

Supplemental material 1. Computation of the switch costs

All trials in the heterogeneous condition were categorized into either switch or non-switch trials. Trials requiring a switch between stimulus-response rule-sets were considered as switch trials, and trials that did not require a switch between stimulus-response rule-sets were considered as non-switch trials.

Then, we computed the different switch-costs. Global RT switch-cost is the difference between the additional time required to complete trials in the heterogeneous condition (Hetero) and the trials in the homogeneous condition (Homo). Similarly, a global ACC switch-cost is the difference between error rates between homogeneous and heterogeneous conditions. A working memory RT cost reflects the additional time required to respond on the non-switch trials from heterogeneous condition relative to the homogeneous condition. Likewise, a working memory ACC cost is the difference in error rates due to the increased working memory demands required to maintain multiple rule-sets in a state of readiness. Local RT switch-cost score reflects the additional time required to switch from one task to the other in the heterogeneous condition. Likewise, local ACC switch-cost score is the difference between error rates.

Local IES cost was computed by dividing the mean RT by the mean ACC separately for both switch and non-switch trials. The final local IES cost is the difference between the switch and the non-switch IES. Further, global IES cost was computed by dividing the mean RT by the mean ACC separately for heterogeneous and homogeneous conditions. Thus, the final global IES cost is the difference between the heterogeneous condition and the homogeneous condition IES. The working memory IES cost was computed by dividing the mean RT by the mean ACC separately for non-switch trials on the heterogeneous condition and the homogeneous condition. Thus, final working memory IES cost is the difference between the non-switch trial from the heterogeneous condition IES and the homogeneous condition IES. A larger (more positive) value indicated a larger cost to switching.