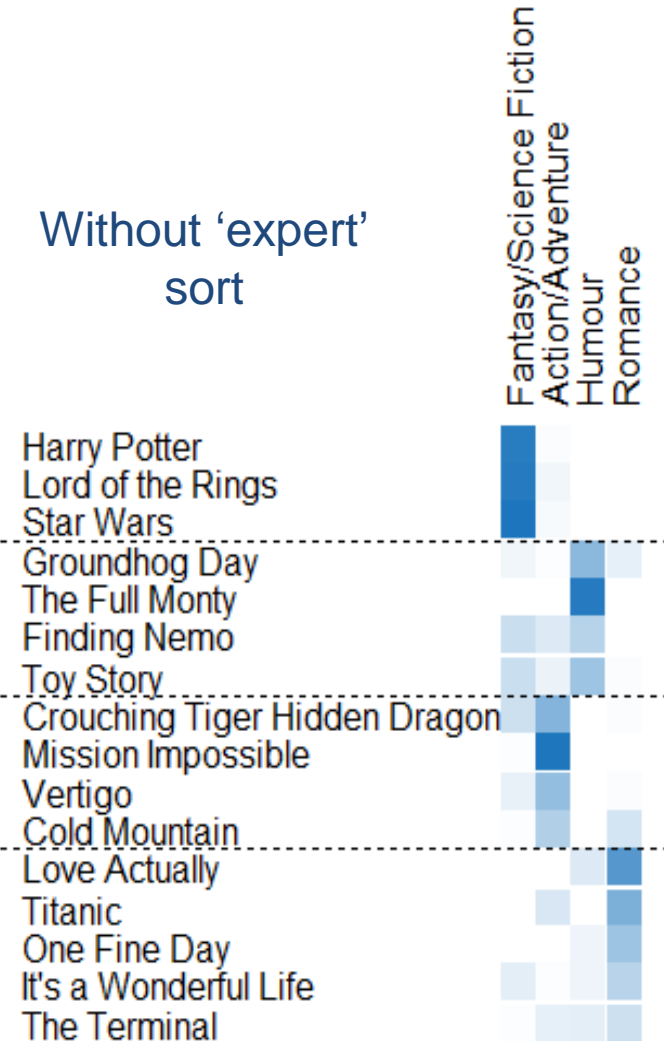
# Items x Groups (SynCaps V2/V3)



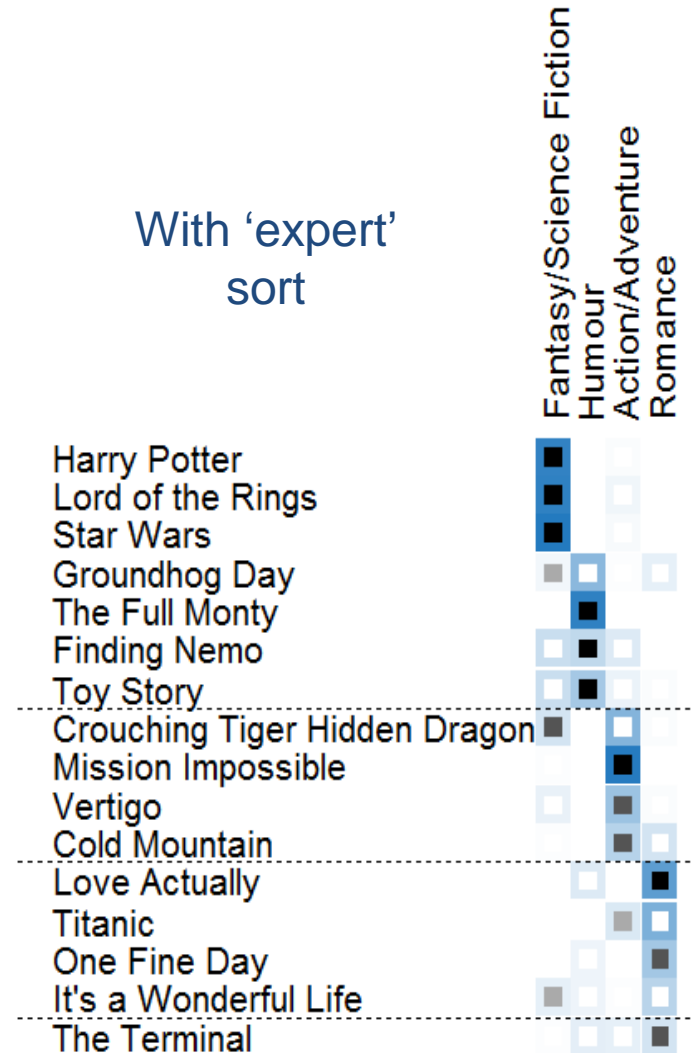
(SynCaps V2 chart organizes items using cluster analysis)

# Items x Groups (SynCaps V2/V3)

Without 'expert' sort



With 'expert' sort



(Charts show two different sets of participants)





# Nested Groups (SynCaps V3)

- Card sorting has traditionally been done as a single level – groups with items under each
- Some tools support ‘anonymous’ sub-groups (SynCaps V2 & V3 for example)
- SynCaps V3 introduces nested groups
  - Up to 9 levels
  - Groups can be assigned levels either by participants or by the researcher
  - Consider providing at least some predetermined group names to reduce stress on participants



# Nested Groups (SynCaps V3)

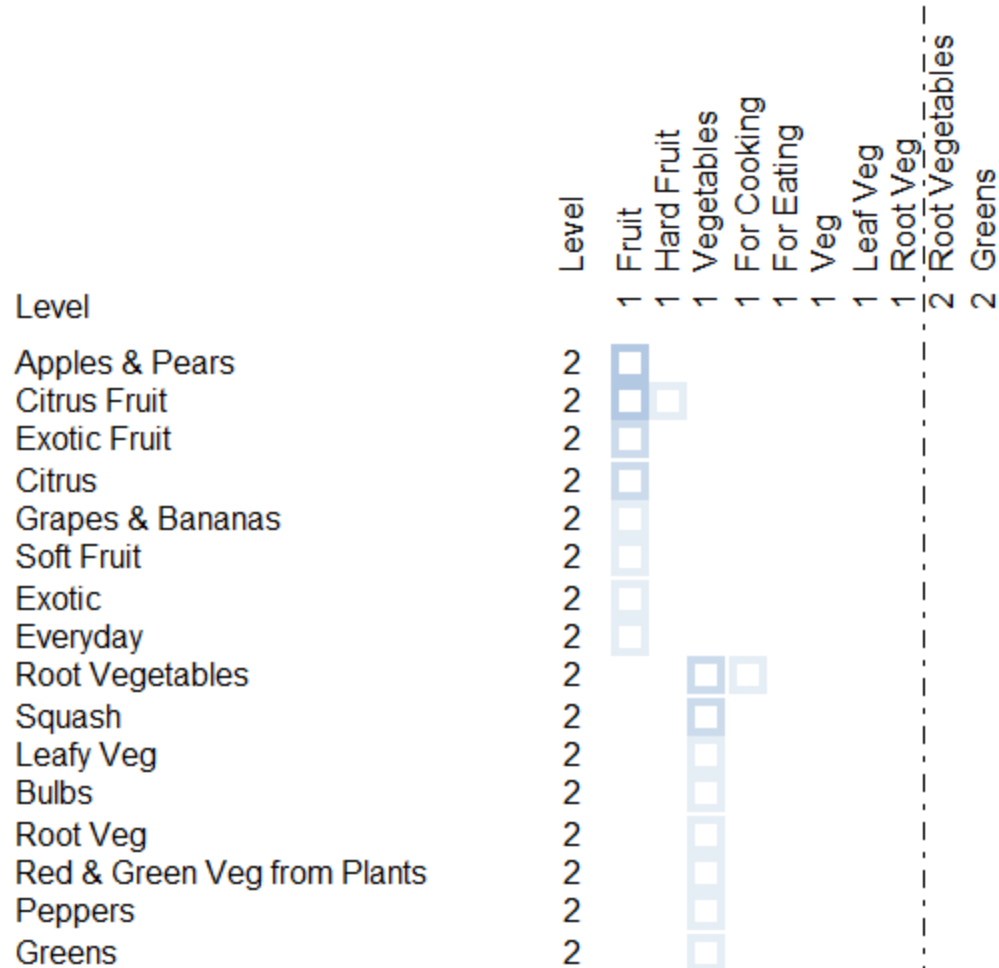
- Nested group levels can either be selected on pre-printed cards or written on the card

<b>GROUP (Write Name)</b>	<b>Level</b>
	1 <input type="checkbox"/>
	
	2 <input type="checkbox"/>
	
	3 <input type="checkbox"/>
	
	4 <input type="checkbox"/>
	

# Nested Groups (SynCaps V3)

- Nested groups affect the weights applied in cluster analysis
  - Items appearing together in the same sub-group are weighted most heavily
  - Items appearing in ‘child’ groups are weighted less heavily (according to how many levels intervene)
  - Items with no common parent receive a 0 score
- V3 also introduces a Subgroups x Groups

# Subgroups x Groups Chart



# Questions

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# Commercial Messages

- If you're an existing SynCaps user and would like to beta-test SynCaps V3 during February 2013, please get in touch:  
[william.hudson@syntagm.co.uk](mailto:william.hudson@syntagm.co.uk)
- Look out for my new book *Lighting the Road Ahead – The 55-minute guide to usability, accessibility and search-engine optimisation*  
[www.lightingtheroadahead.com](http://www.lightingtheroadahead.com)



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