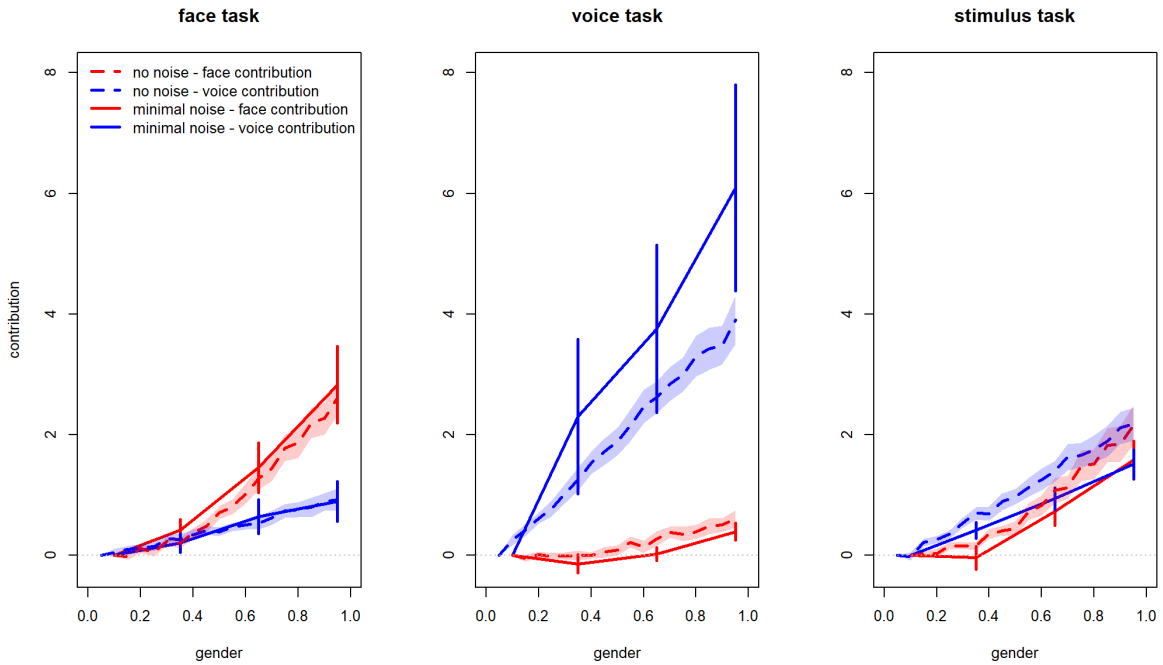
Supplementary material for "Directed attention influences optimality of top-down and bottom-up multi-modal perceptual integration", Abbatecola, C., Kennedy, H. and Knoblauch K.

Supplementary section 1

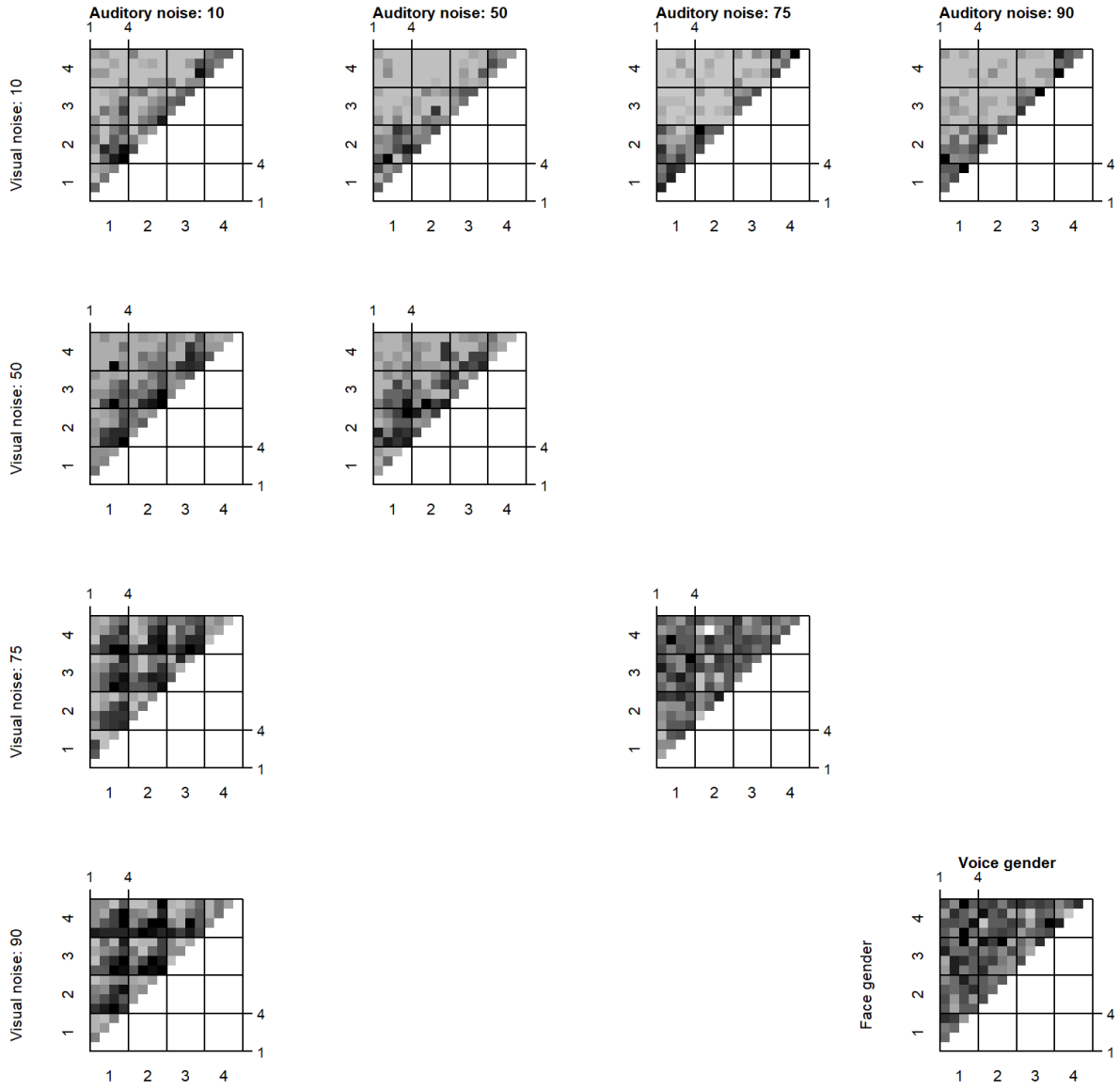
Comparison of face and voice contributions estimated using MLCM (additive model, mean and standard error for each gender level across participants indicated either by error bars or transparent envelopes about curves) between a no noise condition ((Abbatecola et al., 2021; dotted lines) and the average data from the lowest noise conditions for each task in the present study (solid lines). The face and voice stimuli from the two studies were drawn from the same stimulus set, but the sampling rate along the gender scale was higher in the previous study. See the main text and Abbatecola et al. (2021) for further details.



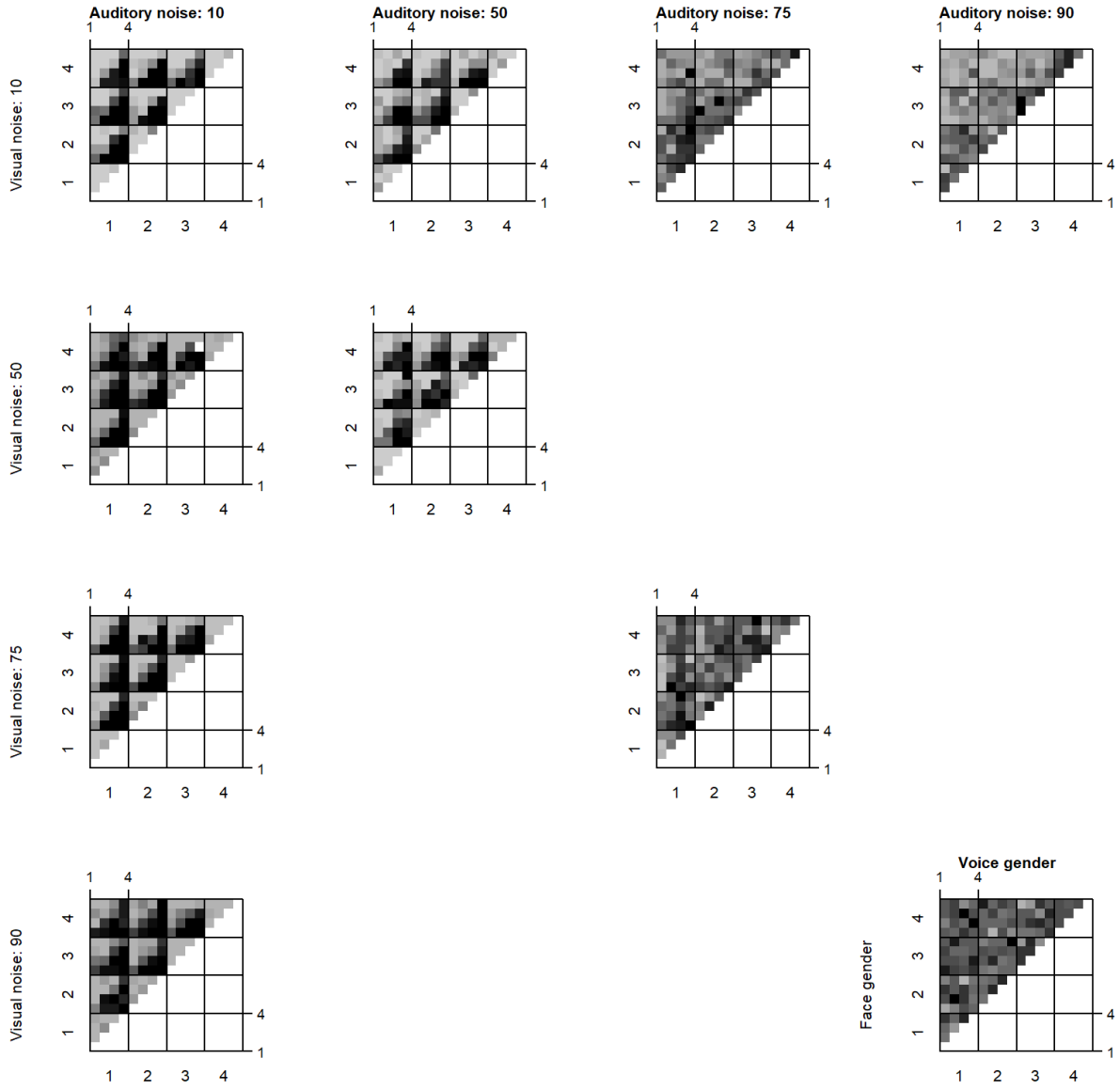
Supplementary section 2

Conjoint proportions plots (Ho et al., 2008; Knoblauch & Maloney, 2012) for grouped and individual data for each task. Visual noise levels for each panel are indicated as the axis labels along the ordinates of the left column panels and auditory noise levels as the labels along the top row of panels. Within each panel, each xy-values represents the two stimuli from a trial, with the gender of the face of the first stimulus being indicated by the outer axis (numbers on the abscissa) and the voice by the inner axis (one example indicated on the top left square), and the face gender of the second stimulus being represented by the outer axis (numbers on the ordinate) and the voice by the inner axis (one example indicated on the bottom right square), all defined between 1 (most feminine) and 4 (most masculine). The shade of the pixel indicates the proportion of times that the subject chose the second stimulus as more masculine than the first stimulus when presented with this particular stimulus pair, (under the instructions that they were given to take into account one or both modalities). Lighter shades of gray correspond to a higher probability. On the individual plots, white indicates missing data, as we randomly subsampled the stimulus space. The first 3 figures represent aggregated data across each subjects.

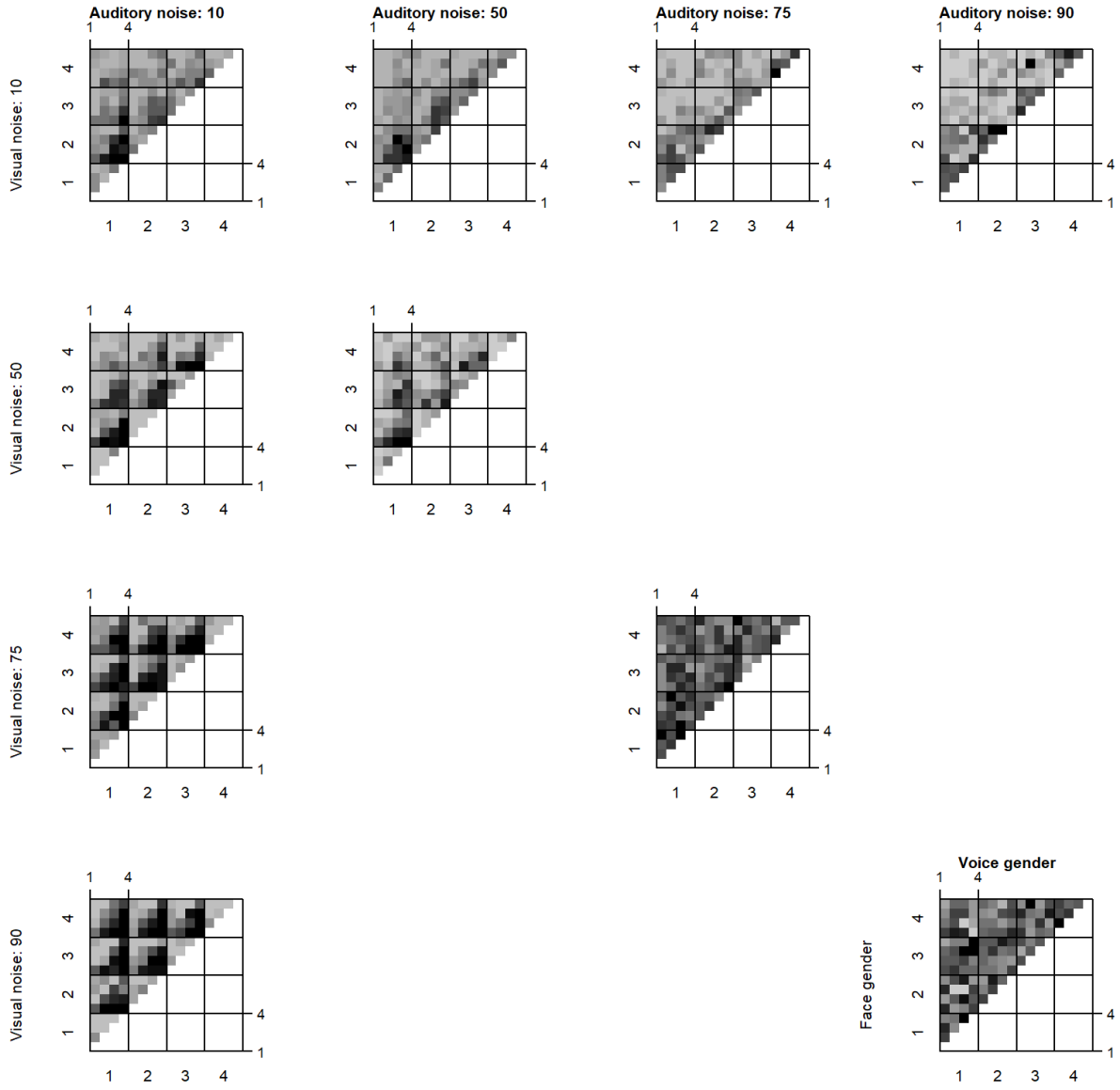
Face task – grouped data (n = 6)



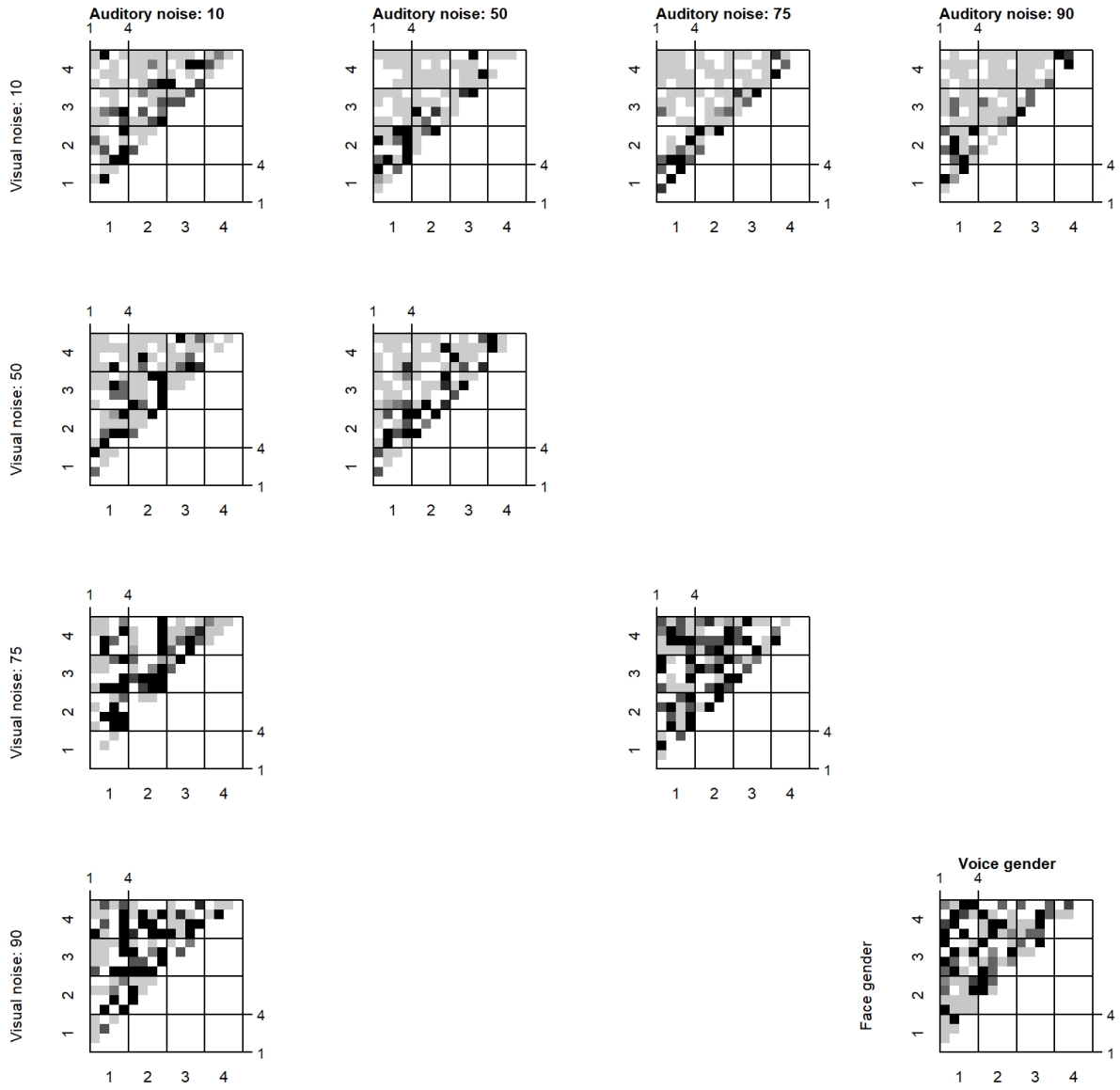
Voice task – – grouped data (n = 6)



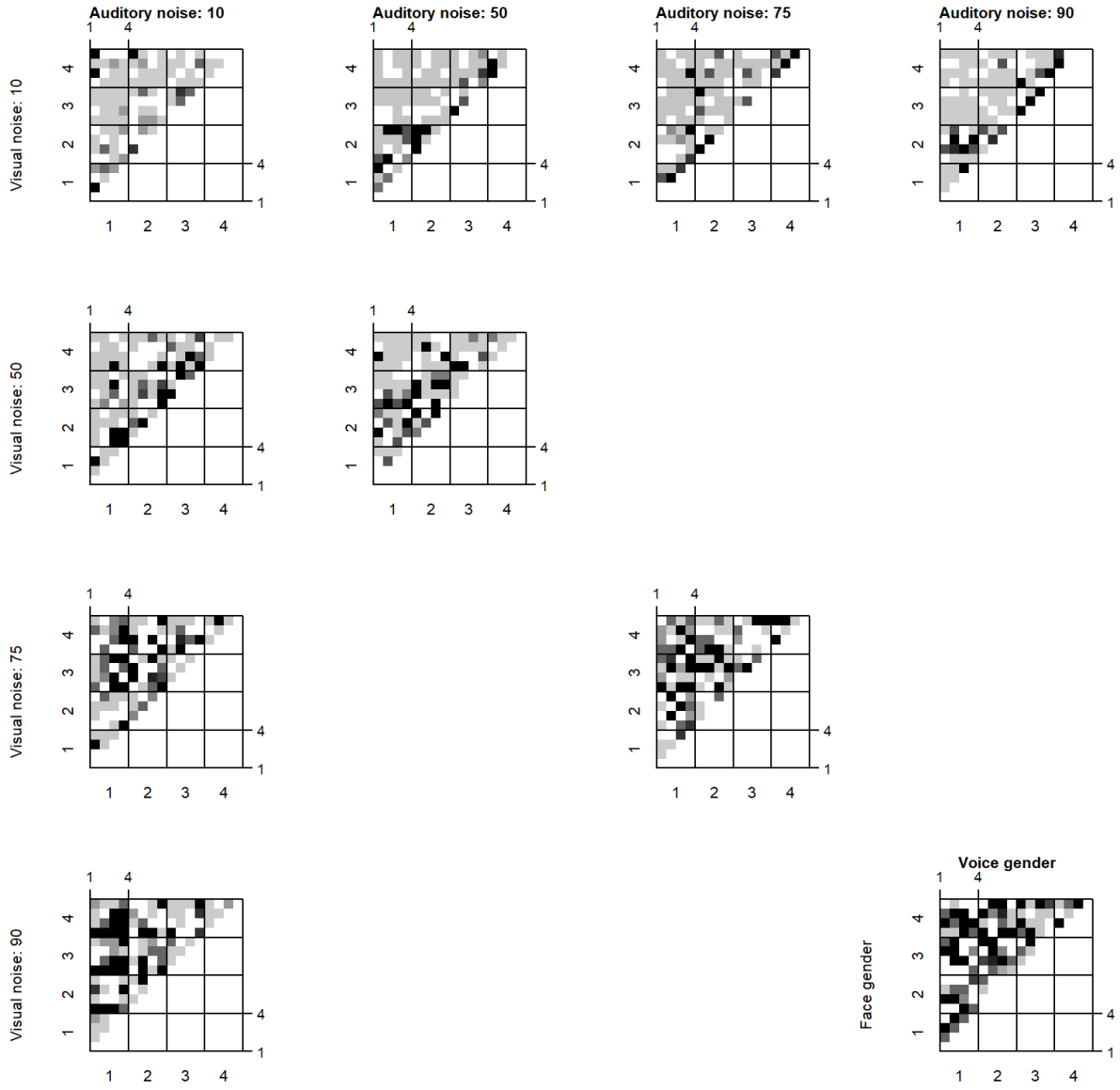
Stimulus task – – grouped data (n = 6)



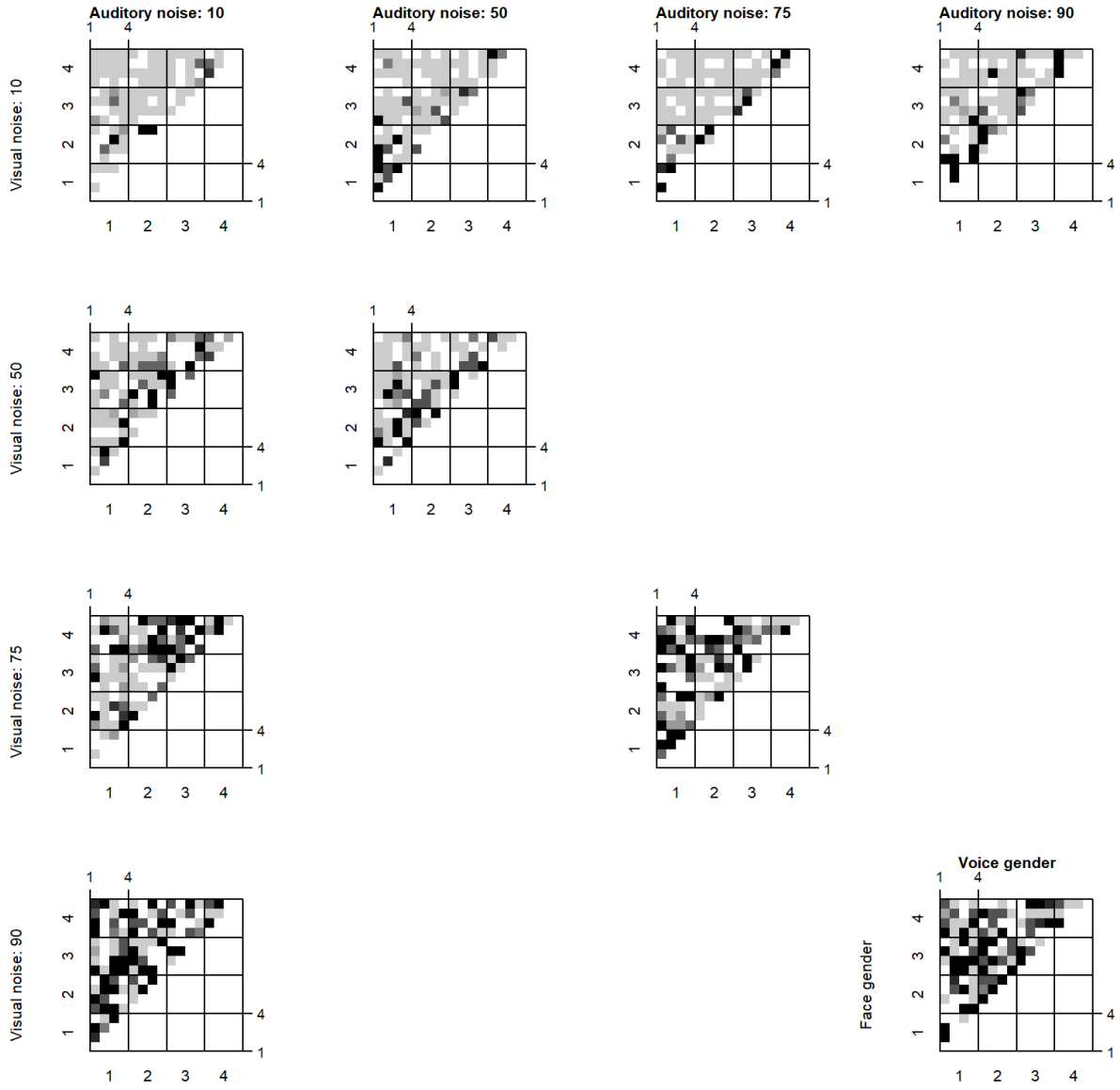
Face task – participant 1



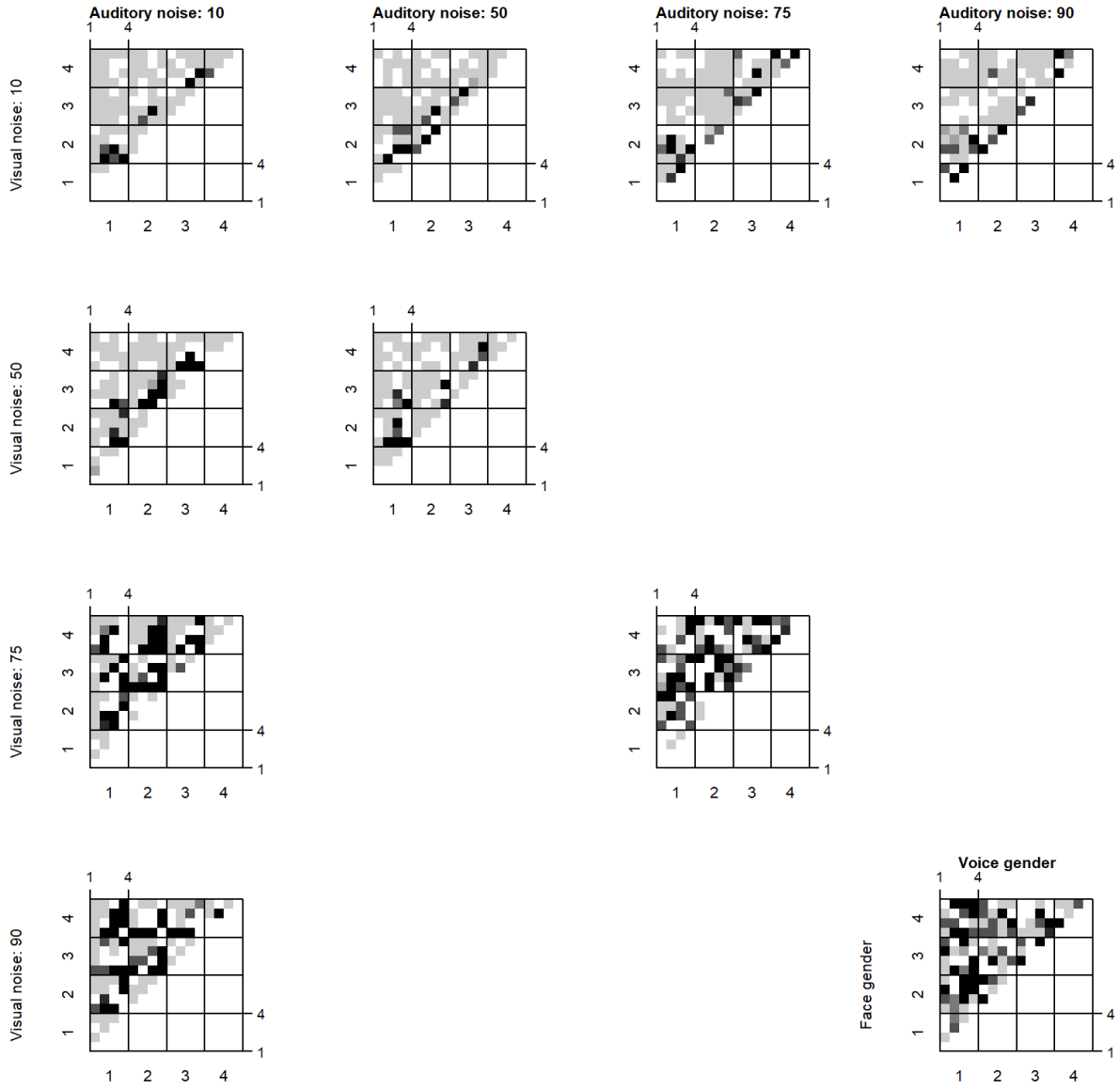
Face task – participant 2



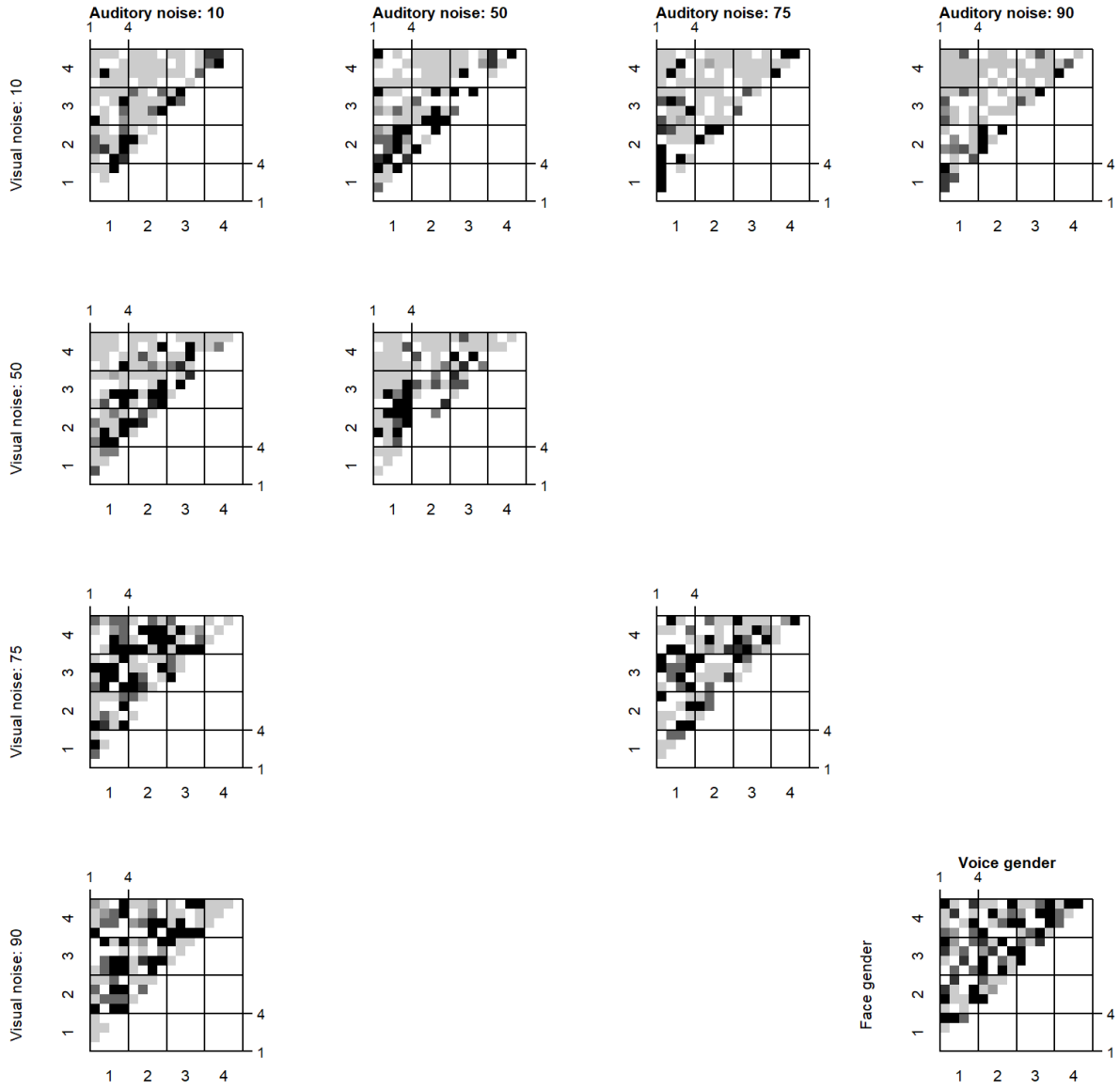
Face task – participant 3



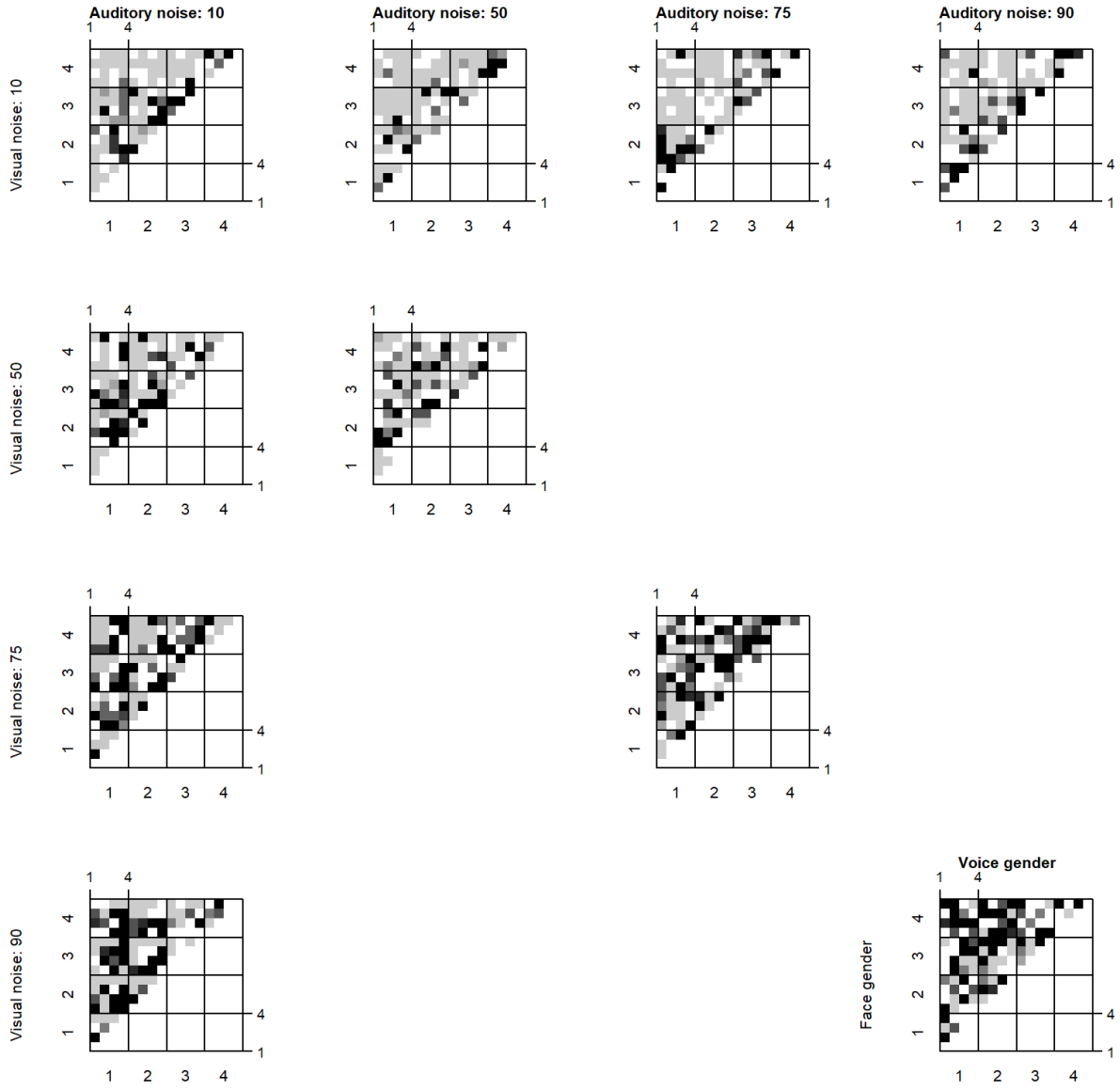
Face task – participant 4



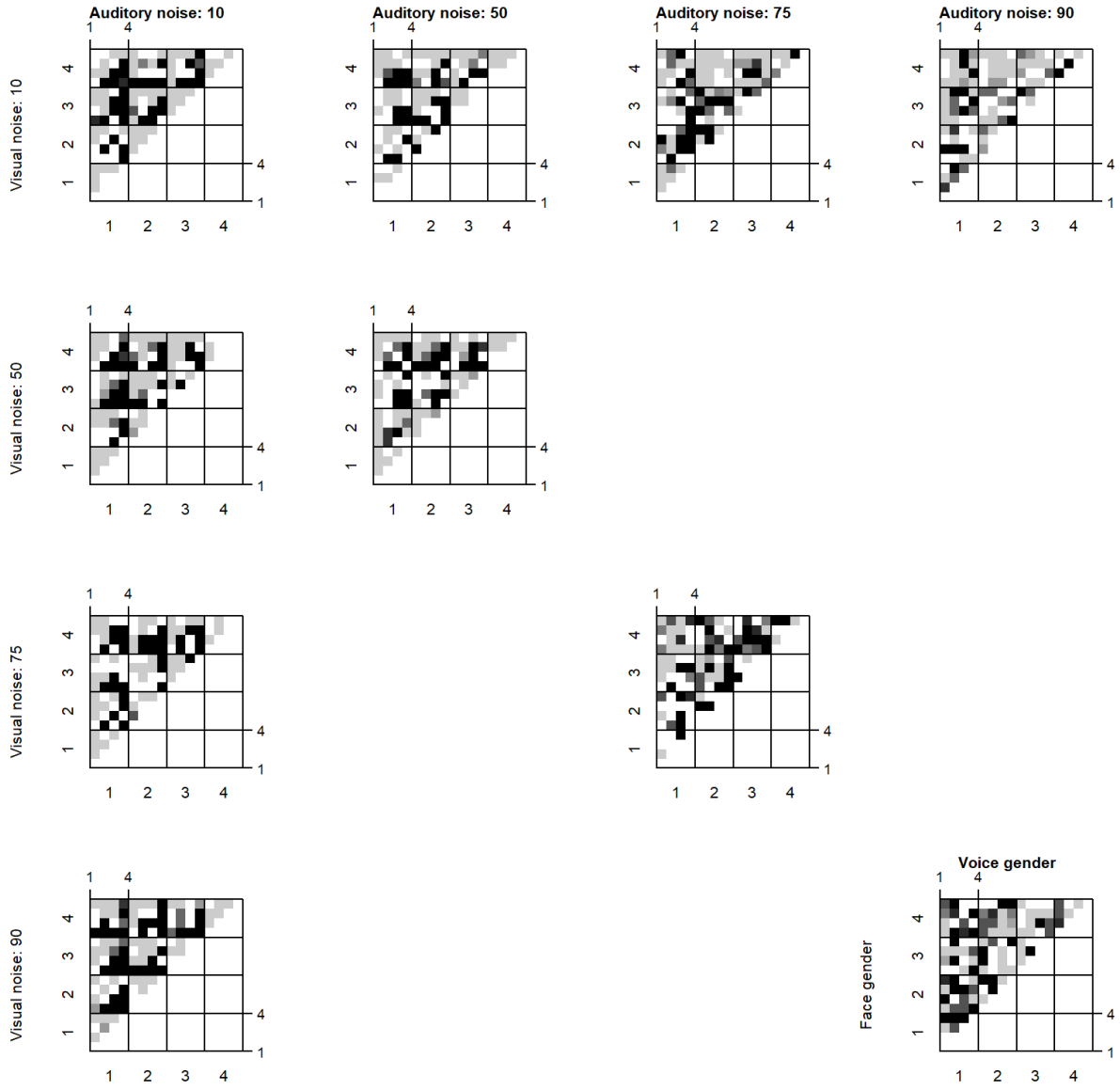
Face task – participant 5



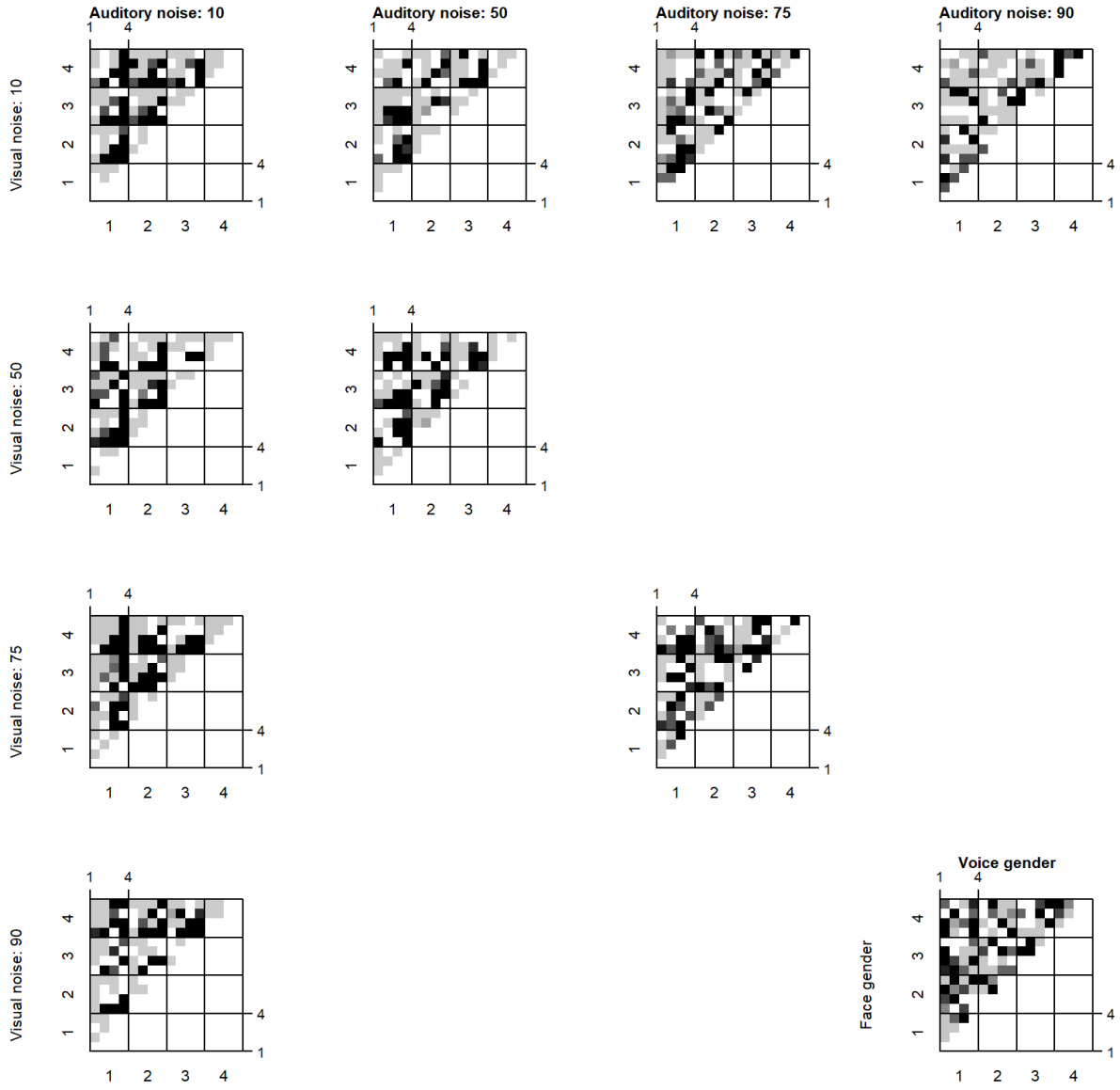
Face task – participant 6



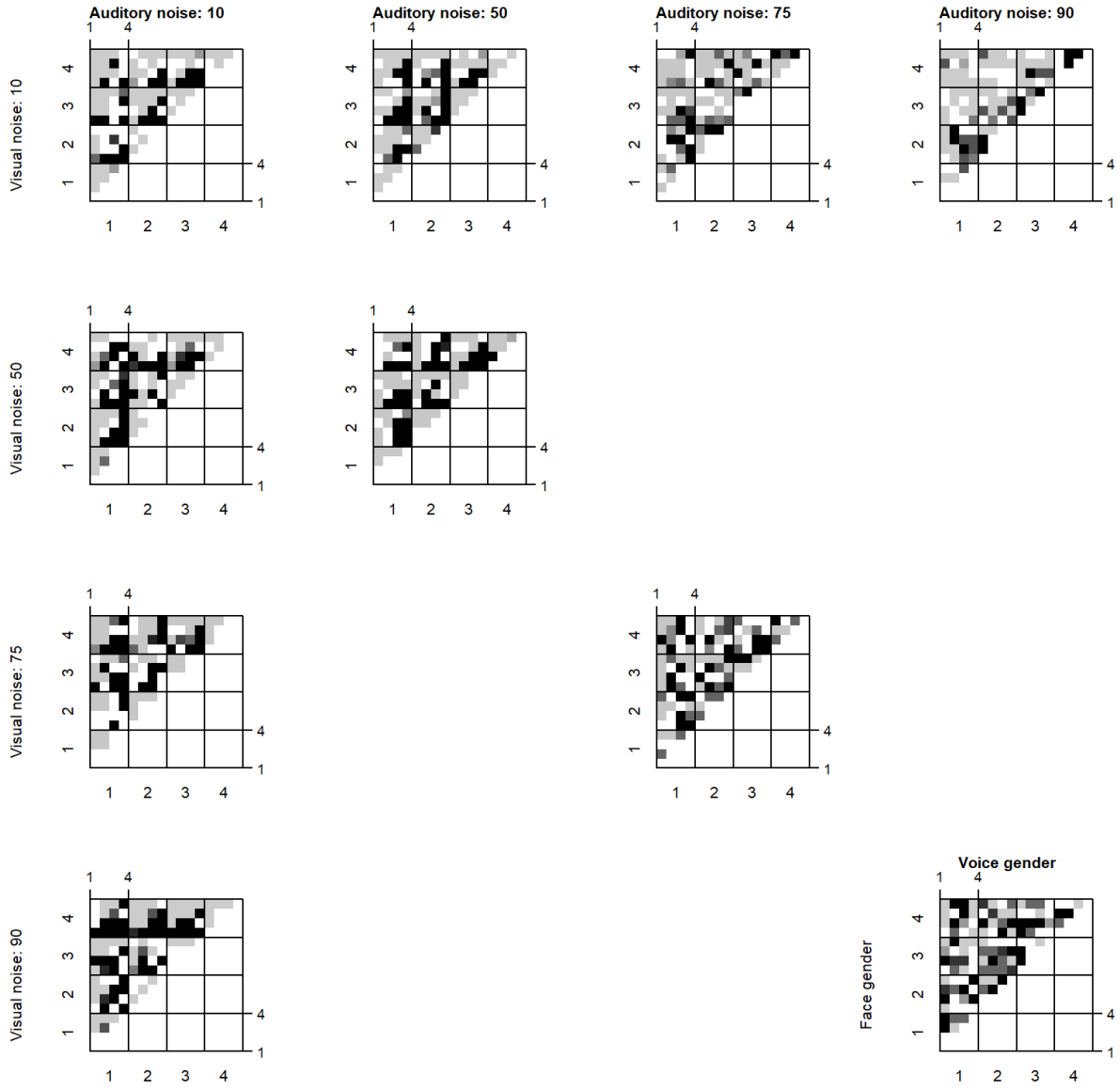
Voice task – participant 1



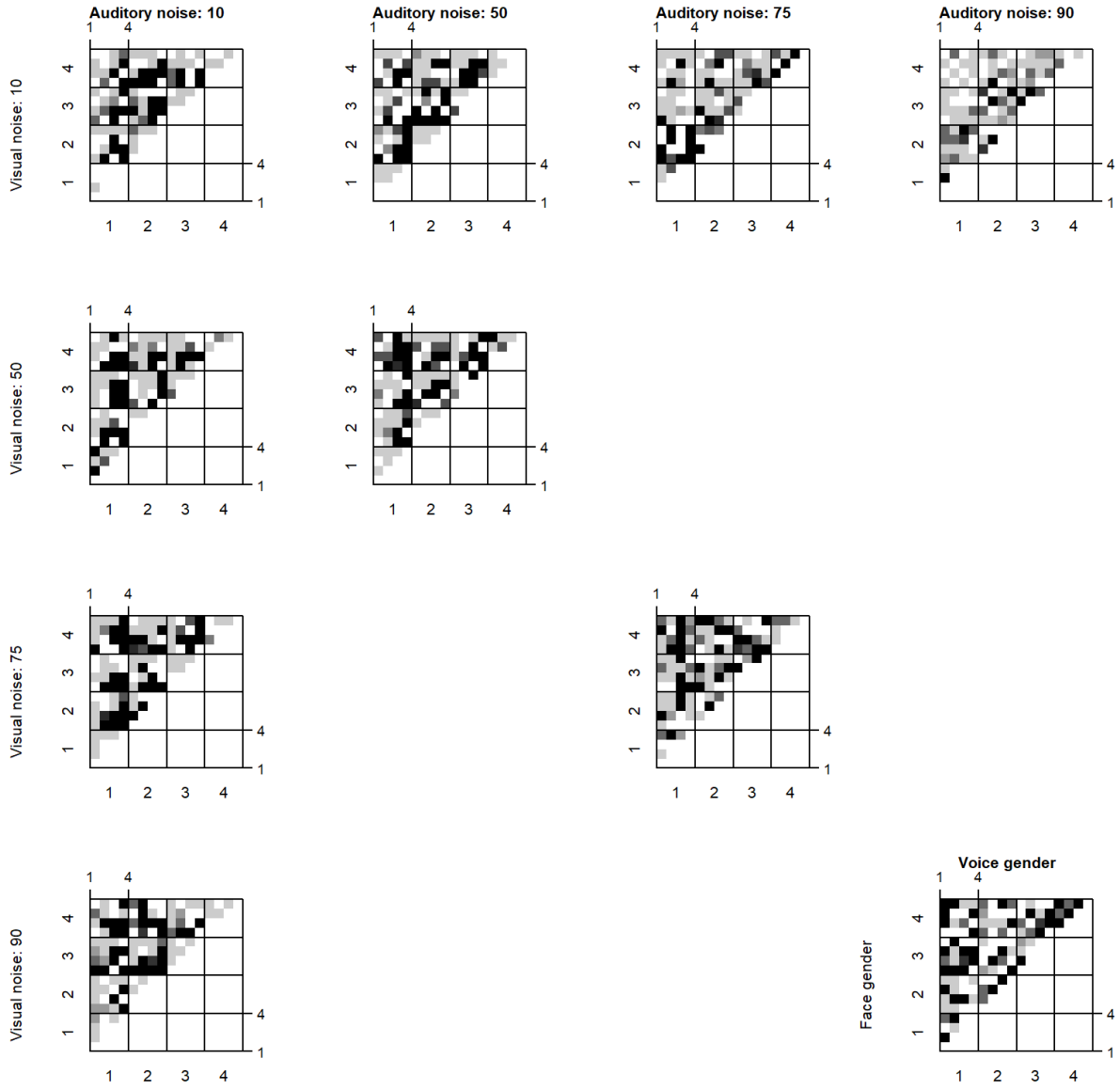
Voice task – participant 2



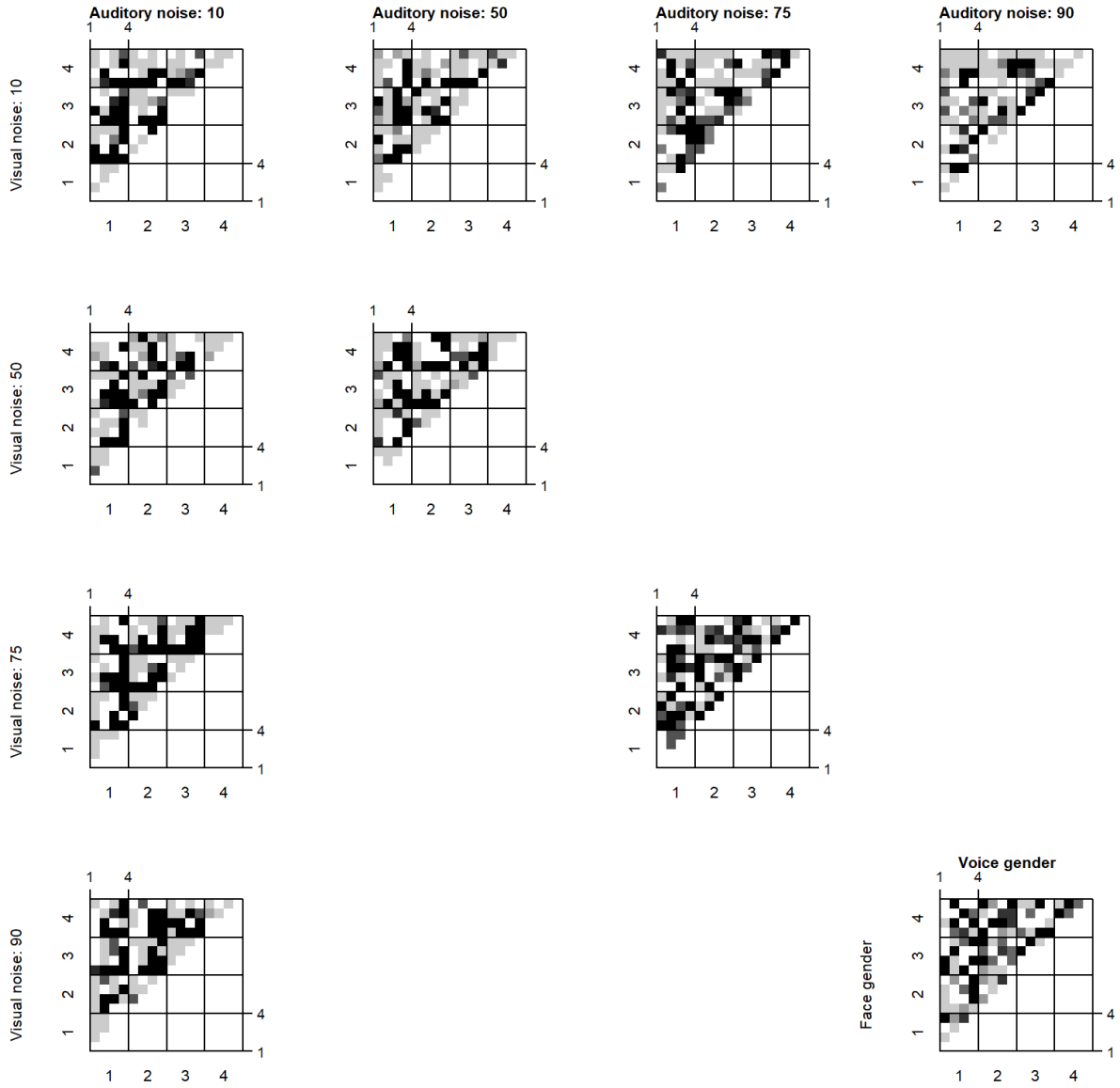
Voice task – participant 3



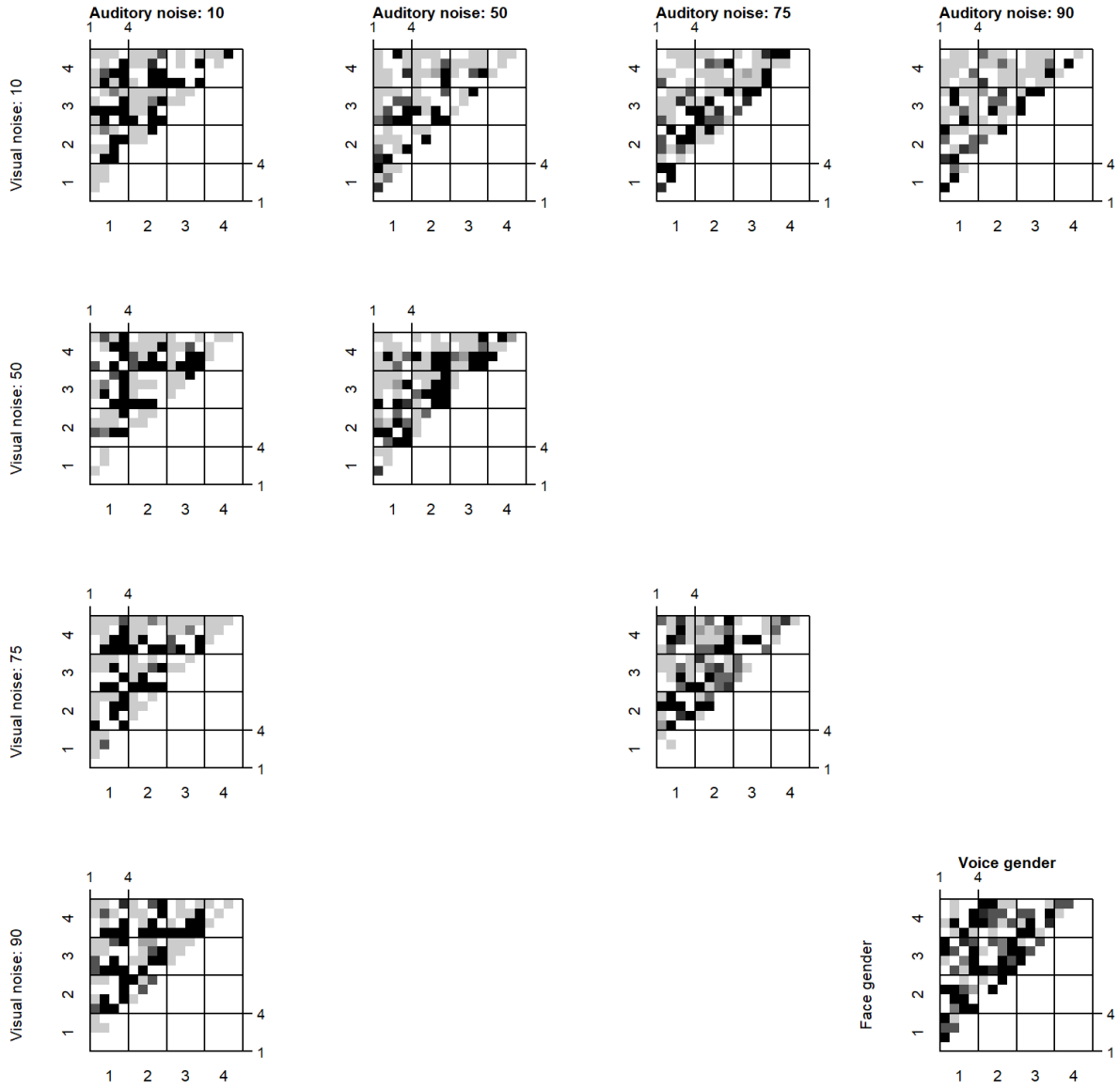
Voice task – participant 4



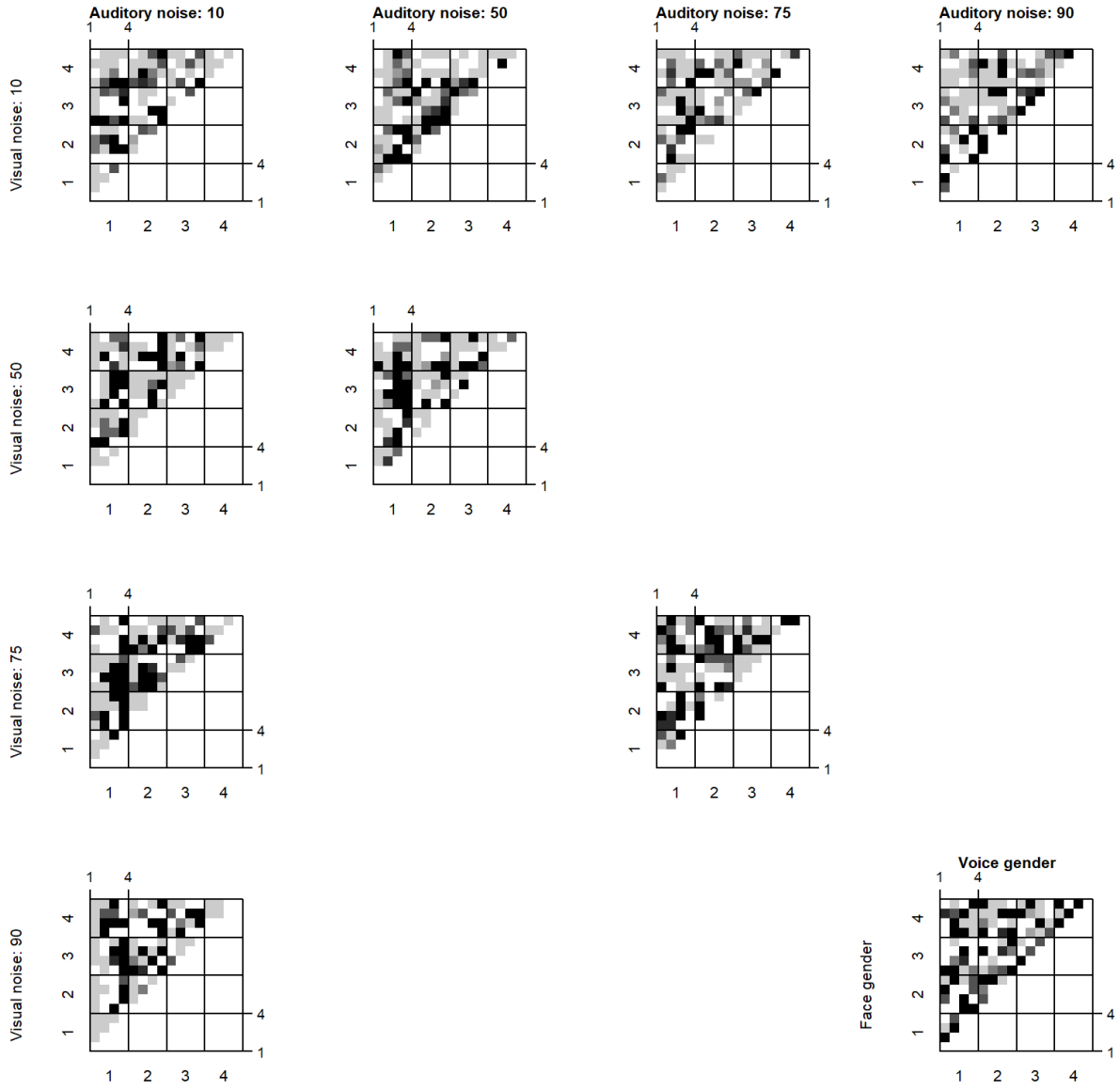
Voice task – participant 5



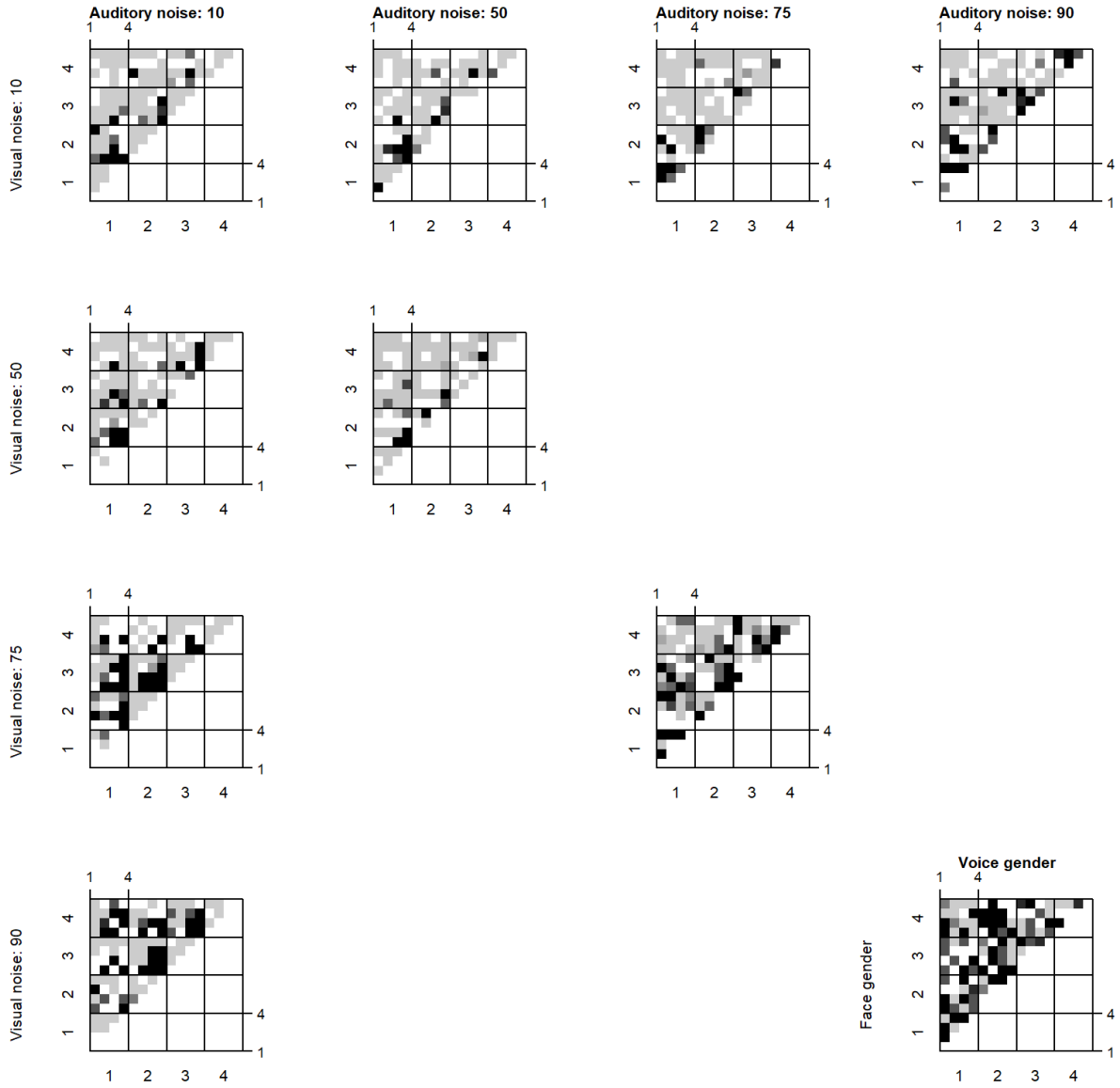
Voice task – participant 6



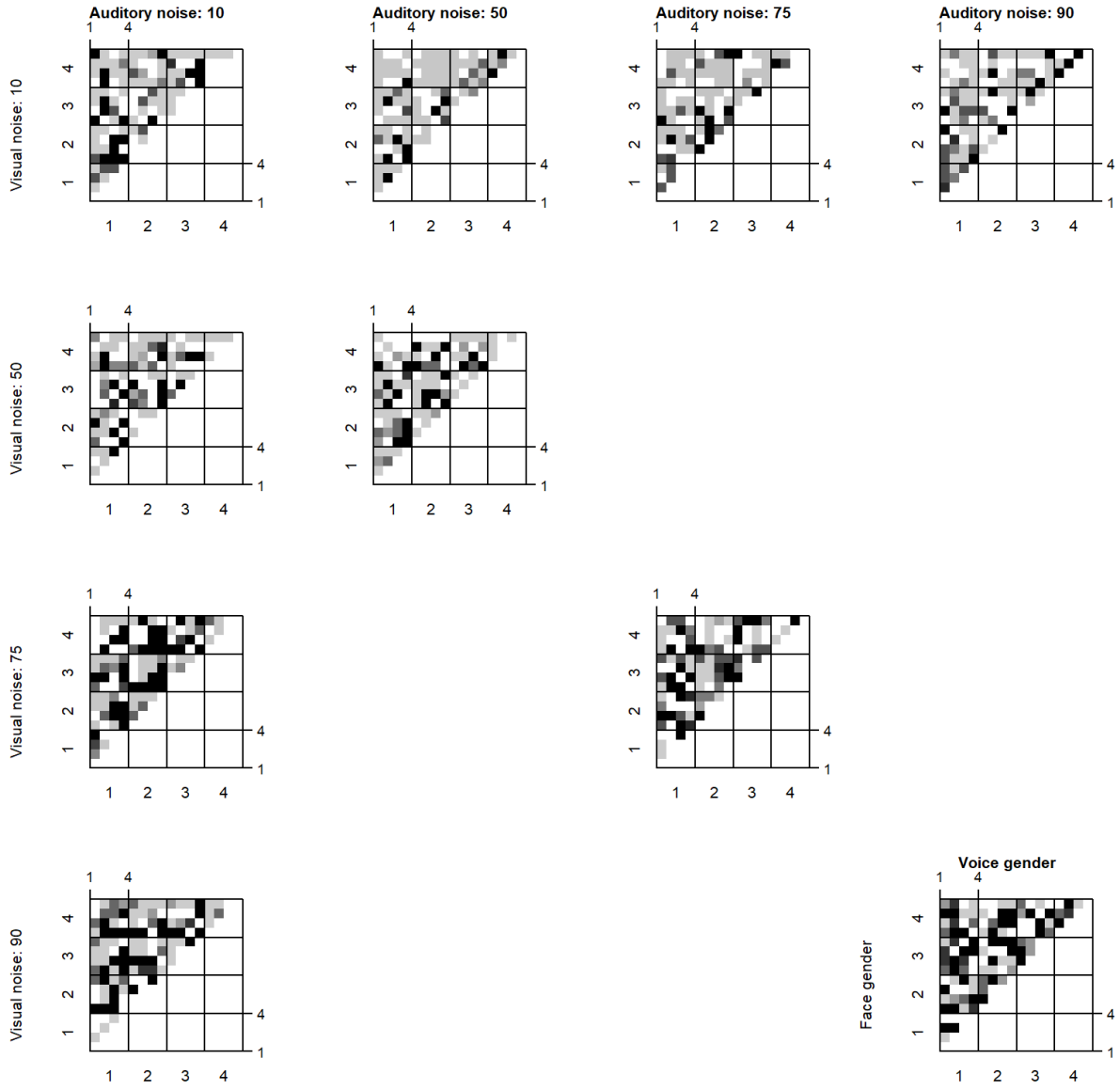
Stimulus task – participant 1



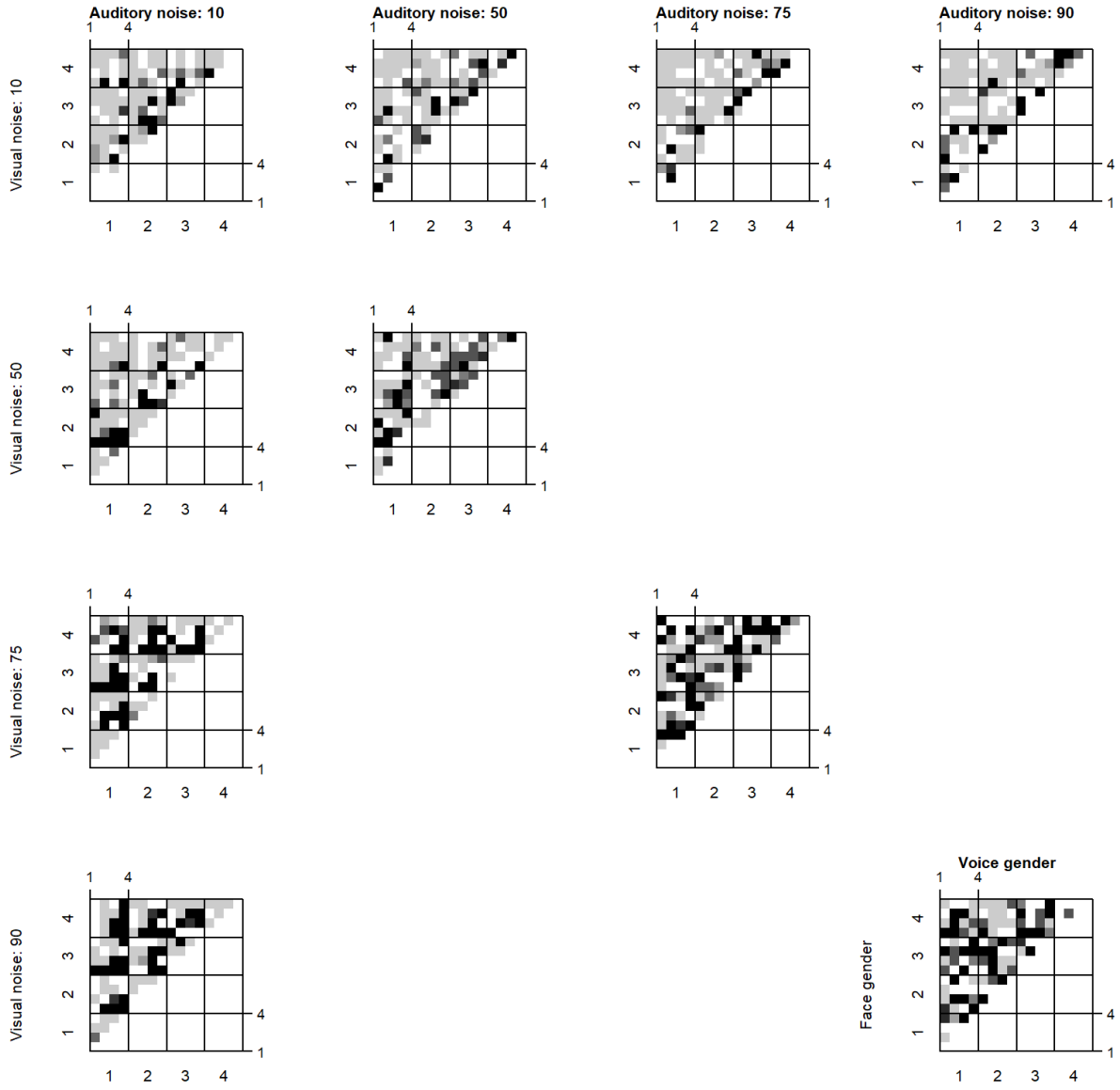
Stimulus task – participant 2



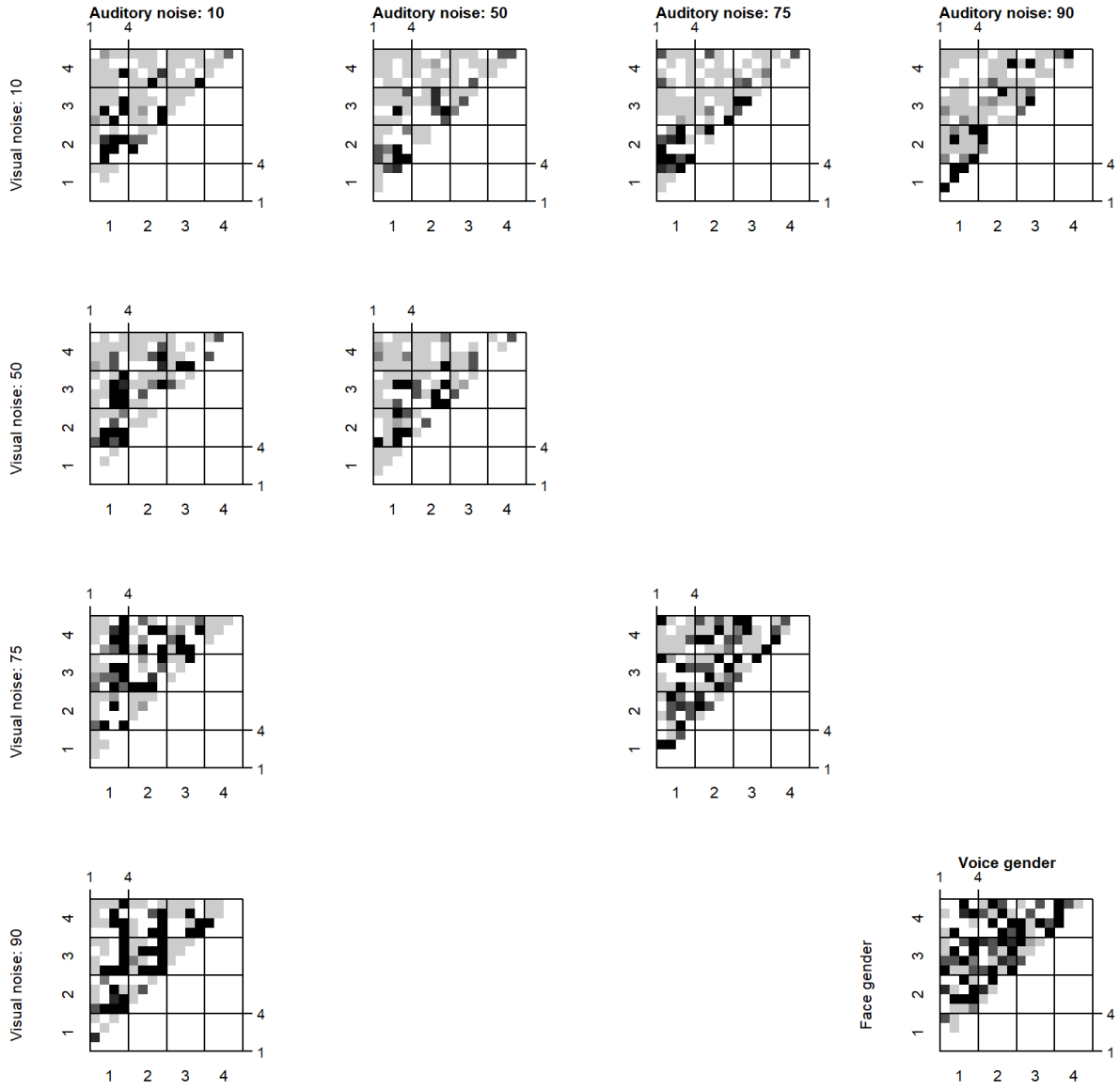
Stimulus task – participant 3



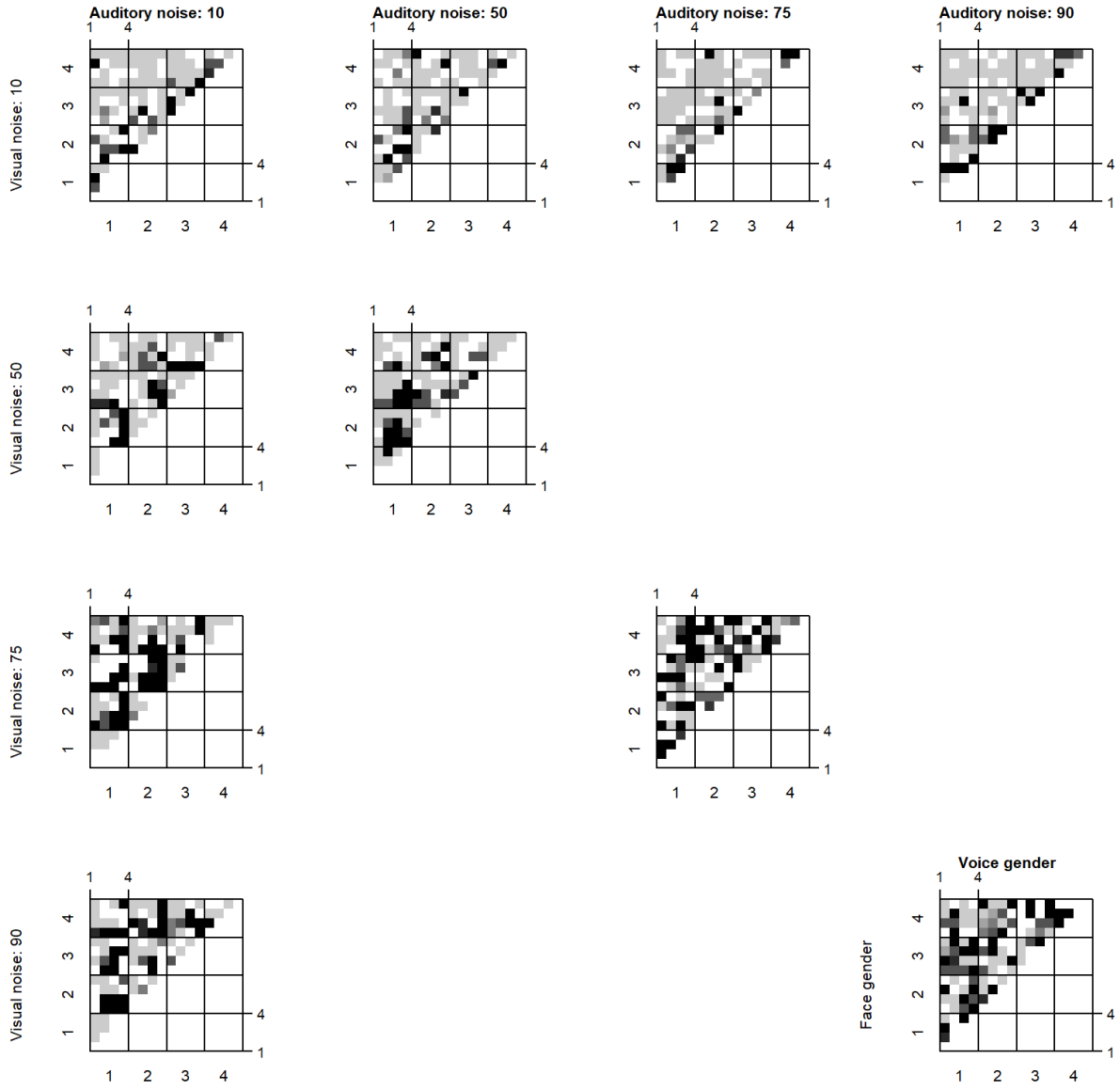
Stimulus task – participant 4



Stimulus task – participant 5



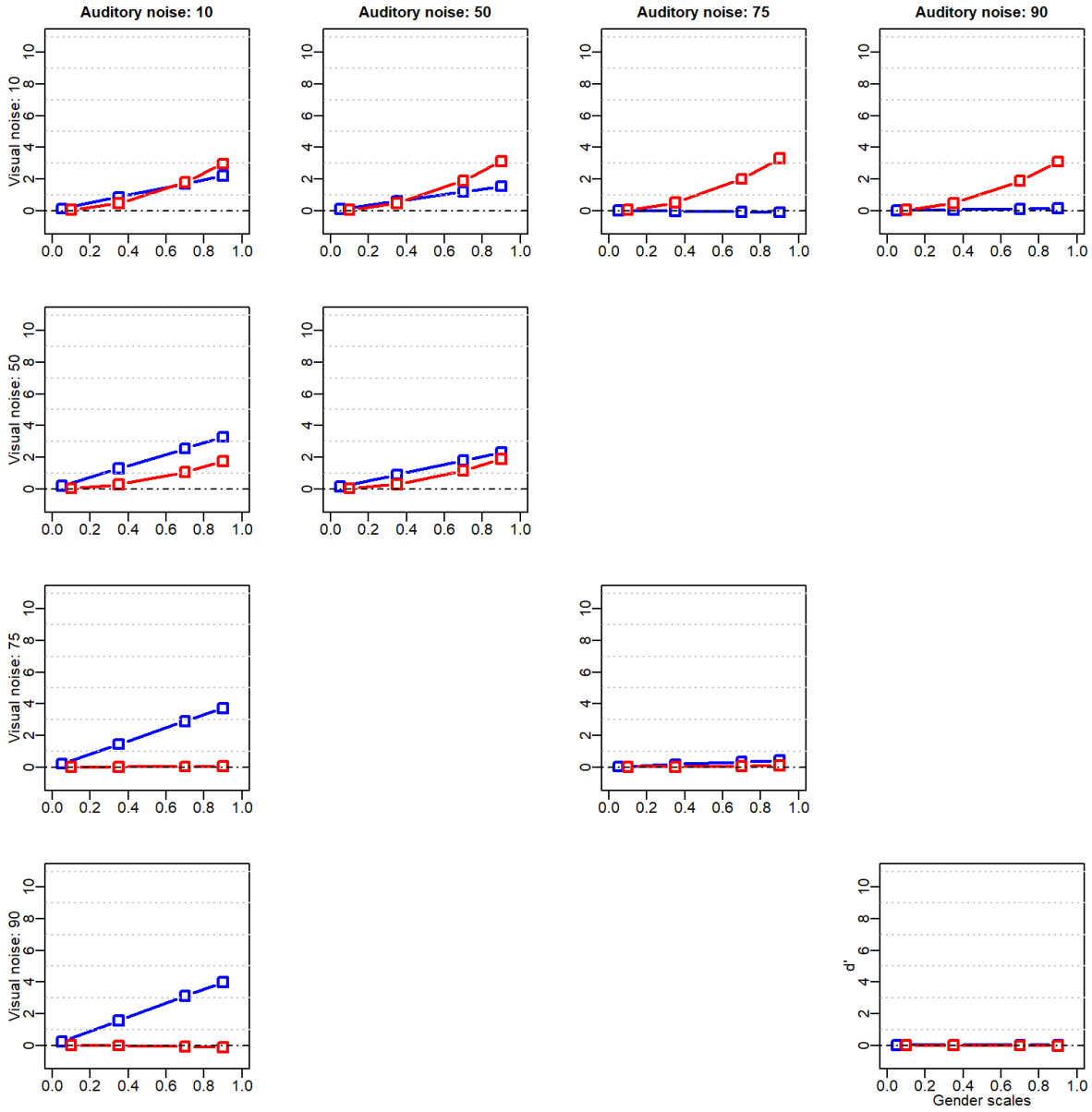
Stimulus task – participant 6



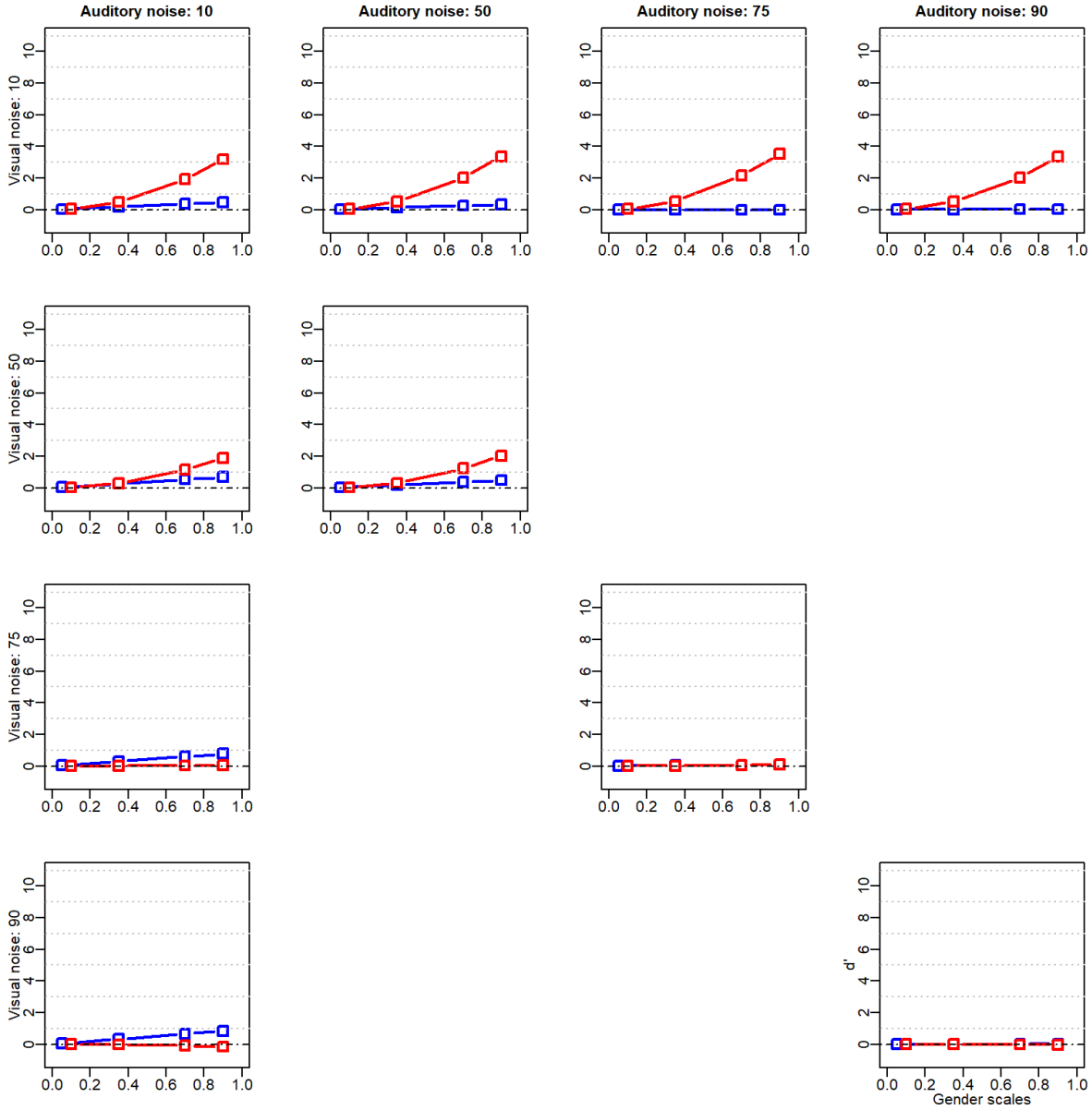
Supplementary section 3

Individual results from which the average change in contribution for each modality in Figure 4A were derived for the visual (red) and auditory (blue) contributions of each participant (6 for each attentional condition) under all noise conditions tested, estimated from the attentional and noise weighted MLCM model. For each plot, the abscissa represents the gender scale (0 female, 1 male) and the ordinate the estimated contribution in d' units. Visual noise levels for each panel are indicated as the titles along the ordinates of the left column panels and auditory noise levels as the titles along the top row of panels.

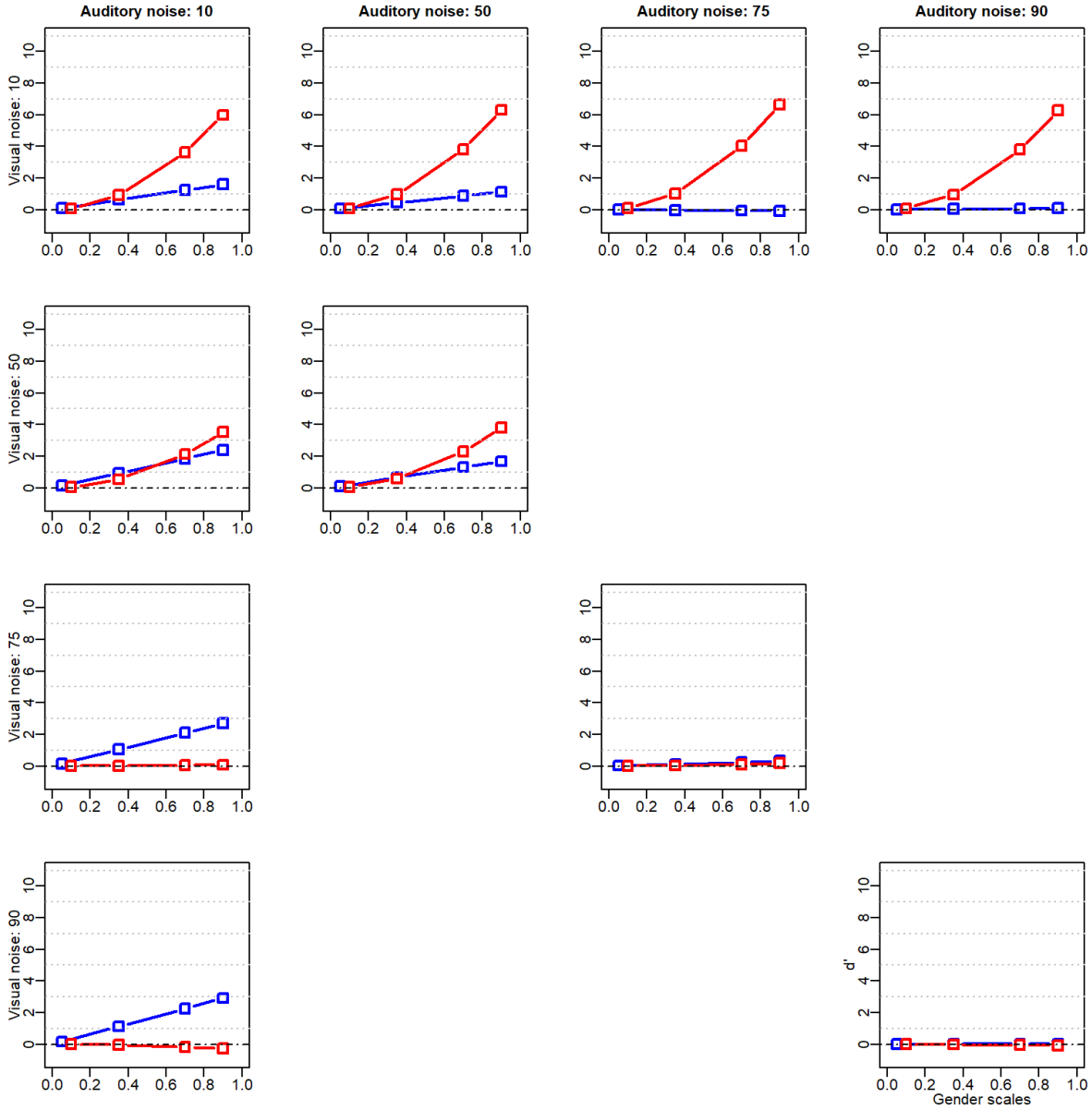
Face task – participant 1



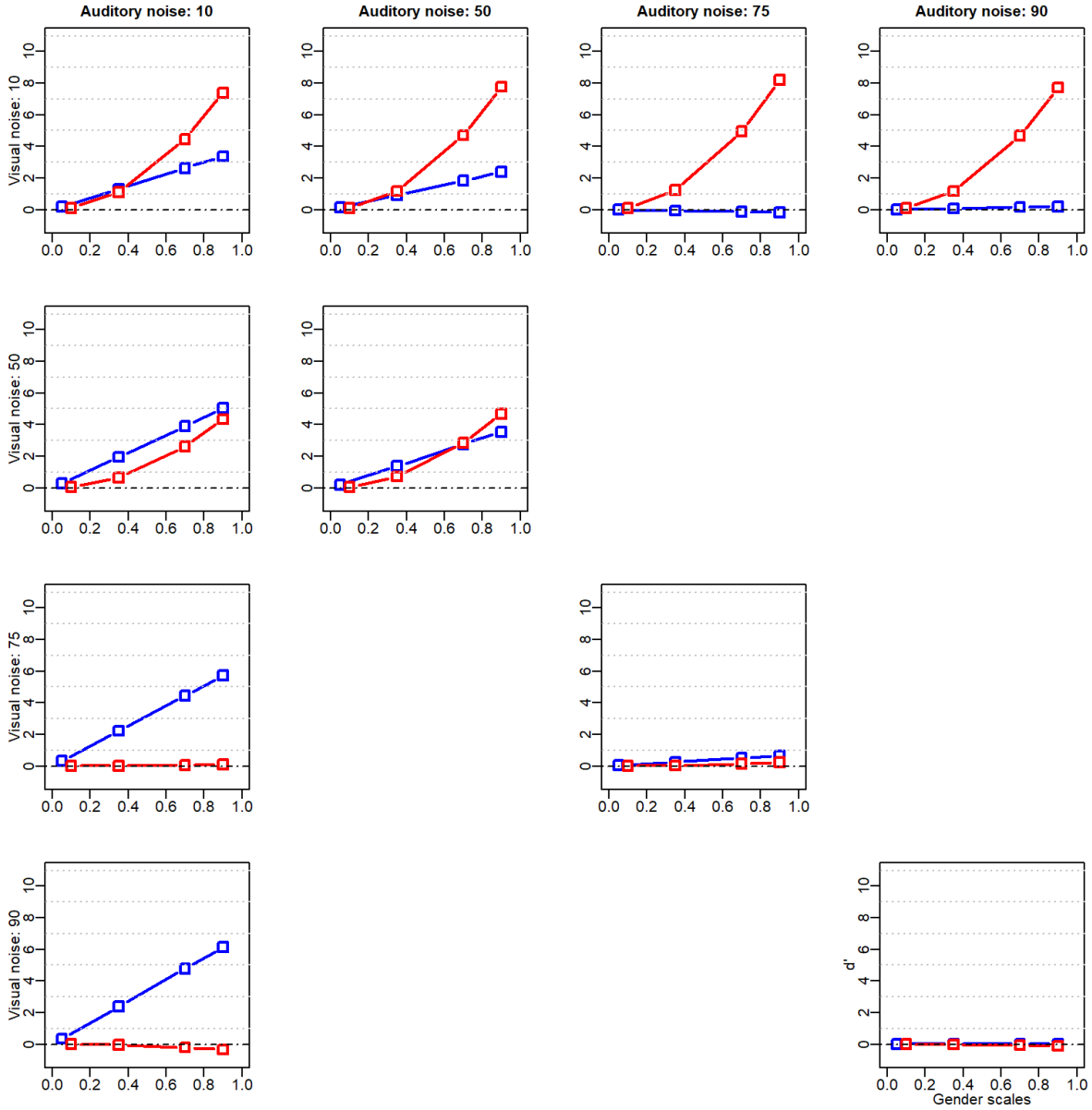
Face task – participant 2



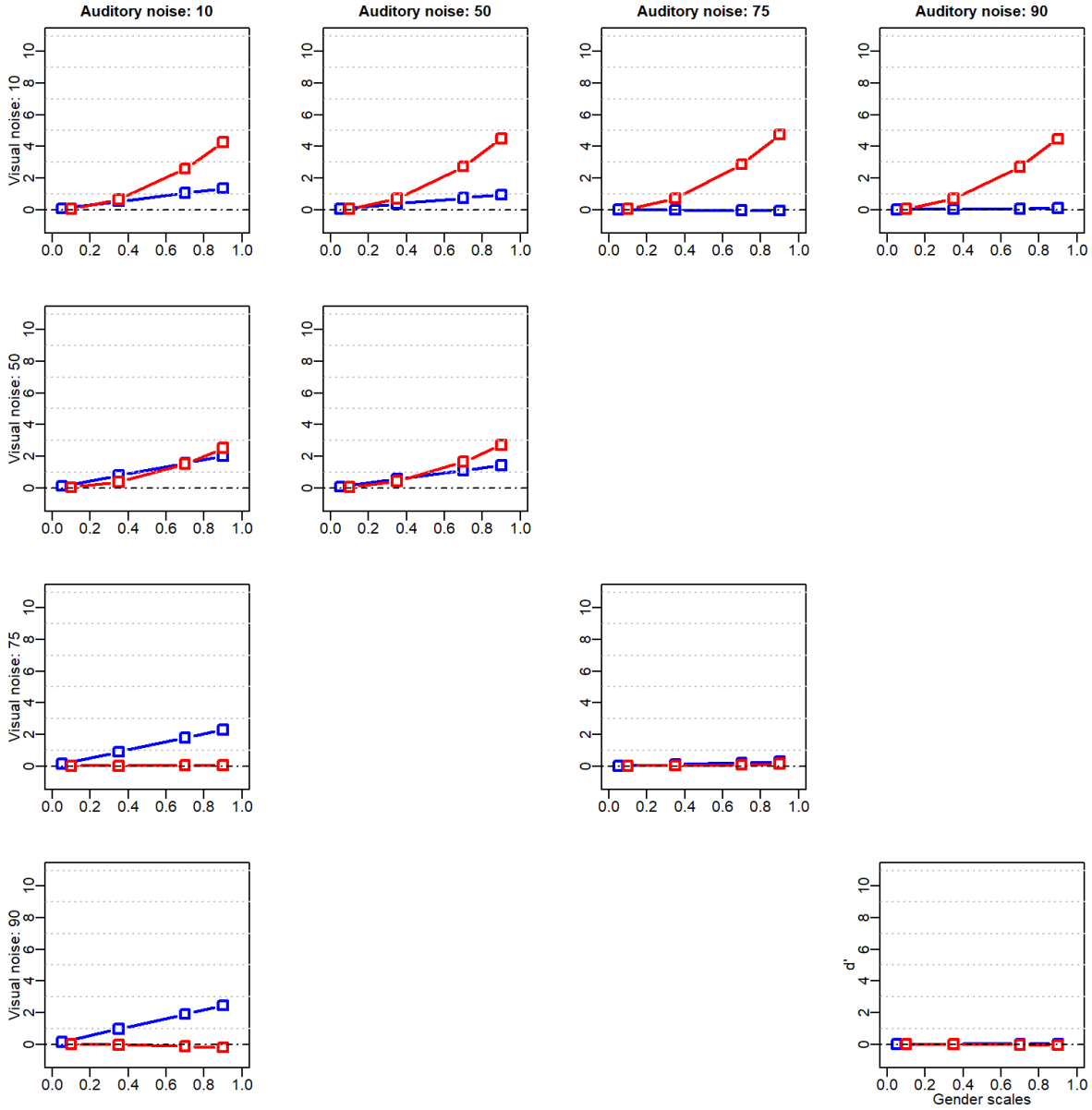
Face task – participant 3



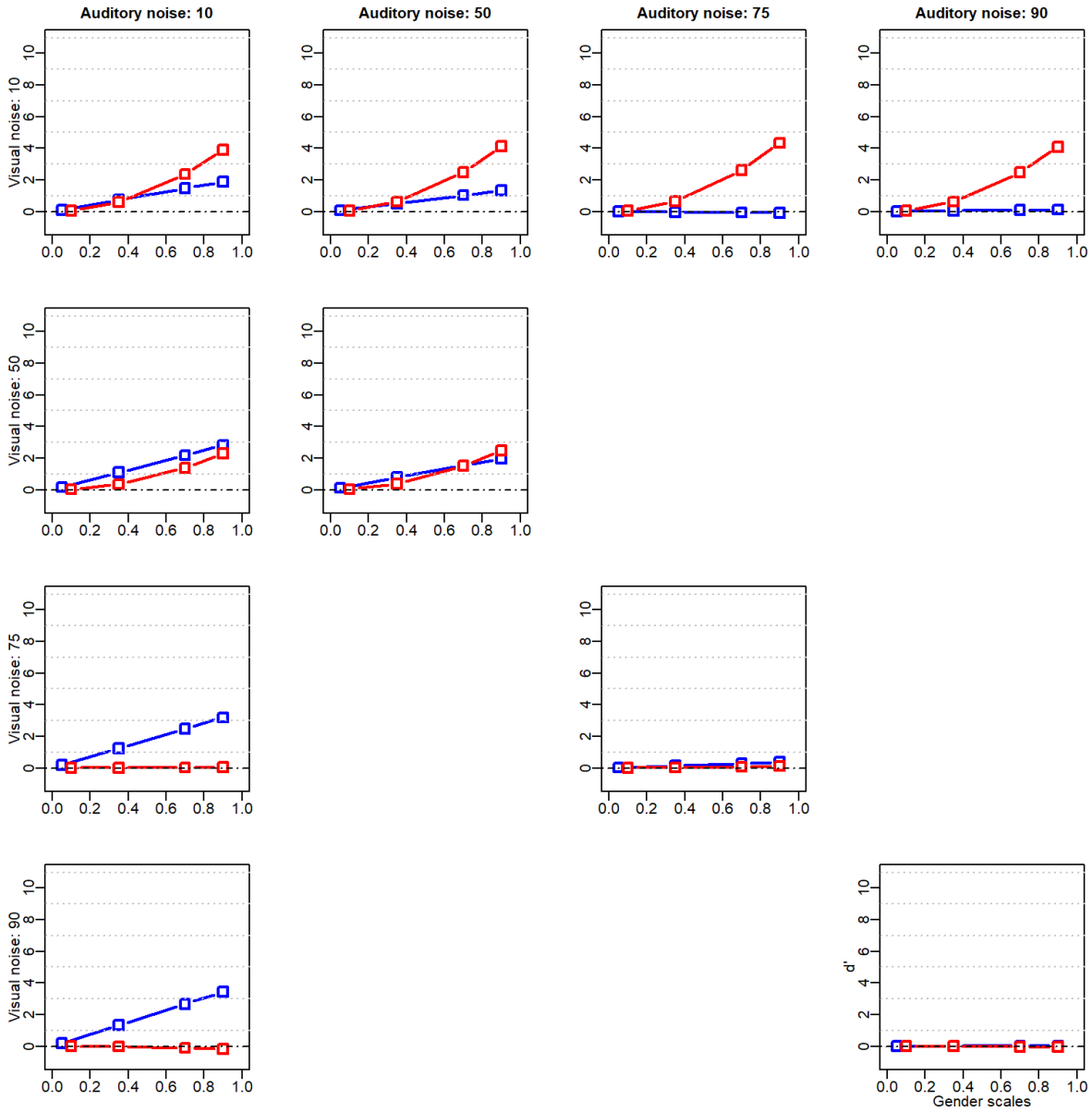
Face task – participant 4



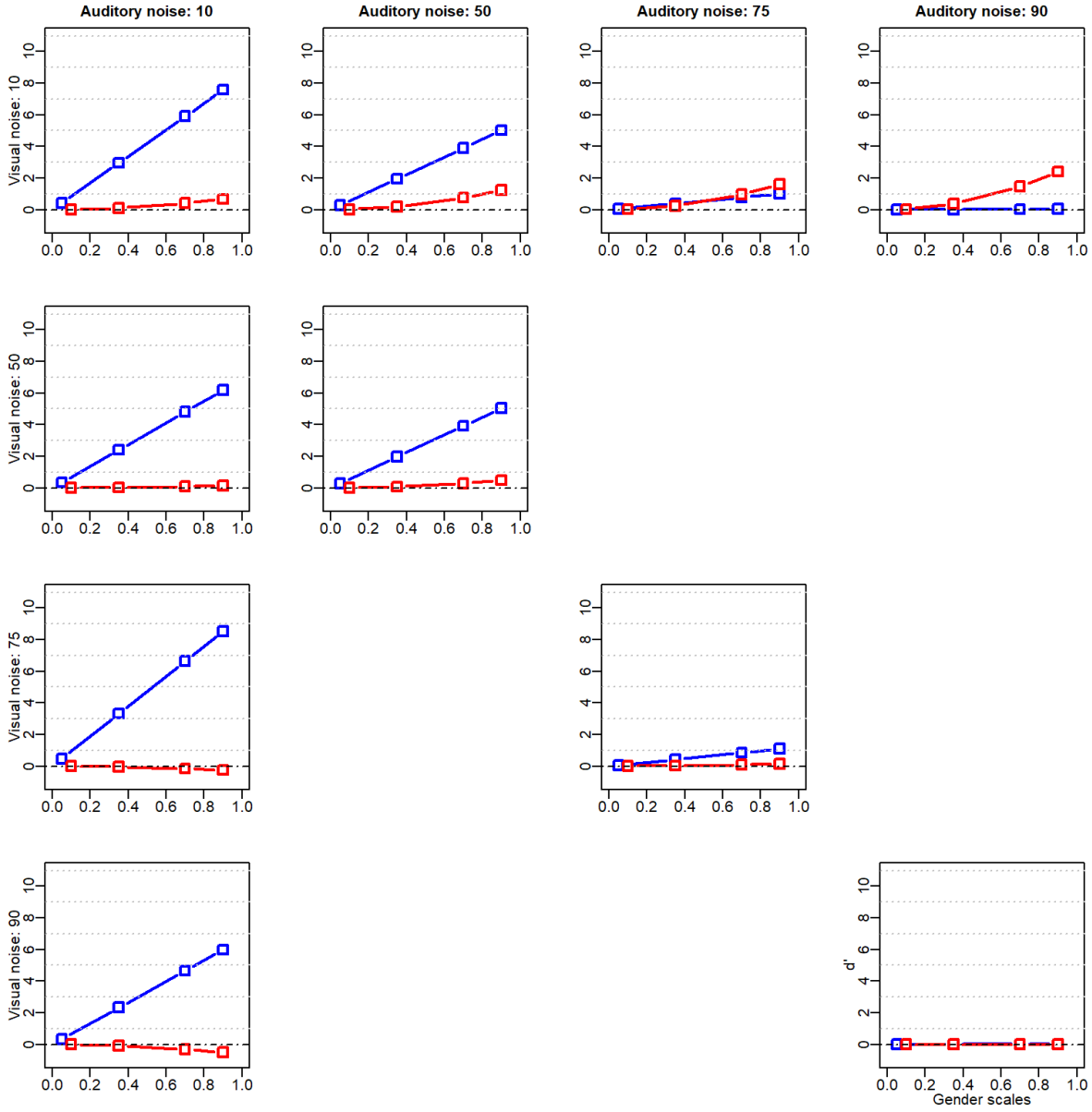
Face task – participant 5



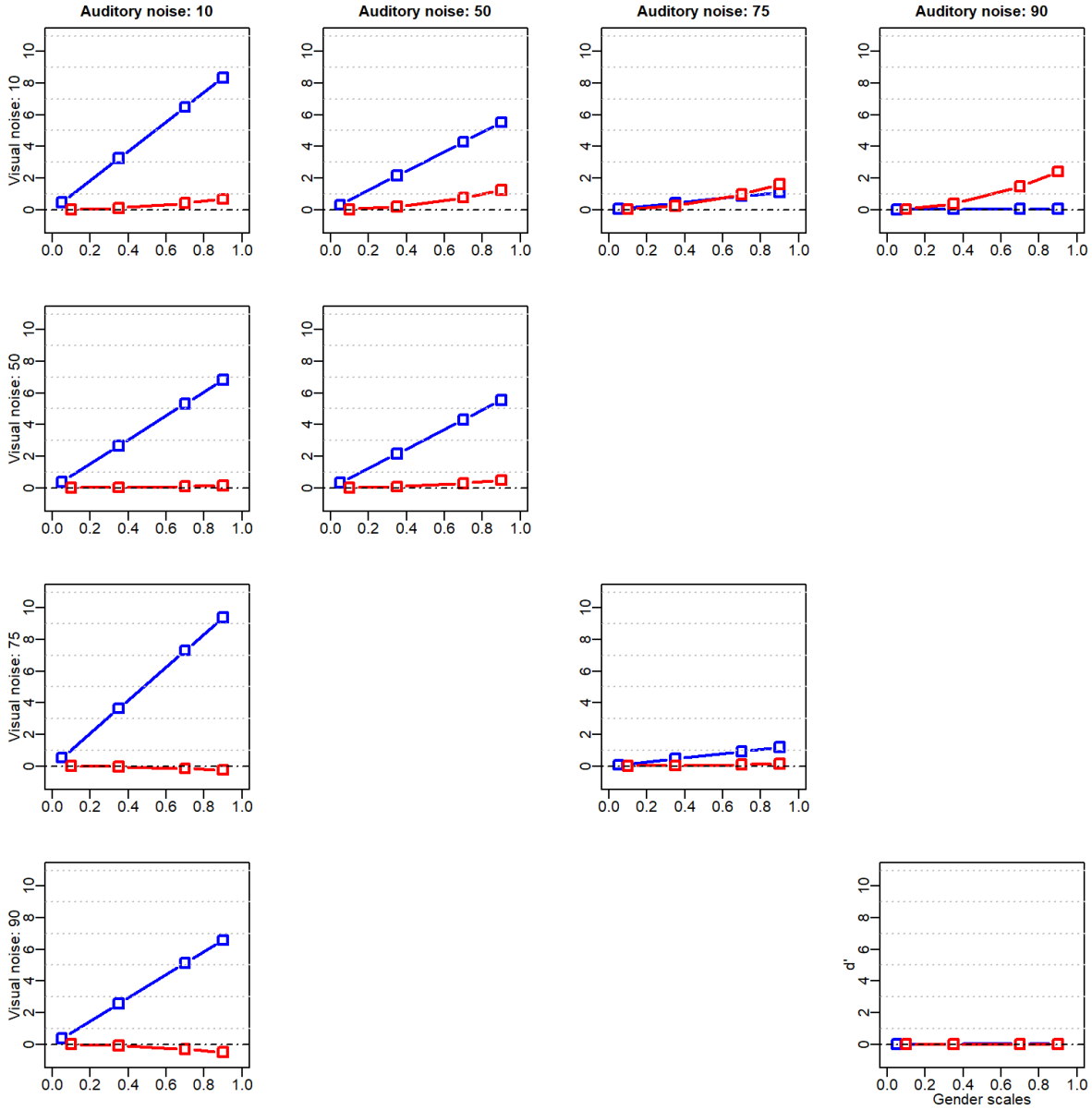
Face task – participant 6



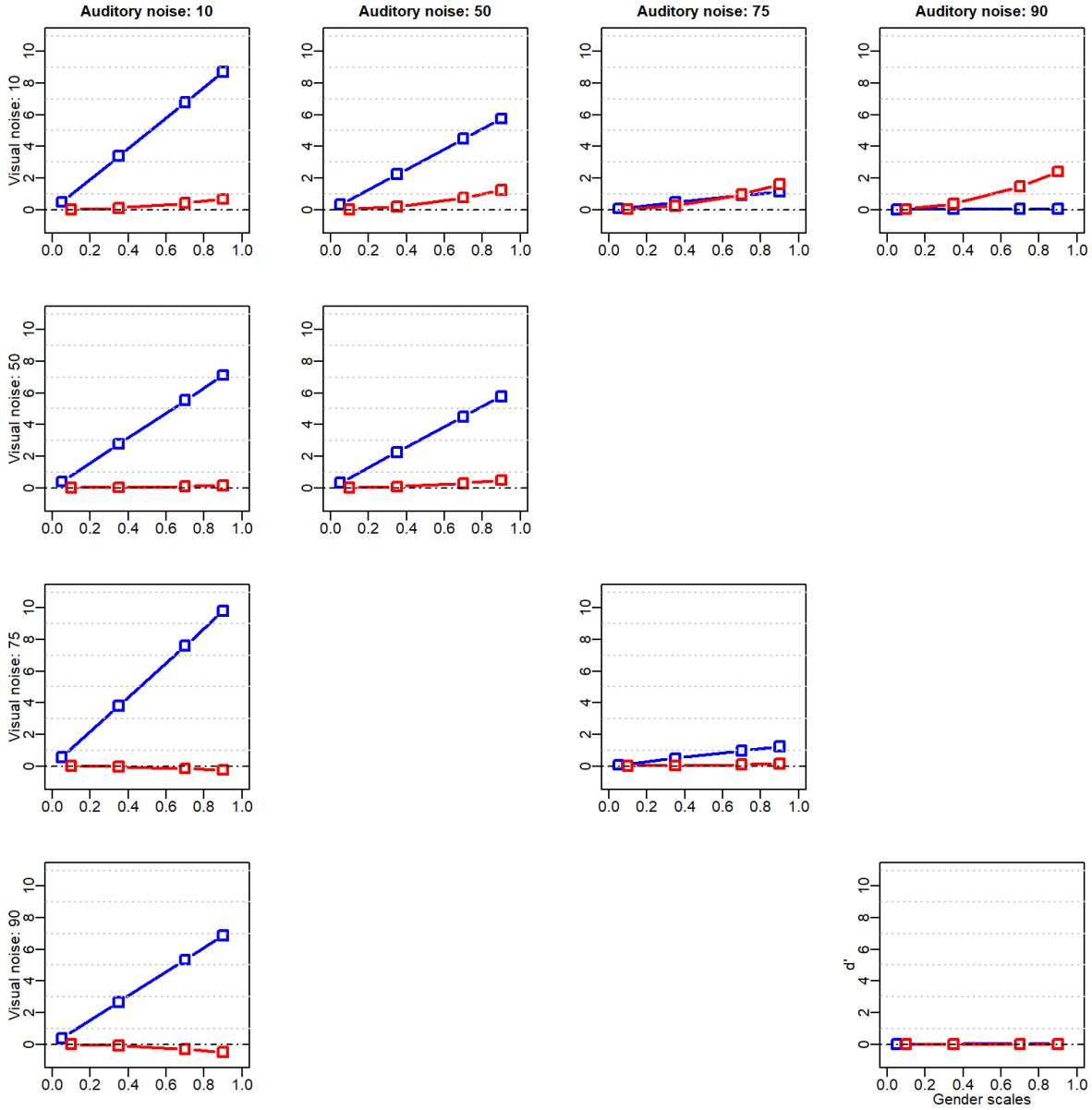
Voice task – participant 1



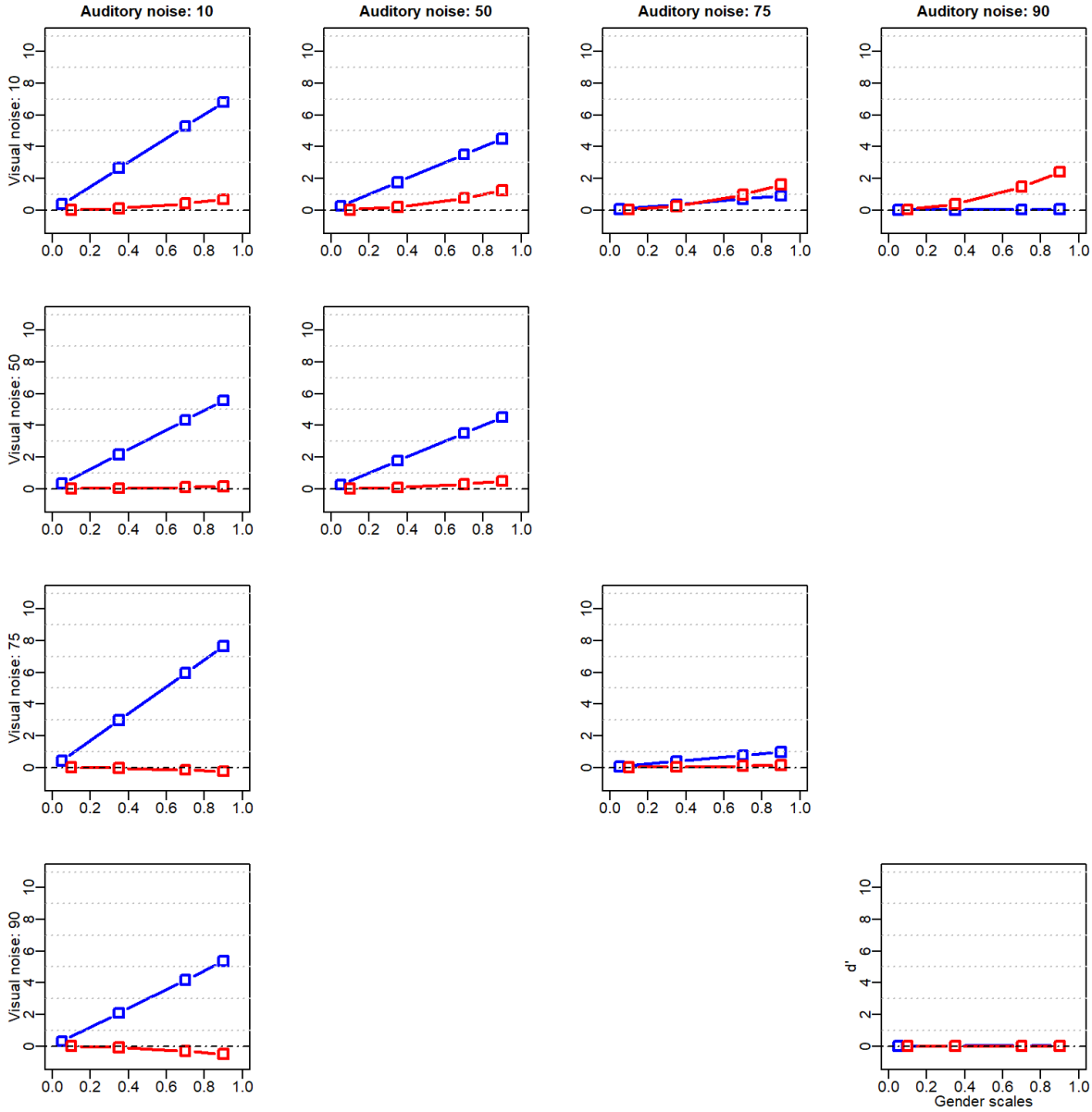
Voice task – participant 2



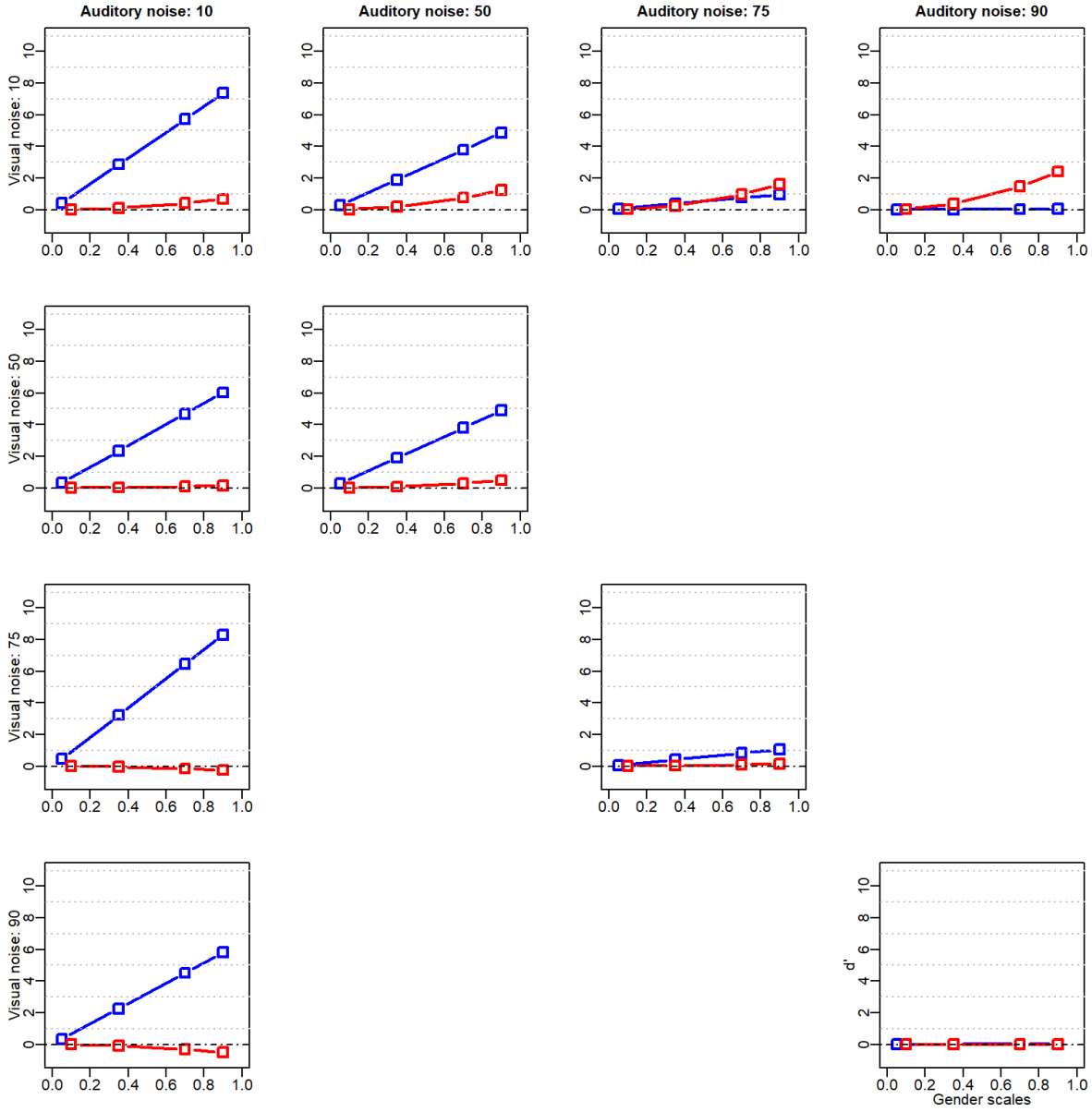
Voice task – participant 3



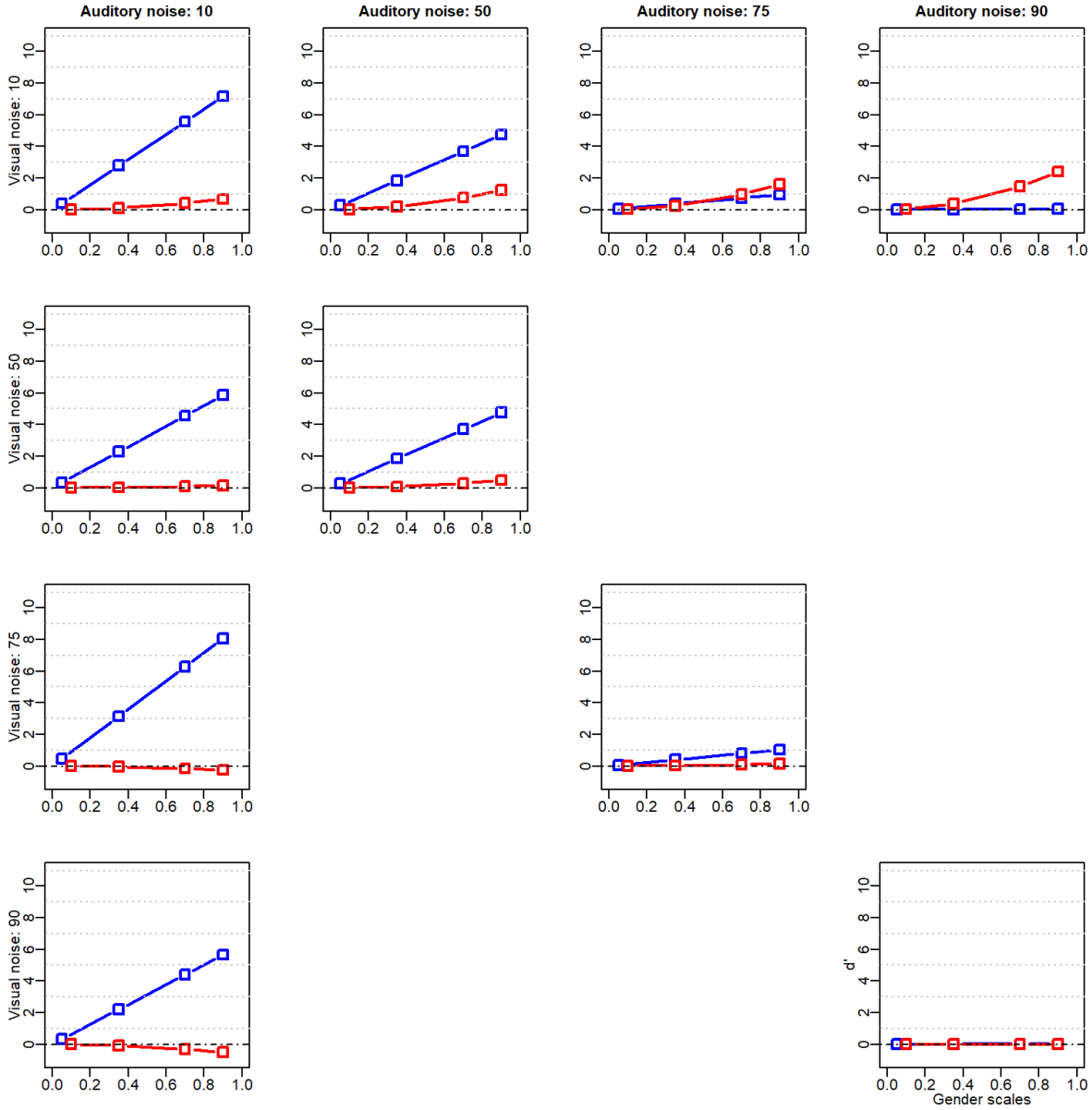
Voice task – participant 4



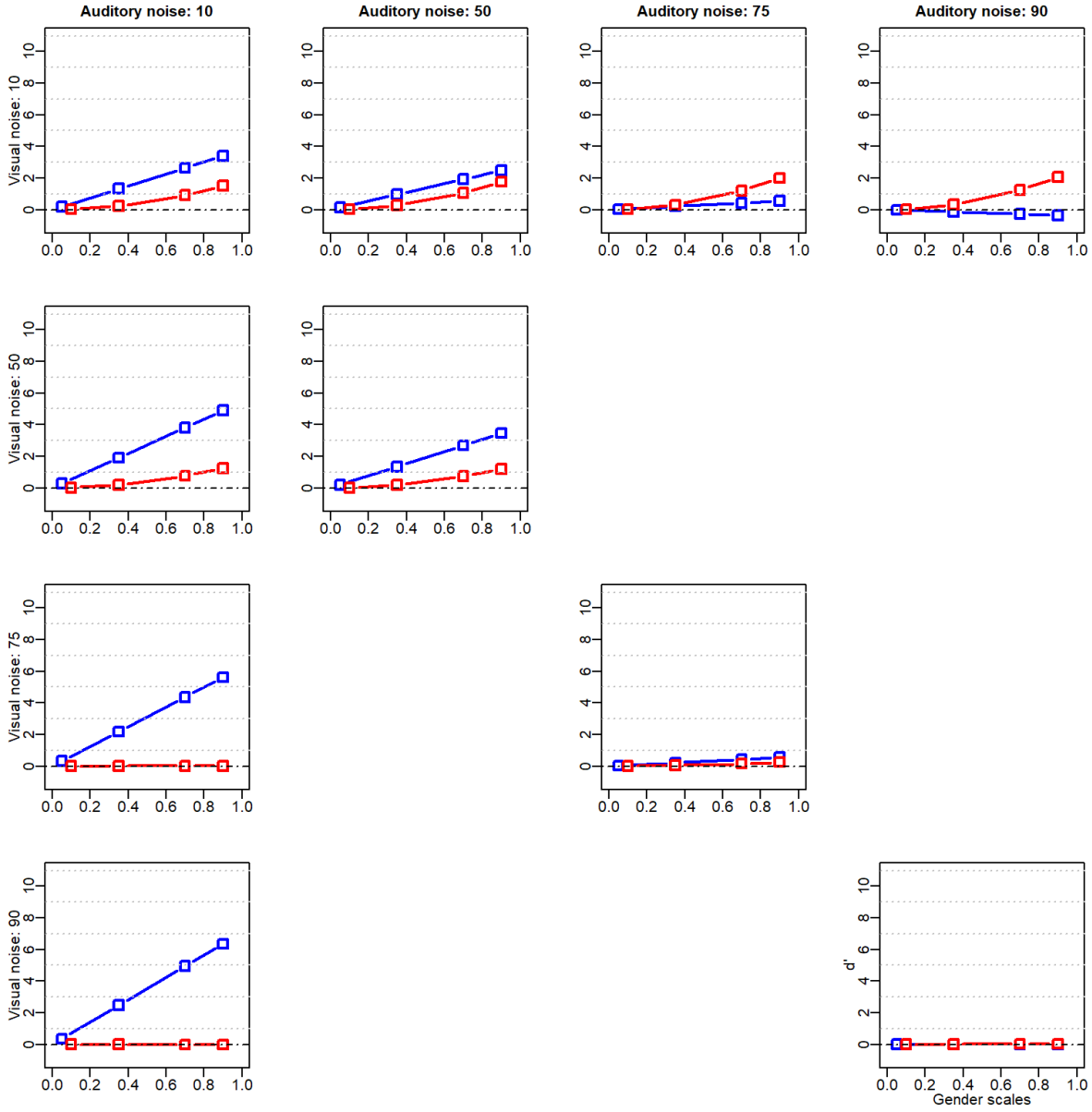
Voice task – participant 5



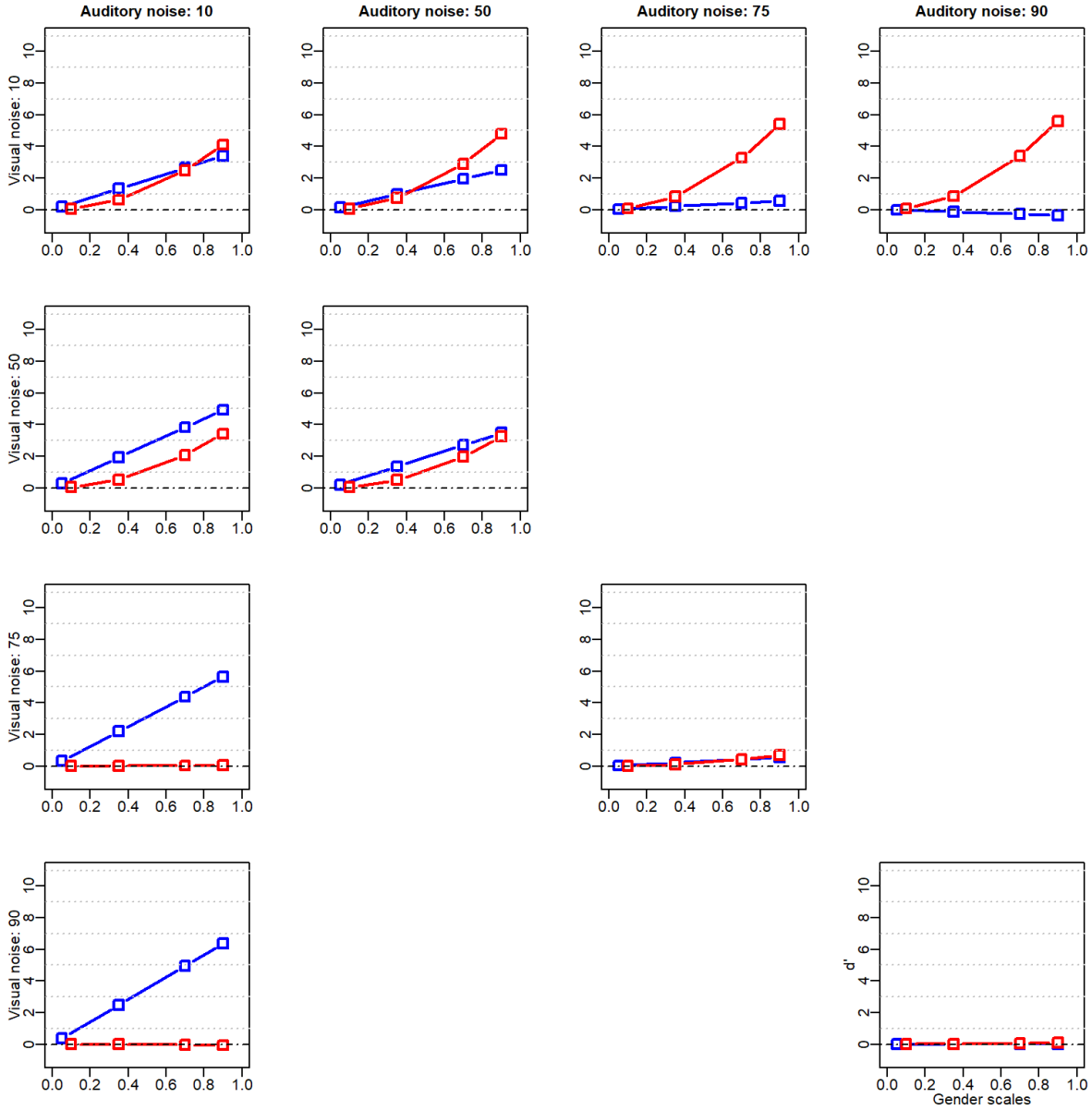
Voice task – participant 6



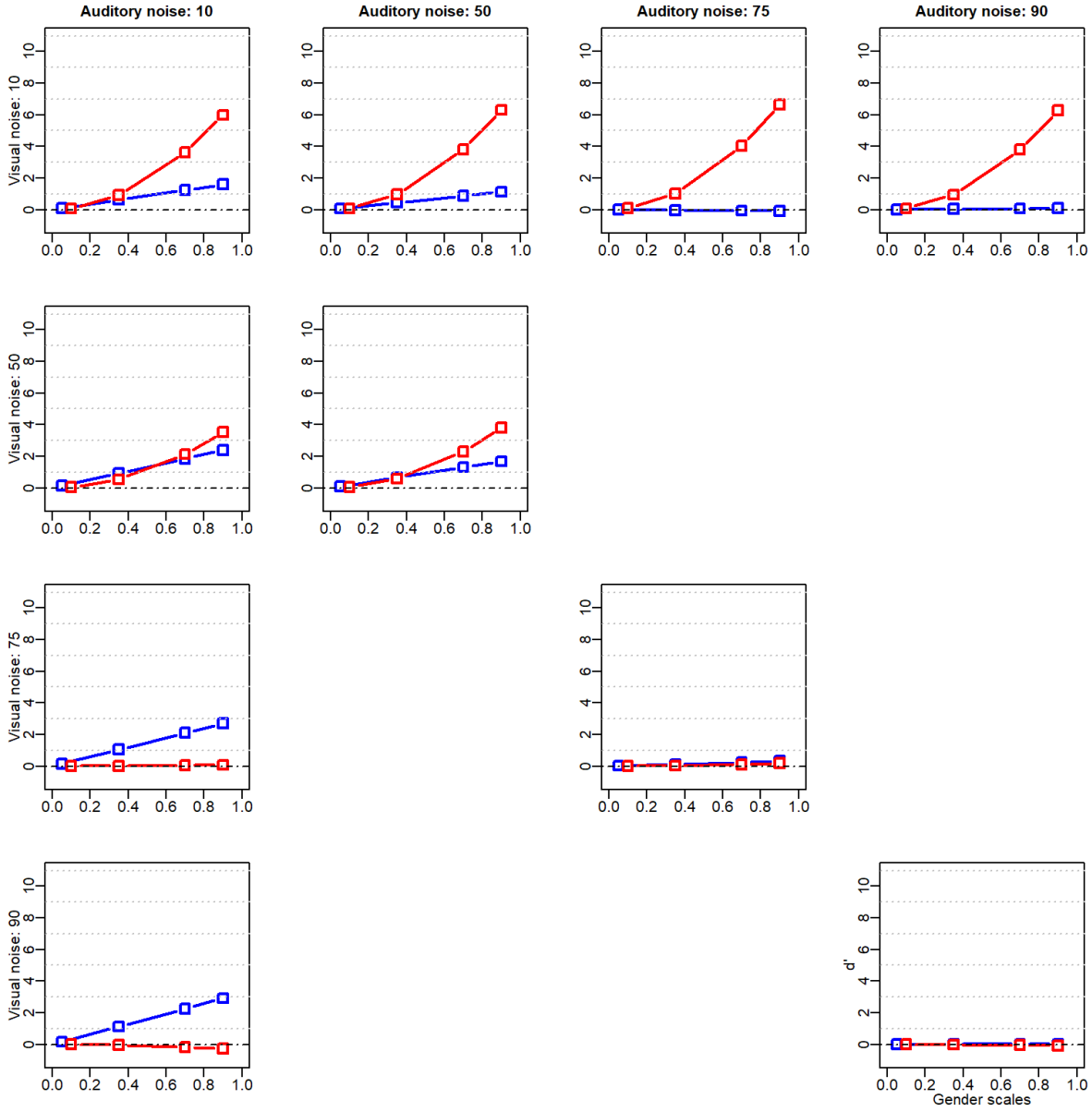
Stimulus task – participant 1



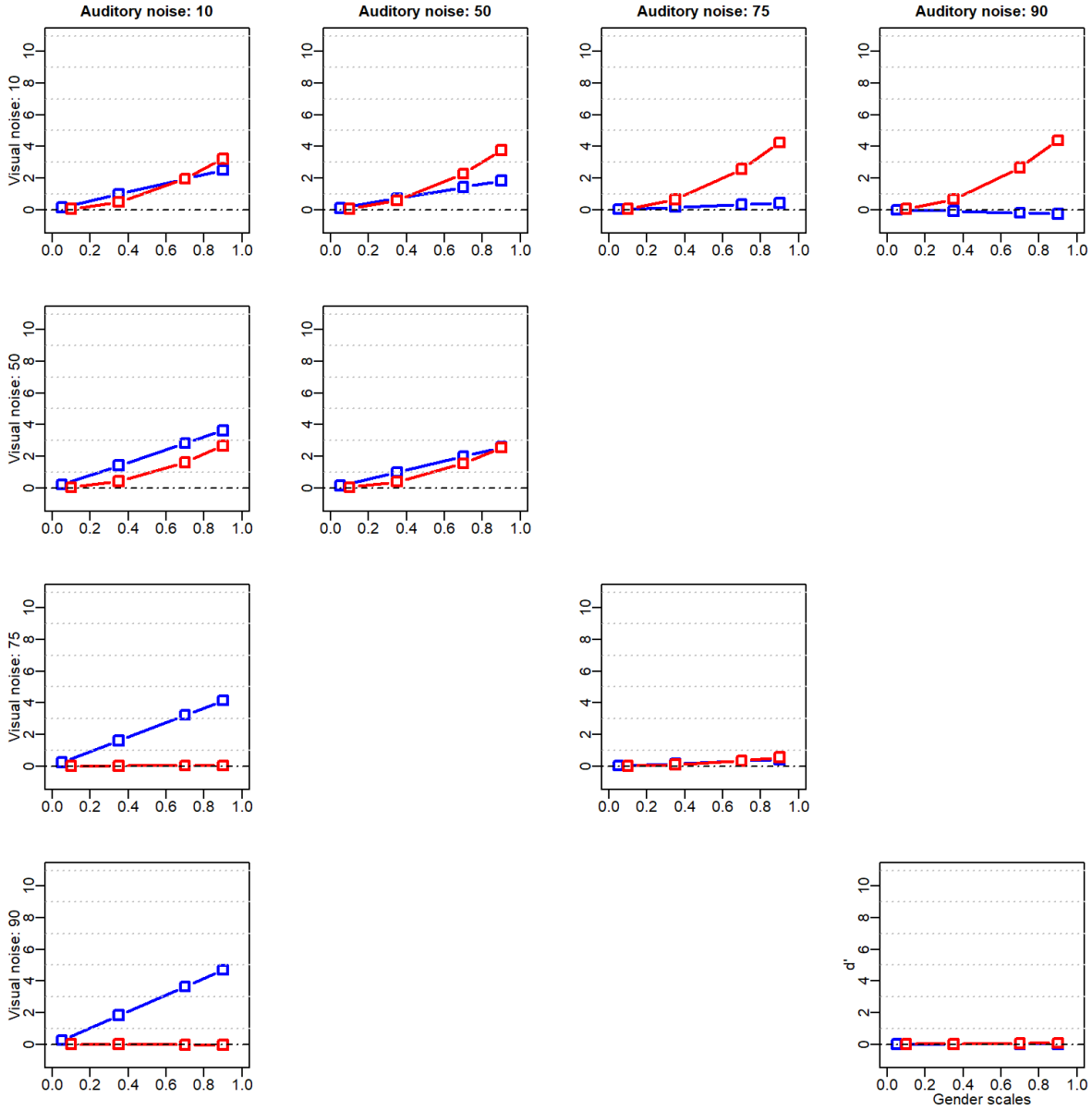
Stimulus task – participant 2



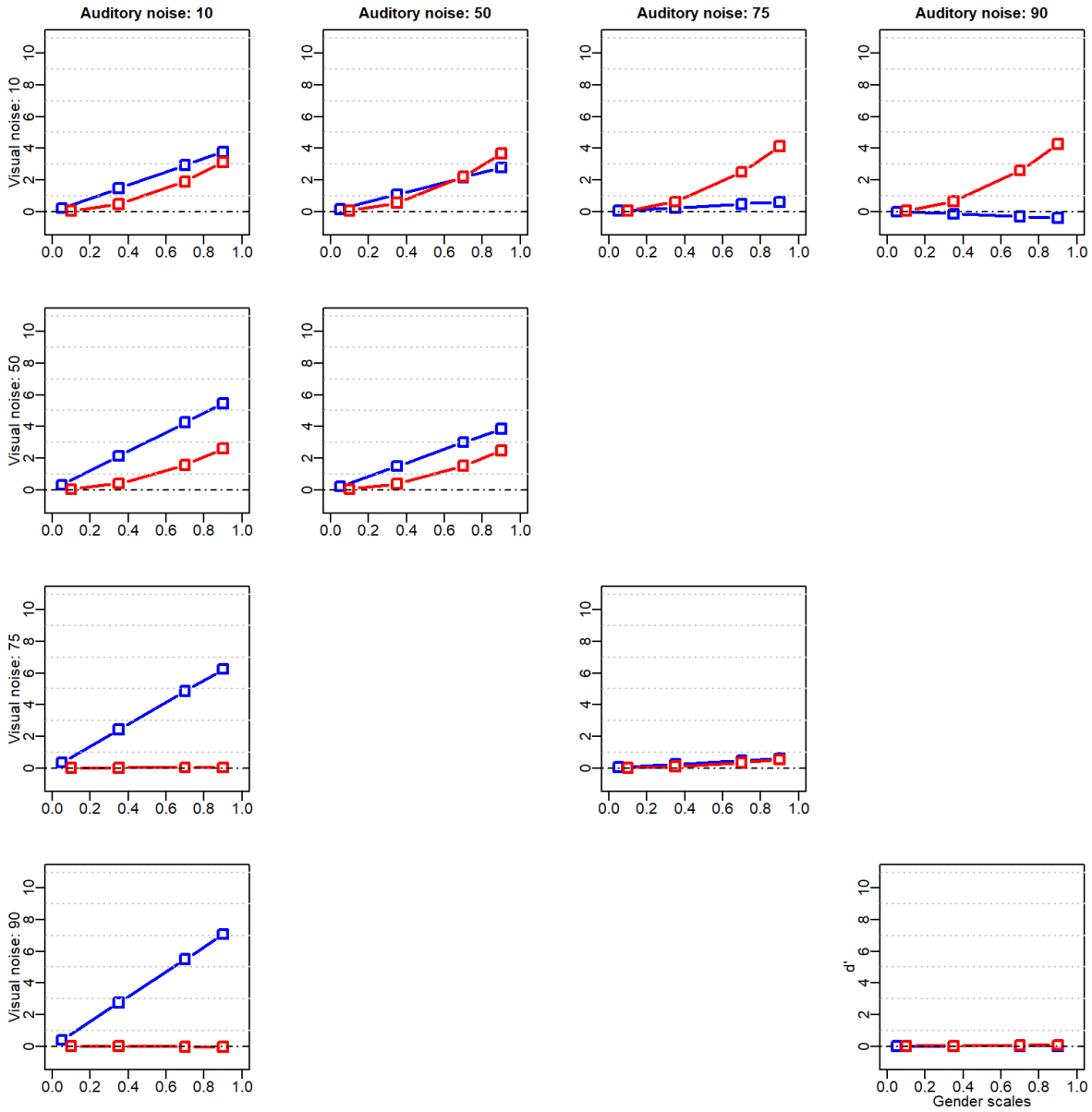
Stimulus task – participant 3



Stimulus task – participant 4



Stimulus task – participant 5



Stimulus task – participant 6