

Whole and partial in sensory-motor actions

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It was studied sensory-motor aspects of relation of the whole (in the form of visual image of movement trajectory) and its parts (in the form of movement along the linear paths of provided trajectory). At the beginning subjects drew out the contour of the object by moving the bamboo pen Wacom in the XY plane and then reproducing the trajectory either with closed eyes (1st set) or by looking of the screen with images of colorful circles different sizes (visual noise). The complexity of the trajectory were varied by increasing the number of homothetic linear paths (from 4 to 10) which formed a image. Coordinates X and Y were recorded as a function of time as well as first derivatives of those (velocity). In both sets thopological and metrics parameters of the trajectory as well as velocity were analyzed. The dependence between metrics and recognition speed from complexity of the trajectory. Easy objects had smaller errors than more complicated objects. In the first set the drift of the center of mass reconstructed trajectory towards final destination was observed. Also, during the reconstruction the average velocity along the trajectory were significantly higher than during normal drawing out of the contour. Significant individual differences in spatial and speed parameters of reconstruction were observed. This explained by peculiarities perceptual and sensory-motor organization of the individual.

Key words: whole and parts, sensory-motor, serial actions, topology and metrics, instrumental movements.

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