When our eyes move, stationary objects move over our retina. Our visual system cleverly discounts this retinal motion so that we do not see the objects moving when they are not. What happens if the object does move at the time of the eye movement? There is a question of whether we will see the displacement at all, but if we do see it, is the motion determined by the displacement on the retina or the displacement in space? To address this, we asked subjects to make horizontal saccades of 10°. Two dots were presented, one before and one after the saccade displaced vertically on the screen by 3° from the first. Each dot was presented for 400 msec and the first turned off about 100 msec before the saccade and the second dot turned on 100 msec after the saccade. In this basic condition, the retinal locations of the two dots were in opposite hemifields, separated horizontally by 10°. Nevertheless, subjects reported the dots appeared to be in motion vertically – the spatiotopic direction – although with a noticeable deviation from true vertical. This spatiotopic apparent motion was originally reported by Rock and Ebenholtz (1962) but for displacements along the direction of the saccade. In our experiments, we use the deviation from spatiotopic motion to estimate errors in the remapping of pre-saccadic locations that underlies this spatiotopic motion phenomenon.