Personal sound

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tently observed. While seen in some sessions for some subjects, it could not be brought under experimental control. Thus these results were in approximate agreement with the findings of Mott *et al.* Some methodological and functional implications of these findings will be discussed. [Work supported by a NIDCD grant to D. McFadden.]

3aPP6. Processing of nonlinguistic auditory stimuli in Landau–Kleffner Syndrome: A case study. Clifton Kussmaul, Kathleen Baynes (Ctr. for Neurosci., Univ. of California, Davis, CA 95616), and Judy Kegl (Rutgers Univ., Newark, NJ 07102)

"Acquired aphasia with convulsive disorder" or Landau–Kleffner Syndrome (LKS) was first described in 1957 [W. M. Landau and F. R. Kleffner, Neurology **7**, 523–530 (1957)]. This language disorder typically manifests as a decline in verbal expression and comprehension in children who had been developing normally. EEG is always abnormal, although clinical seizures are not always observed. This report presents a 26-yr-old right-handed female who was diagnosed with LKS at age 4 with an abnormal EEG and seizure activity. Her EEG, MRI, and audiogram are now normal, but PET demonstrates bilateral temporal lobe hypometabolism. A detailed linguistic comparison of her limited spoken English and relatively good signed English is reported elsewhere [K. Baynes *et al.*, Int. Neuropsychol. Soc. (submitted)]. Interestingly, she listens to and enjoys several types of music. This discrepancy motivates our initial investigation of her ability to perform nonlinguistic auditory tasks. Despite easy recognition of environmental sounds, discrimination thresholds of pitch and rhythm are greatly exaggerated. Such data can clarify which brain processes are specific to language, and which correspond to more general auditory or hierarchical processing. [Work supported by NIH.]

3aPP7. Spontaneous remediation of sensorineural hearing loss in an infant girl. Richard P. Meier (Depts. of Linguist. and Psychol., Univ. of Texas, Austin, TX 78712), Renée A. E. Zakia, and Craig A. Champlin (Univ. of Texas, Austin, TX 78712)

An infant girl (JD) was assessed as having a mild-to-moderate sensorineural hearing loss in her left ear and a moderate-to-severe sensorineural loss in her right ear, based on results of auditory brain-stem response (ABR) at age 3 months and soundfield testing at 4, 5, and 9 months (Better ear PTA=55 dB HL). JD was fitted with hearing aids binaurally. The one risk factor in her birth history is prenatal polydrug exposure, including cocaine. She had recurrent otitis media, but tympanometry and other evidence weigh against middle ear problems as the cause of her hearing loss. A follow-up ABR at 13 months revealed JD to have normal hearing, a result confirmed by audiometric testing of her unaided hearing thresholds (PTA=10 dB HL). The implication is that, between ages 9 and 13 months, JD's hearing improved to normal levels, possibly as a result of delayed maturation of the peripheral auditory tracts. Early detection of hearing loss may reveal more children like JD who have sensorineural losses that spontaneously remediate with development. Such cases would highlight the need for repeated testing of unaided thresholds in hearing-impaired infants, especially if aggressive intervention is contemplated. [Work supported by NIH and the Texas Advanced Research Program.]

3aPP8. Acoustic evaluation of pharmacodynamics. D. B. Daly and D. M. Daly (Box 210855, Dallas, TX 75211)

Ability to classify sets of certain synthetic sounds fluctuates with vigilance. In patients with genetic hypersomnia, performance can fluctuate from well-defined classes with narrow transitions to intervals with wide transitions where only stimuli at extremes are identified consistently. LRCs were used to measure whether performance differed from chance and if so, whether it differed from a composite of normals [Daly *et al.*, J. Neurophysiol. **44**, 200–222 (1980)]. In a group of subjects independently treated for genetic hypersomnia (11–13 yr old: IQ>120; meds: 15–20 mg methylphenidate, τ=2 h), rested untreated performance over 4-min periods in 24-min intervals changed ~100-fold (from normal to periods with wide transitions). At 10–12 min following dissolution of single, sublingual 10-mg doses, transitions narrowed and performance began to improve (*re*: normal composite). Performance continued to improve for 10–15 min, then remained relatively consistent (in some cases within normal limits for 40–50 min). Performance returned to untreated levels in an orderly fashion: Well-defined transition areas gradually widened, then spread toward extremes. Under similar conditions subsequent dose-response functions for an individual differed little. Name brand and generic preparations apparently dissolve at different rates; some differences among individuals may reflect variations in excipients or compounding.

3aPP9. The effect of a diver's glove on vibrotactile thresholds. Jeffrey D. Travis and Joan Schoppe (Appl. Res. Labs., The Univ. of Texas at Austin, P.O. Box 8029, Austin, TX 78713-8029)

An experiment measuring vibrotactile thresholds in human subjects was performed. Vibration thresholds at frequencies between 100 and 400 Hz under normal conditions were compared with other researchers' published results. To examine how diving gear would affect a sea diver's vibratory sensitivity, vibrotactile thresholds were determined on the middle phalanx of subjects with and without diver's gloves. Two kinds of diver's gloves were tested, one designed for cold water and the other for warm water. It was established that diver's gloves do have an effect on vibrotactile thresholds, and that the specific type of glove (cold water or warm water) alters the normal shape of the threshold curves in different ways.

3aPP10. Personal sound. W. F. Druyvesteyn and R. M. Aarts (Philips Res. Labs., Bldg. WAK, P.O. Box 80000, 5600 JA Eindhoven, The Netherlands)

Introducing more audio/video equipment (CD, DCC, TV, CD-I, etc.) into a room creates a new audio problem, one of multiple sound sources with multiple listeners. When different persons, denoted as A, B, C, etc., listen to different programs, denoted as "a," "b," "c," person A experiences program "a" as sound and programs "b" and "c" as noise. Each person would prefer a high sound/noise (S/N) ratio at his listening position. In this contribution the situation of two persons working with their (multimedia) PCs in an office, or watching in a living room two TVs with accompanying sound, is considered. In order to obtain a specification, listening tests were done, which gave a desired S/N ratio of about 20 dB(B). In an anechoic environment such a specification is easily realized using a loudspeaker array to control the directivity. In a real (living) room this is not sufficient and active noise control (to decrease N) and active sound control (to increase S) are used, particularly in the low-frequency region. During the presentation at the conference, recordings will be reproduced of realized S/N ratios of 34 dB(B) in the anechoic room and of more than 20 dB(B) in a living room.

3aPP11. Multisensory interaction: Influence of spatial visual cues on auditory detection. Dietrich Parlitz (Graduate College Psychoacoust., FB 8, Oldenburg Univ., D-26111 Oldenburg, Germany)

Recent physiological and psychological studies suggest spatiotopic maps of auditory space often build up by groups of multisensory neurons. At this neuronal level stimulus representations of different modalities seem to be transformed into a common coordinate system. A multimodal stimulus may produce enhancement, depression, or no interaction effect on the cell activity, depending on its certain spatiotemporal combination. In several experiments the influence of visual cues on auditory perception was examined. The results indicate a dependence on spatial and temporal parameters. [Work supported by DFG.]