

Analysis of the dynamics of the Q-sort construction

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Introductory considerations

- Q : ground-breaking invention by W. Stephenson
- Since then: several flourishing contributions in order to assist Q-methodologists with the generation and analysis of q-data
- Abundant technical possibilities stemming from online environment yet some of them are still under-exploited

Observing the sorting dynamics

- Different sorting behaviours exist: what does it say about the final sort and the participant's viewpoint?
- Are the changes meaningful?
- Does time taken to sort matter?
- Can we learn more by capturing this process and by interviewing our participants with this additional information in mind?

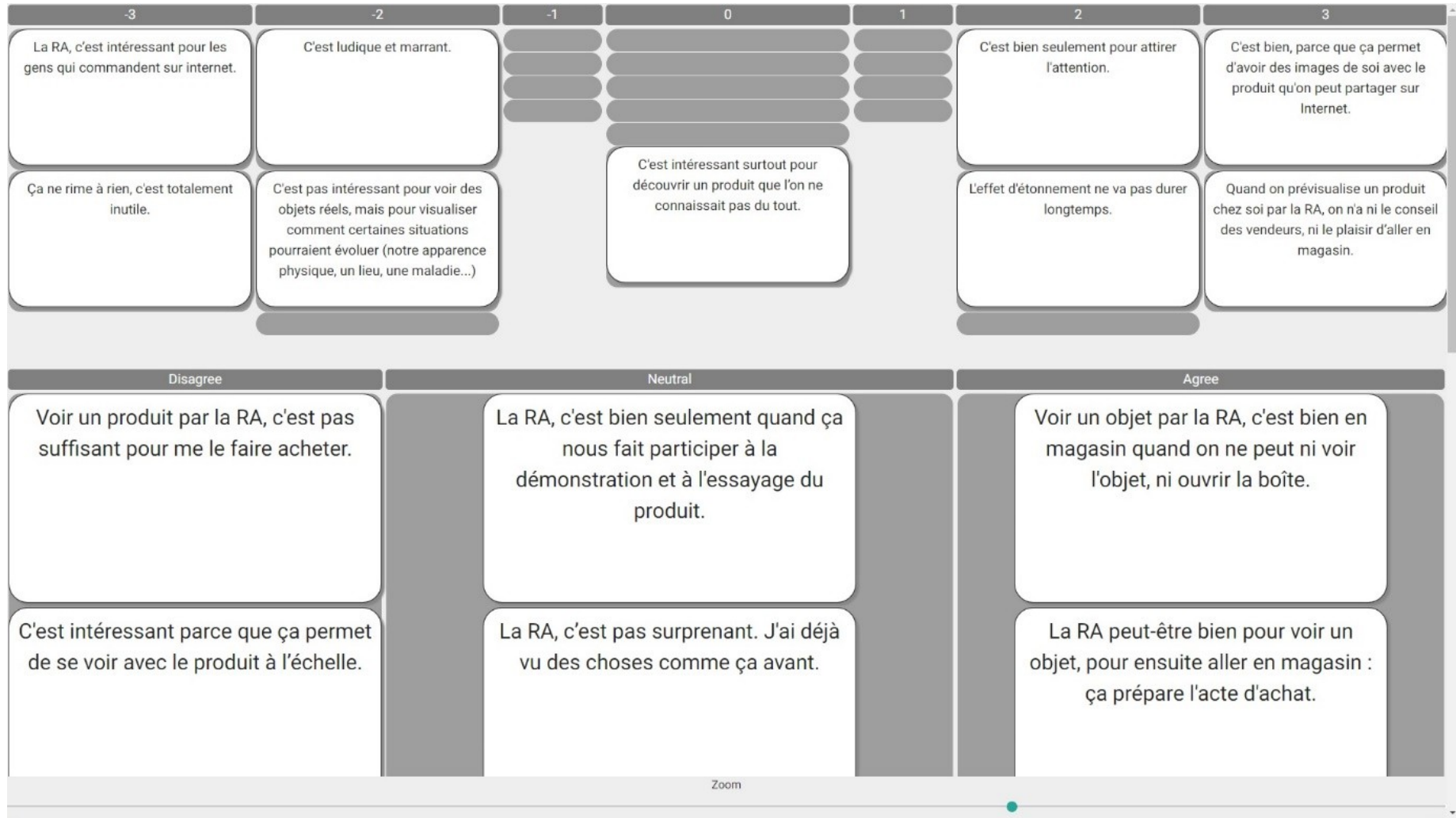
A prototype tool for capturing sorting dynamics - Q-trace tool

Q-track is a digital interface allowing:

- Q-sort studies and capturing
 - mouse clicks,
 - drag & drop moves,
 - waiting time between moves,
 - for each sorting step

Each event is characterised by spatial coordinates and duration in milliseconds

Screenshot of the three-pile stage



A test using a Q-design on augmented reality

- Q-sample comprises 24 statements
- P-sample (N=13) composed of engineer students
- Data analysis in three directions :
 - (1) sorting process and strategies,
 - (2) inter-individual differences and
 - (3) incorporation of tracking findings into q-calculations

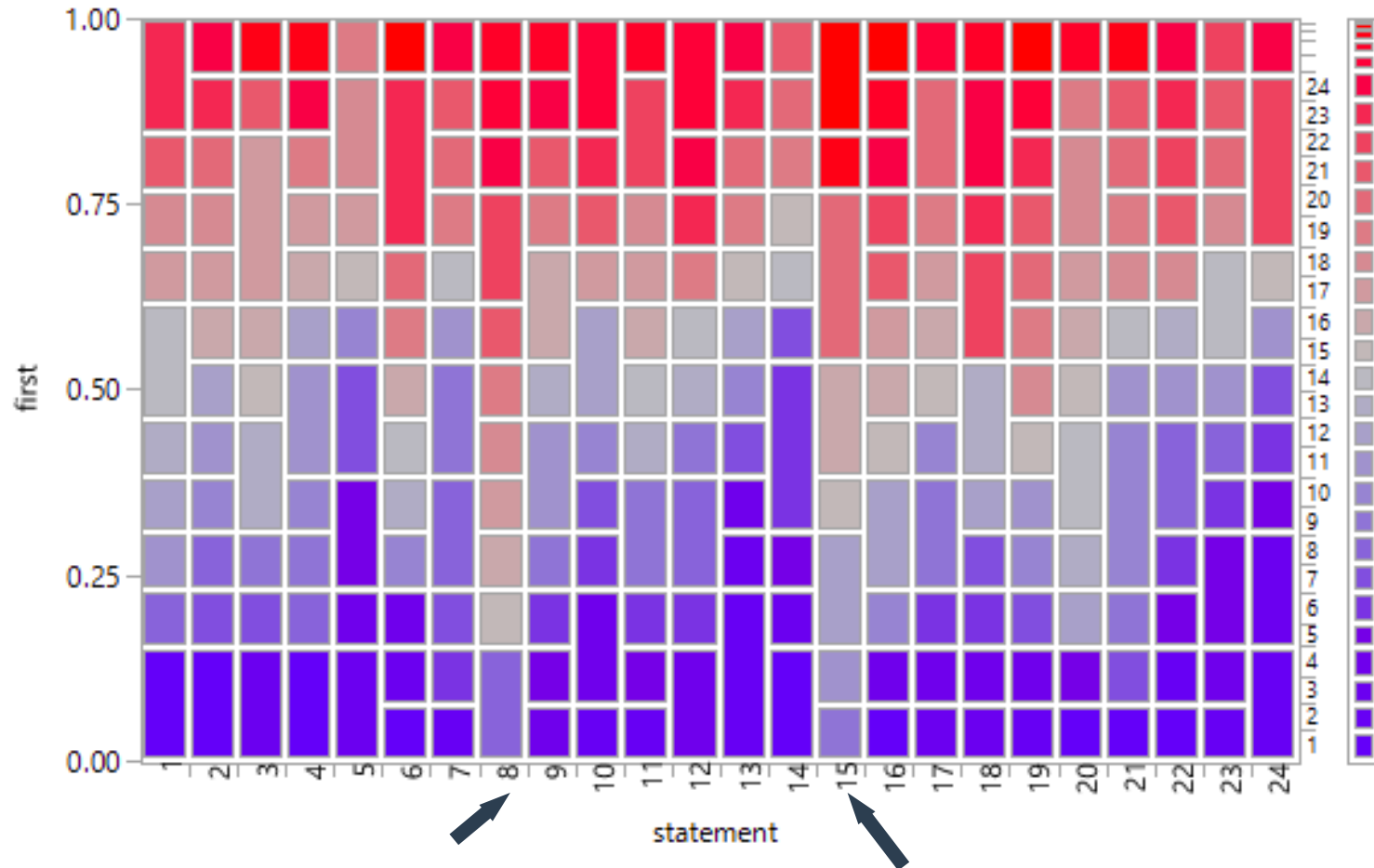
An examination of statements' moves

Sorting consistency between stage 1 and 2

		Stage 2							Total
		first move							
		-3	-2	-1	0	1	2	3	
Stage 1	disagree	28	37	27	13	3	2	1	111
first	neutral	0	1	23	58	23	1	0	106
move	agree	0	1	0	10	23	35	26	95

Aside marginal cases, the majority of participants refine their three-piles sorting coherently from stage one to stage two

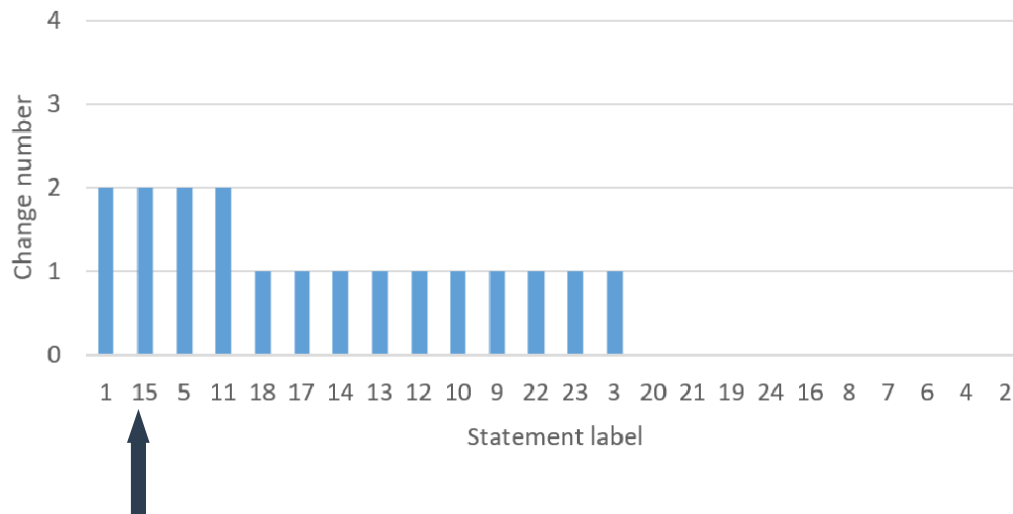
Statement placement ordering during stage 1



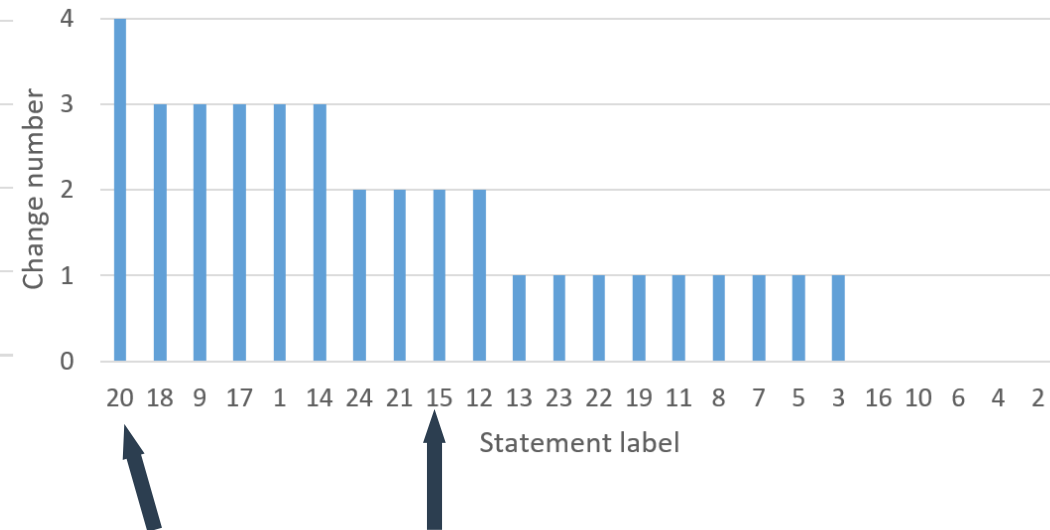
we notice that statements #8 and #15 were never placed during the early stages of the sorting process

Number of changes for each statement (stage 1 and 2)

Statements
Change number



Statements
Change number

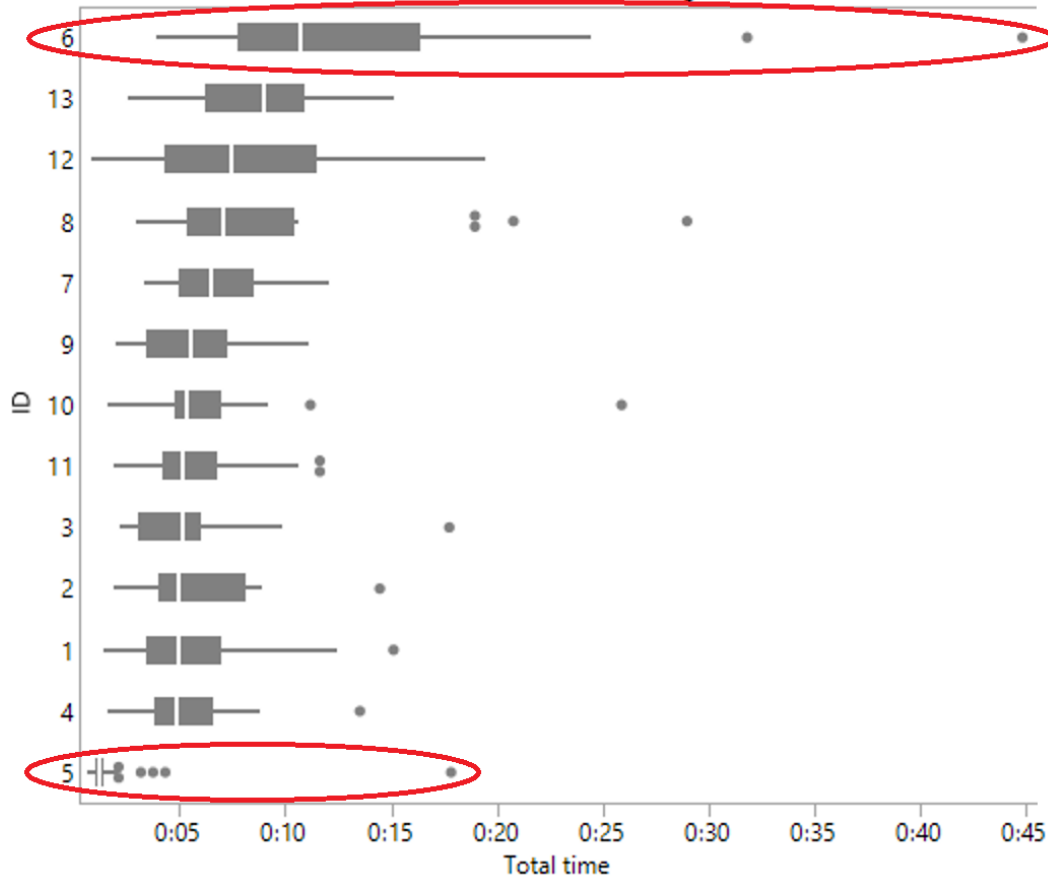


Some statements require more moves than others

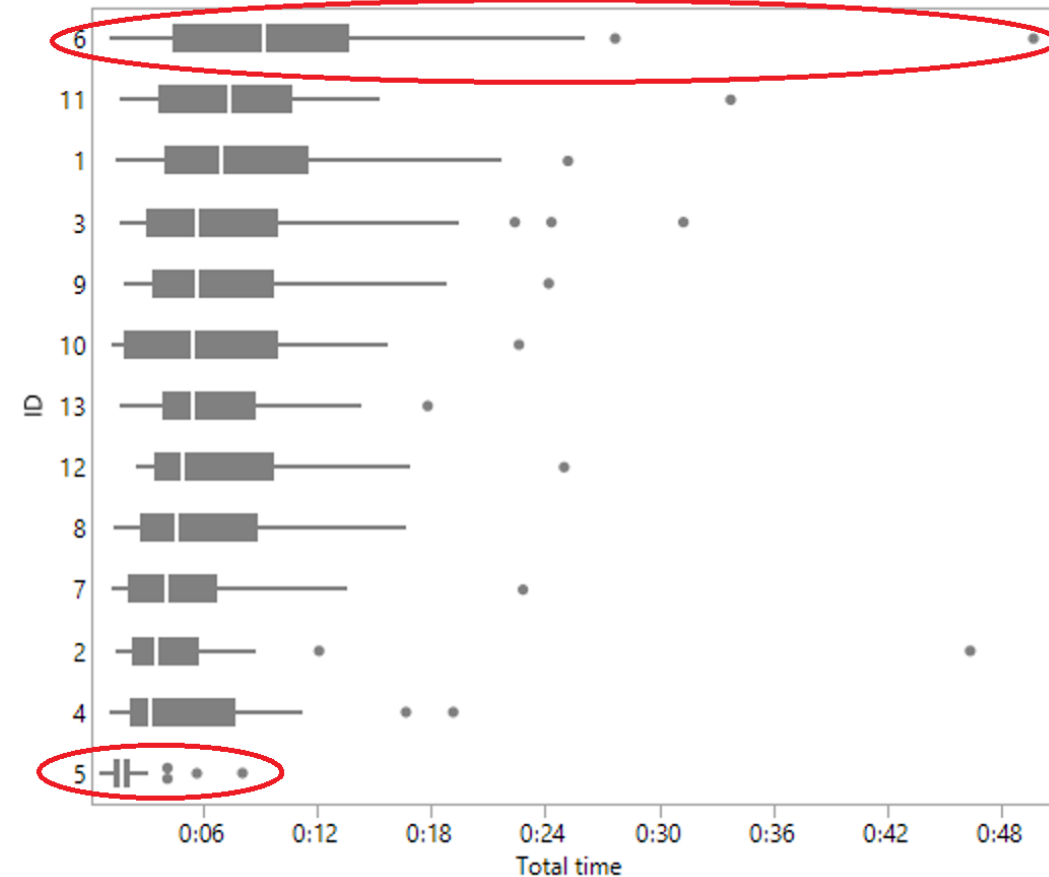
An examination of individuals

Total sorting time for each participant (stage 1 and 2)

Total time of movements by ID



Total time of movements by ID



Further use of data...

- > « **quantitatively** »
- > **qualitatively**

The integration into calculations ?

First attempt :

Weighted factorial analysis

Recently suggested :

Mean differences between factors (total time, number of changes...)

Variation in statement ordering following different weights

statement	RFDistrib1										RFDistrib2									
	1	0,9	0,8	0,7	0,6	0,5	0,4	0,3	0,2	0,1	1	0,9	0,8	0,7	0,6	0,5	0,4	0,3	0,2	0,1
1	0	1	-2	-2	-2	-2	-2	-2	-2	-2	-1	-1	0	0	0	0	0	0	0	0
2	-3	-2	-3	-3	-3	-3	-3	-3	-3	-3	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
3	0	0	1	0	0	0	0	0	0	0	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2
4	1	1	-1	-1	-1	-1	-1	-1	-1	-1	0	0	0	0	0	0	0	0	0	0
5	-3	-3	-1	-1	-1	-2	-2	-2	-2	-2	-2	-3	-3	-3	-3	-3	-3	-3	-3	-3
6	-2	-3	-1	-1	-1	-1	-1	-1	-1	-1	3	2	2	3	3	3	3	3	3	3
7	-1	-1	0	0	0	0	0	0	0	0	0	0	-1	-1	-1	-1	-1	-1	-1	-1
8	-1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	-2	-2	2	1	1	1	1	1	1	1	0	-1	-1	-1	-1	-1	-1	-1	-1	-1
10	-2	-2	-1	-1	-1	-1	-1	-1	-1	-1	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2
11	2	1	3	3	3	3	3	3	3	3	0	0	0	0	0	0	0	0	0	0
12	3	3	0	1	1	1	1	1	1	1	-3	-2	-1	-1	-1	-1	-1	-1	-1	-1
13	2	2	1	2	2	2	2	2	2	2	2	3	3	2	2	2	2	2	2	2
14	-1	0	-2	-2	-2	-1	-1	-1	-1	-1	1	1	1	1	1	1	1	1	1	1
15	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1
16	-1	0	-3	-3	-3	-3	-3	-3	-3	-3	0	0	0	0	0	0	0	0	0	0
17	2	1	3	3	3	3	3	3	3	3	-1	-1	-2	-2	-2	-2	-2	-2	-2	-2
18	0	-1	1	0	0	0	0	0	0	0	2	2	1	2	2	2	2	2	2	2
19	1	2	0	0	0	0	0	0	0	0	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3
20	0	0	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1
21	3	3	2	2	2	2	2	2	2	2	-1	0	0	0	0	0	0	0	0	0
22	1	2	-2	-2	-2	-2	-2	-2	-2	-2	1	1	3	3	3	3	3	3	3	3
23	1	0	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2
24	0	-1	0	1	1	1	1	1	1	1	3	3	2	1	1	1	1	1	1	1

We can observe how stable some statements are

The qualitative use of traces

The tool offers the possibility to raise **additional questions** during the **post-sort interview** based not only on « extreme choices » but also on frequently moved statements and/or statements changes from + to – positions...

Exploring the possibilities with Q-community :

- The objective is not to hold a normative viewpoint on the data and sorting scheme it is rather to provide additional information to enrich and complement the different stages of q-methodology.
- Clearly the digital interface offers such possibilities while, on the other hand, suppressing other qualities (such as materiality, and body involvement in sorting process)
- **We need to collectively identify what dimensions are useful and under which circumstances**

Thank you for your attention and your suggestions !

We also thank Stéphanie for presenting our work

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