

Table S1: χ^2 test to check if $P(r|\theta)$ is independent of θ . The distributions for five different θ were compared using a χ^2 test. The table indicates the χ^2 statistic values. For all comparisons, $df = 30$, $p < 0.0001$. Each column and row represents a turn angle as indicated.

	$\theta = 0^\circ$	$\theta = 30^\circ$	$\theta = 60^\circ$	$\theta = 120^\circ$	$\theta = 180^\circ$
$\theta = 0^\circ$		0.1481e+008	0.3877e+008	0.5216e+008	0.6137e+008
$\theta = 30^\circ$	0.2195e+008		0.0879e+008	0.1800e+008	0.2509e+008
$\theta = 60^\circ$	0.8170e+008	0.1250e+008		0.0275e+008	0.0664e+008
$\theta = 120^\circ$	1.3410e+008	0.3133e+008	0.0323e+008		0.0114e+008
$\theta = 180^\circ$	1.3958e+008	0.3970e+008	0.0753e+008	0.0105e+008	