

Tilburg University

Retention of visual versus auditory speech

de Gelder, B.; Vroomen, J.

Published in:

Bulletin of the Psychonomic Society

Publication date:

1989

[Link to publication in Tilburg University Research Portal](#)

Citation for published version (APA):

de Gelder, B., & Vroomen, J. (1989). Retention of visual versus auditory speech: a common basis. *Bulletin of the Psychonomic Society*, 27(6), 497-497.

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

Take down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

consisting of a normal image and a phase-scrambled image. RT for onset and offset increased with spatial frequency for the phase-scrambled images, but not for the normal phase images.

2:25-2:40 (112)

An Evaluation of the Empirical Bases Underlying Global Precedence Theory. MARVIN R. LAMB & LYNN C. ROBERTSON, *University of California, Davis*—Navon's global precedence hypothesis was based primarily on the joint occurrence of two effects: (1) a reaction time advantage for identifying global targets and (2) interference by global distractors on responding to local targets but not vice versa. We will present experiments from both brain-injured and normal populations showing that these two effects can vary independently. Implications for theories of perceptual organization will be discussed.

2:45-3:05 (113)

Give Me a Half a Millisecond and I Will Change Your Mind. JOHN THEIOS & STEPHEN T. MORGAN, *University of Wisconsin—Madison*—We present two conceptually incompatible stimuli (one lexical, one pictorial) successively in the same position of a T-scope for only 1 msec each, with a zero interstimulus interval. Observers report seeing one or the other at a chance level when the stimulus durations are equal. As soon as one stimulus is given as little as .25 to .50 msec more duration than the other, the longer stimulus is reported on 68% to 84% of the test trials.

SPEECH PERCEPTION

Continental Ballroom North, Friday Afternoon, 3:40-5:30

Chaired by Leonard Katz, *University of Connecticut, Storrs*

3:40-3:50 (114)

Do the Laws of Form Apply to Speech Signals? ROBERT E. REMEZ, *Barnard College*, & PHILIP E. RUBIN, *Haskins Laboratories*—Perceptual organization of auditory patterns is often explained by appeal to Gestalt grouping principles. Despite the evidence for such principles in the grouping of simple acoustic displays, the time-varying nature of speech spectra eludes a similar account. Studies with sine-wave speech analogs show that auditory grouping is neither a prerequisite to phonetic perception nor are the grouping dispositions sufficient to explain perceptual integration of oral, nasal, and fricative formants in phonetic perception. We have identified an attentional component specifically in phonetic organization using dichotomously presented sinusoidal components which compete for phonetic and auditory grouping. Supplementary principles of auditory perceptual organization will be proposed.

3:55-4:10 (115)

Naive Phonology: Students' Tacit Knowledge of Articulatory Linguistic Features. JAMES J. JENKINS, GWENDOLYN E. CAMPBELL, & JOHN S. PRUITT, *University of South Florida*—College student subjects rated similarity of small sets of American-English consonants (usually eight). Complete paired comparisons were obtained. Multidimensional scaling techniques were applied to symmetrical matrices. Results indicate some remarkable correspondences of the dimensions of psychological space (based on averaged similarities) to linguistic features. Although individual subjects can report little or no awareness of linguistic features as such, the similarities that they attribute to pairs of speech sounds reflect certain of those features accurately.

4:15-4:25 (116)

Perception of Vowel Categories by Budgerigars (*Melopsittacus undulatus*). ROBERT J. DOOLING, SUSAN D. BROWN, *University of Maryland*, & H. TIMOTHY BUNNELL, *Gallaudet College*—We trained budgerigars with operant conditioning procedures to discriminate among vowel tokens from several different phonetic categories. Response latencies were analyzed with multidimensional scaling and clustering procedures to produce evidence of perceptual categories. Tests with both natural and synthetic vowels reveal that budgerigars recognize phonetic equivalence in spite of variation in age and sex of the talker producing the vowel. These comparative results have relevance for theories of speech perception and language learning in humans.

4:30-4:45 (117)

Retention of Visual Versus Auditory Speech: A Common Basis? BEATRICE DE GELDER & JEAN VROOMEN, *Tilburg University*,

The Netherlands (sponsored by Paul Bertelson)—The purpose was to test the hypothesis of a common basis for the retention of auditory and of lipread speech data. Serial recall of lipread, auditory, and auditory-visual digit lists, with and without a verbal suffix, was examined. The effect of the suffix was largest when it was in the same modality as the items. These results are inconsistent with the assumption of a common basis.

4:50-5:00 (118)

Reporting Pauses in Dramatic Dialogue. JULIA C. GARDNER, HEIDI S. McMILLAN, DARREN TOWNSEND-HANDSCOMB, RICHARD BARRETT-BATES, *Georgetown University*, & DANIEL C. O'CONNELL, *Loyola University of Chicago* (read by Daniel C. O'Connell)—Native speakers of English or German reported occurrence and estimated duration of pauses in English and German dialogues. Percentage of correct reports was significantly higher for German than for English dialogue and for German (over English) native speakers in the German dialogue, but equivalent for German and English native speakers in the English dialogue. Results are interpreted in terms of a theory of temporal organization of language use.

5:05-5:25 (119)

Effects of Training and Attentional Cues on Phonemic Restoration. ARTHUR G. SAMUEL, *Yale University*—Earlier work in our laboratory showed 1,000 training trials did not reduce the strength of the phonemic restoration illusion, and precuing the identity of a test word or the critical phoneme did not help either; giving *both* word and phoneme information did. We will report on the effects of 10,000 training trials, and on the utility of syllabic, rather than lexical, precues. The results address issues of lexical access and of attentional allocation during speech perception.

INDIVIDUAL DIFFERENCES II

Continental Ballroom South, Friday Afternoon, 3:30-5:30

Chaired by Eugene B. Zechmeister, *Loyola University of Chicago*

3:30-3:45 (120)

Are Mental Processes the Same Across the Ability Spectrum? DOUGLAS K. DETTERMAN, *Case Western Reserve University*—It has generally been assumed that mental processes are the same for all subjects. Evidence to be presented suggests that subjects of low intelligence are structurally different from subjects of high intelligence. When low-IQ subjects are compared with high-IQ subjects, (1) correlations among cognitive tasks and standardized tests are higher for low-IQ subjects, (2) factor structures are different for low-IQ subjects, (3) heritability of IQ and basic cognitive processes differs.

3:50-4:10 (121)

Test Practice and Task Practice: A Dynamic Ability-Skill Framework. PHILLIP L. ACKERMAN, *University of Minnesota*—Human abilities theories have often neglected the dynamic nature of information processing for ability tests. In this theoretical and empirical investigation, considerations of skill development are applied to the acquisition of criterion skills *and* to practice occasions for reference ability tests. The experiment involved repeated testing of ability tests and practice on a simulated air traffic control task. Discussion concerns dynamic changes in ability test factor loadings after practice and changes in ability-skill relations.

4:15-4:25 (122)

Presentation Mode, Individual Differences, and Dual-Task Performance. ASTRID SCHMIDT-NIELSEN & LISA B. ACHILLE, *Naval Research Laboratory*—Subjects were given verbal and spatial abilities tests and were then tested on dual-task performance under three different presentation modes. The two tasks were a tracking task and a classification task. The classification task could be presented as text, pictures, or spoken words. Spatial ability was positively correlated with tracking performance in both single- and dual-task conditions, but there was little correlation with verbal ability for any of the tasks.

4:30-4:50 (123)

Cognitive Models of Processing a Three-Dimensional Spatial Ability Task. SUSAN E. EMBRETSON & MICHAEL B. WAXMAN, *University of Kansas*—Three experiments were conducted to test a cognitive model for a spatial task, the figure folding task, that measures