RECENT PUBLICATIONS

(April 1994 - March 1995)

Department of Speech Science

A. Publications in English

A. 1. Publications in Periodicals

A. 1. i. Original Contributions

Itagaki, F., Niwa, S., Itoh, K. and Momose, T.: Random number generation and the frontal cortex. International Journal of Psychophysiology, 19: 79-80, 1995.

The random number generation task involves the generation of a random sequence of numbers. Several psychological mechanisms may be involved in the generation of random numbers, but good performance in the task is assumed to require subjects activation of the working memory, which is considered a function of the frontal lobe. To test the assumption, we measured regional activation patterns in the brain of four male university students by positron emission tomography (PET) during the two tasks of simple number calling and random number generation. The regional activation pattern was assessed by subtracting number calling rCBF (regional cerebral blood flow) from random number rCBF. Randomness was determined from the calculation of two specially designed indices. From the four subjects, the two most extreme pairs were selected (good randomizer and poor randomizer). The result of this study indicate that better random generation is synchronous with a higher increase in the posterior frontal cortex blood flow. Thus it is suggested that the random number generation task is a suitable tool to examine the frontal lobe function.

Itoh, K.: A neurosynaptic model of state-dependent EEG wave generation in the subcortico-cortical system. IEEE Transactions on Biomedical Engineering, 41: 954-962, 1994.

A neuro-synaptic model of the subcortico-cortical system was presented in order to analyze the mechanism for the generation of EEG rhythms with specific state-dependent spectral patterns. The Model is based on the interaction among the infra-slow, as well as basic, rhythms of the PSPs (post-synaptic potentials) trains from which CSDs (current source densities) or cortical surface potentials emerge. The model system was simulated by two trains of positive and negative cortical surface potentials within the same period according to the

thalamic clock as modulated by the infra-slow rhythms of the midbrain reticular system. The simulated EEGs showed rhythmic waxing and waning sawtooth-like waves with no frequency fluctuation, but with some spectral broadband peaks at the basic repetitive frequency as well as its harmonics.

Koshida I., Itoh, K., Hiramatsu, K., Yumoto, M. and Niwa, S.: A three dimensional visualization system for estimated dipole movements from magnetoencephalography. Biomedical Engineering, Application, Basis, Communication. 6: 729-733, 1994.

We have developed a three-dimensional visualization system for estimated series of dipole movements obtained from MEG. Time-dependent movements of dipoles, as well as 3D EEG topography, are animated on a computer display showing a shape of a cortical surface. To indicate its direction and magnitude, a dipole is represented as a vector on the screen. The shape of a cortical surface is reconstructed from MRI slice images. This system has three windows to show the position of dipole. In the main window of this system, dipole arrows and a shape of cortical surface are displayed. The viewing direction of the main window can be set arbitrarily. The remaining sub-windows display frontal and side views of the brain respectively. The position of dipole is also shown in each of the sub-windows. This system is implemented on Apple Macintosh Quadra 840AV personal computer. The input data of the system are normal text formats. Therefore any outputs from currently used MEG data analysis software are converted to the format without difficulty. We used the BTi SMI-1001 MEG system and its analysis software for testing this system.

Miyagishima, K., Imaizumi, S., Mori, K., Yoneda, K., Kiritani, S. and Yumoto, M.: Distinctive magnetic activity elicited by speech and non-speech sounds. J. Acoust. Soc. Jpn. (E), 15: 193-196. 1994.

The auditory-evoked magnetoencephalogram elicited by vowels and tone bursts sharing the common fundamental frequencies was measured from three normal-hearing right-handed males using a 37 channel SQUID system. The following results were obtained. (1) In the left hemisphere, the vowels evoked significantly larger and faster M100 responses than the tone bursts, whereas no such significant differenc was observed in the right hemisphere. (2) The estimated single dipoles were located within the auditory cortex. Their locations, however, were not always consistent with the lateromedial hypothesis of tonotopic organization of the auditory cortex. The magnetoencephalography successfully demonstrated the cerebral asymmetry, that, for right-handed subjects, the left hemisphere may be more specialized in processing speech sounds than the right hemisphere. The individuality of cortical functional

anatomy and the composite nature of the M100 wave should be kept in mind to interpret the different patterns of dipole positions among subjects.

Mochizuki-Sudo, M. and Kiritani, S.: Comparison of naturalness judgments for vowel duration in English and Japanese. International Journal of Psycholinguistics, 10: 281-294. 1994.

This study examines the naturalness threshold of English stressed vowels for Americans and Japanese learners of English. Conversely, the naturalness threshold of Japanese accented vowels for Japanese speakers is compared to that of Japanese for American learners. Perception experiments demonstrated that Americans are more sensitive to the shortening of a vowel both in English and Japanese than Japanese. As for the lengthening of a vowel, Japanese learners of English were found to be less tolerant of lengthening in English vowels. Likewise, in Japanese stimuli, the Japanese were less tolerant of lengthening than the Americans when a vowel was followed by a voiced consonant. In Japanese vowels followed by either a voiceless consonant or a flap, the Japanese were conversely more tolerant of lengthening than the Americans. We found certain factors, such as the phonemic vowel length distinction and a voice-conditioned effect, which exerted an influence on these judgments of naturalness.

Hartono Abdoerrachman, Satoshi Imaizumi, Shigeru Kiritani, Seiji Niimi, Hajime Hirose, Hiroku Yonekawa: Voice analysis as a follow up tool on Reinke's Edema, Med. J. Indonesia, 3(4): 220-225, 1994.

Voice qualities pre and post treatment were studied by analyzing sustained vowel voice samples of 35 patients with Reinke's edema. Results obtained from extracted voice properties were statistically significant increase in mean fundamental frequency, a constant decrease in fractal dimensions of fundamental frequency and amplitude, the additive noise level, jitter and shimmer, the overall variability, the energy of slow and fast perturbation, with incessant female dominance. It was concluded that the variability, regularity, and stability of the post treatment patients voices are improved. The results indicate that the acoustical analyzing method is an advantageous monitoring tool for quantitative evaluation of vocal changes post treatment.

Hartono Abdoerrachman, Satoshi Imaizumi: Neo-glottis voice assessment on post laryngectomized patients. Med. J. ORLI, 15: 332-335, 1994.

Many experts had been conduction investigation concerning the mechanism of voice

production on post-laryngectomized patients, however study on voice assessment produced by the esophageal speakers are interested and valuable. In this study, voice analyses on super-class of esophageal speakers are compared to the super-superior group. Several voice parameters are extracted using the voice analysis method proposed by Imaizumi, such as the Amplitude Perturbation Quotient (APQ), the overall Fundamental Frequency and Amplitude Variability (F0 Var and Amp Var), the F0 and Amplitude Fluctuation frequency (F0 Fluct Freq and Amp Fluct Freq), the additive noise level (NLvl) and the Maximum Phonation Time (MPT).

A. 1. ii. Review Articles

none.

A. 1. iii. Progress Report

Abdoerrachman, H., Imaizumi, S. and Niimi, S.: Test of vocal controllability with increasing pitch and intensity. Ann. Bull. RILP, 28: 45-49, 1994.

Imaizumi, S., Hayashi, A. and Deguchi, T.: Listener adaptive characteristics in dialogue: Effects of temporal adjustments on emotional aspects of speech. Ann. Bull. RILP, 28: 59-64, 1994.

Kiritani, S., Niimi, S., Imagawa, H. and Hirose, H.: Vocal cord vibrations associated with involuntary voice changes in certain pathological cases. Ann. Bull. RILP, 28: 27-32, 1994.

Hayashi, R. and Kiritani, S.: A Study on production and perception of focus in German by Japanese learners. Ann. Bull. RILP, 28: 65-68, 1994.

Funatsu, S. and Kiritani, S.: Cross language study of perception of dental fricatives in Japanese and Russian. Ann. Bull. RILP, 28: 69-72, 1994.

Sakata, T., Kubota, N., Yonekawa, H., Imaizumi, S. and Niimi, S.: GRABAS evaluation of running speech and sustained phonations. Ann. Bull. RILP, 28: 51-55, 1994.

Mori, K., Imaizumi, S., Kiritani, S., Miyagishima, K. and Yumoto, M.: Megnetoencephalographic components correlated to auditory short-term memory during pitch

and phoneme discrimination. Ann. Bull. RILP, 28: 41-44, 1994.

A.2. Contributions in Separate Publications

Hirose, H., Imaizumi, S. and Yamori, M.: Voice quality in patients with neurological disorders. in Vocal Fold Physiology, Voice Quality Control, edited by O. Fujimura and M. Hirano. Singular Publishing Group, Inc., San Diego, CA, 235-248, 1995.

Imaizumi, S., Saida, H., Shimura, Y. and Hirose, H.: Harmonic analysis of the singing voice: Acoustic characteristics of vibrato. SMAC 93, Edited by A. Friberg, J. Iwarsson, E. Jansson, and J. Sundberg. The Royal Swedesh Academy of Music, 79: 197-200, 1994.

Kiritani, S., Niimi, S., Imagawa, H. and Hirose, H.: Vocal fold vibrations associated with involuntary voice changes in certain pathological cases. In Vocal Fold Physiology, Voice Quality Control. (eds. Fujimura, O. and Hirano, M.), Singular Publishing Group, Inc., San Diego,CA. 269-282, 1995.

Mazuka, R. and Itoh, K.: Can Japanese speakers be led down the garden-path? In Japanese Sentence Processing (eds. Mazuka R. and Nagai N.). Lawrence Erlbaum Associates, Hillsdale, NJ, 295-329, 1995.

A. 3. T ranslations

none.

A. 4. Contributions in Meeting, Proceedings etc.

Imaizumi, S., Abdoerrachman, H. and Niimi, S.: Controllability of voice quality: evidence from physiological and acoustic observations. Proceedings of the 3'rd International Conference on Spoken Language Processing, 1467-1470, 1994.

Imaizumi, S., Hayashi, A. and Deguchi, T.: Vowel devoicing in Japanese dialogue between teachers and hearing-impaired or normal-hearing children: Listener adaptive characteristics of dialogue speech production. J. Acoust. Soc. Am., 95: 5(2), p.3012, 5pSP18, 1994.

Kiritani, S., Maekawa, K. and Hirose, H.: Intonation pattern with focus and related muscle activities in Tokyo dialect. Proceedings of the 3'rd International Conference on Spoken Language Processing, 1079-1082, 1994.

Kiritani, S.: Articulatory movements and units in speech. Dokkyo International Review, 403-412, 1994.

Koshida, I., Itoh, K., Hiramatsu, K., Yumoto, M., Niwa, S.: A three dimensional visualization system for estimated dipole movements from magnetoencephalography. Abstracts of The 1st Medical Engineering Week of the World (The 3rd International Symposium Biomedical Engineering in the 21st Century & The 1st IEEE/EMBS Region 10 International Conference & Clinical Engineering Symposium: Roles and Training Programs), Taipei: 130, 1994.

Mochizuki-Sudo, M. and Kiritani, S.: Naturalness judgments for stressed vowel duration in second language acquisition. Proceedings of the 3'rd International Conference on Spoken Language Processing, 1719-1722, 1994.

Shimura, Y. and Imaizumi, S.: Development of infants' expression and perception of emotion through vocalization. J. Acoust. Soc. Am., 95: 5(2), p.3017, 5pSP49, 1994.

Shimura, Y. and Imaizumi, S.: Infants' expression and perception of emotion through vocalization. Proceedings of the 3'rd International Conference on Spoken Language Processing, 1703-1706, 1994.

Watanabe, Y., Kiritani, S., Imagawa, H. and Seki, H.: Word training system for aphasic patients. The Sixth International Aphasia Rehabilitation Conference, Aalborg, Denmark, 1994.

B. Publications in Japanese

B. 1. Publications in Periodicals

B. 1. i. Original Contributions

Asano, K., Sudo, M. and Kiritani, S.: Acoustic factors affecting the perception of English articles by Japanese learners.(日本人英語学習者の冠詞聴取の困難にかかわる音響学的

要因) Bulletin of the Phonetic Soc. Jpn.(日本音声学会報), 206: 47-52, 1994.

This study examines the perception of English articles by Japanese learners of English. Perceptual experiments were conducted using speech stimuli in which the durational characteristics were manipulated by a speech wave editing program. The experiments demonstrated that for "a", lengthening of both the duration of articles and the closure period of the preceeding consonants had an effect on the invrease in the responses of "the". Conversely, for "the", shortening of the closure period and the vowel duration resulted in the increase in the responses of "a" and "no-article" respectively. The results show that Japanese learners of English tend to depend excessively on the durational features in the identification of English articles.

Kato, F., Hayashi, A., Deguchi, T. and Kiritani, S.: Effect of fundamental frequency on vowel perception in young children and infants.(乳幼児の母音知覚における基本周波数の影響) Jpn. J. Logop. Phoniatr.(音声言語医学), 35: 231-239, 1994.

The process of human speech perception shows marked features of normalizing various variations in speech sounds. Among these is the normalization of vocal tract size effect on the vowel formants. In relation to this normalization ability, effect of fundamental frequency in vowel perception in young children and infants was examined and compared with that in adults. A series of vowels ranging from /o/-/a/ were synthesized with two different fundamental frequencies (100Hz and 220Hz) and the influence of the fundamental frequency on response boundaries were examined. Results show that young children of ages 3 to 5 show clear shift of the response boundary. The amount of shift tends to be greater than that for adults. Experiments on infants using a head-turn technique also confirmed similar effect of fundamental frequency in infants.

Kiritani, S., Imagawa, H. and Watanabe, Y.: Word training system for aphasic patients.(パーソナルコンピュータを用いた失語症者用言語訓練装置) Jpn. J. Logop. Phoniatr. (音声言語医学), 35: 375-383, 1994.

A Personal computer-based word training system for language therapy of aphasic patients was constructed. The system aims to assist self-tarining by aphasic patients in language therapy.

The training system is essentially based on pointing response to picture cards displayed on the screen of the personal computer. The speech sound corresponding to one on the displayed cards is presented through a D/A converter, and the patient makes a response by pointing to a displayed picture card. All responses and program operations are performed

through a touch panel attached to the surface of the monitor.

The tarining programs are as follows: 1) Basic naming/writing of noun words 2) Auditory comprehension training a) Pointing b) Yes-no answering 3) Auditory memory-span training a) Word sequence training b) Noun phrase training. This system is being used experimentally for 15 aphasic patients without disturbance of consciousness, limb kinetic apraxia and disturbance of eyesight, and it seems that the system is useful for aphasic patients, especially for Wernicke's aphasia. Using this system, patients are able to do self-training as many times as they want and speech therapists are thus able to save time and offer therapy sessions to order patients.

Saida, S., Imaizumi, S., Akashi, E., Kakachi, N. and Hirose, H.: Aerodynamic and acoustic study of the vocal register of the singing voice (歌声声区変換機構の空気力学的、音響学的検討). The Larynx Jpn.(喉頭), 6: 24-32, 1994.

Aerodynamic and acoustic characteristics of vocal registers were studied in professional and non-professional singers. The air flow rate, sound intensity level and fundamental frequency were measured using SH-01 for the speech and singing voices. The rate and magnitude of vibrato were extracted from the singing voices, and an electroglottogram (EGG) was simultaneously recorded. The results were as follows; 1.In the singing mode of a professional soprano singer, the register change from "Chest" to "Mid" occured at 350Hz. In "Mid" register, the flow rate increased significantly even though the intensity level did not change remarkably. In the speech mode of the singers and in the singing mode of non-professional singers, the flow rate did not increase so much. 2. The estimated open quotient increased when the vocal register changed from "Chest" to "Mid". At the register changing point, the vibrato tended to be suppressed. Vibrato magnitude was significantly larger in "Mid" register than in "Chest". There was no significant difference in vibrato rate between the two vocal registers, although it was slightly slower in "Mid" register than in "Chest". These results suggest that the laryngeal adjustment changes so as to increase the flow rate in "Mid" register, and the change affects vibrato magnitude significantly, but not the vibrato rate.

Shimura, Y. and Imaizumi, S.: Individual differences in infant development of emotional expression through vocalization. (乳児音声における感性情報表出の発達と個人差の検討). Jpn. J. Logop. Phoniatr. (音声言語医学), 35: 207-212, 1994.

Developmental aspects of emotional expression through vocalizations by infants were investigated using perceptual experimentals by normal-hearing adults. The voices used were 517 samples recorded from 6 infants at 6, 9, 12 and 17 months of age. The results were

follows. 1) Two-way ANOVA with the factors of individuality and age showed significant effects of infant and infant-age interaction on the emotional profile of vocalizations. But infants' age alone was not significant. 2) Factor analysis revealed three factors: pleasure vs. displeasure, speech vs. laughter and intraverted vs. extraverted emotional expressions. Infants produced almost all aspects of emotion even at 6 months of age. These results suggest infants even at 6 months of age have the ability to produce voices which may convey variety of emotion.

B. 1. ii. Review Articles

Kiritani, S.: Recent trends in developmental studies of speech perception in infants.(言語音知覚の獲得過程) Jpn. J. Logop. Phoniatr.(音声言語医学), 35: 279-284, 1994.

Kiritani, S.: Physical and physiological process in speech production.(ことばの生理と物理) Science University of Tokyo Bulletin, 9: 21-29, 1994.

B. 1. iii. Progress Report

none.

B. 2. Contributions in Separate Publications

Imaizumi, S.: Phycoacoustic evaluation of voice. (声の聴覚心理評価), in Basic Issues in Clinical Examination of Voice, Edited by Jpn. Soc. Logopedics & Phoniatrics, Ishiyaku Shuppan, Tokyo (声の検査法(基礎編), 日本音声言語医学会編,医歯薬出版,東京), 151-172, 1994.

Imaizumi, S.: Soundspectrography. (サウンドスペクトログラフィ)、in Practical Issues in Clinical Examination of Voice, Edited by Jpn. Soc. Logopedics & Phoniatrics, Ishiyaku Shuppan, Tokyo (声の検査法 (臨床編), 日本音声言語医学会編,医歯薬出版,東京), 164-179, 1994.

Imaizumi, S.: Long term average spectrum. (長時間平均スペクトルによる検査)、in Practical Issues in Clinical Examination of Voice, Edited by Jpn. Soc. Logopedics &

Phoniatrics, Ishiyaku Shuppan, Tokyo (声の検査法 (臨床編), 日本音声言語医学会編,医歯薬出版,東京), 180-181, 1994.

Kiritani, S.: Observation of articulatory movements.(構音動作の観察、記録) Clinical Examination of Voice, Edited by Jpn. Soc. Logopedics & Phoniatrics, Ishiyaku Shuppan, Tokyo (声の検査法 (第2版), 日本音声言語医学会編,医歯薬出版,東京), 105-116, 1994.

B. 3. Translation

none.

B. 4. Contributions in Meeting, Proceedings etc.

伊藤憲治, 平松謙一, 福田正人, 湯本真人, 越田一郎, 丹羽真一: 三次元脳機能局在解析・映像システムを用いた言語・思考過程とその障害の観測及びモデル化. 電子情報通信学会1995年総合大会講演論文集, 472-473, 1995.

今泉敏, Hartono Abdoerrachman, 新美成二：声の遅いゆらぎの評価システム (画像処理を利用したトピック－最近の耳鼻咽喉科情報処理研究会から－) 第14回医療情報学連合大会論文集, 88-93, 1994.

今泉敏, 千葉祐子, 林安紀子, 出口利定：対話音声の時間構造調節の解析. 日本音響学会講演論文集 (平成7年度春季), 235-236, 1995.

今泉敏, 森浩一, 桐谷滋, 湯本真人：聴覚的情景分析の脳内過程：脳磁図による検討. 信学技法, SP94-108, 及び日本音響学会聴覚研究会資料H-95-18, 1-8, 1995.

今川博, 桐谷滋, 広瀬肇：二重声の生成における特異な声帯振動パタンと音響的特徴. 日本音響学会講演論文集 (平成6年度秋季), 475-476, 1994.

桐谷滋：音声知覚発達の実験的研究. 「音声発達と音声言語の獲得」重点領域研究「認知・言語の成立」講演会論文集, 1994.

桐谷滋：音声知覚発達研究の最近の動向. 乳児発達特別講演会, 1994.

桐谷滋：日本語の習得基盤の研究と音声言語情報処理．平成５年度文部省科学研究費総合研究(B)「新しい日本語社会」日本語習得の基盤を考える，今石元久編，1994.

桐谷滋，今川博，熊田政信，新美成二：不随意な声の変化に伴う病的声帯振動．日本音声言語医学会予稿集，42，1994.

越田一郎，伊藤憲治，平松謙一，湯本真人，丹羽真一：ＭＥＧ推定ダイポール運動の３次元視覚化システム．第２４回日本脳波・筋電図学会学術大会予稿集，247，1994.

坂田知子，久保田七美，米川紘子，今泉敏，新美成二：朗読音声におけるＧＲＢＡＳ評価の検討．日本音声言語医学会予稿集，46，1994.

柴田勝，世木秀明，望月玲子，出口利定，桐谷滋：幼児の音節知覚における口形の影響．日本音響学会講演論文集(平成７年春季)，389-390，1995.

清水充子，渡辺陽子，広瀬肇，世木秀明，後藤悦子：運動障害性構音障害に対するアクセント法による訓練ー発話の異常度についての検討ー．音声言語医学，36：83，1995.

志村洋子，今泉敏：幼児による乳児音声の感性情報の認知．日本音声言語医学会予稿集，81，1994.

志村洋子，斉藤こずゑ，今泉敏：乳児音声発達と母親の音性行動の変化．日本語シンポジウム予稿集「言語理論と日本語教育の相互活性化」，1-10，1994.

志村洋子，坂和真由美，今泉敏：２カ月児音声における感性情報ー成人による認知特性と音響特性ー．電子情報通信学会信学技報SP94-110及び日本音響学会聴覚研究会資料H-95-20，1995.

千葉ルリ子，世木秀明，桐谷滋：老人における高頻度単語、低頻度単語の受聴明瞭度比較．日本音響学会講演論文集(平成６年度秋季)，531-532，1994.

千葉ルリ子，世木秀明，桐谷滋：老人における有意味語無意味語の受聴明瞭度比較ー老人の単語知覚特性（第２報)ー．日本音響学会講演論文集（平成７年春季)，369-370，1995.

出口利定，馬塚れい子，桐谷滋：日本語における再解釈を必要としうる文の理解に

ついて. 日本心理学会第５８回大会論文集, 77, 1994.

林安紀子, 出口利定, 桐谷滋：乳児の日本語節境界の知覚ー選好振り向き法を用いた実験的検討ー. 聴覚研究会資料, H-95-19. 1995.

林安紀子, 出口利定, 桐谷滋, Peter W. Jusczyk：乳児における日本語節境界の知覚についてー日本人及びアメリカ人乳児の比較ー. 日本音響学会講演論文集 (平成７年春季), 387-388, 1995.

林良子, 桐谷滋：「フォーカスの発音と知覚」ー日本人ドイツ語学習者を対象にー. 日本音声学会全国大会研究発表論集, 125-130, 1994.

林良子, 桐谷滋：日本人学習者によるドイツ語フォーカスの生成と知覚. 日本音響学会講演論文集 (平成７年春季). 381-382, 1995.

平松謙一, 福田正人, 畑哲信, 松下正明, 湯本真人, 伊藤憲治, 中込和幸, 岩波明, 本田秀夫: ＭＥＧによるＮ４００のＤｉｐｏｌｅ推定. 脳波と筋電図, 22: 159, 1994.

平松謙一, 福田正人, 畑哲信, 松下正明, 湯本真人, 伊藤憲治, 斉藤治: ダブル課題を用いた事象関連磁場による２種類のＰ３００成分の発生源の検討. 第２４回日本脳波・筋電図学会学術大会予稿集, 24: 290, 1994.

平松謙一, 福田正人, 松下正明, 伊藤憲治, 湯本真人: ＭＥＧによる認知機能研究の可能性. 生理心理学と精神心理学, 12, 1994.

平松謙一, 福田正人, 松下正明, 伊藤憲治, 湯本真人: 脳波と脳磁図の三次元トポグラフィと三次元ＭＲ画像再構成の試み. 第１２回日本脳電磁図トポグラフィ研究会講演抄録集, 21, 1994.

船津誠也, 桐谷滋：ロシア人日本語学習者および日本人ロシア語学習者の摩擦音聴取における母語の干渉. 日本音声学会全国大会研究発表論集, 101-106, 1994.

船津誠也, 桐谷滋：日本語摩擦音/s/,/sj/とロシア語/s/,/s'/,/sj/の音響特徴. 日本音響学会講演論文集 (平成６年度秋季), 415-416, 1994.

船津誠也, 桐谷滋：日本人及びロシア人の摩擦子音に対する知覚特性. 日本音響学会講演論文集 (平成７年春季), 383-384, 1995.

船津誠也, 藤沼貴, 今泉敏, 桐谷滋：日本人およびロシア人の摩擦子音の識別と音響的特性. 電子情報通信学会信学技報SP94-99及び日本音響学会聴覚研究会資料H-95-9, 9-14, 1995.

山口宏也, 井上斉, 世木秀明, 廣瀬肇, 坂田知子, 今泉敏, 新美成二：喉頭ポリープ術前・術後の発声機能の検討. 日本音声言語医学会予稿集, 154, 1994.

横山秀克, 丹羽真一, 伊藤憲治, 馬塚れい子. 精神分裂病における眼球運動のフラクタル解析. 第8回ゆらぎ現象研究会抄録集, 25-26, 1994.

米川紘子, 山口宏也, 石毛美代子, 坂田知子, 今泉敏, 新美成二：ラインケ浮腫患者音声による検討－病型分類との関連において－. 日本音声言語医学会予稿集, 153, 1994.

渡辺陽子, 世木秀明, 桐谷滋：運動障害性構音障害の構音評価－音声パワー変化速度とスペクトル変化速度を指標とした評価－. 日本音声言語医学会予稿集, 104, 1994.

Department of Speech Physiology

A. Publication in English

A. 1. Publications in Periodicals

A. 1. i. Original Contributions

Kobayashi, T.,Niimi, S., Kumada, M., Kosaki,H. and Hirose, H. Botulinum toxin treatment for spasmodic dysphonia, Acta otolaryngol.504:155-157,1994.

Effective treatment of adductor type spasmodic dysphonia with botulinum toxin (BT) injection is presented. Patients showed pbjective and/or subjective improvement in phonation. The beneficial effect lasted for approximately 3 months. An immediate complication is temporary hoarseness or aphonia, mainly due to diffusion of BT into the adjacent muscles. This is avoided by limiting the injection to one vocal fold only and by keeping the dose at less than 5 units. Insertion technique of the needles, such as percutaneous and laryngoscopically controlled techniques, are discussed.

A. 1. ii. Review Articles

none

A. 1. iii. Progress Report

Kiritani, S., Niimi, S., Imagawa, H. and Hirose, H.:Vocal Cord Vibrations Associated with involuntary voice changes in certain pathological cases. Ann.Bull. RILP, 28: 27-32, 1994.

Niimi, S., Kumada, M. and Niitsu, M.: Functions of tongue-related muscles during production of the five Japanese vowels. Ann.Bull. RILP, 28:3 3-40, 1994.

Abdoerrachaman, H., Imaizumi, S., and Niimi, S.:Test of vocal controllability with increasing pitch and intensity. Ann.Bull. RILP, 28: 45-49, 1994.

Sakata, T., Kubota, N., Yonekawa, H., Imaizumi, S. and Niimi, S.: GRBAS evaluation of running speech and sustained phonations. Ann.Bull. RILP, 28:51-56, 1994.

A. 2. Contributions in Separate Publications

Kiritani, S., Niimi, S., Imagawa, H. and Hirose, H.: Vocal fold vibrations associated with involuntary voice changes in certain pathological cases. In Vocal fold physiology:voice quality control.(eds. Fujimura, O. and Hirano, M.), Singular Publishing Group, Inc., San Diego, California, 269-282, 1994.

A. 3. Translations

none

A. 4. Contributions in Meeting, Proceedings etc.

Imaizumi, S., Abdoerrachman, H. and Niimi, S.: Controllability of voice quality: evidence from physiological and accoustic observations. Proceedings of the 3rd International Conference

on Spoken Language Processing, 1467-1470, 1994.

B. Publications in Japanese

B. 1. Publications in Periodicals

B. 1. i. Original Contributions

none

B. 1. ii. Review Articles

Niimi, S.:Vocal rehabilitation for laryngectomee (喉頭摘出者の発声治療), Clinical Neurosciennce, 13, 214-216, 1995.

B. 1. iii. Contributions in Separate Publications

Niimi, S.:Singing voice (歌声の発声), in Basic Issues in Clinical Examination of Voice, Edited by Jpn. Soc. Logopedics and Phoniatrics, Ishiyaku Shuppan, Tokyo (声の検査法ー基礎編), 日本音声言語医学会編, 医歯薬出版, 東京, 173-182, 1994.

Niimi, S.:Acoustic evaluation of voice (声の音響分析による検査),in Practical Issues in Clinical Examination of Voice, Edited by Jpn. Soc. Logopedics and Phoniatrics, Ishiyaku Shuppan, Tokyo (声の検査法ー臨床編), 日本音声言語医学会編, 医歯薬出版, 東京, 125-129, 1994.

Niimi, S.:Examination of Voice (こえの検査), ENT manual for Public Health in School, Edited by School health Comittee, Jpn. Soc. Otorhinolaryngology, Shindan to Chiryo Sha, Tokyo (耳鼻咽喉科・学校保健マニュアル), 日本耳鼻咽喉科学会学校保健委員会編,39-43, 1994.

B. 1. iv. Translation

none

B. 2. Contributions in Meeting, Proceedings etc.

桐谷　滋、今川　博、熊田政信、新美成二：不随意な声の変化に伴う病的声帯振動（第39回日本音声言語医学会総会.1994.10.7-8）音声言語医学 36:43-44,1995.

坂田知子、久保田七美、米川紘子、今泉　敏、新美成二：朗読音声におけるGRBAS評価の検討（第39回日本音声言語医学会総会.1994.10.7-8）音声言語医学 36: 46-47, 1995.

路　波、熊田政信、大島清史、石毛美代子、新美成二：舌突出による構音障害の1例（第39回日本音声言語医学会総会.1994.10.7-8）音声言語医学 36: 67-68, 1995.

松永　敦、大草方子、井脇貴子、久保　武、渡辺雄介、浮田弘美、新美成二：人工内耳患者のフォルマント変化の検討（第39回日本音声言語医学会総会.1994.10.7-8）音声言語医学 36: 102, 1995.

藤森里香子、市川銀一郎、坂田知子、新美成二：いわゆる本態性音声振戦症の音声所見について（第39回日本音声言語医学会総会.1994.10.7-8）音声言語医学 36: 133-134, 1995.

久保田七美、浅野伸一郎、熊田政信、新美成二：声帯ポリープおよびポリープ様声帯における気流阻止法の検討（第39回日本音声言語医学会総会.1994.10.7-8）音声言語医学 36: 135, 1995.

米川紘子、山口宏也、石毛美代子、坂田知子、今泉　敏、新美成二：ラインケ浮腫患者の音響分析による検討（第39回日本音声言語医学会総会.1994.10.7-8）音声言語医学 36: 136-137, 1995.

宮地麻美子、小田　恂、宝迫　雪、熊田政信、今川　博、桐谷　滋、新美成二、萩野昭三：沈着性病変の声帯にみられた得意な振動パターン（第39回日本音声言語医学会総会.1994.10.7-8）音声言語医学 36: 139, 1995.

斉田晴仁、今泉　敏、新美成二、廣瀬　肇：音声振戦症の喉頭の動きと音声の変化について（第46回日本気管食道科学会総会.1994.10.20-21）日気食会報 46: 159, 1995.

太田　康、竹腰英樹、田山二朗、新美成二：声帯溝症に対する甲状軟骨形成術の応用（第46回日本気管食道科学会総会.1994.10.20-21）日気食会報 46: 155, 1995.

三枝英人、八木聡明、新美成二：フィーディング・チューブを用いた嚥下のリハビリテーション（第46回日本気管食道科学会総会.1994.10.20-21）日気食会報 46: 189-190. 1995.

三富夏彦、田山二朗、丹生健一、加倉井慎一、岡村るみ、新美成二：当科における喉頭微細下CO_2レーザー手術の現状とその解剖学的限界について（第46回日本気管食道科学会総会.1994.10.20-21）日気食会報 46: 196, 1995.

斉田晴仁、今泉　敏、新美成二、廣瀬　肇：共鳴管腔の動きと声の揺れについて（第95回日本耳鼻咽喉科学会総会.1994.5.19-21）日耳鼻会報 97: 1959-1960, 1994.

Department of Cognitive Neuroscience

A. Publications in English

A. 1. Publications in Periodicals

A. 1. i. Original Contributions

Takayama, Y., Sugishita, M., Kido, T., Ogawa, M., Fukuyama, H., Akiguchi, I.: Impaired stereoacuity due to a lesion in the left pulvinar. J. Neurol. Neurosurg. Psychiatry. 57: 652-4, 1994.

A right-handed patient with a haematoma in the left pulvinar showed impaired stereoacuity. In contrast with previous reports, he did not show peripheral visual extinction or prolonged reaction times for targets on the side contralateral to the lesion.

Kageyama, S., Imagase, M., Okubo, M., Takayama, Y.: Neglect in three dimensions. Am. J. Occup. Ther. 48: 206-10, 1994.

OBJECTIVES. Neglect in vertical and radial directions is rarely evaluated systematically

in patients with brain damage. METHOD AND RESULTS. Using the line bisection task, we confirmed that some patients with unilateral brain damage manifest vertical or radial spatial neglect. In fact, patients with severe left horizontal neglect tend to have severe vertical neglect. CONCLUSION. Because vertical and radial neglect may affect the ability to perform functional daily activities, occupational therapists need to address the existence of vertical and radial neglect when evaluating and training patients with brain damage.

Sugishita, M., Hamilton, CR., Sakuma, I., Hemmi, I.: Hemispheric representation of the central retina of commissurotomized subjects. Neuropsychologia. 32: 399-415, 1994.

It is controversial whether a stimulus projected within 1 to 3 degrees from the boundary between the right and left hemiretina is transmitted to only one cerebral hemisphere or to both cerebral hemispheres. In order to resolve this issue, letter- and word-stimuli were presented for 200 msec with a new type of tachistoscope, called the fundus tachistoscope, in and about the central retina, (i.e. fovea, 1.2 degrees in horizontal diameter) of the right eyes of two commissurotomized subjects (N.G. and A.A.). During stimulus presentation the subjects were attempting to fixate a fixation target. The fundus tachistoscope combined with image analysis of the fundus enables us to measure the position of the stimulus on the retina, relative to the foveal center, as well as whether or not the eye moved during stimulus presentation. The results indicate that the region of the right (temporal) hemiretina represented by both hemispheres in letter processing, if it exists, was estimated as less than 0.6 degrees from the foveal center. The two subjects frequently (27% in N.G. and 46% in A.A.) fixated the fixation target eccentrically, i.e. with a retinal point other than the foveal center, during fixation, namely stimulus presentation. Their eccentric fixations were small with magnitude almost all falling between 1.35 degrees right and 1.25 degrees left of the foveal center. It is therefore recommended that letter-stimuli be presented at least 2.0 degrees from the foveal center in ordinary tachistoscopic studies of cerebral hemispheric differences. Eye movements, which varied in 0.11 degrees and 1.43 degrees horizontally, occurred in about 8% of all the trials during fixation. On the average of the two subjects, the eye movements caused or worsened eccentric fixation in only about one third of the trials, and corrected eccentric fixation in about two thirds of the trials.

Takayama, Y., Sugishita, M., Kido, T., Ogawa, M., Akiguchi, I.: Reply from the Authers; A case of foreign accent syndrome without aphasia caused by a lesion of the left precentral gyrus. Neurology 44: 991, 1994.

Takayama, Y., Sugishita, M.: Astereopsis induced by repetitive magnetic stimulation of occipital cortex. J. Neurol. 241: 522-5, 1994.

Three healthy subjects underwent repetitive transcranial magnetic stimulation (20 Hz, 1 s) with a round oil-cooled coil held tangentially against the skull surface 3 or 4 cm above the inion, while viewing a random-dot stereogram through red-green glasses. The coil was positioned over the midline of the bilateral superior occipital lobes. All three subjects experienced loss of stereoscopic perception during stimulation. A stimulus duration of more than 0.2 s and a stimulus frequency of more than 10 Hz seem to be necessary to disrupt the cortical mechanisms involved in global stereopsis. Repetitive magnetic stimulation easily and painlessly produced a reversible disturbance in global stereopsis. The results suggest that the bilateral superior occipital cortices are involved in the perception of global stereopsis.

Takayama, Y., Sugishita, M., Hirose, S., Akiguchi, I.: Anosodiaphoria for dressing apraxia: contributory factor to dressing. Clin. Neurol. Neurosurg. 96: 254-6, 1994.

We report 2 patients with bilateral dressing apraxia. One patient had prominent bilateral dressing apraxia without severe constructional apraxia together with anosodiaphoria for dressing apraxia. The other patient had mild dressing apraxia with severe constructional apraxia and was aware of her disabilities. This dissociation implies that anosodiaphoria for dressing apraxia is an important factor in the severity of bilateral dressing apraxia. This also explains why automatic acts in dressing are more severely affected than when patients are asked to put clothing on in dressing examination.

Yoneda, K., Sekimoto, S., Yumoto, M., Sugishita, M.: The early component of the visual evoked magnetic field. Neuroreport. 6: 797-800, 1995.

Several EEG studies have reported an early component of the visual evoked potential. However, it is controversial whether this component is cortical or subcortical. Our study has aimed to clarify this problem using MEG and EEG in nine normal volunteers. A total of 4000 stimuli were presented to the monocular visual hemifield through a light-proof stimulating goggle and the visual evoked magnetic field and visual evoked potential was measured above the occipital lobe. The early component was observed in three of the nine subjects. The latency ranged from 40 to 45 ms in MEG and from 39 to 47 ms in EEG. The result of dipole localization analysis showedthat its origin was cortical, and specifically, the striate cortex.

A. 1. ii. Review Articles

none.

A. 1. iii. Progress Report

none.

A. 2. Contributions in Separate Publications

Sugishita, M., Hemmi, I., Hamilton, CR.: Fundus tachistoscope and its application to the study of the commissurotomy patient. In: Sugishita M, ed. New Horions in Neuropsychology. 1st ed. Amsterdam: Elsevier, 1994: 159-172.

Takayama,Y., Sugishita,M.: Effect of repetitive transcranial magnetic stimulation on cognitive function. In: Sugishita M, ed. New Horions in Neuropsychology. 1st ed. Amsterdam: Elsevier, 1994: 101-112.

A. 3. Translations

none.

A. 4. Contributions in Meeting, Proceedings etc.

Sugishita, M., Hemmi, I., Hamilton, CR., Sakuma,I. (1994.8.12-16) Tribute to Sperry---Human Models of Hemispheric Specialization and Theoretical Speculations. APA 102nd Annual Convention. Los Angels,United States.

Sugishita, M., Otomo, K. (1994.7.23) Dichotic listening in patients with partial section of the corpus callosum. The 9th Nagae Memorial Symposium. Tokyo.

Takayama, Y., Sugishita, M. (1994.7.23) Anosodiaphoria for dressing apraxia : contributory factor to dressing apraxia. The 9th Nagae Memorial Symposium. Tokyo.

B. Publications in Japanese

B. 1. Publications in Periodicals

B. 1. i. Original Contributions

Nakayama, T., Sato, K., Kotera, M., Ishiai, S., Sugishita, M.:[Visual memory in a case of topographical disorientation. Cl. Neurol. 34: 336-40, 1994.

A 67-year-old, right-handed man was admitted to our hospital because of restricted field of vision. Neurological examination revealed left upper quadrantanopsia on confrontation. Axial and coronal T2 weighted MR images showed an increased signal intensity lesion that involved the right fusiform and lingual gyri. A small lesion was also noted in the white matter of the left cuneate gyrus. He was unable to describe the ground plan of his house or the well-known route he lived. No signs of unilateral spatial neglect, prosopangnosia, apraxia, and aphasia were found in specific tests. Wechsler Adult Intelligence Scale showed verbal IQ 126 and performance IQ 92. However, he scored poorly in the Benton Visual Retention Test (5 correct immediate recalls from 10 items). Recall from memory of Rey-Osterrieth's complex figure was severely impaired. Visual recall subtest of the Wechsler Memory Scale-Revised (WMS-R) scored 30 points when performed immediately, but zero after a 30 minutes delay. Visual paired associates learning from the WMS-R was also severely impaired. These findings suggest that visual memory is one of the important factors in the pathogenesis of topographical disorientation of this patient.

B. 1. ii. Review Articles

Sugishita, M.: Consciousness from somesthetic sensation: cortical electric stimulation and consciousness. (体性感覚からの意識論、脳の電気刺激と意識) 64(4):264-268,1994

Sugishita, M.: Non-dominat hemisphere syndrome.(劣位半球症候群) Japanese Journal of Clinical Psychiatry (臨床精神医学) 23: 47-51,1994

Sugishita, M.: Verbal memory disturbance and aphasia. (言語の記憶障害と失語) J. Sen. Dement. (老年期痴呆) 8(2):61-65,1994.

Sugishita, M., Pascual-Leone, A., Takayama. Y.: Prospect of repetitive transcranial magnetic stimulation. (頭部への連続磁気刺激法の展望) imago 5: 244-251,1994

Takayama, Y.: Brain localization from neuropsychology. (神経心理学からみた脳の機能局在) imago 12, 146-151, 1994.

Yumoto, M., Sugishita, M.:Magnetoencephalography (脳磁図) J. Clin. Anestheology (臨床麻酔) 18:1105-1111,1994.

Sugishita, M.: Apraxia of speech (発話失行) Highter Brain Function (失語症研究) 14: 33-37,1994.

Sugishita, M.: Analysis of perception and language using repetitive magnetic stimulation. (連続磁気刺激による知覚および言語機能の解析) Experimental Medicine (実験医学) 12: 219-222, 1994.

Sugishita, M.: Neuropsychological sequelae after right temporal lobectomy. (右側頭葉切除術後の神経心理学的後遺症) Neurosurgery Letters (脳神経外科速報) 5(3):179-181,1995.

Sugishita, M.: Brain mechnizm of language. (言語の中枢機能) CLINICAL NEUROSCIENCE 13: 138-141, 1995.

Sugishita, M.: Methodological issues in Neuropsychology: Towatd Future Advancements. (神経心理学の研究法-今後の発展に向けて-) Japanese Journal of Neuropsychology (神経心理学) 11(1): 10-16, 1995.

Sugishita, M.: 男の脳と女の脳. imago 6: 68-75, 1995.

Sugishita, M.: Roger W Sperry. CLINICAL NEUROSCIENCE 13: 744-745, 1995.

B. 1. iii. Progress Report

none.

B. 2. Contributions in Separate Publications

杉下守弘：言語の脳内メカニズム. 編集 伊藤正男, 安西祐一郎, 川人光男. 市川伸一, 中島秀之, 橋田浩一. 岩波講座認知科学7 言語, 岩波書店: 144-178, 1995.

B. 3. Translation

none.

B. 4. Contributions in Meeting, Proceedings etc.

杉下守弘：左後頭葉損傷例を対象とした黄斑回避の研究 (第35回 日本神経学会総会.1994.5.18-20 福岡)臨床神経学34(12):1302, 1994.

椎尾 康, 鷲崎一成, 高津成美, 米田孝一, 杉下守弘：左視床前部の小出血で生じた言語性記憶障害の 1 例. (第129回 日本神経学会関東地方会 1994.6.18 筑波) 臨床神経 34(9): 937, 1994.

高山吉弘, 杉下守弘：数唱が比較的選択的に障害された左側頭葉損傷の一例、第18回日本神経心理学会総会予行集

杉下守弘：神経心理学の研究法---今後の発展に向けて---. (第18回日本神経心理学会総会 1994.10) 神経心理学 11(1):10-16 ,1995.

杉下守弘：分離脳研究の現在. (日本心理学会 第 5 8 回大会 1994.10.2-4 東京) 予行集 : 33, 1994.

関本荘太郎：無声破裂子音の周波数正規化における後続母音の音響的特徴. 日本音響学会講演論文集. 509-510, 1994.

杉下守弘, 小池 敦：左側頭葉前部切除例と言語性記憶障害の程度. (第 3 回海馬と高次機能研究会 1994.10.9-10 福島)

杉下守弘, 高山吉弘, 鈴木一郎, 清水弘之, 石島武一：連続磁気刺激による言語優位半球の決定. (第28回 てんかん学会. 1994.10.13-14 岡山) てんかん研究 13(1): 68, 1995.

濱川 浩, 加藤進昌, 定松美幸, 藤本正人, 杉下守弘：両側前大脳動脈領域の梗塞後に保続と人格障害をきたし記名力障害の明らかでない 1 症例.(第18回日本失語症学会総会 1994 名古屋) 失語症研究15(1): 27-28, 1995.

遠藤邦彦, 丸山哲弘, 市川英彦, 杉下守弘, 柳沢信夫：MRI上、左前頭葉にほぼ限局し

た病変で口、顔面失行を呈した1症例. (第18回　日本失語症学会総会 1994 名古屋) 失語症研究 15(1): 41-42, 1995.

杉下守弘, 大伴　潔, 山崎久美子：ダイコティックリスニングの左耳抑制の責任病巣としての脳梁後部1/5～1/4損傷.(第18回 日本失語症学会総会 1994 名古屋)失語症研究 15(1): 52-53, 1995.

阿部晶子, 遠藤邦彦, 杉下守弘：脳梁前方切断例における視覚性注意力の低下. (第18回 日本失語症学会総会 1994 名古屋) 失語症研究 15(1): 53-54, 1995.

関　啓子, 石合純夫, 杉下守弘：WAB失語症検査のAQ（失語指数)と失語タイプ (第18回 日本失語症学会総会 1994 名古屋) 失語症研究15(1): 55-56, 1995.

杉下守弘：分離脳・脳磁気刺激と無自覚的認知.(1994年度基礎心理学会フォーラム BCBKセミナー 1994.11.19 東京) 基礎心理学研究 13(2): 110-111, 1995.

大伴　潔,　清水弘之,　杉下守弘：難治性小児てんかん例に対する脳梁離断術の効果.(厚生省 精神・神経疾患研究委託費 重症心身障害児の病態・長期予後と機能改善に関する研究　平成6年度研究班会議 1994.12.14-15 東京)プログラム : 28, 1994.

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