



Figure S1. MK versus synthetic DWI curves from voxels on example image slices from a single HCP dataset (a). In each subplot (b, c and d), MK versus synthetic DWI curves from all voxels on the example image slice are displayed, followed by individual curves from the selected visually plausible and implausible voxels. Unlike the MK versus synthetic b_0 curves that have a similar shape across all voxels (Figure 2), the shapes of the MK versus synthetic DWI curves do not show a clear common pattern across all voxels. In voxels with visually plausible values, changes in the DWI signals have subtle effects on MK and do not cause implausible MK values. In voxels with visually implausible values, changing the DWI signals does not in general map MK into the plausible MK range.