

Supplementary Methods

For Experiment 1, we initially collected data from 22 subjects. 1 subject performed at chance on all three tasks, however, and was removed from further analyses. Response-time data for Experiment 1 were thus analyzed with an N of 21. Note that removing this subject did not alter the results, but it was deemed advisable given the subject's unreliable performance.

Supplementary Results

For dot-dot trials in Experiments 1-2, half of the arrays in a given comparison-pair were equated in terms of overall area (net area of all dots in an array), and the remaining half were equated in terms of individual dot area; orthogonally, half of the array-pairs were equated in terms of overall contour-length (perimeter of the whole array), and the remaining half were equated in terms of average local density (distance between neighbors). Note that this means that, for half of all trials, one non-controlled parameter was correlated with numerosity and another was anti-correlated; in the other half, both non-controlled parameters were correlated with numerosity. It is possible that, in this latter subset of trials, RTs in the dot-dot condition were made artificially faster because participants could rely on low-level parameters in a manner not available in the mixed-format condition. We thus looked at the difference in RTs between dot-dot and mixed-format conditions only for trials on which one non-controlled parameter was correlated with numerosity and another was anti-correlated. Experiment-1: large-close, $t(20)=6.60$, $p<.001$, $d=1.44$; large-far, $t(20)=6.09$, $p<.001$, $d=1.33$; small-close, $t(20)=5.18$, $p<.001$, $d=1.13$; small-far, $t(20)=9.32$, $p<.001$, $d=2.03$. Experiment-2: large-close, $t(20)=3.83$, $p=.001$, $d=.84$; large-far, $t(20)=2.97$, $p=.008$, $d=.65$; small-close, $t(20)=2.25$, $p=.036$, $d=.49$; small-far, $t(20)=3.47$, $p=.002$, $d=.76$. In all cases, we still find a significant RT cost of going between symbolic and non-symbolic representations of numerosity. See also Figure S-1 below.

Figure S-1

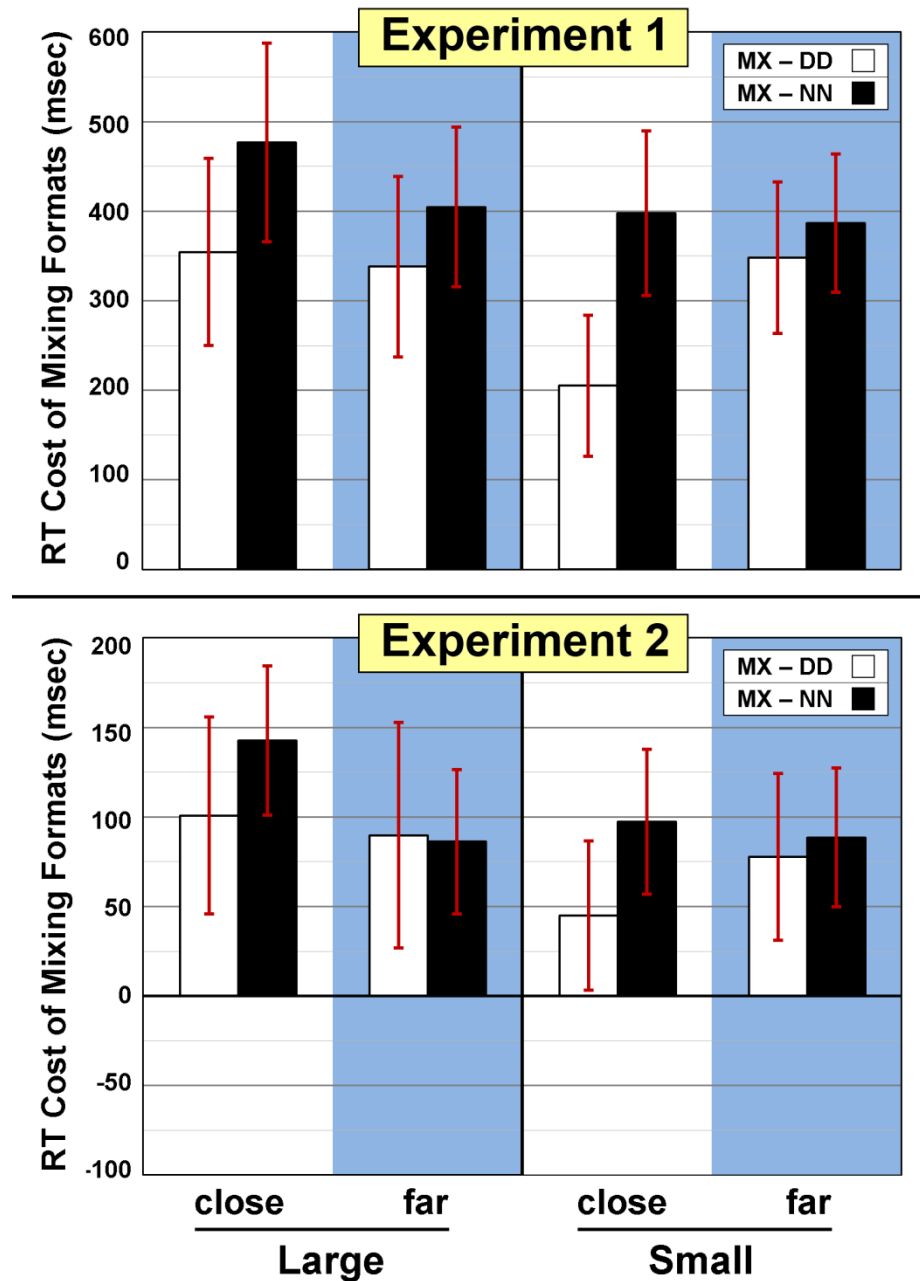


Figure S-1 is the same as the top two panels in Figure 2 in the main text with the exception of the white (MX – DD) bars. Specifically, these show the mean difference, in milliseconds – of mixing formats in Experiments 1-2 *only for trials on which one non-controlled parameter was correlated with numerosity and another was anti-correlated*. MX: mixed-format (symbolic/non-symbolic; DD: dot-dot; NN: numeral-numeral. Red error bars are 95% confidence intervals (note that all critical contrasts were within-subjects, two-tailed). Hence, if the lower bar crosses 0, there was no significant cost of mixing formats.