9.0 s 9.5 s 10.0 s 10.5 s ventral a dorsal -0.5 s 0 s 0.5 s 1.0 s dorsal a d 0 1 10 2 N2 vab-7 3 Normalized curvature 5 Normalized curvature 0 4 of posterior region 5 6 0 -1 7 8 -5 -2 9 10 -10 -3 11 12 0.2 0.4 0.6 0.8 Fractional distance along centerline -4 (head = 0; tail = 1)f -1.5 posterior anterior 10 trapped -1 dorsal bend region region region curvature change Normalized curvature Normalized curvature -0.5 5 of posterior region ventral bend curvature 0 change -2 0.5 -3 -5 1 1.5 -5 -10 2 -6 0.2 0 0.4 0.6 0.8 -1.5 -1 -0.5 0 0.5 1.5 Fractional distance along centerline Time (s)

a

b

C

Time (s)

e

Time (s)

(head = 0; tail = 1)