Top-down and Bottm-up Process of Animacy Perception: An ERP study

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Abstract: We investigated neural mechanism for animacy perception by Event-Related Potentials (ERPs) during reaching action. Participants were asked to observe an object, either of an animate thing (turtle) or an inanimate thing (robot), which was veiled so that they had to judge only by its motions, not appearance, what it was. We compared ERPs between the condition they felt it as animate and the condition they felt it as inanimate. We found that ERPs in left infero-frontal region was significantly different between the two conditions. Next, we changed the similarity of robot motion with turtle motion and compared ERPs. We found that ERPs in right occupito-temporal region changed with robot motions. These results suggest that the attribution of animacy and the processing of animate motion are related to the activation in left infero-frontal and right occupito-temporal region, respectively. This implies that animacy perception consists of two neural mechanisms.