RECENT PUBLICATIONS

April 1993 - March 1994

Department of Speech Science

A. Publications in English

A. 1. Publications in Periodicals

A. 1. i. Original Contributions

Imaizumi, S., Hartono, A., Niimi, S., Hirose, H., Saida, S. and Shimura, Y.: Evaluation of vocal controllability by an object oriented acoustic analysis system. J. Acoust. Soc. Jpn. (E), 15: 113-116, 1994.

"Controllability" is defined as the ability to produce desirable pitch,intensity and timbre according to the speaker's intention. As one component of the"controllability", the ability to keep the vocal fundamental frequency, F0, and intensity as constant and as close to a target as possible when instructed to produce a sustained vowel was tested. Using an object oriented acoustic analysis system, magnitude of the slow and fast fluctuations in F0, fractal characteristics and some other voice-quality-related parameters were analyzed for singing, normal/modal and pathological voices. All the pathological groups showed larger variations in F0, or lower controllability, than the normal controls. The ability to keep vocal F0 and intensity as constant as possible was dependent on the target conditions which speakers intended to produce particularly for the neurological disorder patients. These results suggest that vocal controllability can be assessed quantitatively by the method proposed.

Kiritani, S., Hirose, H. and Imagawa, H.: High-speed digital image analysis of vocal cord vibration in diplophonia. Speech Communication, 13: 23-32, 1993.

Simultaneous recording of vocal fold vibrations and speech signals were performed with three patients having diplophonia using a high-speed digital image recording system developed by the present authors. All three cases studied (1 case of unilateral paralysis of the recurrent nerve; 2 cases of unilateral paralysis of external branch of the superior laryngeal nerve) showed a difference in the vibratory frequency between the left and right vocal folds. The phase difference between the vocal cords varies with time. When it reaches a certain

threshold, the phase difference is reset and the vocal cord movements resumes synchrony. When the movements of the vocal cords are in phase, glottal closure is complete and the excitation pattern in the speech aveform is strong, whereas when the movements are out of phase, glottal closure is incomplete and the excitation pattern is weak, resulting in a quasi-periodic vibration in speech waveform.

Misono, Y., and Kiritani, S.: Characteristics of pauses in Japanese lecture-style speech comparison with newscasts. International J. Psycholinguistics, 10:167-180, 1994.

The pause pattern in Japanese academic lectures was analysed and compared with those in newscasts and conversation. In the present study, these threee types of speech phenomena were analysed according to the use of "pauses", "silence", "hesitation", "silence+hesitation".

In lectures, the mean duration of breath groups was shorter and the mean duration of " pauses" was longer than in newscasts. Conversational speech showed intermediate characteristics. In spite of these differences, the mean duration of breath group+its following pause was relatively constant over all speech styles, suggesting some kind of common durational unit in these speech utterance. The difference in the duration of "silence" among three speech styles was also small. The longer duration of "pauses" in lectures and conversation mainly results from the occurrence of "silence + hesitation". Hesitation occur in spontaneous speech, borth in lectuers and conversation. However, in conversation, hesitations occur only within sentences, while in lectures they occur both within sentences and at sentence boundaries. These phenomena were interpreted in relation to the difference in the mode of speech production, i. e., text-reading in newscasts and spontaneous speech in lectures and conversation.

A. 1. ii. Review Articles

none.

A. 1. iii. Contributions in Separate Publications

Imaizumi, S., Saida, S., Shimura, Y. and Hirose, H.: Harmonic analysis of the singing voice:-acoustic characteristics of vibrato: SMAC 93, The Royal Swedish Academy of Music:197-200, 1994.

A. 1. iv. Translations

none.

A. 1. v Progress Report

Hartono, A., Imaizumi, S., Hirose, H. and Niimi, S.: Slow and fast perturbations in voice -A preliminary report-. Ann. Bull. RILP, 27: 125-134, 1993.

Kiritani S., Hirose, H. and Imagawa, H.: High-speed digital image recording system for observing vocal cord vibration. Ann. Bull. RILP, 27: 79-87, 1993.

A. 2. Contributions in Meeting, Proceedings etc.

Hiramatsu, K., Itoh, K., Yumoto, M.: Event-related magnetic fields in language processing: N400 potentials reflecting semantic incongruity may be genarated in medial temporal lobe. Abstracts of the IXth International Symposium on New Horisons in Neuropsychology, Tokyo:P08, 1993.

Hirose, H., Imaizumi, S. and Yamori, M.: Voice quality in patients with neurological diseases. Vocal fold physiology: voice quality control, Proceedings of the 8th Vocal fold physiology conference, eds. O. Fujimura and M. Hirano. Kurume: 6-9, 1994.

Imaizumi, S., Hayashi, A. and Deguchi, T.: Listener adaptive characteristics in dialogue speech, Proc. ISSD-93, Tokyo, 1993: 279-282, 1993.

Imaizumi, S., Hayashi, A. and Deguchi, T.: Listener adaptive characteristics in dialogue speech-effects of temporal acjustment on emotional aspects of speech. Proceedings of ICSLP94: 1967-1970, 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. America, 95: 3012, 1994.

Itoh, K.: A neuro-synaptic model of behavior-dependent rhythmic wave generation in the subcortico-cortical system. Proceedings of the 32th Congress of International Union of Physiological Science, Grasgow, 162: 16, 1993.

Kiritani, S., Niimi, S., Imagawa, H. and Hirose, H.: Vocal cord vibrations associated with involuntary voice changes in certain pathological cases. Proc. 8th Vocal Fold Physiology Conf., 1994.

Koshida, I., Itoh, K., Hiramatsu, K., Yumoto, M. and Niwa, S.: An object-oriented tool-kit for three dimensional topography. Abstracts of the 2nd Far Eastern Conference on Medical and Biological Engineering, Beijing: 313, 1993.

Shimura, Y. and Imaizumi, S.: Development of infants' expression and perception of emotion through vocalization. J. Acoust. Soc. America, 95: 3517, 1994.

Yamori, M. , Kawaida, M., Imaizumi, S., Niimi, S. and Hirose, H.: Voice changes in the CVA patients . Proceedings of the 8th Nagae Memorial Symposium , Nagasaki , Japan: 28-29, 1993.

B. Publications in Japanese

B. 1. Publications in Periodicals

B. 1. i. Original Contributions

Imaizumi, S., A. Hayashi and T. Deguchi: Planning in speech production: listener adaptive characteristics. (発話の企画: その聴者依存特性) Jpn. J. Logop. Phoniatr. (音声言語医学), 34: 394-401, 1993.

Listener adaptive characteristics in speech production were investigated by analyzing spoken dialogue between teachers and children. Dialogue was recorded during a game through which four teachers were asked to assess the speech perception of three hearing-impaired and four normally-hearing children. The following results were obtained. 1) The way of task explanation and used sentences were changed depending on whether the children were hearing-impaired or not. The teachers used more simple sentences and obtained more responses with the hearing-impaired than for the normally-hearing children. 2) The temporal structure of spoken sentences was also significantly changed. For the hearing-impaired, the teachers tended to lengthen syllable duration and to insert pauses in phonological phrase boundaries. These results suggest that the teachers controlled their speaking style to help the hearing-impaired understand dialogue. Listener oriented adaptation of speaking style seemed to affect the processes in speech production planning, including grammatical encoding by which sentences are formulated, and articulatory programming by which thetemporal structure of speech is determined.

Imaizumi, S., Hamaguchi, S. and Deguchi, T.: Vowel devoicing in teachers' speech directed to the hearing-impaired/normal-hearing children: - do teachers avoid devoicing to help the hearing-impaired to understand dialogue?. (難聴児・健聴児に対する教師の語り掛けにおける母音の無声化ー難聴児の音声知覚補助のために無声化を避けるか？ー) Comminication Disorder Research (聴覚言語障害) 22: 7-20, 1993.

Listener-adaptive characteristics of Japanese vowel devoicing in dialogue were investigated by analyzing spoken dialogue between teachers and the hearing-impaired (HI) or normal-hearing (NH) children. Dialogue was recorded during a game through which seven teachers assessed the speech perception of seven hearing-impaired and seven normal-hearing children. The following results were obtained. 1) The devoicing rate was significantly lower in dialogue directed to HI than to NH. 2) For four teachers out of seven, unvoiced segments of not-fully-devoiced syllables of /ki/ which were mainly directed to HI were shorter than those of fully-devoiced syllables which were mainly directed to NH. This may indicate that the teachers avoided devoicing by shortening unvoiced duration and lengthening voiced duration for HI. 3) Monosyllables and pauses in dialogue directed to HI were longer than those directed to NH. These results suggest that the teachers controlled their speaking style to help the hearing-impaired understand dialogue by avoiding devoicing, although there were significant individual variations in devoicing rate, syllable length and devoiced/voiced segement length among the teachers.

Saida, H., Imaizumi, S., Akashi, E., Nakachi, 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) Laryngology (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" occurred 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.: Listener and context effects in perception of emotional aspects on infants' vocalizations. (乳児音声の感性情報認知における聴取者・状況依存性) Jpn. J. Logop. Phoniatr. (音声言語医学), 34: 417-424, 1993.

Listener and context effects in perception of emotional aspects of infants' vocalizations were reported. Three groups of listeners, consisting of mothers, care takers and students, judged the emotional aspects of infants' voice samples under two contexts representing two different conditions of the infants. Statistical analyses for the rating scores showed the following results. 1) One factor which showed no listener or context dependency was extracted through principal factor analysis. This factor could be interpreted to represent the contrast between "pleasure" and "speech" vs. "anger," "fear," and "crying." 2) Two other factors, contrasting "happiness" and "laughter" vs. "sadness" and "need," or "amae" vs. "refutation," were also extracted, but these factors showed significant listener and context dependency. 3) Context dependency differed among the listener groups. The rating scores of "positive" condition by the student group could be predicted from those of "negative" context using a regression line, but those of the mothers and care takers could not. These results indicates that, although listeners with different experiences perceive emotions from infants' vocalizations differently depending on the context, there is an invariant factor for which all listeners behave in a common way with least context effect.

B. 1. ii. Review Articles

Itoh, K.: On special issue of speech science. (音声言語特集号によせて) Jpn. J. ME and BE: BME (日本ＭＥ学会雑誌「ＢＭＥ」), 7: 1, 1993.

Itoh, K.: Support technology for speech functions. (音声言語機能の支援技術) Jpn. J. ME and BE: BME (日本ＭＥ学会雑誌「ＢＭＥ」), 7: 35-49, 1993.

B. 1. iii. Contributions in Separate Publications

Imaizumi, S.: Psychoacustic evalution of voice. (声の聴覚心理評価) Clinical Examination of Voice - Basic Issues -, Edited by Jpn. Soc. Logopedics and 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) Clinical Examination of Voice - Practical Issues -, 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.: Voice examination by long term average spectram. (長時間平均スペクトルによる検査) Clinical Examination of Voice - Practical Issues -, 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

Yamori, S.: Event Related Potentials. (事象関連電位) Inpsychometry in Rehabilitation Medicine. Revised Edition (Ed. Dohi, N.). Ishiyaku Shuppan, Tokyo (精神機能評価, 増補版 (土肥信之編), 医歯薬出版. 東京), 116-125, 1993.

B. 1. iv. Translations

none.

B. 1. v Progress Report

none.

B. 2. Contributions in Meeting, Proceedings etc.

浅野恵子, 須藤路子, 桐谷滋: 日本人英語学習者における冠詞聴取の困難要因. 第３２回ＪＡＣＥＴ全国大会予稿集: 146-147, 1993.

浅野恵子, 須藤路子, 桐谷滋: 日本人学習者の英語冠詞聴取の難易度に関与する音響的要因. 日本音響学会講演論文集（平成６年春季）: 355-356, 1994.

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のダイポール推定. 第２３回日本脳波・筋電図学会大会予稿集2c: 15, 1993.

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, 本田英夫: ＭＥＧによるＮ４００のダイポール推定. 脳波と筋電図 22: 159, 1994.

今川博, 桐谷滋, 渡辺陽子, 青木 幸夫: 可搬型失語症者用語彙訓練装置. 音声言語医学 35: 89, 1994.

今川博, 桐谷滋, 渡辺陽子, 世木秀明, 春日典子: 失語症者用パーソナルコンピュータ語彙自習プログラム（第2報）. 日本失語症学会誌14: 39, 1994.

今泉敏, 森浩一, 宮城島一明, 米田孝一, 桐谷滋, 湯本真人: 複合音に対する聴覚誘発脳磁図の解析. Audiology Japan, 36: 441-442, 1993.

今泉敏, 森浩一, 米田孝一, 桐谷滋, 宮城島一明, 湯本真人: Analysis of neuromagnetic auditory activity evoked by complex tones. Audiology Japan, 36: 441-442, 1993.

今泉敏, A.Hartono, 広瀬肇, 新美成二, 志村洋子, 斉田晴仁: 音響分析による声の可制御性の評価－遅いゆらぎの特性について－電子情報通信学会技術研究報告, SP93-63, 1993.

今泉敏, 斉田晴仁, A. Hartono, 広瀬肇, 新美成二, 志村洋子: 音響分析による声の可制御性の評価－声区とヴィブラートについて－電子情報通信学会技術研究報告, SP93-67/DSP93-68, 1993.

今泉敏, 浜口幸子, 出口利定: 難聴児・健聴児対教師会話音声における無声化母音の特徴. 電子情報通信学会技術研究報告, SP93-144, 1994.

今泉敏, A. Hartono, 志村洋子, 斎田晴仁, 新美成二, 廣瀬肇: 発声の可制御性について. 第38回日本音声言語医学会総会学術講演会予稿集: 83, 1993.

今泉敏, 浜口幸子, 出口利定: 発話の聴取者依存特性－無性化しやすい母音の調音－. 日本音響学会平成6年春季講研究発表会演論文集: 635-636, 1994.

今泉敏, 新美成二, 斉田晴仁, 志村洋子: 声区とヴィブラートについて. 日本音響学会平成6年春季講研究発表会演論文集: 601-602, 1994.

今泉敏, 新美成二, A.Hartono, 志村洋子, 斎田晴仁: 声質の音響分析的評価－遅いゆらぎの諸特性－. 日本音響学会講演論文集（平成5年度秋季）: 599-600, 1993.

今泉敏, 森浩一, 米田孝一, 桐谷滋, 宮城島一明, 湯本真人: 複合音聴覚誘発脳磁図のディコンボリューションの試み. 日本音響学会講演論文集（平成5年秋季）1: 423-424, 1993.

桐谷滋, 広瀬肇, 前川喜久男: イントネーションの音声学的実現の筋電図学的検討. 日本音声学会全国大会研究発表論集: 23-28, 1993.

桐谷滋, 新美成二, 真壁純司, 赤池正巳: ピッチ制御に関与する筋活動値の定量的解析, 日本音響学会講演論文集（平成6年春季）: 677-678, 1994.

宮城島一明, 今泉敏, 森浩一, 米田孝一, 桐谷滋, 湯本真人: 純音・母音による聴覚誘発脳磁図の解析. 日本音響学会講演論文集（平成5年秋季）: 421-422, 1993.

森浩一, 今泉敏, 宮城島一明, 米田孝一, 桐谷滋, 湯本真人: 音韻・ピッチ判断に伴う脳磁図の解析. 電子情報通信学会技術研究報告, SP93-148, 1994.

仲地紀之, 斉田晴仁, 大気誠道, 鈴木吾登武, 内藤陸奥男, 今泉敏, 新美成二: Werner症候群の音声と喉頭所見について. 第38回日本音声言語医学会総会学術講演会予稿集: 94, 1993.

斉田晴仁, 今泉敏, 新美成二, 志村洋子, 斎田正子, 廣瀬肇: 歌声のヴィブラートと咽頭側壁の運動との関係について. 音声言語医学会総会学術講演会予稿集: 6, 1993.

清水 充子, 渡辺陽子, 後藤 悦子, 広瀬肇: 運動障害性構音障害に対するアクセント法による訓練. 音声言語医学, 35: 109, 1994.

志村洋子, 今泉敏: 乳児音声の感性情報認知における聴取者・状況依存性. 日本音響学会講演論文集（平成5年春季）: 309-310, 1993.

志村洋子, 今泉敏: 乳児音声の感性情報認知における聴取者・状況依存性. 第38回日本音声言語医学会総会学術講演会予稿集: 112, 1993.

志村洋子, 今泉敏: 幼児による乳児音声の感性情報の認知. 日本音響学会講演論文集（平成5年秋季）: 633-634, 1994.

須藤路子, 浅野恵子, 桐谷滋: 日本人学習者における英語弱形音の聴き取り－冠詞受聴の困難要因－. 日本音響学会講演論文集（平成5年春季）: 311-312, 1993.

須藤路子, 桐谷滋: 第二外国語習得における母音長自然性判断－日本人英語学習者と米国人日本語学習者の比較－, 日本音声学会全国大会研究発表会論集: 117-122, 1993.

矢守麻奈, 河井田 M., 今泉敏, 新美成二, 広瀬肇: 脳血管障害による音声変化. 音声言語医学35: 140, 1994 .

米川紘子, 楠本季佐子, 今泉敏, 廣瀬肇: ラインケ浮腫に対する保存的治療. 第３８回日本音声言語医学会総会学術講演会予稿集: 138, 1994.

Department of Speech Physiology

A. Publications in English

A. 1. Publications in Periodicals

A. 1. i. Original Contributions

Tsunoda, K., Niimi, S. and Hirose, H.: The roles of the posterior cricoarytenoid and thyropharyngeus muscles in whispered speech. Folia Phoniatr Logop., 46:139-151,1994.

In order to clarify the nature of the physiological adjustment for the production of whispering, physiological studies were conducted on the glottal and supraglottal adjustments during whispering. The results indicate that for the production of whispering there is a necessary relationship between glottal adjustment and supralaryngeal adjustment in terms of the coordination between posterior cricoarytenoid muscle (PCA) and thyropharyngeus muscles (TP). Also, there might be a function switch in our brain which enables the speaking mode to change from ordinary to whispering using the activation of PCA and TP, as a result of human evolution.

A. 1. ii. Review Articles

none.

A. 1. iii. Contributions in Separate Publications

none

A. 1. iv. Translations

none.

A. 1. v Progress Report

Kumada, M. Niitu, M. Niimi, S. Hirose, H. and Itai, Y.: A study on the inner structure of the tongue for production of the 5 Japanese Vowels by tagging snapshot MRI; a second report. Ann. Bull. RILP 27:1-12, 1993.

Kim, H-G. Niimi, S. and Hirose, H.: Devoicing of vowel in Krean. Ann. Bull. RILP. 27:151-154, 1993.

A. 2. Contributions in Meeting, Proceedings etc.

Erickson, D. Honda, K. Hirai, H. Beckman, M.E. and Niimi, S.: Global pitch range and the production of low tones in English intonation. Proceedings of ICSLP94:651-654, 1993.

Niimi, S.: Arytenoid Adduction. Proceedings of the 1st Phonosurgery Workshop, Souel. :88-93, 1993.

Mori, K.: Non-linear summation between frequency channels in the external nucleus of the barn owl inferior colliculus. Japanese Journal of Physiology, 43(Suppl. 2): S. 223, 1993.

B. Publications in Japanese

B. 1. Publications in Periodicals

B. 1. i. Original Contributions

Suzuki, K. Okamoto, A. Hara, Y. Niimi, S. and Torigai, K.: Articulation development in cleft palate children - development of consonants and transiton of defective articulation-. (口蓋裂児の構音発達ー子音の習得と異常構音ー) Jpn. J. Logop. Phoniatr. (音声言語医学) 34: 189-197, 1993.

This paper reports the development of consonant articulation and the transition of defective articulation in 40 cleft palete children. The subjects were operated by the palatal

mucosal flap method with mucosal graft at Kitasato University Hospital when they were 1 year old. Speech samples were obtained every 3 or 6 months beginning in the preoperative period until 7 or 8 years of age. The results were as follow: 1) Nasals, glottals and semi-vowels were acquired at about the same age as normal children. 2) Labio-plosive /p/ was uttered after the operation and completed without apparentdelay. 3) Dentals, alveolars, palato-alveolars and velars were acquired with several degrees of delay. 4) Some nasopharyngeal articulations and glottal stops were uttered in the preoperative period and disappeared rapidly after the operation. 5) Tongue movement of cleft palate children seems immature and sometimes develops abnormally. 6) Middle ear disease was found frequently and must be followed up carefully.

Niimi, S.: Hoarseness and mediastinal pathology. (縦隔疾患と嗄声) J. Jpn. Broncho-esophagol. Soc. (日気食会報). 44:367-371.1993.

It is well known that hoarsevoice can be produced during the course of any laryngeal lesion. One posible cause is recurrent nerve paralysis due to variou spathological conditions. Among various etiologies, our clinical statistics indicate that the incidence of hoarseness due to mediastinal pathology is 2.6%. As for treatment, glottal incompetence should be corrected and various methods have been proposed for this purpose. From our experiences, arytenoid rotation and intracordal injection give the best results. However indication for each technique should be considered carefully.

Yokoyama, M. Tayama, N. Kurauchi, T. Mizuno, M. Niimi, S. and Hirose, H.: An adjustable tracheal canula. (新型気管カニューレの開発および使用経験) J. Jpn. Broncho-esophagol. Soc. (日気食会報) 44:447-480.1993.

The authors have developed a new type of tracheal canula, since poorly fitting canulae can cause various kinds of stomal or tracheal trouble. The new canula consists of a wired silastic tube with an adjustable wing, so that it is possible to control the curvature and the length between the wing and the tip of the canula . Our clinical experience has shown that the new canula is very adaptable to patients with neuromuscular disease or advanced neck tumors, with whom conventinal canulae cannot be used properly.

Hosako, Y. Nakamura, M. Tayama, N. Mizuno, M. Matsunaga, A. Niimi, S. Hirose, H. and Hagino, S.: Laryngeal involvements in Systemic Lupus Erythematosus. A case report. (ＳＬＥ患者に認められた特異な喉頭所見) Larynx Jpn.(喉頭) 5: 171-175, 1993.

A laryngeal involvement of systemic lupus erythematosus (SLE) is rare except that

acute laryngitis occasionally occirs. A 28-year-old woman who has SLE developed hoarseness. A banboo-joint-like lesion was noted at the middle of hte bilateral vocal cords. Hitologically the lesion was located subepithelially and it consisted of fibrou stissue and many plasma cells. The anti-ribonucleoprotein antibody showed high index one year before the onset of hoarseness. It was assumed that the lesion ws related with SLE. The lesion ws excised under the laryngo-microsurgery and hoarseness improved.

B. 1. ii. Review Articles

Niimi, S.: Phonosugical procedure for glottal incompetence. (声門閉鎖不全に対する音声外科) Pract. Otol. (耳鼻咽喉科展望) 36：116-118, 1993.

Niimi, S.: Phonosurgery for professional singers. (職業歌手に対する音声外科) JOHNS. 9-：751-754, 1993.

Niimi, S.: Voice symptoms of Parkinson disease. (パーキンソン病の音声症状) JOHNS. 9-：1053-1055, 1993.

Niimi, S. and Naito, A.: Surgical treatment for posterior glottal adhesion. (声門後部癒着の手術) JOHNS. 9：1220-1222, 1993.

B. 1. iii. Contributions in Separate Publications

Niimi, S.: Phonation for singing. (歌声の発声) Clinical Examination of Voice - Basic Issues -, 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), 174-182, 1994.

Niimi, S.: General considerations on voice examination by acoustic analysis. (声の音響分析による検査ー概要) Clinical Examination of Voice - Practical Issues -, 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), 125-129, 1994.

B. 1. iv. Translations

Mori, K. (メンフクロウの両耳による聴覚情報処理　—左右の耳からの時間差と音圧差から、音源の位置が特定される—) 日経サイエンス(6)：90-99, 1993.: Konishi, M : "Listening with two ears" Scientific American, April ：70-77, 1993.

B. 1. v　Progress Report

none.

B. 2. Contributions in Meeting, Proceedings etc.

斉田晴仁, 今泉　敏, 新美成二, 志村洋子, 斉田正子, 廣瀬　肇：歌声のヴィブラートと咽頭側壁の運動との関係について. 音声言語医学, 35：50, 1994.

今泉　敏, Abdoerrachman, H., 志村洋子, 斉田晴仁, 廣瀬肇, 新美成二：発声の可制御性について. 音声言語医学, 35：55, 1994.

大島清史, Gracco,V.L., 新美成二：強調ストレス発話時の下顎運動制御. 音声言語医学, 35：100, 1994.

鈴木恵子, 岡本朗子, 原　由紀, 新美成二, 堀口利之, 中北信昭, 鳥飼勝行：口蓋形成術後の鼻咽腔閉鎖機能の評価. 音声言語医学, 35：113, 1994.

矢守麻奈, 川井田政弘, 今泉　敏, 新美成二, 廣瀬肇：脳血管障害による音声変化(2). 音声言語医学, 35：140, 1994.

小崎寛子, 田山二朗, 菅沢　正, 丹生健一, 新美成二, 岩村忍, 廣瀬肇：声帯運動障害例における反回神経の形態的変化. 第４５回日本気管食道科学会予行集：62, 1993.

斉田晴仁, 今泉　敏, 新美成二, 廣瀬肇：本態性振戦とパーキンソン症候群：音声言語医学, 35：50, 1994. 第４５回日本気管食道科学会予行集：85, 1993.

内藤　玲, 新美成二, 熊田政信：運動時の喉頭の観察. 第４５回日本気管食道科学会予行集：11, 1993.

小野敬子, 田山二朗, 内藤　玲, 新美成二：コラーゲン注入療法が奏効した喉頭気管食道裂の一例. 第４５回日本気管食道科学会予行集：125, 1993.

三富夏彦, 田山二朗, 中尾一成, 新美成二：長期の経過観察を要した喉頭白色病変の一例. 第 6 回日本喉頭科学会予行集：50, 1994.

明石恵美子, 渋谷恵夏, 斉田晴仁, 今泉　敏, 新美成二：竹節状声帯とその声帯振動様式について. 第 6 回日本喉頭科学会予行集：65, 1994.

田山二朗, 三富夏彦, 中尾一成, 新美成二：高度な誤嚥に対する外科的治療の効果. 第 6 回日本喉頭科学会予行集：94, 1994.

斉田晴仁, 今泉　敏, 新美成二, 廣瀬肇：歌声ヴィブラートと咽頭側壁運動との関係について. 第 6 回日本喉頭科学会予行集：112, 1994.

今泉敏, 森浩一, 宮城島一明, 米田孝一, 桐谷滋, 湯本真人: 複合音に対する聴覚誘発脳磁図の解析. Audiology Japan, 36: 441-442, 1993.

森浩一: メンフクロウの下丘の位相多義性解消機構. 第94回日本耳鼻咽喉科学会予稿集, 195, 1993.

今泉敏, 森　浩一, 米田孝一, 桐谷滋, 宮城島一明、湯本真人: 複合音聴覚誘発脳磁図のディコンボリューションの試み. 日本音響学会平成 5 年度秋季研究発表会講演論文集：1, 423-424, 1993.

宮城島一明, 今泉敏, 森浩一, 米田孝一, 桐谷滋、湯本真人: 純音・母音による聴覚誘発脳磁図の解析. 日本音響学会平成 5 年度秋季研究発表会講演論文集, 1：421-422, 1993.

伊藤健, 森浩一: DP matching とクラスタ分析を用いたセキセイインコ鳴き声の分類の試み. 第10回耳鼻咽喉科情報処理研究会抄録. 1994.

森浩一, 今泉敏, 宮城島一明, 米田孝一, 桐谷滋、湯本真人: 音韻・ピッチ判断に伴う脳磁図の解析. 電子情報通信学会技術研究報告, 93(521)：SP93-148(31-37), 1994.

Department of Cognitive Neuroscience

A. Publication in English

A.1. Publication in Periodicals

A.1.i Original Contributions

Sugishita, M., Takayama, Y.: Paraesthesia elicited by repetitive magnetic stimulation of the postcentral gyrus. Neuroreport, 4: 569-570, 1993.

Repetitive transcranial magnetic stimulation of short duration (0.3 or 0.6 s, 20 Hz) evoked paraesthesia similar to that caused by repetitive electrical stimulation. Since the points eliciting the paraesthesia were approximately 2 cm posterior from those eliciting motor responses, the paraesthesia stemmed from direct excitation of the post-central gyrus. Paraesthesia showed somatotopical represantation: the point eliciting the paraesthesia in the leg was separated from the point eliciting the paraesthesia in the hand 2.9 cm medially in one subject, and 1 cm posteriorly and 1 cm medially in the other subject. Repetitive transcranial magnetic stimulation provides a painless, noninvasive method for mapping corticcl sensory representation in humans.

Sugishita, M., Seki, K., Kabe, S. and Yunoki, K.:A material-control single case study of the efficacy of treatment for written and oral naming difficulties. Neuropsychologia, 31: 559-569, 1993.

Twenty-two right-handed aphasics with written and/or oral naming difficulties were treated with a traditional language therapy: copying and repetition of words. The efficacy and maintainability of the treatment were evaluated using a variation of the single-case design, which was termed the material-control single-case design.Effectiveness of the treatment for written naming difficulty was demonstrated for 9 of 21 subjects in a first treatment and 3 of 14 subjects in a second treatment. Three of the 14 subjects benefitted overall from both treatments in written naming. In oral naming, 2 of 18 subjects responded well to the first treatment while 2 of 16 responded well to the second treatment. One of the 16 subjects showed benefits from both the first and second treatments in oral naming. Although written and oral naming disturbances were difficult to improve using ordinary language treatment, a small proportion of subjects clearly showed effectiveness of the therapy. Maintenance of the effects of treatment was observed in all of the improvers.

Takayama, Y., Sugishita, M., Kido, T., Ogawa, M. and Akiguchi, I.: A case of foreign accent syndrome without aphasia caused by a lesion of the left precentral gyrus. Neurology, 43: 1361-1363, 1993.

We report a case of foreign accent syndrome (FAS) without aphasia. The patient was a

right-handed, 44-year-old woman, a native Japanese. Disposition and inversion of pitch accents and appearance of unnecessary stress accents made her speech sound foreign, like that of a Korean. MRI demonstrated an infarction in the middle fifth of the posterior lateral aspect of the left precentral gyrus. Limited motor cortex damage causes FAS without dysarthria, apraxia of speech, or aphasia.

Abe, T., Sugishita, M., Yatsuzuka, S., Tashibu, K., Onoue, H. and Suzuki, T.: Transcallosal interforniceal approach for a posterior projecting high basilar bifurcation aneurysm.
J. Neurosurg., 78: 970-973, 1993.

A transcallosal interforniceal approach was used for treatment of a posteriorly projecting high basilar bifurcation aneurysm with a neck located 30 mm above the posterior clinoid process. The aneurysm was successfully clipped via the third ventricle with minimal neurological deficits. This approach appears to be appropriate for basilar bifurcation aneurysms located more than 20 mm above the posterior clinoid process when the fundus projects posteriorly, and permits direct visualization of the aneurysmal neck and vital perforators with minimal brain retraction.

Shimizu, H.,Ohta, Y., Suzuki, I., Ishijima, B., Sugishita, M.: Lateral temporal polar approach to mesial temporal lesions. Neurol. medico-chirurg., 33: 360-364,1993.

A newly developed lateral temporal polar surgical approach to the mesiobasal temporal region was applied to 25 consecutive patients with mesially confined temporal lobe lesions. This approach is characterized by a very limited resection of the lateral temporal cortex and a direct approach to the uncal area. The advantages of this method are clear orientation to the mesial temporal structures, easy access to the posteromesial part of the temporal lobe, and preservation of functionally important structures, such as the lateral temporal speech area, optic radiation, and temporal stem. Details of the surgical procedure are described.

Sugishita, M., Hemmi, I., Sakuma, I., Beppu, H. and Shiokawa, Y.: The problem of macular sparing after unilateral occipital lesion. J. Neurol.: 241:1-9, 1993.

Whether or not unilateral occipital damage produces sparing of central vision, namely macular sparing, is controversial. We tested two subjects with left occipital lesions by means of fundus perimetry combined with fundus image analysis. This method made it possible to measure the distance of the stimulus projected on the retina from the foveal centre defined as the centre of the foveal reflex. The results indicated that macular sparing, if it exists, must be less than 0.4 degree wide. Two of the four eyes during the stimulus presentation often but not

always showed eccentric fixation of a small magnitude, whose mean was less than 0.6 degree from the foveal centre in the right hemiretina.

Shimizu, H., Ohta. Y., Suzuki, I., Ishijima. B., Sugishita, M.: Surgical treatment for pediatric epilepsy. Jp. J. Psychiatry. Neurol. 47: 260-261, 1993.

The surgical results of our pediatric epilepsy series are very satisfactory in 85% of the operated cases without any postoperative morbidity. In particular when the lesions demonstrated calcification or abnormal intensity on image studies, a complete seizure arrest was achieved in all cases. As another characteristic aspect of pediatric epilepsy surgery, remarkable mental improvement is not infrequently observed postoperatively. In pediatric epilepsy, surgical intervention should be considered not only from the standpoint of seizure but also for the protection of overall brain functions.

Shimizu, H., Ohta, Y., Suzuki, I., Ishijima, B., Sugishita, M.: Anterior extensive corpus callosotomy including resection of the isthmus. Jp. J. Psychiatry. Neurol. 47: 264-266, 1993.

Corpus callosotomy is now widely recognized as an effective surgical procedure for palliation of drug-resistant generalized seizures. However, its surgical effect is not stable. One reason for this might be related to the range of resection of the corpus callosum. From our results on 25 consecutive cases, we propose that the anterior extensive resection involving the isthmus would offer more effective surgical results in reducing seizures compared with a standard anterior-half or 2/3 resection.

Nishiyama, K., Kurisaki, H., Bando, M., Ishikawa, T., Sugishita, M. : Transient partial verbal amnesia. J. Neurol. Neurosurg. Psychiatry, 56:1234-1235,1993. (Letter)

Transient partial verbal amnesia (TPVA) is transient amnesia characterized by selective impairment of verbal memory. TPVA is uncommon, and its existence is still not generally accepted. We report a patient with TPVA, on whom we performed detailed neuropsychological examinations during the attack. We believe that this is the first report of clear-cut TPVA.

Ishiai, S., Sugishita, M., Watabiki, S., Nakayama, T., Kotera, M., Gono, S.: Improvement of left unilateral spatial neglect in a line extension task. Neurology 44: 294- 298,1994.

Patients with left unilateral spatial neglect following lesions that mainly involved the right parietal lobe performed a line extension task, extending a horizontal line leftward to

double its original length. We examined line extension performances in the left and right hemispaces, as well as in the midline, to assess whether spatial conditions affected these performances. Whatever the severity of neglect found in the line bisection test, the line extension performances of the patients were almost accurate andcomparable with those of normal controls across the three spatial conditions. The neglect patients executed movements in or toward the contralesional space as the task oriented their attention sufficiently to the left. The results suggest that the motor component, ie, directional hypokinesia, has little part in left unilateral spatial neglect due to right parietal lesions.

Takayama, Y., Sugishita, M., Akiguchi, I., Kimura, J.: Isolated acalculia due to left parietal lesion. Arch. Neurol 51: 286-291, 1994

OBJECTIVE: To clarify the characteristics and the localization of isolated calculation disturbances due to left parietal lesions.DESIGN: Case series. SETTING: Tertiary care hospital. PATIENTS AND OTHER PARTICIPANTS: Three referred patients with isolatedcalculation disturbances due to stroke in the left parietal region. Sixteen volunteers for age and education constituted the control group. OUTCOME MEASURES: Neuropsychological tests, including a battery of tests for acalculia and the Wechsler Adult Intelligence Scale, and magnetic resonance imaging were performed. RESULTS: Three patients made calculation errors in the process where a number of steps were carried out simultaneously. The patients showed no aphasic components in number operations. They understood the basic processes of calculation. They showed little difficulty in the retrieval of table values. The patients had no impairment in aligning arithmetic problems or in assigning and maintaining place-holding values. They did not show any deficit of immediate memory for calculation problems. Overlapping lesions were located along the left intraparietal sulcus. CONCLUSION: The area lying along the left intraparietal sulcus is critical for isolatedparietal acalculia. The profile of isolated acalculia suggests that it results from the disruption of the working memory for calculation.

A.1.ii. Review Articles

none

A.1.iii. Contributions in Separate Publications

none

A.1.iv. Translations

none

A.1.v. Progress Reports

none

A.2. Contributions in Meeting, Proceedings etc.

Sugishita, M., Sakuma, I., Hamilton, C.R., Hemmi, I.: Application of the fundus tachistoscope to the study of the commissurotomy patient. The 9th Tokyo Metropolitan Institute for Neuroscience Symposium. Bulletin of Tokyo Metropolitan Institute for Neuroscience. 22: 34, 1993.

Takayama, Y., Sugishita, M.: Effect of transcranial magnetic stimulation in cognitive function. The 9th Tokyo Metropolitan Institute for Neuroscience Symposium. In Bulletin of Tokyo Metropolitan Institute for Neuroscience. 22: 33, 1993.

Shimizu, H., Suzuki, I., Ishijima, B., Sugishita, M.: Optimal range of callosal section based on cortical lesion and function. The 9th Tokyo Metropolitan Institute for Neuroscience Symposium. In Bulletin of Tokyo Metropolitan Institute for Neuroscience. 22: 35, 1993.

B. Publications in Japanese

B.1.i. Original Contributions

Seki, K., Sugishita, M., Motomura, S: Tactile and auditory-verbal cues to naming difficulties. (呼称障害に対する触覚および聴覚言語的手がか) Higher Brain Function (失語症研究) 13: 200-206, 1993.

Effectiveness of tactile and auditory-verbal cues was compared from the data of 60 aphasics in object naming test of Japanese version of the Western Aphasia Battery. The subjects consisted of 18 Broca aphasics,18 Wernicke aphasics,12 anomics, 4 global aphasics, 3 other types of aphasics, and 5 unclassifiable aphasics. All received tactile and auditory-verbal cues in their naming task. Each one of 20 ordinary objects was presented to the subject for visual naming. When he named it correctly, next object was presented to him. When he failed in visual naming, he was allowed to touch the object. When he could name it by tactile

cuing, next object was presented for visual naming. When he failed by touch, he was told first sound of the target word, or its first half meaningful unit when it was a composite word. The latter cue was called auditory-verbal cue. Each cue was judged as effective when the subject could name more than 3 words correctly among those he could not name before presenting the cue. Results were as follows. 1) Tactile cue was effective in 3 out of 60 subjects. However, in 2 of them, auditory-verbal cue was also effective. Therefore, only one subject demonstrated that tactile cue was a sole effective cue to prompt his naming performance. 2) Auditory-verbal cue was effective in 41 out of 60 subjects, in 2 of which tactile cue was effective. Therefore,39 subjects demonstrated that auditory verbal cue was a sole effective cue to prompt their naming performances. 3) The subjects who demonstrated auditory verbal cue as effective showed strong correlation between their performances of visual naming and those of auditory-verbal naming. 4) There were more cases who had lesions in temporal and temporo-parietal lobes among those who did not demonstrate auditory-verbal cue as effective than among those who demonstrated it as effective.

Terao, Y., Sakurai, Y., Sakuta, M., Ishii, K., Sugishita, M.: FDP-PET in an amnestic and hypersomnic patient with bilateral paramedian thalamic infarction. (持続性の健忘症と傾眠状態を呈し、FDG-PETで広範囲の代謝低下域を認めた両側前内視床梗塞の 1 例) Cli. Neurol.(臨床神経), 33: 951-956, 1993.

A 67-year-old patient was admitted to our hospital owing to coma and tetraplegia. MRI showed T2 weighed high intensity areas in the pontine tegmentum, lower aspect of the right cerebellar hemisphere, left half of medulla oblongata, and bilateral paramedian thalamus. He showed marked recovery by urokinase injection becoming able to walk in a few months, but severe amnesia and hypersomnia persisted even 5 months after onset. EEG showed diffuse alpha activity with occasional delta waves in frontal leads. Intelligence was considered normal (WAIS score; verbal IQ 97, performance IQ 102, total IQ 99), through performance on Wechsler memory Scale-R (Revised Japanese edition, WMS-R) and Benton Visual Retention Test indicated impairment of both verbal and visual memory. Verbal memory was impaired to a greater degree than visual memory (Scores of WMS-R: verbal memory index 60, visual memory index 98, index of general memory 72, attention index 95, index of delayed memory 71). He was able to finish only 0 and 1 categories on two trials of the Wisconsin Card Sorting Test. FDG (18F-fluorodeoxyglucose)-PET showed diffuse areas of decreased metabolism in bilateral thalami, frontal lobes, cingulate gyri and medial temporal lobes. The bilateral thalamic lesion seemed to affect the following structures, as judged from MRI: 1) The anterior thalamic peduncle including most of the reciprocal connections between dorsomedial nucleus of thalamus (MD nucleus) and the frontal lobe, 2) The inferior thalamic peduncle which serves as the reciprocal pathway between MD nucleus and medial temporal

lobe, especially the amygdala (component of Yakovlev circuit), and 3) The inferior part of mammillothalamic tract.

B.1.ii. Review Articles

Sugishita, M.: Laterality in the brain function. (大脳半球機能の左右差)Heredity (遺伝) 47: 62-66, 1993.

Sugishita, M.: Aphasia. (失語症) Modern Physician 13: 992-993, 1993.

Sugishita, M.: Aphasia. (言葉が出ない、わからない、失語とは) CLINICIAN 425: 55-64, 1993.

Sugisita, M., Takayama, Y.: Brain Mechanizm of Speech. (言語の脳内メカニズム) BME 7: 27-34, 1993.

Sugishita, M., Takayama, Y.: Intrahemispheric and interhemispheric disconnecxion syndromes. (半球間および半球内の離断) CLINICAL NEUROSCIENCE 11: 57-60, 1993.

Sugishita, M., Hemmi, I.: The representation of the central visual field in human striate cortex. - A problem of macular sparing. (視野領と視野ー特に黄半回避についてー) Advances in Neurological Sciences (神経研究の進歩) 37: 920-928, 1993.

B.1.iii. Contributions in Separate Publicatins

Sugishita, M.: Neurospychological Assessment. (神経心理学的アセスメント) In: Agari, I. ed. Handbook of Psychological Assessment.(心理アセスメントハンドブック) Nishimura Co., Ltd, 493-496, 1993.

Sugishita, M., Omata, F.: The Western Aphasia Battery. (WAB失語症検査) In: Agari, I. ed. Handbook of Psychological Assessment.(心理アセスメントハンドブック) Nishimura Co., Ltd, 497-508, 1993.

Sugishita, M.: Disconnxion Syndrome. (脳梁離断症候群) In: Shimazono, Y., Hosaki, H. ed. Pshiciatry MOOK Series, No.29, Neuropsychology.(精神科MOOK 神経心理学) Kanehara Co., Ltd, 237-252, 1993.

Sugishita, M.: Limbic system.(大脳辺縁系) In: Takada, A., Norita, Y., Togi, H. ed. Clinical Physiology for Medical Students.(医科臨床生理学) Ishiyaku Publishers, INC. 155-164, 1993 2nd.

B.1.iv. Translations

Sugishita, M., Ibayashi, K. (右半球の神経言語学) Springer-Verlag, Tokyo, 1993.: Joanette, Y., Goulet P. and Hannequin, D.; Right Hemisphere and Verbal Communication. Springer-Verlag, New York, 1990.

Konno, K., Uno, S., Sugishita, M. (臨床言語学) Nishimura Co., Ltd, 1993.: Crystal, D.; Clinical Linguistics (Disorders of human communicatin 3). Springer-Verlag, Wien, 1981.

B.2. Contributions in Meeting, Proceedings etc.

杉下守弘、渡辺譲二, 阿部晶子, 清水弘之, 石島武一：脳梁前 2/3 ～ 3/4 切断術前後に観察した視覚性注意課題の成績. (第34回 日本神経学会総会. 1993.6.9-11,千葉) 臨床神経学 33: 1438, 1993.

石合純夫, 杉下守弘, 叶内　匡, 三苫　博, 五野成之：模写試験における左半　　側空間無視の機序について－模写試験と視覚認知課題の成績の比較－ (第34回日本神経学会総会. 1993.6.9-11,千葉) 臨床神経学 33: 1437, 1993.

杉下守弘, 小池 敦, 阿部晶子：左側頭葉切除例と視覚性記憶障害. (第17回 日本神経心理学会総会　1993.9.17-18, 大阪) プログラム・予稿集: 55

石合純夫, 杉下守弘, 叶内 匡, 李　英愛, 綿引定清, 小田嶋奈津：前頭葉病変による半側空間無視における方向性運動低下の有無. (第17回 日本神経心理学会総会 1993, 9,17-18, 大阪) プログラム・予稿集: 65

関 啓子, 杉下守弘, 長田 乾：失語症患者の単語理解 -身体部位に関して- (第17回 日本神経心理学会総 会 1993. 9.17-18, 大阪) プログラム・予稿集: 80

杉下守弘, 小池　敦, 清水弘之, 石島武一：選択的扁桃核－海馬切除術後の言語性記憶. (第27回 日本てんかん学会　1993、10 弘前)

阿部晶子, 杉下守弘：脳梁前2/3~3/4切断例の言語優位性と視覚性注意課題の成績. (第17回 日本失語症学会総会　1993.12.1-2 鹿児島) ﾌﾟﾛｸﾞﾗﾑ・講演抄録: 90

関　啓子, 杉下守弘：脳梁前方切断患者の触覚/運動覚性音読. (第17回 日本失語症学会総会　1993.12.1-2 鹿児島) ﾌﾟﾛｸﾞﾗﾑ・講演抄録: 90

杉下守弘, 小池 敦, 小池理奈, 清水弘之, 石島武一：側頭葉前部損傷例の音の短期記憶に就いて. (厚生省 長寿科学総合研究老年病分野(痴呆関係班) 平成5年度研究発表会 1994、2、10-12 東京)

稲福徹也, 高木 誠, 星野晴彦, 瀬川 浩, 杉下守弘：外側膝状体に限局した脳梗塞の一例. (第128回 日本神経学会関地方会　1994.3.5 東京)

Progress Reports