0 Subjective present and two modes of thinking

Miyake Y.
Tokyo Institute of Technology, Yokohama, Japan

ıchronization tapping has been used as the simplest system for ımining the timing mechanism in sensory-motor coupling. The st interesting phenomenon observed in this task is the negative nchrony, of which the subject himself is unaware. This phenome- ı where the onset of each tapping precedes the onset of the stimu- by several tens of milliseconds means the subjective present is ɛrged in a time region that includes the future. In our research, ap- ing a dual task method, the relationship between such anticipa- / response and higher brain functions, such as attention and ːking memory, was investigated. The results revealed two modes ıticipation. In the inter stimulus-onset interval (ISI) range of 450 1,800 ms, an automatic response that was not affected by ntional resources was observed and was based on feed-forward ıamics. In the 2,400 to 3,600 ms range, the response showed a le-off relationship in the allocation of attentional resources. The ɡnitude of synchronization error (SE) between tap onset and ıulus onset in this region was scaled by the ISI and a feedback dy- ıic was suggested. These results revealed for the first time the ɜence of two modes of anticipation in synchronization tapping, n the viewpoint of time perception. Accordingly, the emergence he subjective present in sensory-motor coupling can be regarded ı dual process between implicit and explicit thinking.

S.51 Time and timing in cognitive processes: Clinical and experimental evidence

Szeląg E.[1], Kolodziejczyk I.[1], Kanabus M.[1], Szuchnik J.[2]
[1]Nencki Institute of Experimental Biology, Warsaw, Poland;
[2]Institute of Physiology and Pathology of Hearing, Warsaw, Poland

Neuropsychological studies have indicated that the temporal order (TO) of two stimuli can be properly reported if they are separated by an interval of at least 40 ms. This gap defines the temporal order threshold (TOT). In series of studies we tested individual differences in the ability to perceive TO, to answer the following questions: 1) can it be influenced by the stimulus modality or the applied experimental procedure? 2) are there any gender or generation differences? 3) are the specific language disorders related to TOT? We tested young healthy volunteers, centenarians, patients with brain lesions and monochannel cochlear implant recipients. In young healthy adults, TOT was around 40 ms, independently of the stimulus modality and experimental procedure (inter- vs. intrahemispheric stimulation). Women needed longer gap than men to identify correctly the TO. In centenarians the typical TOT was nearly 4 times prolonged, probably as the result of chronological aging. Patients with left hemisphere lesions and Wernicke's aphasia showed significantly prolonged TOT (up to ca. 120 ms). The similar elevation of TOT accompanied auditory comprehension deficits in cochlear implant users. To conclude, TOT seems to be mediated by the universal supramodal neuronal mechanism, which is strongly related to the subject's sex, age and linguistic competencies.

Supported by the KBN grants No. PO5B 10 119 and PBZ-KBN--022/PO5/1999.