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Research News in Speech, Language, and Hearing Disorders

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August 3, 2007

- **Cochlear Implant Electrode Insertion: The Round Window Revisited**
  from *Laryngoscope*
  "Objective: To examine aspects of round window (RW) anatomy that are relevant to its use as a portal for atraumatic insertion of cochlear implant electrodes. Study Design: Anatomic study using human cadaveric temporal bones. Methods: A series of 30 temporal bones was dissected to permit microscopic study of the RW region. Results: The bony overhangs of the RW niche limit visibility of the RW membrane during surgery. Measurements of RW membrane area visible through a facial recess opening before and after drilling the overhangs in 15 temporal bones showed that RW membrane visibility is typically increased by a factor of 1.5 to 3 times after drilling and by as much as 13 times when the opening of the RW niche is relatively small. Observations from within the scala tympani in 15 cochlear dissections showed substantial variability in size of the RW opening available for electrode insertion. Area measurements of the portion of the RW covered by the vertical segment of the RW membrane ranged from 0.8 to 1.75 mm2 in these specimens. In addition, irregularities in contour of the RW margin may make insertion challenging, which may necessitate drilling the anterior-inferior margin of the RW. Drilling in this region should be approached with care because of the close proximity of the cochlear aqueduct opening. Conclusion: RW insertion can be performed in a manner that is potentially less traumatic than the standard cochleostomy insertion. It may therefore be advantageous in cases in which hearing preservation is the goal."

- **Assessing the social and affective outcomes of inclusion**
  from the *British Journal of Special Education*
  "The systematic assessment of the social and affective outcomes of inclusion has been lagging behind the assessment of academic outcomes. This is particularly problematic in view of research evidence supporting concerns about peer rejection and bullying. In this article, Norah Frederickson and Elizabeth Simmonds, of University College London, and Lynda Evans and Chris Soulsby, from Foxwood Special School, report their evaluation of the social and affective outcomes of a special- mainstream school inclusion initiative that places particular emphasis on peer preparation. Measures completed by pupils were used to assess peer group inclusion, social behaviour, bullying and feelings of belonging at school. Results showed that pupils who had transferred from special to mainstream schools experienced positive social

outcomes and none experienced peer group rejection. However, results were less positive for mainstream pupils with special educational needs and the authors discuss possibilities for development. Trends in peer reports of bullying suggest that there is no room for complacency and that ongoing monitoring is required."

- **In vitro and ex vivo suppression by aminoglycosides of PCDH15 nonsense mutations underlying type 1 Usher syndrome**
  from *Human Genetics*
  "Abstract Type 1 Usher syndrome (USH1) is a recessively inherited condition, characterized by profound prelingual deafness, vestibular areflexia, and prepubertal onset of retinitis pigmentosa (RP). While the auditory component of USH1 can be treated by cochlear implants, to date there is no effective treatment for RP. USH1 can be caused by mutations in each of at least six genes. While truncating mutations of these genes cause USH1, some missense mutations of the same genes cause nonsyndromic deafness. These observations suggest that partial or low level activity of the encoded proteins may be sufficient for normal retinal function, although not for normal hearing. In individuals with USH1 due to nonsense mutations, interventions enabling partial translation of a full-length functional protein may delay the onset and/or progression of RP. One such possible therapeutic approach is suppression of nonsense mutations by small molecules such as aminoglycosides. We decided to test this approach as a potential therapy for RP in USH1 patients due to nonsense mutations. We initially focused on nonsense mutations of the PCDH15 gene, underlying USH1F. Here, we show suppression of several PCDH15 nonsense mutations, both in vitro and ex vivo. Suppression was achieved both by commercial aminoglycosides and by NB30, a new aminoglycoside-derivative developed by us. NB30 has reduced cytotoxicity in comparison to commercial aminoglycosides, and thus may be more efficiently used for therapeutic purposes. The research described here has important implications for the development of targeted interventions that are effective for patients with USH1 caused by various nonsense mutations."

- **Text4Deaf Bridges Deaf, Hearing Communities**
  from the *BWH Bulletin*
  "Kerry Thompson responds to each message on her Sidekick with the swift key strokes of a text-messaging pro. But Thompson, a finance specialist in Partners Research Management, doesn't use any ordinary texting system. She is the creator of text4deaf.com, a Web site that makes communication easier between the deaf and hearing communities through computers and devices."

- **Audioprofiling identifies TECTA and GJB2-related deafness segregating in a single extended pedigree**
  from *Clinical Genetics*
  "An audioprofile displays phenotypic data from several audiograms on a single graph that share a common genotype. In this report, we describe the application of audioprofiling to a large family in which a genome-wide screen failed to identify a deafness locus. Analysis of audiograms by audioprofiling suggested that two persons with hearing impairment had a different deafness genotype. On this basis, we reassigned affectation status and identified a p.Cys1837Arg autosomal dominant mutation in a-tectorin segregating in all family members except two persons, who segregated autosomal recessive deafness caused by p.Val37Ile and p.Leu90Pro mutations in Connexin 26. One nuclear family in the extended pedigree segregates both dominant and recessive non-syndromic hearing loss."

- **Neural and Behavioral Sensitivity to Interaural Time Differences Using Amplitude Modulated Tones with Mismatched Carrier Frequencies**
  from *JARO -- Journal of the Association for Research in Otolaryngology*
  "Abstract Bilateral cochlear implantation is intended to provide the advantages of binaural hearing, including sound localization and better speech recognition in noise. In most modern implants, temporal information is carried by the envelope of pulsatile stimulation, and

thresholds to interaural time differences (ITDs) are generally high compared to those obtained in normal hearing observers. One factor thought to influence ITD sensitivity is the overlap of neural populations stimulated on each side. The present study investigated the effects of acoustically stimulating bilaterally mismatched neural populations in two related paradigms: rabbit neural recordings and human psychophysical testing. The neural coding of interaural envelope timing information was measured in recordings from neurons in the inferior colliculus of the unanesthetized rabbit. Binaural beat stimuli with a 1-Hz difference in modulation frequency were presented at the best modulation frequency and intensity as the carrier frequencies at each ear were varied. Some neurons encoded envelope ITDs with carrier frequency mismatches as great as several octaves. The synchronization strength was typically nonmonotonically related to intensity. Psychophysical data showed that human listeners could also make use of binaural envelope cues for carrier mismatches of up to 2–3 octaves. Thus, the physiological and psychophysical data were broadly consistent, and suggest that bilateral cochlear implants should provide information sufficient to detect envelope ITDs even in the face of bilateral mismatch in the neural populations responding to stimulation. However, the strongly nonmonotonic synchronization to envelope ITDs suggests that the limited dynamic range with electrical stimulation may be an important consideration for ITD encoding."

- **Why is the potential of augmentative and alternative communication not being realized? Exploring the experiences of people who use communication aids**
  from *Disability and Society*
  "Augmentative and alternative communication (AAC) holds the potential to enable people with severe oral communication impairments to participate more fully in society. However, despite the development of increasingly sophisticated communication aids, as well as recent UK policy initiatives aimed at improving access to them, some major obstacles stand in the way of the inclusory potential of AAC being realized to any significant degree. Drawing on findings of a research study that explored the experiences of people who use AAC, this paper looks at the various problems that people encounter in using communication aids. It identifies the lack of consistent, structured support as a key overarching issue. The author goes on to argue that for the potential of AAC to be realized attention needs to be given to the development of coordinated systems of support within the policy domains of education, health and social services."

- **Volume of Left Heschl's Gyrus and Linguistic Pitch Learning**
  from *Cerebral Cortex*
  "Research on the contributions of the human nervous system to language processing and learning has generally been focused on the association regions of the brain without considering the possible contribution of primary and adjacent sensory areas. We report a study examining the relationship between the anatomy of Heschl's Gyrus (HG), which includes predominately primary auditory areas and is often found to be associated with nonlinguistic pitch processing and language learning. Unlike English, most languages of the world use pitch patterns to signal word meaning. In the present study, native English-speaking adult subjects learned to incorporate foreign pitch patterns in word identification. Subjects who were less successful in learning showed a smaller HG volume on the left (especially gray matter volume), but not on the right, relative to learners who were successful. These results suggest that HG, typically shown to be associated with the processing of acoustic cues in nonspeech processing, is also involved in speech learning. These results also suggest that primary auditory regions may be important for encoding basic acoustic cues during the course of spoken language learning."

- **A Larynx Area in the Human Motor Cortex**
  from *Cerebral Cortex*
  "The map of the human motor cortex has lacked a representation for the intrinsic musculature of the larynx ever since the electrical stimulation studies of Penfield. In addition,

there has been no attempt to localize this area using neuroimaging techniques. Because of the central importance of laryngeal function to vocalization, we sought to localize an area controlling the intrinsic muscles of the larynx by using functional magnetic resonance imaging and to place this area in a somatotopic context. We had subjects perform a series of oral tasks designed to isolate elementary components of phonation and articulation, including vocalization of a vowel, lip movement, and tongue movement. In addition, and for the first time in a neuroimaging study, we had subjects perform "glottal stops," in other words forced closure of the glottis in the absence of vocalizing. The results demonstrated a larynx-specific area in the motor cortex that is activated comparably by vocal and nonvocal laryngeal tasks. Converging evidence suggests that this area is the principal vocal center of the human motor cortex. Finally, the location of this larynx area is strikingly different from that reported in the monkey. We discuss the implications of this observation for the evolution of vocal communication in humans."

- **Bilingual Speech Therapists Face Language and Sound Barriers**
  from Topix.net
  ""We don't have enough Hispanics graduating from high school to go to college" Elosa Ruano Gonzlez reports that getting emergency medical care can be a problem for non-English speakers, but it's especially difficult for those who need long-term treatment, including mental health and ... via OELA Newsline"

- **Increased motor cortex white matter volume predicts motor impairment in autism**
  from *Brain*
  "Careful consideration of motor impairments, such as those documented in autism, can afford valuable insights into the neurological basis of developmental disorders. Motor signs are highly quantifiable and reproducible and can serve as markers for deficits in parallel systems important for socialization and communication. Correlations of motor signs with anatomic MRI (aMRI) measures therefore offer an important means of investigating brain abnormalities contributing to autism. Prior aMRI studies have revealed increased cerebral volume in young children with autism, particularly in 'outer zone' radiate white matter; however functional correlates of these findings have not been reported. In this study, we examined whether radiate white matter within the primary motor cortex would predict impaired motor performance in children with autism. Subjects included children ages 8–12 years: 20 with autism, 36 typically developing (TD) controls and 20 clinical controls with attention-deficit/hyperactivity disorder (ADHD). Regional tissue volumes were measured using an automated tissue classification algorithm followed by a semi-automated parcellation method. Motor performance was assessed using the Physical and Neurologic Examination of Subtle Signs (PANESS), with higher scores indicating poorer performance. Independent linear regression analyses revealed that for TD controls there was a significant negative correlation between total PANESS score and primary motor cortex white matter volume in both the right and left hemispheres, such that increased white matter volume predicted improved motor skill. In contrast, children with autism showed a robust positive correlation between total PANESS score and left hemisphere primary motor and premotor white matter volumes, such that increased white matter volume predicted poorer motor skill. No significant correlations were found for ADHD. Multivariate regression analyses revealed that the correlation between PANESS score and left motor cortex white matter volume in children with autism significantly differed from those in both ADHD and TD children. The correlation in ADHD did not significantly differ from that in TD children. The findings for the first time demonstrate an association between increasing radiate white matter volume and functional impairment in children with autism, in this case basic motor skill impairment. The observed association, which appears specific to autism, may be representative of global patterns of brain abnormality that not only contribute to motor dysfunction in autism, but also deficits in socialization and communication that define the disorder."

- **Aß amyloid deposition in the language system and how the brain**

responds
from *Brain*
"Post-mortem measures of Aß amyloid deposition correlate only weakly with cognitive dysfunction antemortem. We tested the hypothesis that functional reorganization forms a critical intermediary step between Aß amyloid-associated brain injury and clinical disease expression. Fifteen patients with early-stage probable Alzheimer's disease (AD) and 16 cognitively intact controls participated in this combined functional magnetic resonance imaging (fMRI) and positron emission tomography (PET) study. The fMRI design had two factors: task (associative-semantic versus visuoperceptual judgement) and input-modality (written words versus pictures). We measured Aß amyloid by means of Pittsburgh Compound B (11C-PIB). In the posterior third of the left superior temporal sulcus (STS), the fMRI response during the associative-semantic compared with the visuoperceptual task was lower in AD than in controls, in particular for words. Response amplitude correlated inversely with PIB uptake in this region. Contralaterally, the functional pattern differed substantially: the fMRI response in the right posterior STS during the associative-semantic versus the visuoperceptual task was higher in AD than in controls. Accuracy on the Boston Naming test correlated positively with the degree to which AD patients were able to recruit the right STS ($r = 0.84$, $P_{corrected} = 0.014$). PIB uptake did not correlate with naming accuracy. Functional reorganization of the language system in response to Aß amyloid-related brain injury exists in early-stage AD and determines the degree of anomia more than Aß amyloid load per se does."

- **Toward a Description of Deaf College Students' Written English: Overuse, Avoidance, and Mastery of Function Words**
  from *American Annals of the Deaf*
  "The use of function words in 135 essays written by deaf college underclassmen in developmental and credit-bearing English composition classes is described and compared with Standard English (SE) versions of the same essay. If student and SE versions were the same, this was considered mastery; if the student omitted a word, this was considered avoidance; and if the student added a word, this was considered overuse. The deaf students varied from SE more for function than for content words. They demonstrated low mastery of independent clause markers, demonstratives, third-person singular neuter pronouns, and modals related to possibility, but had relatively high mastery of the first-person singular, and some punctuation. These students strongly avoided some dependent clause markers, some demonstratives, the indefinite article, punctuation except for periods and commas, and the modal verbs may, might and should, but greatly overused other dependent clause markers, the second person and third-person neuter pronouns, quantifiers, the verb do, and the modals could and will. They were also more likely to produce run-ons than fragments."

- **Phonics, whole-word and whole-language processes add up to determine reading speed, NYU study shows**
  from EurekAlert.org
  "Reading specialists have often pitted phonics against holistic word recognition and whole language approaches in the war over how to teach children to read. However, a new study by researchers at New York University shows that the three reading processes do not conflict, but, rather, work together to determine speed. The findings appear in the Aug. 1 issue of PLoS ONE, a journal published by the Public Library of Science. The paper, "Parts, Wholes, and Context in Reading: A Triple Dissociation," is available at http://www.plosone.org/doi/pone.0000680 beginning Aug. 1."

- **Mismatch negativity in children with dyslexia speaking Indian languages**
  from *Behavioral and Brain Functions*
  "Background Several studies in the past have found that phonological processing is abnormal in children with dyslexia. Phonological processing depends on the phonological rules of the language learnt. Western languages do not have a good phoneme to grapheme correspondence while many of the Indian languages do have it. Also phonological rules of

western languages are different from that of Indian languages. Thus it would be erroneous to generalize the results obtained on children speaking western languages to those speaking Indian languages. Hence the present study was aimed to investigate the auditory processing in children with dyslexia who spoke and studied Indian languages. Methods Standard group comparison design was used in the study. The study was conducted on fifteen children with dyslexia and fifteen normal children. Mismatch negativity was elicited for speech and tonal stimuli. Results obtained on the clinical group were compared with that of control group using mixed design ANOVA. Children in both the groups were native speakers of Kannada (a south Indian language). Results A subgroup of children showed abnormalities in the processing of speech and/or tonal stimuli. Speech elicited MMN showed greater abnormalities than that of tonal stimuli. Though higher for spectral contrasts, processing deficits were also shown for durational contrasts. Conclusions Inspite of having different phonological rules and good phoneme-grapheme correspondence in Indian languages, children with dyslexia do have deficits in processing both spectral and durational cues."

- **Motor neuron disease associated with non-fluent rapidly progressive aphasia: case report and review of the literature**
  from *European Journal of Neurology*
  "The superimposed clinical features of motor neuron disease (MND) and frontotemporal lobar degeneration (FTLD) comprise a rare neurological overlap syndrome that represents a diagnostic challenge to neurologists. Currently, FTLD-MND is considered a distinct entity and its clinicopathological basis has recently been reviewed. Our aim is to present a patient with MND and non-fluent rapidly progressive aphasia with clinical, imaging and histopathological correlation, as well as a brief review of the literature. We demonstrated the selective corticospinal tract (CST) and temporal lobe involvement using T1 spin-echo with an additional magnetization transfer contrast pulse on resonance (T1 SE/MTC) and FLAIR MR sequences in our patient, with further clinical and histopathological correlation. To the best of our knowledge, there is no description about the use of these particular MR sequences in the evaluation of FTLD-MND patients."

- **Manipulating cell cycle regulation in the mature cochlea**
  from *Hearing Research*
  "Sensorineural hearing loss, which is often caused by degeneration of hair cells in the auditory epithelium, is permanent because lost hair cells are not replaced. Several conceptual approaches can be used to place new hair cells in the auditory epithelium. One possibility is to enhance proliferation of non-sensory cells that remain in the deaf ear and induce transdifferentiation of some of these cells into the hair cell phenotype. Several genes, including p27Kip1, have been shown to regulate proliferation and differentiation in the developing auditory epithelium. The role of p27Kip1 in the mature ear is not well characterized. We now show that p27Kip1 is present in the nuclei of non-sensory cells of the mature auditory epithelium. We determined that forced expression of Skp2 using a recombinant adenovirus vector, resulted in presence of BrdU-positive cells in the auditory epithelium. When SKP2 over-expression was combined with forced expression of Atoh1, ectopic hair cells were found in the auditory epithelium in greater numbers than were seen with Atoh1 alone. Skp2 over-expression alone did not result in ectopic hair cells. These findings suggest that the p27Kip1 protein remains in the mature auditory epithelium and therefore p27Kip1 can serve as a target for gene manipulation. The data also suggest that induced proliferation, by itself, does not generate new hair cells in the cochlea."

- **Evaluation of low-frequency biasing as a diagnostic tool in Menière patients**
  from *Hearing Research*
  "Although it is generally accepted that endolymphatic hydrops is the cause of complaints in patients suffering from Menière's disease, it has not been possible up to now to prove the presence of an endolymphatic hydrops in living humans. This study evaluated the psychophysical method introduced by Mrowinski et al. [Mrowinski D., Gerull G., Nubel K.,

Scholz G., 1995. Masking and pitch shift of tone bursts and clicks by low-frequency tones. Hear. Res. 85, 95–102; Mrowinski D., Scholz G., Krompass S., Nubel K., 1996. Diagnosis of endolymphatic hydrops by low-frequency masking. Audiol. Neurootol. 1, 125–134] to diagnose endolymphatic hydrops. These authors used low frequency biasing to differentiate between individuals with and individuals without Menière's disease. In the present study no statistically significant differences in masking parameters could be found between a large number (n = 91) of ears with Menière's disease and ears (n = 52) with comparable sensorineural hearing losses, but without symptoms of Menière's disease. Our results support the idea that results deviating from normal in low frequency biasing measurements are not due to endolymphatic hydrops itself, but to other pathological changes of the inner ear. An explanation could be that with increasing hearing loss the gain of the cochlear amplifier decreases, leading to smaller modulation depths."

- **Enhanced frequency discrimination in hearing-impaired individuals: A review of perceptual correlates of central neural plasticity induced by cochlear damage**
  from *Hearing Research*
  "Cochlear damages have been shown to induce changes in tonotopic maps in the central auditory system of animals; neurons deprived from peripheral inputs start to respond to stimuli with frequencies close to the cutoff frequency (Fc) or "edge" of the hearing loss, which then become over-represented at the neural level. Here, we review findings, which reveal a possible psychophysical correlate of such central over-representation in human listeners with sensorineural hearing loss. These findings concur to demonstrate a local improvement in difference limens for frequency (DLFs) at or near Fc. This effect has now been observed in several studies and subjects with varied audiometric characteristics, including high- and low-frequency, and symmetric and asymmetric hearing losses. The presence of cochlear dead region or a steeply sloping hearing loss appear as a necessary condition for its occurrence. The effect cannot be explained simply by more prominent loudness cues or spontaneous otoacoustic emissions (SOAEs) near the audiogram edge. Overall, the data are consistent with local changes in pitch discrimination performance near the hearing-loss cutoff frequency being a result of the neural over-representation of that frequency region in the central auditory system. Further work is needed to confirm this hypothesis, and investigate other possible perceptual correlates of injury-related cortical plasticity in both humans and animals."

- **Solving The Mystery Of Mammalian Ears**
  from Medical News Today.com
  "A 30-year scientific debate over how specialized cells in the inner ear amplify sound in mammals appears to have been settled more in favor of bouncing cell bodies rather than vibrating, hair-like cilia, according to investigators at St. Jude Children's Research Hospital. The finding could explain why dogs, cats, humans and other mammals have such sensitive hearing and the ability to discriminate among frequencies. The work also highlights the importance of basic hearing research in studies into the causes of deafness. A report on this work appears in the advanced online issue of Proceedings of the National Academy of Science."

- **Bilateral Cochlear Implantation: An Evidence-Based Medicine Evaluation**
  from *Laryngoscope*
  "Objectives/Hypothesis: The aim of this study was to evaluate the extent and quality of evidence reported on the outcomes of bilateral cochlear implantation and thereby to inform opinion about future patient management. Study Design: Retrospective literature review. Methods: A detailed search of the medical literature was performed using the Medline, Embase, and CINAHL databases starting from the date of their conception. The quality of evidence in each article was assessed according to the categories of evidence as defined by the Oxford Centre for Evidence-based Medicine, Levels of Evidence (May 2001). Results: A total of 37 studies were included; 28 (76%) investigated adult participants only, 7 (19%)

investigated child participants, and 2 (5%) contained both groups. Of the studies presented, 9 (24%) studies contained level 2b evidence, 2 (6%) level 3b, 16 (43%) level 4, and 10 (27%) level 5 evidence. No studies were identified as representing evidence level 1. Adult bilateral recipients demonstrated an increase in sentence recognition of 21% correct over their first implanted ear (P < .001) and mean bilateral localization errors of 24[degrees] against a monaural error of 67[degrees] (P < .005). Conclusions: The available evidence indicates that bilateral cochlear implantation confers material benefits not achievable with unilateral implantation, specifically in terms of sound localization and understanding of speech in noise. Well-designed prospective studies of sufficient size are now needed to precisely quantify these benefits, to validate outcome measures, especially in children, and to define the criteria for intervention."

- **A Comparison of Postcochlear Implantation Speech Scores in an Adult Population**

from *Laryngoscope*

"Objectives: The vast majority of cochlear implant recipients realize significant improvement in speech perception. However, there continue to be a small group that does not realize such a benefit. In an effort to identify possible predictors for this, we have compared pre- and postimplant audiologic data using Hearing In Noise Test (HINT), City University of New York (CUNY), or Central Institute for the Deaf (CID) scores for 445 consecutive English-speaking adult patients followed for a minimum of 1 year postimplantation in two distinct groups, poor versus excellent performers. Study Design: Retrospective. Methods: Poor performers were those who realized a worsening, no improvement, or an improvement of less than 10%. This group numbered 58 (13%). High performers consisted of a cadre of 194 (44%) patients who scored between 91 and 100% postimplantation. Demographic data relating to onset of deafness, education exposure, etiology, etc., were evaluated. Results: Of the poor performers, 33 (57%) were pre-/perilingually deafened. Of these, 79% had not received any auditory/oral training in childhood. On the other hand, a total of 109 implant recipients were individuals who were pre-/perilingually deafened. Of these, 24 were in the excellent performer category. All were identified early and were recipients of a strong auditory/oral education. Of the high performers, 170 (88%) were deafened late. Other findings such as preoperative electronystagmography with caloric testing, hearing aid use, device type, and high-resolution computed tomography scan of the temporal bone will be discussed for both groups. Conclusions: A high preimplant speech score, auditory verbal therapy, and postlingual deafness statistically correlate with higher postimplant speech scores 1 year after cochlear implantation. Device type, caloric response and hearing aid use preimplantation, age at surgery, and sex do not statistically correlate with either poor or excellent speech discrimination scores postcochlear implantation."

- **Health-Related Quality of Life Among Preadolescent Children With Oral Clefts: The Mother's Perspective**

from *Pediatrics*

"OBJECTIVE. The purpose of this study was to evaluate the factors that affect the health-related quality of life of preadolescent children with nonsyndromic oral clefts using the Pediatric Quality of Life Inventory instrument and to evaluate whether there were any differences related to the type of cleft or other factors. METHODS. Data for this study were derived from telephone interviews with the parents of a statewide population of children who were in the Iowa Registry for Congenital and Inherited Disorders, were aged 2 to 12 years, had nonsyndromic oral clefts, and were born in Iowa between January 1, 1990, and December 31, 2000. Twenty-minute interviews were conducted with mothers of 104 children in the spring and summer of 2003; respondents then completed and mailed back Pediatric Quality of Life Inventory surveys 2 to 3 weeks after the interviews (69% participation rate). RESULTS. After controlling for demographic characteristics, children with less severe speech problems had higher total Pediatric Quality of Life Inventory scores as well as higher physical and psychosocial health domain scores. Age and cleft type interacted, with younger children (aged 2–7 years) with a cleft lip or cleft lip and palate having higher health-related quality of

life scores than children with an isolated cleft palate; however, this pattern was reversed for older children (aged 8–12 years). CONCLUSIONS. Speech and aesthetic concerns seem to have been important factors affecting the health-related quality of life for children with oral clefts. These factors seem to be more important as children get closer to adolescence (ages 8–12 years) when acceptance by peers becomes more critical."

- **Autism in African American Families: Clinical-phenotypic findings**
  from *American Journal of Medical Genetics Part B: Neuropsychiatric Genetics*
  "Unlike other complex diseases, the study of autism has been almost exclusively limited to Caucasian families. This study represents a first effort to examine clinical and phenotypic findings in individuals with autism from African American families. Drawing from an ongoing genetic study of autism we compared African American (N = 46, mean age = 118 months) and Caucasian (N = 298, mean age = 105 months) groups on autism symptoms and developmental language symptoms. The African American group showed greater delays in language but did not differ from the Caucasian group on core autism symptoms. These findings, while suggestive of a more severe phenotype, may reflect an ascertainment bias. Nonetheless, we believe that more studies of racial-ethnic groups should be conducted with several goals in mind including strengthening recruiting strategies to include more ethnic-racial groups and more thoughtful evaluation of phenotypic traits. Such considerations will aid greatly in the search for genetic variants in autism. © 2007 Wiley-Liss, Inc."

- **When Tinnitus Loudness and Annoyance Are Discrepant: Audiological Characteristics and Psychological Profile**
  from Audiology & Neuro-Otology
  "This study evaluates sociodemographic and clinical characteristics of patients reporting discrepant levels of tinnitus loudness and annoyance. 4958 subjects recruited from a national tinnitus association completed a comprehensive screening questionnaire including Klockhoff and Lindblom's loudness grading system and the psychometric Mini-TQ (Tinnitus Questionnaire). There was a moderate correlation of 0.45 between loudness and annoyance. Of the subjects reporting very loud tinnitus, about one third had only mild or moderate annoyance scores. They were not different from those with high annoyance regarding age, gender and tinnitus duration, but annoyance was increased when subjects had additional hearing loss (OR = 1.71), vertigo/dizziness (OR = 1.94) or hyperacusis (OR = 4.96). Another significant predictor was history of neurological disease (OR = 3.16). Subjects reported low annoyance despite high loudness more often if not feeling low/depressed and not considering themselves as victims of their noises. A specific psychological profile was found to characterize annoyed tinnitus sufferers. Permanent awareness of the noises, decreased ability to ignore them and concentration difficulties were reported frequently even when overall annoyance scores were comparatively low. It is concluded that the coexistence of tinnitus with hearing loss, vertigo/dizziness and hyperacusis as complicating otological conditions seems to be of clinical relevance for the prediction of high annoyance levels. Tinnitus loudness and annoyance are not necessarily congruent and should be assessed separately."

- **The Complexity of Age-Related Hearing Impairment: Contributing Environmental and Genetic Factors**
  from Audiology & Neuro-Otology
  "Age-related hearing impairment (ARHI) is the most common sensory impairment seen in the elderly. It is a complex disorder, with both environmental as well as genetic factors contributing to the impairment. The involvement of several environmental factors has been partially elucidated. A first step towards the identification of the genetic factors has been made, which will result in the identification of susceptibility genes, and will provide possible targets for the future treatment and/or prevention of ARHI. This paper aims to give a broad overview of the scientific findings related to ARHI, focusing mainly on environmental and genetic data in humans and in animal models. In addition, methods for the identification of contributing genetic factors as well as possible future therapeutic strategies are discussed."

- **An Alternative Diagnostic Test for Active Ménière's Disease and Cochlear Hydrops Using High-Pass Noise Masked Responses: The Complex Amplitude Ratio**
  from Audiology & Neuro-Otology
  "We [Don et al.: Otol Neurotol 2005;26:711-722] previously demonstrated that patients diagnosed with an active case of Ménière's disease could be distinguished from non-Ménière's normal-hearing subjects by a special auditory brainstem response method involving clicks and ipsilateral high-pass masking pink noise. Specifically, auditory brainstem responses to clicks presented alone and clicks with masking noise high-pass filtered at 8, 4, 2, 1 and 0.5 kHz were recorded. It was shown that the level of masking noise sufficient to progressively mask the response to clicks in non-Ménière's normal-hearing subjects was insufficient to appropriately mask the responses in Ménière's disease subjects, resulting in an obvious undermasked component. A relative latency measure of wave V or the undermasked component in the response to clicks with 0.5 kHz high-pass masking noise and wave V in the response to clicks presented alone clearly distinguished these two groups on an individual level, thus making it a valuable clinical tool. However, determining the peak latency of wave V or the undermasked component can be difficult in some cases. In anticipation of this difficulty, we investigated and present in this paper several amplitude measures that may help in the evaluation of these cases. One amplitude measure, the 'complex amplitude ratio', appears to be a good alternative when the latency measure of the undermasked component is difficult to determine."

- **Activation in Primary Auditory Cortex during Silent Lipreading Is Determined by Sex**
  from Audiology & Neuro-Otology
  "Recent studies investigating whether the primary auditory cortex (PAC) is involved in silent lipreading gave inconsistent results. We used positron emission tomography to identify which areas in the temporal lobe process visible speech, with a focus on the PAC. Subjects were tested on lipreading numbers and only the best lipreaders were included in the study (n = 18; 9 female, 9 male). Each subject was scanned while either watching a movie with a speaker silently articulating numbers (lipreading condition) or watching a static image of the same speaker (baseline condition). Subjects were instructed to repeat internally the number seen or the number '1'. Compared to the baseline condition, silent lipreading activated temporal areas in both hemispheres with the largest activation clusters in the left hemisphere. When the whole group was examined, no activation in the PAC was found. But when investigating the two sexes separately, the female group demonstrated activation of the left PAC. There was no significant activation in the right female PAC or in the left and right male PAC. Since both groups had similar performances in lipreading, differential activity in the PAC has no effect on lipreading scores. These results may explain previous inconsistent results where no differentiation for sex was made."

- **The Acquisition Path for Tense-Aspect: Remote Past and Habitual in Child African American English**
  from *Language Acquisition: A Journal of Developmental Linguistics*
  "This article considers the comprehension of tense-aspect markers remote past BIN and habitual be by 3- to 5-year-old developing African American English (AAE)-speaking children and their Southwest Louisiana Vernacular English (SwLVE)-speaking peers. Overall both groups of children associated BIN with the distant past; however, the AAE-speaking children were twice as likely to give a distant past response on the BIN went task. These results are discussed in terms of event realization, the Aspect Hypothesis, and feature agreement. We delineate a path that uses the lexical part of the Aspect Hypothesis, the role of semantics in defining the end state of a refined aspectual system, and an interface between syntax and semantics to explain subtle steps involving agreement in the acquisition process. The AAE-speaking children scored significantly higher on the habitual be tasks than the SwLVE-speaking children, whose scores were not significantly different from chance. The results suggest that the AAE-speaking children have developing native knowledge of habitual

be and are beginning to associate it with eventualities that recur."

- **Aspectual Effects on Interpretation in Early Grammar**
  from *Language Acquisition: A Journal of Developmental Linguistics*
  "This paper focuses on the temporal and modal meanings associated with root infinitives (RIs) and other non-finite clauses in several typologically diverse languages—English, Russian, Greek and Dutch. I discuss the role that event structure, aspect, and modality play in the interpretation of these clauses. The basic hypothesis is that in the absence of a tense specification, the temporal reference of non-finite clauses is determined by the event structure of the predicate, in particular by the property of event closure. General principles of aspectual interpretation, such as the Punctuality Constraint (Giorgi and Pianesi 1997) and the Default Anchoring Requirement (a special case of a broader requirement that all clauses be temporally interpreted) interact with the particular aspectual features of the target language to explain the cross-linguistic differences in the temporal interpretation (past/present/modal) non-finite clauses."

- **Morphosyntactic Learning and the Development of Tense**
  from *Language Acquisition: A Journal of Developmental Linguistics*
  "In this article, we propose that the Root Infinitive (RI) phenomenon in child language is best viewed and explained as the interaction between morphological learning and syntactic development. We make the following specific suggestions: The optionality in RI reflects the presence of a grammar such as Chinese which does not manifest tense marking. The gradual elimination of the nontense-marking grammar is facilitated by the learning of the morphosyntactic system of the target language. Quantitative differences in the input data among morphosyntactic systems result in the cross-linguistic variation in the RI phenomenon. More broadly, we aim to demonstrate that quantitative aspects of language learning data and concrete mechanisms of the language learning process can play an important role in the generative approach to language acquisition. In Section 2, we give a brief overview of the RI literature along with some methodological remarks regarding the explanation of the phenomenon. In Section 3, we lay out our theory of morphosyntactic learning and the broader variational approach to language acquisition. Our empirical work focuses on the development of tense in Spanish, French, and English. In Section 4 we show through corpus study of child-directed speech that differences in the morphosyntactic systems of these three languages explain the brief RI stage in Spanish acquisition, the prolonged RI stage in English acquisition, as well the intermediate status of the RI stage in French. In Section 5, we discuss how our approach relates to various findings established in the previous literature on RI. Section 6 concludes with a general discussion of the proper role of the input data in theories of language acquisition."

- **Bone-anchored cochlear stimulator provides new hope for those with significant hearing impairment**
  from News-Medical.net
  "Born with no ear canal on his left side, Tom had significant hearing impairment and went to Loyola University Medical Center, where Dr. Sam Marzo surgically implanted a bone-anchored cochlear stimulator that delivers sound to the inner ear by bone conduction. Marzo activated Tom's device at Loyola's Oakbrook Terrace Medical Center. "It harnesses the ability of the skull bone to conduct sound vibrations," said Marzo, associate professor of otolaryngology, Loyola University Chicago Stritch School of Medicine, Maywood, Ill. "It will enable Tom to perceive sounds on both sides of his head, which is critical for his speech development."

- **Characterizing the monaural and binaural processes underlying reflection masking**
  from *Hearing Research*
  "Reflection masked thresholds (RMTs) for the simple scenario of a test reflection masked by the direct sound (200 ms long broadband noise) were measured as a function of reflection delay for diotic and dichotic stimulus presentations. In order to discriminate between

contributions to reflection masking from simultaneous versus forward masking, the simultaneous RMT was measured in addition to the traditional RMT. Simultaneous RM was realized by truncating the offset of the test reflection such that the test reflection and the direct sound had a common offset. By comparing the experimental results for the two RMTs, it is shown that forward masking effects only have a significant effect on reflection masking for delays above 7–10 ms. Moreover, binaural mechanisms were revealed which deteriorate auditory detection of test reflections for delays below 7–10 ms and enhance detection for larger delays. The monaural and binaural processes that may underlie reflection masking are discussed in terms of auditory-modelling concepts."

- **UI researcher challenges explanations of children's 'word spurt'**
  from EurekAlert.org
  "Researchers have long known that at about 18 months children experience a vocabulary explosion, suddenly learning words at a much faster rate. They have theorized that complex mechanisms are behind the phenomenon. But new research by a University of Iowa professor suggests far simpler mechanisms may be at play: word repetition, variations in the difficulty of words and the fact that children are learning multiple words at once."

- **Functional oropharyngeal sensory disruption interferes with the cortical control of swallowing**
  from *BMC Neuroscience*
  "Background Sensory input is crucial to the initiation and modulation of swallowing. From a clinical point of view, oropharyngeal sensory deficits have been shown to be an important cause of dysphagia and aspiration in stroke patients. In the present study we therefore investigated effects of functional oropharyngeal deafferentation on the cortical control of swallowing. We employed whole-head MEG to study cortical activity during self-paced volitional swallowing with and without topical oropharyngeal anesthesia in ten healthy subjects. A simple swallowing screening-test confirmed that anesthesia caused swallowing difficulties with decreased swallowing speed and reduced volume per swallow in all subjects investigated. Data were analyzed by means of synthetic aperture magnetometry (SAM) and the group analysis of the individual SAM data was performed using a permutation test. Results The analysis of normal swallowing revealed bilateral activation of the mid-lateral primary sensorimotor cortex. Oropharyngeal anesthesia led to a pronounced decrease of both sensory and motor activation. Conclusions Our results suggest that a short-term decrease in oropharyngeal sensory input impedes the cortical control of swallowing. Apart from diminished sensory activity, a reduced activation of the primary motor cortex was found. These findings facilitate our understanding of the pathophysiology of dysphagia."

- **New Tissue-Engineering Research Focuses On Vocal Cords**
  from Medical News Today.com
  "Damaged or diseased vocal cords can forever change and even silence the voices we love, from a family member's to a famous personality's."

- **Mitochondrial tRNA(Ser(UCN)) gene is the hot spot for mutations associated with aminoglycoside-induced and non-syndromic hearing loss**
  from *Biochemical and Biophysical Research Communications*
  "Mutations in mitochondrial DNA is one of the important causes of hearing loss. Here, we performed a mutational screening of tRNASer(UCN) gene in 1542 Chinese subjects with hearing loss. One subject and five subjects carried tRNASer(UCN) A7445C and G7444A mutations, respectively, while two subjects harbored both G7444A and 12S rRNA A1555G mutations. Clinical evaluation revealed the variable phenotype of bilateral hearing impairment including severity and audiometric configuration in these subjects. Six pedigrees carrying only G7444A or A7445C mutation exhibited extremely low penetrance of hearing loss, while two families carrying both G7444A and A1555G mutations displayed high penetrance of hearing loss. Of 94 matrilineal relatives in these families, eight subjects suffered from aminoglycoside-induced hearing loss, while seven hearing-impaired subjects

did not have a history of exposure to aminoglycosides. Those suggest that G7444A and A7445C mutations themselves are insufficient to produce a clinical phenotype and aminoglycosides are the major modifier factors for the development of deafness in these Chinese families. The combination of A1555G and G7444A mutations increased deafness expression. These observations provide an additional evidence for the early diction and prevention of deafness at the high risk populations carrying these mitochondrial DNA mutations."

- **Guidance on the use of real ear measurement to verify the fitting of digital signal processing hearing aids**
  from Intute: Health and Life Sciences
  "The British Society of Audiology and British Academy of Audiology have published joint guidelines on the use of real measurement in the fitting of digital signal processing hearing aids (July 2007). The guidelines are aimed at clinical audiologists, who will have some prior knowledge and apply to both adults and children, covering setting up the equipment, calibration, measurement and fitting."

- **Speech-Language Pathologists' Assessment Practices for Children With Suspected Speech Sound Disorders: Results of a National Survey**
  from *American Journal of Speech-Language Pathology*
  "Purpose: This study examined assessment procedures used by speech-language pathologists (SLPs) when assessing children suspected of having speech sound disorders (SSD). This national survey also determined the information participants obtained from clients' speech samples, evaluation of non-native English speakers, and time spent on assessment. Method: One thousand surveys were mailed to a randomly selected group of SLPs, self-identified as having worked with children with SSD. A total of 333 (33%) surveys were returned. Results: The assessment tasks most frequently used included administering a commercial test, estimating intelligibility, assessing stimulability, and conducting a hearing screening. The amount of time dedicated to assessment activities (e.g., administering formal tests, contacting parents) varied across participants and was significantly related to years of experience but not caseload size. Most participants reported using informal assessment procedures, or English-only standardized tests, when evaluating non-native English speakers. Conclusions: Most participants provided assessments that met federal guidelines to qualify children for special education services; however, additional assessment may be needed to create comprehensive treatment plans for their clients. These results provide a unique perspective on the assessment of children suspected of having SSD and should be helpful to SLPs as they examine their own assessment practices."

- **Retelling a Script-Based Story: Do Children With and Without Language Impairments Focus on Script and Story Elements?**
  from *American Journal of Speech-Language Pathology*
  "Purpose: The script frameworks model (R. Schank, 1975) and causal network model (T. Trabasso & L. Sperry, 1985) were used to assess script-based story retellings of children with and without language impairments (LI). When retelling scripts and stories, children developing typically include (a) more obligatory than optional elements, with few temporal sequencing errors, and (b) story elements having several versus few causal connections to other story elements. The purpose of this study was to determine whether children with LI demonstrated a similar pattern of recall. Method: A script-based story retell was collected from 22 children with LI and 22 age-matched peers (AM). Retells were analyzed for inclusion of obligatory and optional elements, elements with high and low causal connectivity, and temporal sequencing accuracy. Results: Retells from both groups contained more obligatory elements and elements with high causal connectivity. However, groups differed on the specific elements included. Conclusions: Children in the AM group appeared to utilize script and causal connectivity elements when retelling a script-based story. Children in the LI group appeared to focus more on script elements than causal connectivity. Their deficiencies may reflect difficulties with flexible application of scripts and accessing relevant knowledge, and/or

generalized difficulties organizing information and extracting patterns."

- **Progressive Apraxia of Speech as a Sign of Motor Neuron Disease**
  from *American Journal of Speech-Language Pathology*
  "Purpose: To document and describe in detail the occurrence of apraxia of speech (AOS) in a group of individuals with a diagnosis of motor neuron disease (MND). Method: Seven individuals with MND and AOS were identified from among 80 patients with a variety of neurodegenerative diseases and AOS (J. R. Duffy, 2006). The history, presenting complaints, neurological findings, and speech-language findings were documented for each case. Results: Spastic or mixed spastic-flaccid dysarthria was present in all 7 cases. The AOS was judged as worse than the dysarthria in 4 cases. Nonverbal oral apraxia was eventually present in all cases. Aphasia was present in 2 cases and equivocally present in another 2. Dementia was present in 1 case and equivocally present in 2. Conclusions: AOS can occur in MND, typically also with dysarthria, but not invariably with aphasia or other cognitive deficits. Thus, a diagnosis of MND does not preclude the presence of AOS. More importantly, MND should be a diagnostic consideration when AOS is a prominent sign of degenerative disease."

- **Phonological Processing and Reading in Children With Speech Sound Disorders**
  from *American Journal of Speech-Language Pathology*
  "Purpose: To examine the relationship between phonological processing skills prior to kindergarten entry and reading skills at the end of 1st grade, in children with speech sound disorders (SSD). Method: The participants were 17 children with SSD and poor phonological processing skills (SSD-low PP), 16 children with SSD and good phonological processing skills (SSD-high PP), and 35 children with typical speech who were first assessed during their prekindergarten year using measures of phonological processing (i.e., speech perception, rime awareness, and onset awareness tests), speech production, receptive and expressive language, and phonological awareness skills. This assessment was repeated when the children were completing 1st grade. The Test of Word Reading Efficiency was also conducted at that time. First-grade sight word and nonword reading performance was compared across these groups. Results: At the end of 1st grade, the SSD-low PP group achieved significantly lower nonword decoding scores than the SSD-high PP and typical speech groups. The 2 SSD groups demonstrated similarly good receptive language skills and similarly poor articulation skills at that time, however. No between-group differences in sight word reading were observed. All but 1 child (in the SSD-low PP group) obtained reading scores that were within normal limits. Conclusion: Weaknesses in phonological processing were stable for the SSD-low PP subgroup over a 2-year period."

- **Mexican Immigrant Mothers' Perceptions of Their Children's Communication Disabilities, Emergent Literacy Development, and Speech-Language Therapy Program**
  from *American Journal of Speech-Language Pathology*
  "Purpose: This qualitative study explored mothers' perceptions of their children's communication disabilities, emergent literacy development, and speech-language therapy programs. Method: Participants were 14 Mexican immigrant mothers and their children (age 17–47 months) who were receiving center-based services from an early childhood intervention program, located in a large urban city in the Midwestern United States. Mother interviews composed the primary source of data. A secondary source of data included children's therapy files and log notes. Following the analysis of interviews through the constant comparative method, grounded theory was generated. Results: The majority of mothers perceived their children as exhibiting a communication delay. Causal attributions were diverse and generally medical in nature (i.e., ear infections, seizures) or due to familial factors (i.e., family history and heredity, lack of extended family). Overall, mothers seemed more focused on their children's speech intelligibility and/or expressive language in comparison to emergent literacy abilities. Conclusions: To promote culturally responsive intervention, mothers recommended that professionals speak Spanish, provide information

about the therapy process, and use existing techniques with Mexican immigrant families."

- **Influence of Visual Information on the Intelligibility of Dysarthric Speech**
  from *American Journal of Speech-Language Pathology*
  "Purpose: To examine the influence of visual information on speech intelligibility for a group of speakers with dysarthria associated with Parkinson's disease. Method: Eight speakers with Parkinson's disease and dysarthria were recorded while they read sentences. Speakers performed a concurrent manual task to facilitate typical speech production. Twenty listeners (10 experienced and 10 inexperienced) transcribed sentences while watching and listening to videotapes of the speakers (auditory-visual mode) and while only listening to the speakers (auditory-only mode). Results: Significant main effects were found for both presentation mode and speaker. Auditory-visual scores were significantly higher than auditory-only scores for the 3 speakers with the lowest intelligibility scores. No significant difference was found between the 2 listener groups. Conclusions: The findings suggest that clinicians should consider both auditory-visual and auditory-only intelligibility measures in speakers with Parkinson's disease to determine the most effective strategies aimed at evaluation and treatment of speech intelligibility decrements."

- **An Existential Framework for Understanding the Counseling Needs of Clients**
  from *American Journal of Speech-Language Pathology*
  "Purpose: To offer an existential framework for understanding some of the emotional and grieving issues that can accompany communication disorders. Method: A narrative review of selected existential psychology literature is provided. I. Yalom's (1980, 1986) model is used as a foundation to explore the 4 existential issues of death, freedom/responsibility, loneliness, and meaninglessness. This model is then applied to communication disorders based on the work of D. Luterman (1984, 2001). These 4 existential issues are juxtaposed with K. Moses' (1989) model of the grief response, which includes denial, anxiety, fear, depression, anger, and guilt. Suggestions for responding within one's scope of practice are provided. Conclusion: Combined, existential and grieving models can offer clinicians new insight into clients' loss resolution work. This inner work constitutes a spiritual journey that may parallel the journey through therapy and rehabilitation. The case is made that attending to these issues can enhance long-term outcomes of treatment."

- **Deep brain stimulation treatment gives man a voice again**
  from Topix.net
  “The changes in the man's functional abilities were statistically linked to the use of DBS, and those changes have been remarkable and sustained.” DOCTORS have used electrical impulses to help a brain-damaged man learn to talk and eat again, it emerged yesterday. via Scotsman.com"

- **While teaching improvisation with the Picture Exchange Communication System is important, further research has to establish its effectiveness**
  from *Evidence-Based Communication Assessment and Intervention*
  No abstract available.

- **A Comparison of Linguistic Profiles in Subgroups of Children With Specific Language Impairment**
  from *American Journal of Speech-Language Pathology*
  "Purpose: To compare morphosyntactic skills of preschoolers in different subgroups of language impairment. Method: Eighty-three children participated in this study. They represented 4 groups: (a) language impairment-only, (b) speech-language impairment with minimal or no final cluster reduction/consonant deletion, (c) speech-language impairment with frequent final cluster reduction/consonant deletion, and (d) a no-impairment control group. Group performance was compared for finite and nonfinite morpheme production and sentence structure. Results: Children in the language impairment-only group had significantly

higher performance than children in both speech-language impairment subgroups, even when errors that could be attributed to final consonant deletion/cluster reduction were taken into account. The language impairment-only and control groups' performance was similar for finite and nonfinite morpheme production, and both groups produced nonfinite plurals with significantly higher accuracy than finite third person singular forms. The language impairment-only group had significantly higher accuracy for both plural and third person singular relative to the group with speech-language impairment characterized by infrequent final cluster reduction/consonant deletion. Conclusions: Children with speech-language impairment generally had poorer morphosyntactic skills than peers who had language deficits and age-appropriate speech skills. Final consonant and final cluster production skills alone did not account for group differences. Clinically, the findings suggest that it is important to assess carefully the speech skills, including final cluster production skills, of preschoolers who have language deficits and language skills of preschoolers who have speech sound disorders."

- **To watch, to see, and to differ: An event-related potential study of concreteness effects as a function of word class and lexical ambiguity**
  from *Brain and Language*
  "Electrophysiological techniques were used to assess the generalizability of concreteness effects on word processing across word class (nouns and verbs) and different types of lexical ambiguity (syntactic only and combined syntactic/semantic). The results replicated prior work in showing an enhanced N400 response and a sustained frontal negativity to concrete as compared with abstract nouns. The effect of concreteness on the N400 generalized to all word class and ambiguity conditions, whereas the frontal effect was present for all word types except for the syntactically and semantically ambiguous items when these were used as verbs. The seemingly dissociable ERP effects of concreteness at frontal and central/posterior electrode sites revealed by these data suggest that concreteness may impact multiple aspects of neurocognitive processing."

- **Three kinds of rhymes: An ERP study**
  from *Brain and Language*
  "In a simple prime–target visual rhyming paradigm, pairs of words, nonwords, and single letters elicited similar event-related potential (ERP) rhyming effects in young adults. Within each condition, primes elicited contingent negative variation (CNV) while nonrhyming targets elicited more negative waveforms than rhyming targets within the 320–500 ms (N400/N450) time window. The target rhyming effect, apparently primarily an index of phonological processing, was similar across conditions but tended to be smaller in mean amplitude for letters. One of the first reports of such a letter rhyming effect in the ERP literature, these findings could be important developmentally because letter rhyme tasks simultaneously index the two best predictors of ease of learning to read: letter name knowledge and phonological awareness."

- **The impact of phonological complexity on past tense inflection in children with Grammatical-SLI**
  from *Advances in Speech-Language Pathology*
  "English-speaking children with Specific Language Impairment (SLI) variably produce inflected and bare stem forms in obligatory past tense contexts. Researchers have not reached consensus as to whether the underlying deficit is morphosyntactic or morphophonological in nature. The Computational Grammatical Complexity (CGC) Hypothesis takes a different tack: it hypothesizes that for children with a particular form of SLI, Grammatical-SLI, the deficit is in representing linguistic structural complexity in at least three components of the computational grammatical system - syntax, morphology and phonology. Deficits in all these components are predicted to impact on regular past tense formation. The impact of syntactic and morphological complexity on G-SLI children's realization of tense has been tested previously. Here we complete the picture by considering phonological effects on their production of regular past tense inflection. Using a past tense

elicitation task where we manipulate the phonological complexity of the inflected verb end, we show that, as predicted, verb-end phonological complexity impacts on suffixation: G-SLI children are less likely to suffix stems when the inflected form ends in a consonant cluster. Typically developing controls show no such effect. The results of this study highlight the need to consider the independent contributions of language components to impaired and normal performance."

- **The effect of phonological awareness intervention on non-word spelling ability in school-aged children: An analysis of qualitative change**
  from *Advances in Speech-Language Pathology*
  "The purpose of this pre-experimental, retrospective study was to examine the effect of a phonological awareness intervention program on qualitative changes in the non-word spelling skills of children with spelling difficulties. Additionally, this pilot study set out to determine the reliability and effectiveness of a newly developed spelling analysis tool. This tool, the Feature Analysis of Non-word Spelling (FANS) was devised to qualitatively describe children's non-word spelling performance. Participants were 16 school-aged children, ranging in age from 8 years 6 months to 10 years 1 month, who were selected for this study on the basis of their below average non-word spelling ability prior to intervention. All children in the study had received phonological awareness training based on the University of Queensland Phonological Awareness for Literacy (UQPAL) program. Pre- and post-intervention non-word spelling responses of participants were analysed using the FANS. Results revealed a significant overall improvement in non-word spelling skills following phonological awareness training. Specifically, participants displayed significant improvements in their ability to represent vowels post intervention. The FANS was found to be a highly reliable qualitative measure of non-word spelling. Results highlight the merit of using a qualitative analysis of spelling to best elucidate the effectiveness of intervention or developmental change."

- **Rhythm in the speech of a person with right hemisphere damage: Applying the pairwise variability index**
  from *Advances in Speech-Language Pathology*
  "Although several aspects of prosody have been studied in speakers with right hemisphere damage (RHD), rhythm remains largely uninvestigated. This study compares the rhythm of an Australian English speaker with right hemisphere damage (due to a stroke, but with no concomitant dysarthria) to that of a neurologically unimpaired individual. The speakers' rhythm is compared using the pairwise variability index (PVI) which allows for an acoustic characterization of rhythm by comparing the duration of successive vocalic and intervocalic intervals. A sample of speech from a structured interview between a speech and language therapist and each participant was analysed. Previous research has shown that speakers with RHD may have difficulties with intonation production, and therefore it was hypothesized that there may also be rhythmic disturbance. Results show that the neurologically normal control uses a similar rhythm to that reported for British English (there are no previous studies available for Australian English), whilst the speaker with RHD produces speech with a less strongly stress-timed rhythm. This finding was statistically significant for the intervocalic intervals measured ($t(8) = 4.7$, $p < .01$), and suggests that some aspects of prosody may be right lateralized for this speaker. The findings are discussed in relation to previous findings of dysprosody in RHD populations, and in relation to syllable-timed speech of people with other neurological conditions."

- **Recruitment of speech pathologists into positions considered less attractive**
  from *Advances in Speech-Language Pathology*
  "Speech pathology is a growth industry, but how this impacts on recruitment in Australia has not been explored in the research literature. The aim of this study was to investigate characteristics of advertised speech pathology positions and the ease with which they were filled, particularly for less attractive positions based in non-metropolitan locations or involving work with people with developmental disability. Contact persons for positions advertised

mostly in newspapers over a 36-week period were recruited. There were 108 positions advertised, with 89 contact people agreeing to participate in two telephone surveys, including one conducted approximately one month after application closing dates. Positions represented a range of employment sectors, with Grade 2 followed by Grade 1 positions most frequent. Most (75%) positions were filled, but for 55% at grades other than that advertised. There was no evidence that positions in non-metropolitan positions or those involving work with people with developmental disability were particularly difficult to fill, but they did attract relatively few applicants. The data did, however, point to a potential mismatch between successful applicants' level of experience and job requirements. Implications for support needs of isolated and inexperienced clinicians, and further research needs are discussed."

- **Canonical features in the inflectional morphology of Spanish-speaking individuals with agrammatic speech**
  from *Advances in Speech-Language Pathology*
  "Non-fluent agrammatic speech output, a typical feature of Broca's aphasia, involves marked difficulty using complex verb tenses. This experiment examined the interactional effect among canonical properties of verb inflections in the simple verbs produced by Spanish-speaking individuals with agrammatic speech, based on data derived from a larger corpus. Twelve monolingual Spanish-speaking individuals, six with agrammatic speech and six control speakers, participated in the study. A sentence repetition task was deemed useful for this experiment because it provided clues between overt expressive syntactic abilities and their possible internal grammatical processing. Responses for simple verbs were examined in variable pairings to explore the effect each variable interaction had on the enhancement of verb inflection repetition. Findings showed that participants with agrammatic speech favoured the repetition of structurally simple verb endings associated with early acquired and frequently employed verb forms. These results support the notion that complex inflectional markers may overload processing capabilities of agrammatic speakers for the production of inflectional affixes. Instead, simple verb forms are easier to produce because they involve an enhancing interaction of morphophonological canonical features. Both theoretical and clinical implications of the findings are discussed."

- **Response Properties of Neighboring Neurons in the Auditory Midbrain for Pure Tone Stimulation: A Tetrode Study**
  from the *Journal of Neurosphysiology*
  "The complex anatomical structure of the central nucleus of the inferior colliculus (ICC), the principal auditory nucleus in the midbrain, may provide the basis for functional organization of auditory information. To investigate this organization, we used tetrodes to record from neighboring neurons in the ICC of anesthetized cats and study the similarity and difference among the responses of these neurons to pure tone stimuli using widely used physiological characterizations. Consistent with the tonotopic arrangement of neurons in the ICC and reports of a threshold map, we found a high degree of correlation in the best frequencies (BF) of neighboring neurons, which were mostly below 3-kHz in our sample, and the pure tone thresholds among neighboring neurons. However, width of frequency tuning, shapes of the frequency response areas, and temporal discharge patterns showed little or no correlation among neighboring neurons. Since the BF and threshold are measured at levels near the threshold and the characteristic frequency (CF), neighboring neurons may receive similar primary inputs tuned to their CF; however, at higher levels, additional inputs from other frequency channels may be recruited, introducing greater variability in the responses. There was also no correlation among neighboring neurons' sensitivity to interaural time differences (ITD) measured with binaural beats. However, the characteristic phases (CP) of neighboring neurons revealed a significant correlation. Since the CP is related to the neural mechanisms generating the ITD sensitivity, this result is consistent with segregation of inputs to the ICC from the lateral and medial superior olives."

News from July 2007

News from June 2007

News From May 2007

News From April 2007

News From March 2007

News From February 2007

News From January 2007

News From December 2006