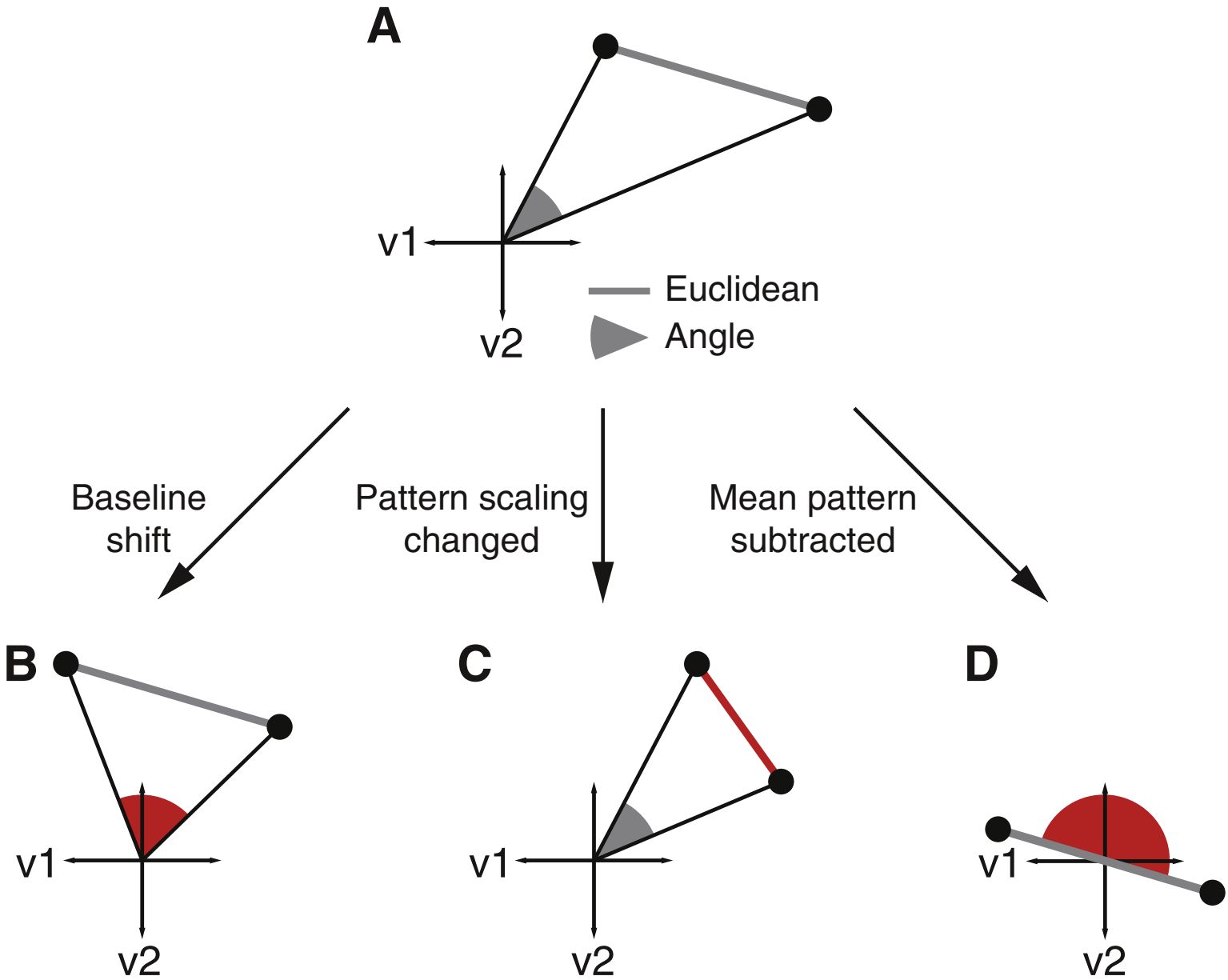

Fig. 1. Euclidean and angle-based distance in MVPA. (A) An fMRI pattern space laid out by two voxels (v1 and v2; note that the typical pattern space will often have >50 dimensions). Two pattern vectors extend from the origin. The Euclidean distance is the distance between the patterns. The cosine distance (as well as the Pearson correlation distance) measures pattern dissimilarity as a function of the angle enclosed by the vectors. (B) Shifts of the origin (i.e. the fMRI baseline) of the pattern space influence the angle (red) between the two vectors and hence the correlation distance, but not the Euclidean distance (gray). (C) Changes in the length of the two vectors (multiplicative scaling) influence the Euclidean distance (red) between the two vectors, but not the angle (gray). (D) The mean pattern of the two conditions has been subtracted (cocktail blank removal). The two vectors now extend in opposite directions from the origin, causing the cosine of the angle (red) and the correlation to become −1.