



Figure 3: **Measuring retrieval accuracy.** Motif retrieval accuracy is estimated using simulated JASPAR motifs, as described in the text. The figure plots the percentage of correct query-target pairs (true positives) as a function of the percentage of incorrect pairs (false positives) as we traverse the list of query-target pairs sorted by TOMTOM  $p$ -value or any of the other three method of combining columnwise scores. The solid and dashed lines correspond to width-normalized scores scores ( $p$ -values, arithmetic mean, and geometric mean), while the green dotted line represents sum of column scores. Each panel contains a plot computed using a different column similarity function at a sampling rate of  $S/8$ . Similar results are obtained for sampling rates of  $S/2$ ,  $S/4$  and  $S/16$  (data not shown).