

TOP-DOWN AND BOTTOM-UP MODULATION OF A DICHOTIC LISTENING TASK WITH SIMULTANEOUS ELECTROENCEPHALOGRAPHY (EEG)

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Dichotic Listening (DL) involves the presentation of two different sounds simultaneously to both ears (one to the right ear and the other to the left ear). Participants with left-hemispheric dominance report more sounds from the right ear (showing a right-ear advantage). During the left-ear report, the auditory information must be transferred from the right to the left (dominant) hemisphere. Accordingly, using Electroencephalography (EEG), functional connectivity between both auditory cortices increased during left ear reports. Having applied top-down modulation of DL (attention instructions) last year, we extended our work by adding bottom-up modulation. This was achieved by modulating the sound intensity of right or left ear sounds. Therefore, 30 right-handed participants performed three blocks (360 sound pairs) of DL during simultaneous EEG recording. The intensity of right and left sounds was modulated to produce three different conditions: no sound attenuation, right or left sound attenuation. During the non-attenuation (neutral) condition, participants exhibited the typical right-ear advantage. As hypothesised, the left-attenuation condition significantly increased right-ear reports while the right attenuation condition decreased them. In conclusion, bottom-up modulation of DL affects the behavioural outcome by increasing the reports from the ear with higher sound intensity. In addition to these behavioural results, we will present EEG findings of both top-down and bottom-up modulations.