**Figure legend.**

**A.** Observers decided whether the average tilt in a stream of eight elements was closer to the cardinal or diagonal axes. 

**B.** Left: the connectionist model linking perceptual (P), central (C) and motor (M) stages. Weights (inset) link P and C stages. Accumulation occurs at each C unit; integration over C units occurs at the M level. Right: activity over units (x-axis) at each stage on a sample trial. Center (C stage) and lower (P stage) panels: activity after each of the 8 samples, from the earliest (most faded) to latest (least faded). Top panel: cumulative activity in the m level (y-axis), across samples (x-axis). 

**C.** BOLD correlates of changes in aggregate activity at each level \( \sum (y_i^t - y_i^{t-1}) \) where \( y_i \) is the activity of unit \( i \) belonging to population \( y \) after sample \( t \). P, perceptual stage; C, central stage; M, motor stage.