



AGGREGATION OF DATA FROM DIFFERENT SESSIONS/EXPERIMENTS USING ANCHOR SYSTEMS

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- Usage of anchor products/points to stabilise the products space (anchor product with the lowest quality and reference with the highest)
- No problem of reproduction (in controlled environment)+ limited duration (~30s per product)
 - large experiments
- *Absolute scales*
 - a 1 is 1 in the product space
- Screen can display max. 9 stimuli at the same time
 - split the trials in several “screens”

USER INTERFACE



Listen to each of the gradable sounds by clicking on the play button associated with each scale.

The grading scale is continuous from "Excellent" to "Bad". A grade of 0 corresponds to bad Basic Audio Quality, while a grade of 100 corresponds to an excellent Basic Audio Quality.

Your grades should reflect your subjective judgment of the Basic Audio Quality for each individual sound.

Basic Audio Quality

1/4

The interface displays a vertical scale for audio quality grading. The scale is labeled with 'Excellent' at the top (100) and 'Bad' at the bottom (0). Intermediate labels include 'Fair' (40) and 'Poor' (20). There are nine vertical sliders, each with a play button at the bottom. The first three sliders are labeled 'Re', the next three 'Reference?', and the last three 'Reference?'. A 'Reference' button is located to the left of the first slider. Below the sliders is a progress bar with a play button on the left and a timer showing '00:00.0'. Navigation buttons 'Save/exit', 'Back', and 'Next' are also present.

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- Product development implies several experiments using some common products (potential anchors)
- If the anchor points have been rated the same way, the product spaces are considered as similar.
- If not, the product spaces are different and we should define a common product space to compare the products from the 2 experiments.

→ how to adjust the ratings of the products from their original product space to the newly defined *reference* product space?



- Using only the anchor points

$$y_{ijk} = a_{ik} + b_{ik} Y_{jk} + e_{ijk} \quad [1]$$

- Where a_{ik} and b_{ik} are scaling constants to be determined from the data
- Y_{jk} is the panel average for product j and sample k .
- a corresponds to the difference in position of the individual assessment and the panel average.
- b is the difference in range/span
- a new data set is obtained by computing

$$y_{ijk} (new) = (y_{ijk} (old) - \hat{a}_{ik}) / b_{ik} \quad [1]$$

[1] "Statistics for sensory and consumer science" T.Næs, P.B. Brockhoff and O. Tomic. P40-43

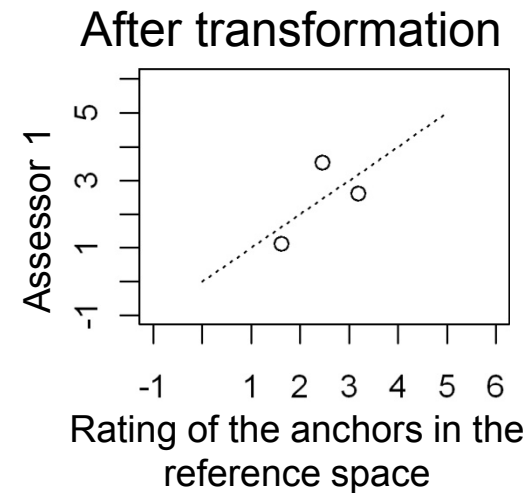
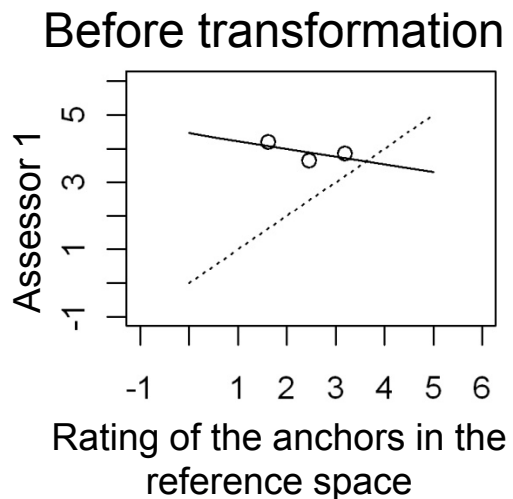


- Number of anchor points used to do the transformation (min. 2)
- Reference product space:
 - first experiment,
 - average of the anchor points across the experiments
 - average of the anchor points across the experiments for each sample
- Level to run the pre-treatment
 - on each trial
 - averaged across the replicates or the samples)
- Normalization of the space to :
 - the original scale
 - range (using the original positions of the extreme systems)

LIMITATIONS



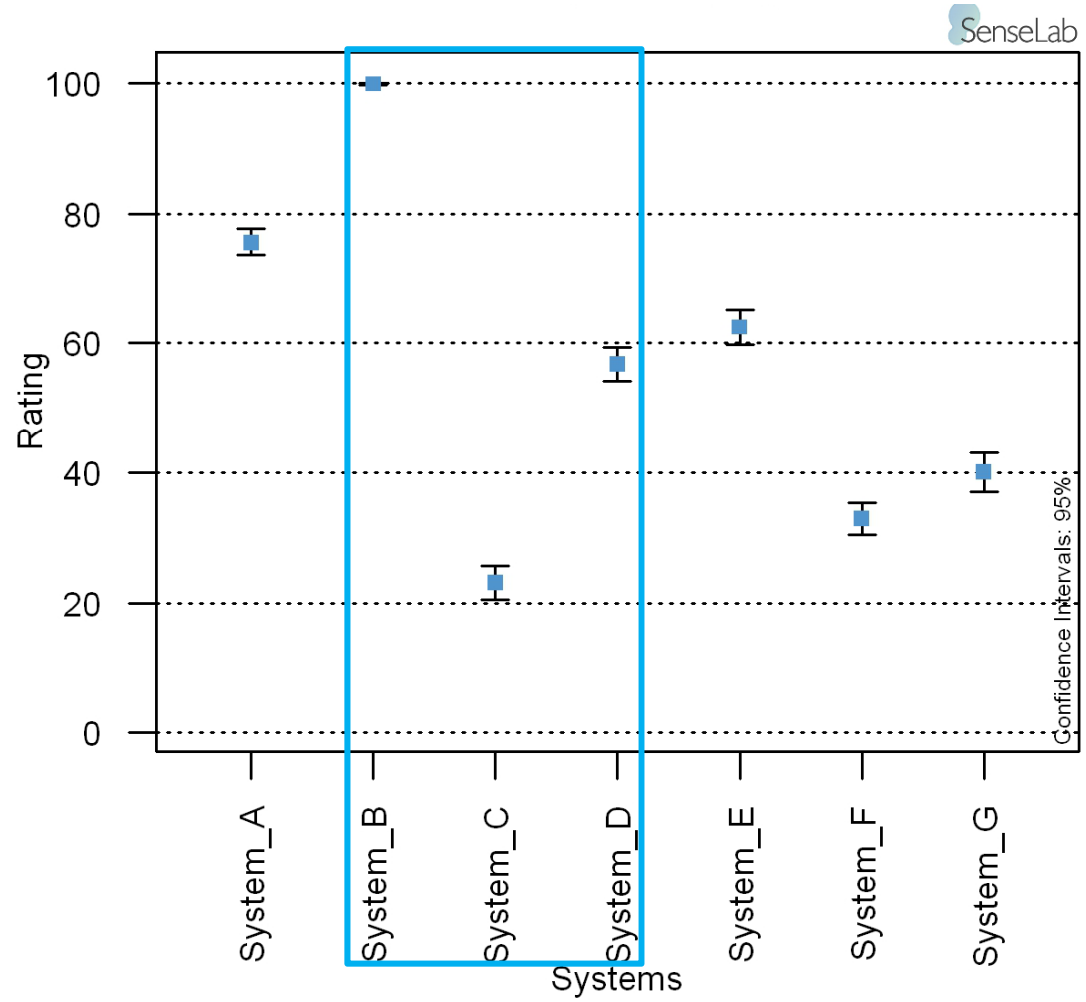
- The anchors should have the same ranking on the scale for all the assessors,
- The anchors should be correctly discriminated.





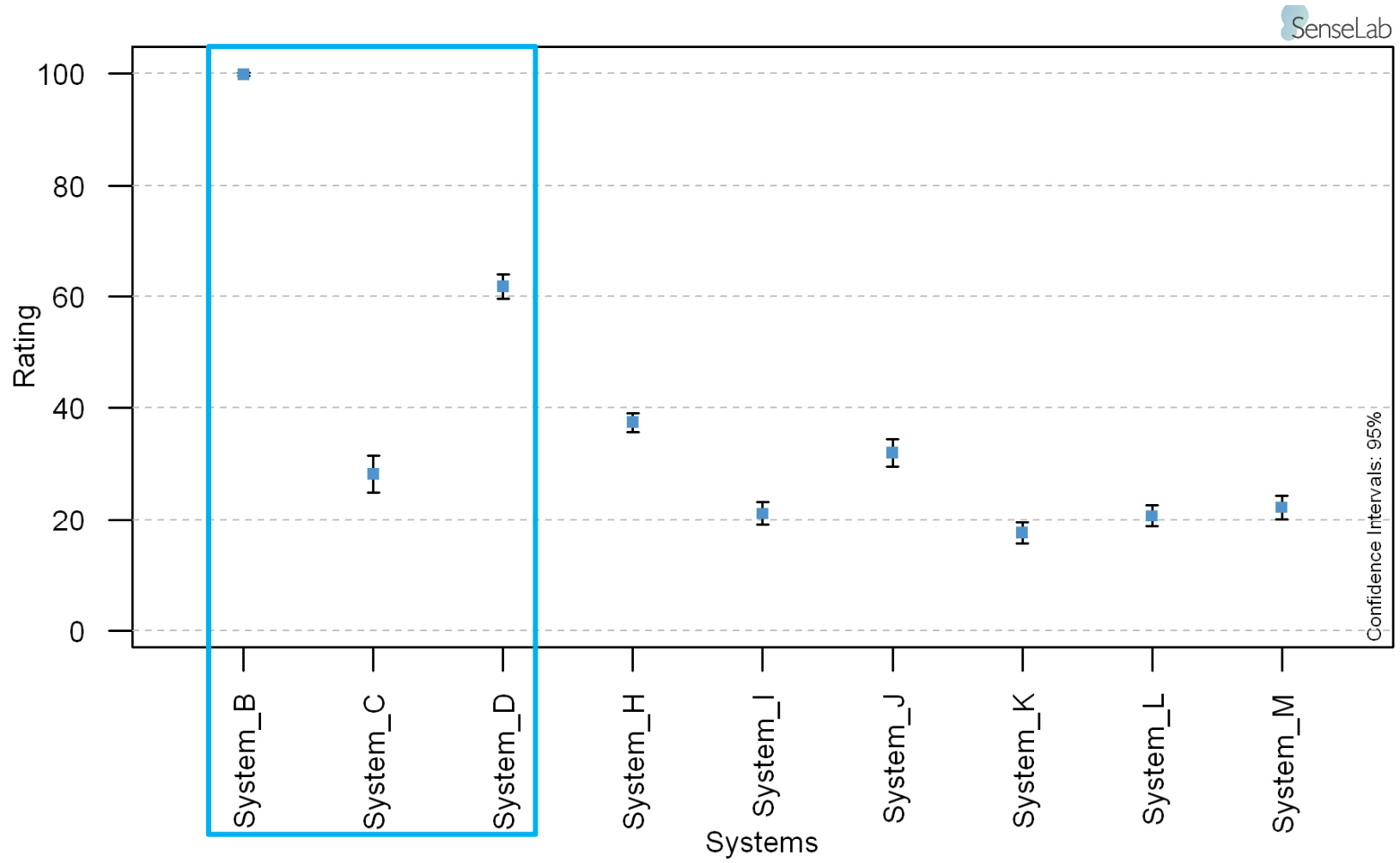
	Experiment 1	Experiment 2
Assessors	16(same+2)	14
products	7	9(3 same +6 others)
Samples	4	4(same)
Replicates	2	2

EXPERIMENT 1



SenseLab

EXPERIMENT 2

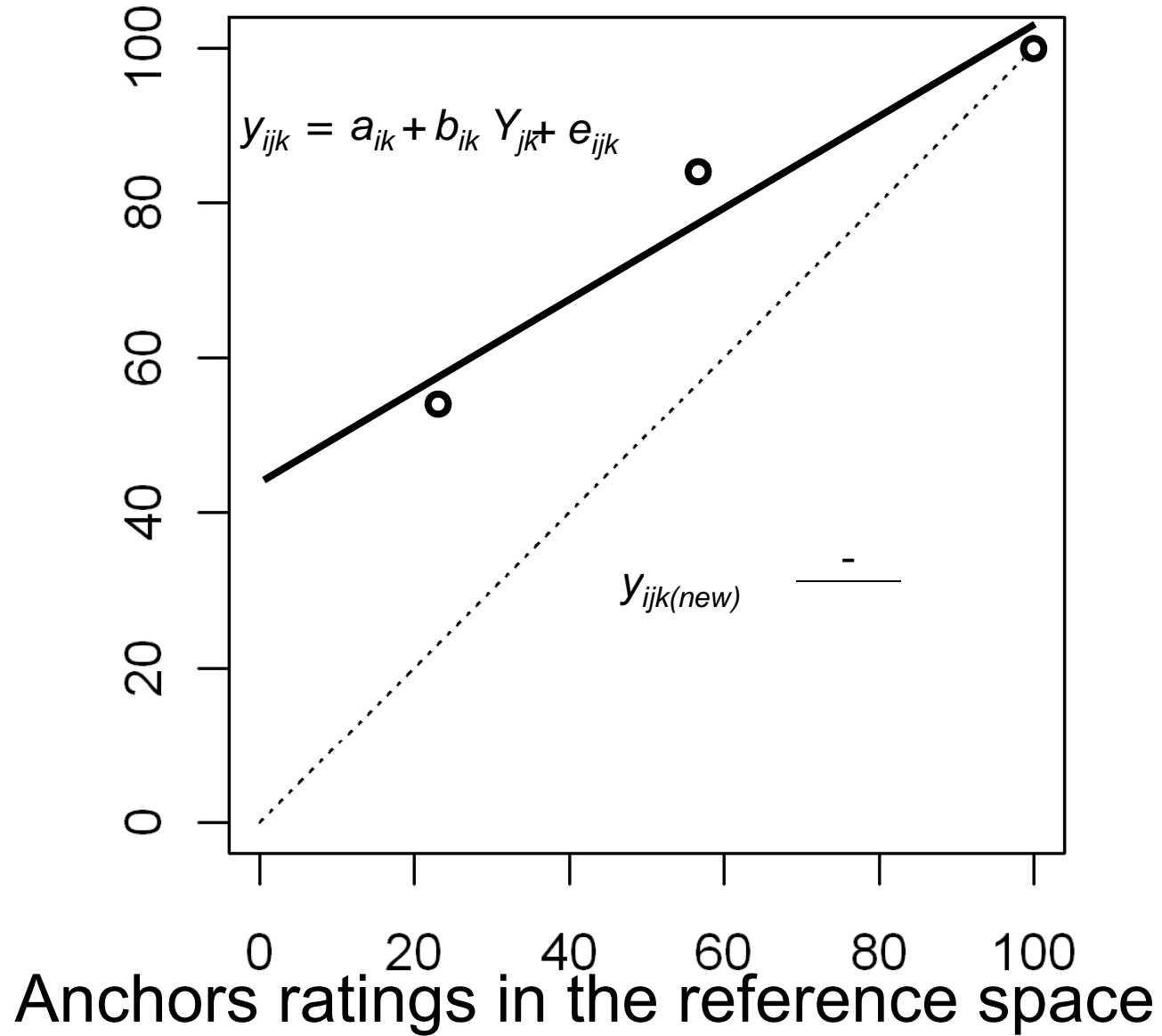


- Number of anchor points : 3 (system_B, system_C, system_D)
- Reference product space: position of the anchors in experiment 1
- Computed on each trial
- No Normalization

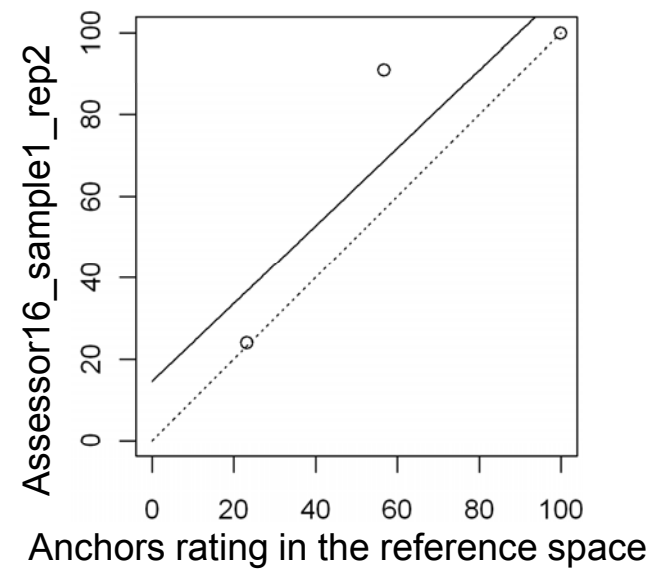
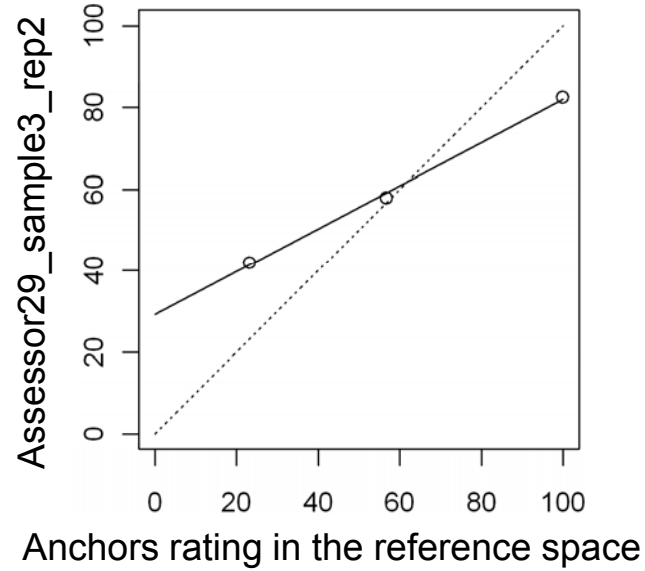
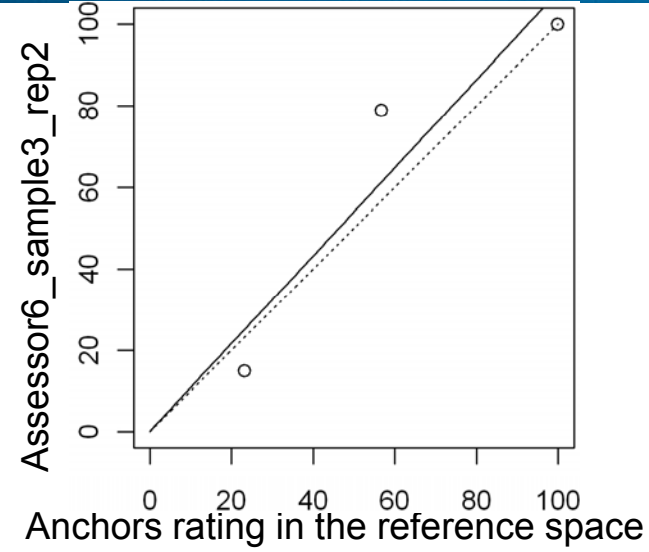
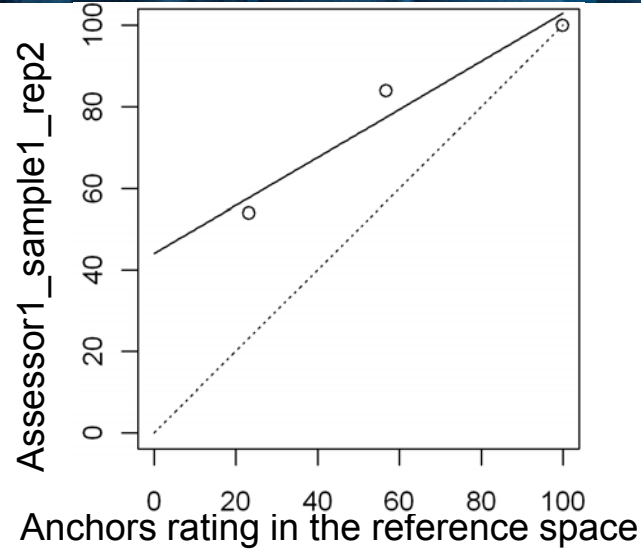
EXAMPLE OF PROJECTION



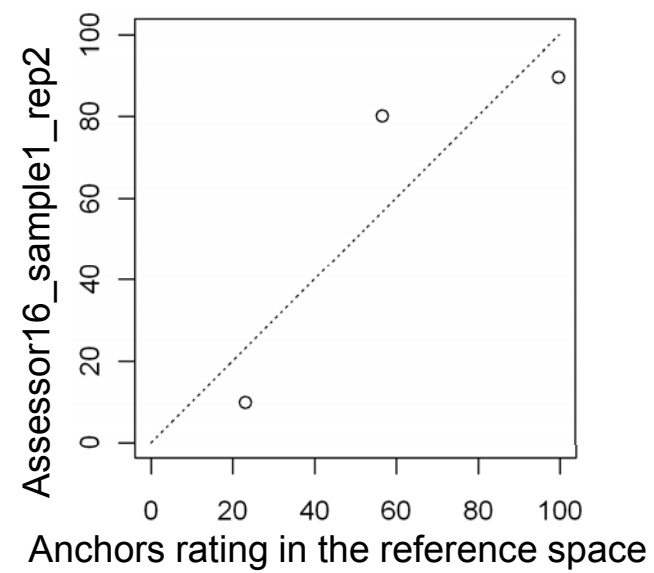
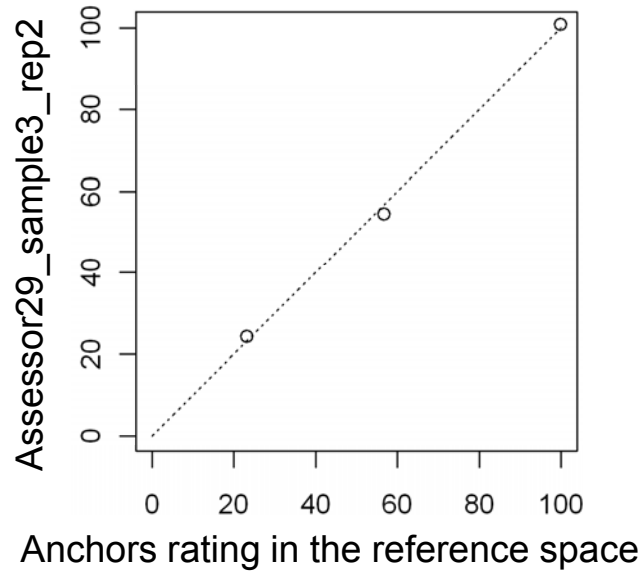
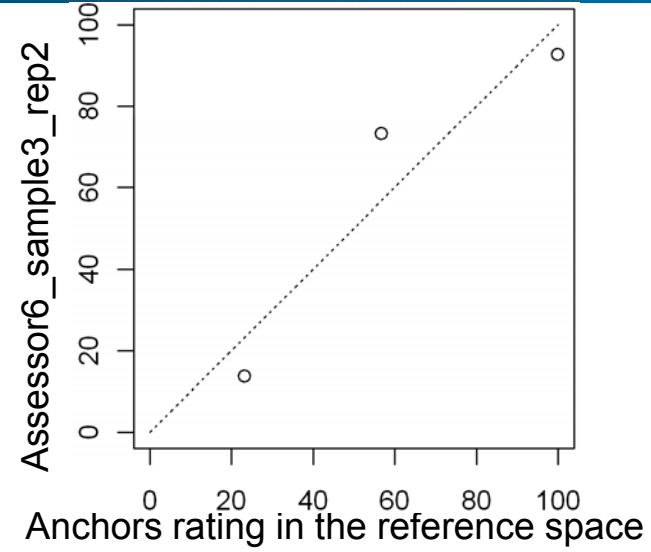
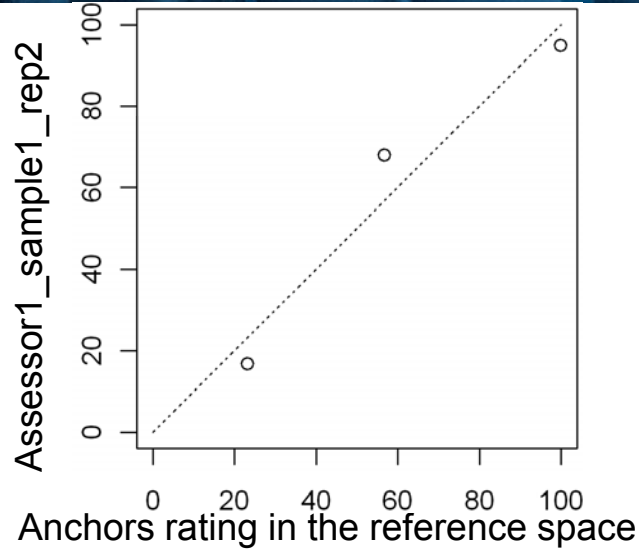
Assessor1_sample1_rep2



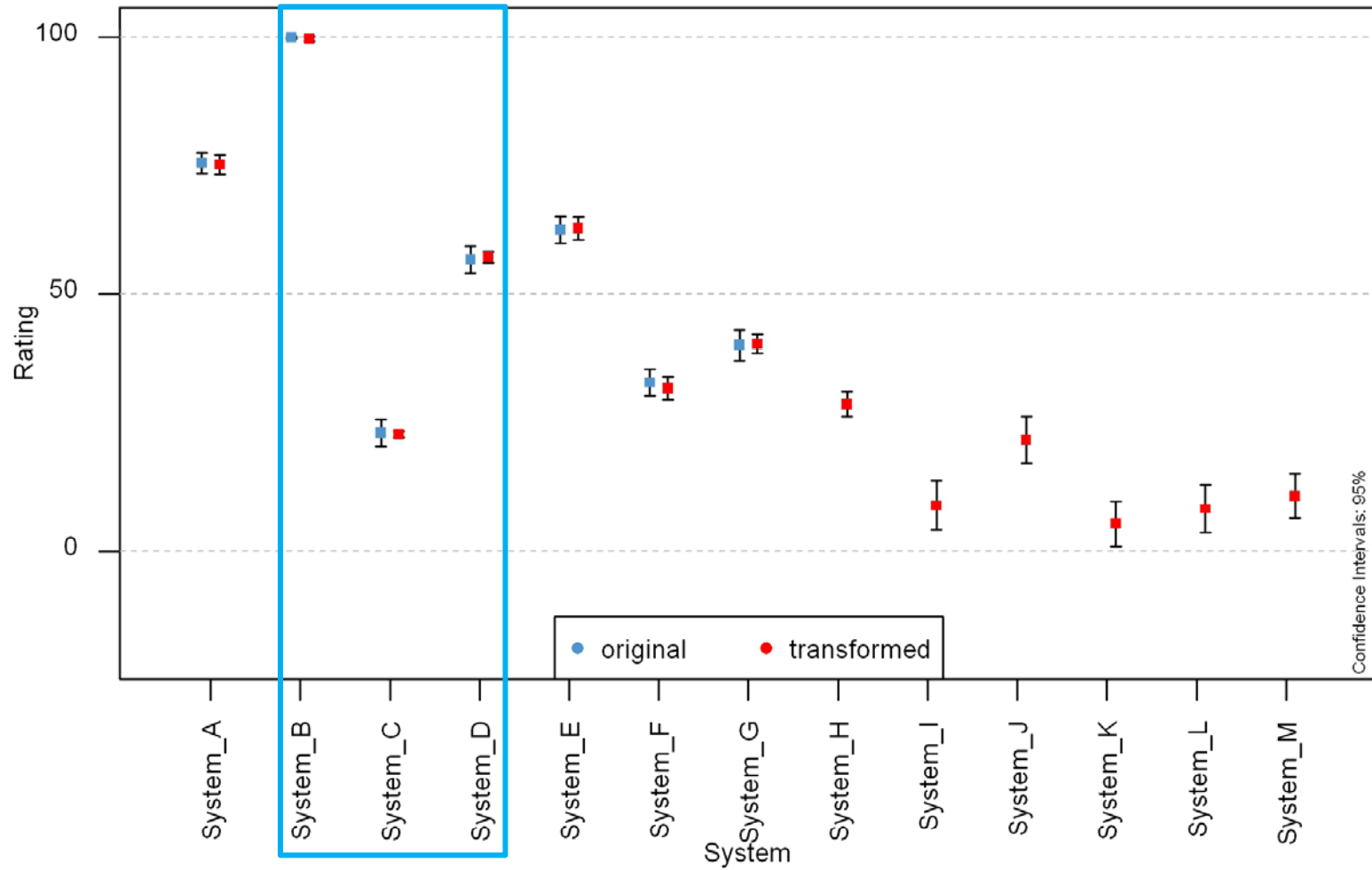
REGRESSION ON THE ANCHOR POINTS



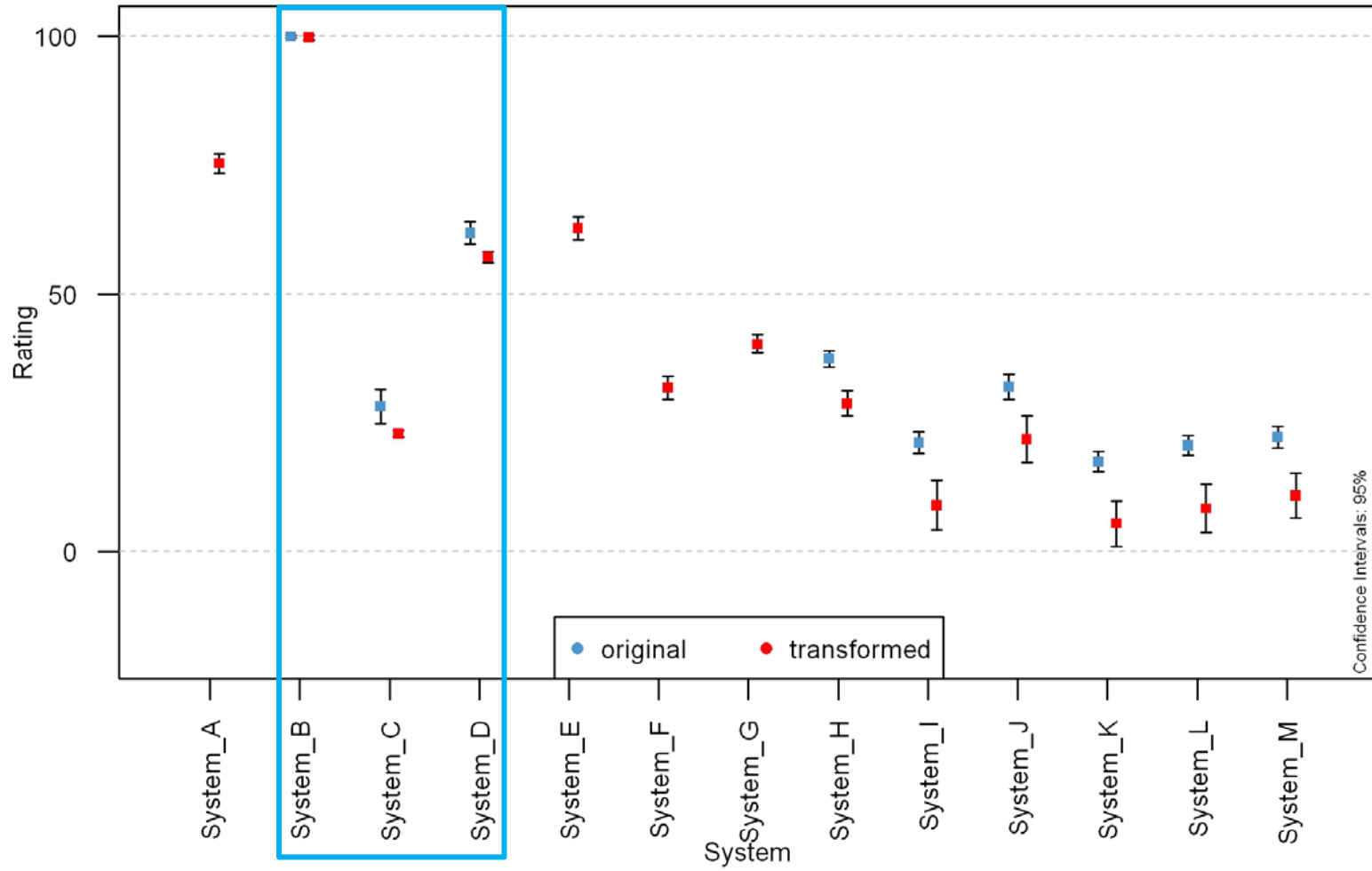
EXAMPLE OF PROJECTION USING THE REGRESSION



TRANSFORMATION EXPERIMENT 1



TRANSFORMATION EXPERIMENT 2



CONCLUSIONS



- Allows the experimentator to merge the results from 2 experiments which have at least 2 common products,
- Regression can be more or less accurate and increase the uncertainty outside the slot defined by the lowest anchor and the highest one



- Test all the options and compare the influence of each of them on the data,
- Test more advanced data analysis on the processed data,
- An indicator of the quality of the transformation should be defined for each assessor or trial (R^2 ?)



Thank you ! 😊