



Figure 4 - figure supplement 1. Dissociation of neural value representations expressed in the pre-choice vs. post-choice frame.

(A) Simple contrasts between chosen and unchosen value (GLM1) or between default and alternative options (GLM1'). The box on the left illustrates GLM1 and GLM1', with a delta function indicating the onset of choice options (black), modulated by two parametric regressors representing the option values (brown). The maps on the right show in black (on glass brain) and with color code (on sagittal slice) clusters that significantly reflected post-choice (top) and pre-choice (bottom) decision value at the group level (one-sample t-test, $p < 0.005$ uncorrected for display purposes, minimum extent: 100 voxels). In both cases significant clusters were found in the vmPFC and ventral striatum, among many other areas, with global maxima in the intra-parietal lobules.

(B) Dissociation between decision value coding in the pre-choice and post-choice frames using GLM2. The box on the left illustrates GLM2, with a boxcar and delta functions (black) indicating the duration of blocks and the onset of choice options, respectively. The boxcar function was parametrically modulated by the prior preference, whereas the delta function was parametrically modulated by choice type and the four interactions between choice type and option values, i.e. default and alternative option values when default is chosen and when it is not chosen. The maps on the right show significant clusters (using same tests and thresholds as in A) in the contrasts between grey and red regressors, which correspond to chosen versus unchosen values. These contrasts show differences in parameter estimates for the value of chosen options (irrespective of whether they are default or alternative), relative to unchosen options. Compared to the result shown in A, the chosen minus unchosen option value contrast still yielded significant activation outside the brain valuation system, but not in

the vmPFC or ventral striatum (with identical statistical threshold). The orthogonal contrast, between default and alternative options values (irrespective of whether they are chosen or not), did result in activation of the vmPFC and ventral striatum, as shown in Figure 4B and Table S1 (Supplementary file 1).