Supplementary Figure 6

Predictions and results for an experiment, in which we looked further for evidence of pictorial compensation by creating a condition in which neither the surface-compensation nor the local-slant mechanism would be triggered. To do this, we presented stimuli for which the projection angle ($S_{\text{proj}}$) was varied but the viewing angle ($S_{\text{display}}$) was always zero. 

a) Plan view of the projection and viewing angle in this experiment. The angle of the projection plane ($S_{\text{proj}}$) was varied, but the viewing angle was always zero.

b-d) Predictions and results for the ovoid task. The dotted horizontal line is the predicted aspect ratios of the settings on the picture surface if the settings were determined by the shape of the retinal image (retinal predictions). The settings would fall on the horizontal line because the observers viewed the stimuli along the central
surface normal and would have to set the ovoid to a circle on the screen to generate a conical light field. The dashed curve is the predictions of the pictorial-compensation hypothesis. The observer was not at the CoP, so if adjustments for oblique viewing were based on geometric information in the picture, he/she would set the ovoid such that it generated a conical light field seen from the CoP (which was not the observation point). As viewing angle increases (and therefore the separation between the CoP and observation point increases), the aspect ratio of the ovoid on the picture surface must be increased in order to maintain a conical projection toward the CoP. The predictions for the surface-compensation and local-slant hypotheses are represented by the horizontal line (surface & local-slant predictions). According to those hypotheses, observers would always set the ovoid to a circle on the screen and the data would all have an aspect ratio of 1. Red circles represent settings for monocular viewing with an aperture (frame not visible; MA), orange triangles settings for monocular viewing with no aperture (frame invisible; MF), and blue squares settings for binocular viewing without apertures (frame invisible; BF). Observers JDR and PRM only ran in condition BF. Error bars represent 98% confidence intervals. e) Invariance indices. An index of 1 indicates settings based on surface slant or on the retinal image and an index of 0 indicates settings based on pictorial cues.