Supplementary Material


Figure S1: Peripheral weights for individual observers (experiment 1) ............................................................. S2
Figure S2: Observed against predicted JNDs for individual observers (experiment2) ........................................... S3
Figure S3: Individual ROC time courses (experiment 3) .................................................................................. S4
**Figure S1.** Experiment 1, observed against predicted peripheral weights for the 3 foveal contrast conditions with a separate panel for every individual observer. Black circles, dark gray triangles and light gray squares denote the high, the mid and the low foveal contrast condition respectively. Observed weights on the identity line are statistically optimal. Performance below the line indicates an overweighting of foveal information, whereas performance above the identity line indicates an overweighting of the periphery. For 11 out of 14 observers, observed peripheral weights consistently increased with decreasing foveal contrast.
Figure S2. Experiment 2, observed against predicted JNDs for the 3 foveal contrast conditions with a separate panel for every individual observer. Black circles, dark gray triangles and light gray squares denote the high, the mid and the low foveal contrast condition respectively. Lines indicate the average JND in single trials for the periphery (red) and the three different foveal contrast conditions. Observed weights on the identity line are statistically optimal. Values above the identity line indicate suboptimal behavior. Data from one participant were excluded from analysis as this person was not susceptible to the foveal contrast condition in single trials (last panel). For the high contrast condition (black dot), 11 out of the 13 remaining observers showed better performance in integration trials than with either foveal (black line) or peripheral (red line) vision alone. This is true for 9 and 8 out of 13 observers for the mid (dark gray triangle versus dark-gray and red line) and low foveal contrast (light-gray squares versus light-gray and red line).
Figure S3. Experiment 3, area under ROC (AUC) time course for the high (top row) and the low foveal contrast condition (lower row) with panels in each column representing a separate observer. Dashed vertical lines represent saccade onset and offset. Black, gray and red lines are the AUCs derived from an ROC analysis (see Methods section of Experiment 3 for further details).