RECENT PUBLICATIONS

April 1996 - March 1997

Department of Speech Science

A. Publications in English

A. 1. Publications in periodicals

A. 1. i. Original Contributions

Imaizumi, S., Mori, K., Kiritani, S. and Yumoto M.: Neural Representation of Concurrent Sounds. Electroencephalography and Clinical Neurophysiology. Suppl. 47: 191-197, 1996.

The auditory magnetic fields (MEGs) elicited by spoken sound stimuli consisting of an isolated word (Sw), an isolated consonant (/k/) burst (Sk), and a concurrent but perceptually segregated version of them (concurrent word and segregated /k/ burst, So) were measured using a 37-channel SQUID magnetoencephalographic system. The responses over the right and left hemispheres during auditory stimulation of the contralateral ear were recorded for nine normal-hearing subjects. Three tasks were imposed: Tw and Tc, counting the number of times hearing the spoken word or the click respectively, and Ti, reading a book and ignoring the sound stimuli. Only for the left auditory cortex, task had a significant effect on the moment of the equivalent current dipole of N1m, which was the largest under the word counting task and the smallest under the ignoring task. The response of the right auditory cortex seemed to be more general compared to that of the left, which was specifically tuned to phonetic sounds. For both hemispheres, the segregated /k/ burst was found to elicit different activity at a more medial location in the auditory cortex in comparison with that elicited by the concurrent spoken word, the isolated spoken word, or the isolated /k/ burst. These findings suggest that neural processing of the concurrent sounds is simultaneously performed by at least partially different neural resources.

Hosoi, H., Murata, K. and Imaizumi S.: A new method of measurement of most comfortable loudness. Audiology and Neuro-Otology, 1: 234-242. 1996.

A new computer-assisted method for the measurement of most comfortable loudness (MCL) is presented, where not only MCL but also its reliability can be graphically displayed and measured. Two unique features concerning the reliability of MCL measurement are obtained in this method: sharpness and stability. Sharpness is defined by the rate of repeat selection of the same level as MCL, and stability is used to express the consistency of a subject's response during the experiment. A method of analyzing sharpness and stability was explained by showing two contrasting cases. Based on the graph configurations, the subjects were divided into two major categories, type A and type B, defined by sharpness of judgment. Type A subjects' judgments are sharper than those of Type B. Decreasing the frequency increased the occurrence of

Type A subjects. Retest results revealed that this method has a high degree of reproducibility of MCL judgment, which supports the reliability of this method.

Mazuka, R., Itoh, K., Kondo, T.: Processing down the garden path in Japanese: processing of sentences with lexical homonyms, 26: 207-228, 1997.

This paper investigates whether or not Japanese sentences with lexical homonyms cause measurable processing difficulties for Japanese speakers. Pairs of sentences involving lexical homonyms were tested with three types questionnaires (who-did-what questions. difficulty ratings, and misleadingness ratings) and two experimental tests (an eye-movement monitoring experiment and a self-paced reading experiment). In both the difficulty ratings. and misleadingness ratings) and two experimental tests (an eye-movement monitoring experiment and a self-paced reading experiment). In both the difficulty rating and the misleadingness rating questionnaires, "late boundary" sentences, in which a phrase boundary followed a homonymous phrase. were rated as significantly more difficult and more misleading than "early boundary" sentences, where the boundary preceded the homonymous phrase. The results from the eye-movement study and the self-paced reading study showed that the late boundary difficulties were associated with the processing of the regions that followed the homonymous phrases. These results confirmed our prediction that the difficulty of late boundary sentences is likely to be caused by a subject's original misanalysis and subsequent revision. The results are discussed in terms of possible reasons why the early boundary version was preferred in these sentences.

Misono. Y.. Mazuka. R.. Kondo, T. and Kiritani. S.: Effects and limitations of prosodic and semantic biases on syntactic disambiguation, Japan Psychological Research. 26:229-245.1997.

The paper examined the effects of prosody on syntactic ambiguity resolution of Japanese sentences. especially with reference to the interaction with semantic bias. Syntactically ambiguous sentences with different types of semantic bias were constructed. The degree of bias in each sentence was evaluated through visual presentation experiments. Three types of sentence were selected based on the results of visual presentation experiments. were recorded with prosody maximally favoring each possible interpretation of the sentences and were used as the stimuli for the auditory presentation experiments. The results showed that prosodic cues can influence the interpretation of a sentence even when the sentence is strongly semantically biased. The results also showed a limitation to prosodic cues. The prosodic biases alone were not sufficient to fully determine the interpretation of the sentences even when the sentences were neutrally biased semantically.

Shimura, Y. and Imaizumi, S.: Listener and context dependency in the perception of emotionalaspects of infant voice. Acta Paediatrica Japonica. 38: 648-656. 1996.

Developmental aspects of an infant's ability to express emotions through vocalizations were studied based on perceptual rating experiments against 12 vocalization- and emotion-related reference words. Three groups of listeners. students, mothers with infants, and nursery governesses. rated 28 voice samples recorded from a male infant at 6, 9. 12, and 17 months of age, under positive or negative contexts.

Among three factors extracted by a factor analysis, one representing emotional contrast of frightened/angry vs. happy was found to be independent of listener group, the infant age, and context. The other two, one representing contrast between pleased/happy vs. demanding/sad and the other seeking affection and rejecting/angry were dependent on infant age and context. These results may indicate that infants even at 6 months of age can express the emotional contrast of "pleasant" vs. "discomfort" through vocalization which listeners perceive independently on the contexts.

Yokoyama H, Niwa S, Itoh K, Mazuka R: Fractal property of eye movements in schizophrenia. Biological Cybernetics, 75: 137-140, 1996.

On the basis of a temporal model of animal behavior we conducted temporal analysis of eye movements in schizophrenic subjects (n=10) and normal controls (n=10). We found a fractal property in schizophrenic subjects, the fixation time of eye movement during reading ambiguous and difficult sentences showing a clear inverse power law distribution. An exponential distribution of a nonfractal nature was found in normal controls.

A. 1. ii. Review Articles

none.

A. 1. iii. Contributions Separate Publications

Kiritani, S. and Niimi, S.: High-Speed digital image analysis of temporal changes in vocal fold vibration in tremor in "Speech Production andLlanguage", (Eds. S. Kiritani, H. Hirose and H. Fujisaki.), Mouton de Gruyter, 53-67, 1997.

A. 1. iv. Translations

none.

A. 1. v. Progress Report

none.

A. 2. Contributions in Meeting, Proceedings etc.

Halle, P. A., Deguchi, T., Tamekawa, Y., Boysson-Bardies, B. and Kiritani, S.: Word recognition by Japanese infants. Proceedings ICSLP, 1557-1560, 1996.

Hayashi. A.. Tamekawa, Y.. Deguchi. T. and Kiritani. S.: Developmental change in perception of clause boundaries by 6- and 10-manth-old Japanese infants. Proceedings ICSLP, 1565-1568, 1996.

Imaizumi. S.. Mori, K.. Kiritani. S. and Yumoto. M.: Neural processes of audio-visual speech perception. Preprint of The Third Joint Meeting of the Acoustical Society of America and Japan. 2571, 1996.

Kiritani. S.. Iwamoto. Y.. Imagawa, H. and Niimi. S.: Variation in vocal fold vibration associated with intonation pattern. Preprint of The Third Joint Meeting of the Scoustical Society of America and Japan, 2657. 1996.

Kiritani. S.. Iwamoto. Y.. Imagawa H. and Niimi. S.: Variation in vocal fold vibration associated with prosodic conditions. Proceedings ICSLP . SaA2P1.18. 1996.

Misono. S.. Mazuka, R. and Kiritani. S.: Effects and limitations of prosody on the resolution of syntactic ambiguity in Japanese. Preprint of The Third Joint Meeting of the Acoustical Society of America and Japan, 2823, 1996.

Shimura Y. and Imaizumi, S.: The perception of emotional in young infants vocalizations. The XiVth Biennial Meetings of ISSBD. Quebec City. 110. 1996.

B. Publications in Japanese

B. 1. Publications in Periodicals

B. 1. i. Original Contributions

Hayashi. A.. Deguchi. T. and Kiritani. S.: Response patterns to speech stimuli in the headturn preference procedure for 4-to 11-month-old infants. (選考振り向き法における4〜11ヶ月齢児の音声刺激に対する反応) Jpn. J. Logop. Phoniatr. (音声言語医学), 37: 317-323. 1996.

Effectiveness of the headturn preference procedure (HPP) in studying the perceptual ability of infants was examined using selected pairs of speech stimuli. In HPP. the durations of an infant's attention to each of two types of auditory stimuli are measured to examine whether infants discriminate between these stimuli. In Exp. 1, a stimulus pair of child-directed speech and band-limited noise was presented to 24 4-to 11-month-old infants. The infants demonstrated a significant preference for the speech samples. In Exp. 2. a stimulus pair of Japanese speech (native language) and English speech (non-native language) was presented. The younger group. 20 infants aged from 134 to 200 days old. did not show a significant preference for one language over the other. However. the older group. 20 infants aged from 201 to 332 days old. significantly preferred the native language. This developmental change resulted from a considerable decrease in the duration of the infant's attention with the non-native language. The

present results show that HPP is sensitive enough to examine response characteristics of infants to speech stimuli and their developmental changes.

Imaizumi, S., Abdoerrachman, H., Niimi, S. and Kumada, M.: Vocal variability: its acoustic evaluation. (声の変動特性－音響分析による評価－) The Larynx Jpn. (喉頭) 8: 116-122, 1996.

The variability and controllability of vocal fundamental frequency (F0) are investigated by analyzing the acoustic and perceptual characteristics of sustained vowel samples recorded from patients with spasmodic dysphonia (SPD) as well as patients with various types of laryngeal disorders and normal controls. All the pathological groups show larger variations in F0 or lower controllability than the normal controls. The voice segments perceptually judged as non-sporadic show significantly larger variations in F0 than the normal controls. From the voice segments perceptually judged as sporadic, instantaneous changes in F0 or in amplitude, chaotic changes in voice waveform such as bifurcations are observed. Based on the obtained results, a model of normal and disordered voice control mechanism is proposed, in which morphological and neural abnormalities affect voice variability. The acoustic analysis method described here is found beneficial in analyzing voice variability and controllability, and can provide useful information to know normal and disordered voice control mechanisms.

Miyaji, M., Oda, M., Hosako, Y., Kumada, M., Imagawa, H., Kiritani, S. and Niimi, S.: Specific vocal fold vibration patterns seen in accumulative lesions –analysis by high-speed digital imaging– (沈着性病変の声帯(いわゆる竹節状声帯)にみられた特異な振動パターン －高速度デジタル撮影を用いて－) Jpn. J. Logop. Phoniatr.(音声言語医学), 37: 223-227, 1996.

Stroboscopy has often been clinically used for observation of vocal fold vibration. However, the validity of stroboscopy is limited since it depends on regularity of the vibration. To resolve this problem, we have been utilizing a computer-assisted high-speed digital imaging technique developed by the Research Institute of Logopedics and Phoniatrics, at the University of Tokyo. In this paper, abnormal vibratory patterns of the vocal fold seen in two cased of autoimmune disease are reported, where vocal folds revealed accumulative lesions which look like a "bamboo knots."

B. 1. ii. Review Articles

Imaizumi, S.: Recording and evaluation of speech. (ことばの記録と評価) JOHNS, 12: 835-840, 1996.

Imaizum, S.: Language Aquisition-From where does speech come?- (言語獲得－ことばはどこから来るか？－) Iden (遺伝), 51: 35-39, 1996.

Imaizumi, S. and Shimura, Y.: Acoustic Environments in the Womb. (胎内の音環境) Imago, 7: 56-62, 1996.

Kiritani. S.: Recent studies on the acquisition of speech sounds by infant.(乳児における言語音獲得の過程) J. Acoust. Soc. Jpn. (日本音響学会誌), 52: 289-293. 1996.

Shimura. Y. and Imaizumi. S.: Infants are communicating. (乳児は伝える) J. acoust. Soc. Jpn.(日本音響学会誌), 52: 547-551. 1996.

B. 2. Contributions in Meeting, Proceedings etc.

伊藤憲治：パーソナリティが音声言語に及ぼす影響に関する最近の研究の展望. 日本学術振興会「文字言語・音声言語の知能的処理」第152委員会資料. 49-2. 1996.

今泉敏. 森浩一. 桐谷滋. 湯本真人. 世木秀明: 視聴覚音声知覚の脳内過程：脳磁図による解析. Audiology Japan. 39: 533-534. 1996.

今泉敏. 森浩一. 桐谷滋, 湯本真人. 世木秀明. 八巻弘二: 視聴覚情報統合機能の脳磁図による解析. 電子情報通信学会技術報告. SP95-135: 1-6. 1996.

今泉敏. 森浩一. 桐谷滋. 湯本真人. 世木秀明: 読唇の脳内過程. 第 41 回音声言語医学総会学術講演会予稿集. 75. 1996.

今泉敏，森浩一，桐谷滋，湯本真人，世木秀明，清水一光：情報処理速度からみた視聴覚情報統合. 日本音響学会講演論文集（平成9年春季）. 365-366. 1997.

今川博，渡辺陽子，今石元久，桐谷滋：パーソナルコンピュータを用いた失語症者用動詞訓練プログラム-使用絵カードについての検討-. 日本音声言語医学会予稿集. 91. 1996.

岩本容武，山中盾，熊田政信，今川博，桐谷滋，新美成二：高速度ディジタル撮影装置による諸謂Vocal fryの声帯振動の観測. 日本音声言語医学会予稿集. 102. 1996.

桐谷滋：超高速度撮影による声帯振動の解析. 第9回日本喉頭科学会総会予稿集. 32, 1997.

桐谷滋，今川博，新美成二：痙攣性発声障害患者における声帯振動パタン. 日本音声言語医学会予稿集，101，1996.

桐谷滋. 今川博. 宮地麻美子. 新美成二：病的音声における声帯振動の準周期的変動. 音声言語医学. 37: 84. 1996.

越田一郎，伊藤憲治，平松謙一，福田正人，中込和幸，畑哲信，湯本真人，丹羽真一: 多チャンネル EEG 測定装置による２次元トポグラフィ処理の評価. 第26回日本脳波・筋電図学会学術大会予稿集: 391. 1996.

越田一郎. 伊藤憲治. 平松謙一. 湯本真人. 丹羽真一: 多チャンネルＥＥＧトポグラフィシステムによるトポグラフィ補完法の評価. 脳波と筋電図. 24: 120. 1996.

高沢悟，中込和幸，市川郁夫，赤穂理恵，伊藤憲治，林田征起，菅野道: 選択制限（意味）及び統語規則に関する事象関連電位の検討—健常者における予備的実験・第二報—. 第19回日本生物学的精神医学会講演抄録集: 188. 1997.

為川雄二, 出口利定. 林安紀子, 桐谷滋：生後10ヵ月齢乳児における語彙獲得について–選考振り向き法を用いた実験的検討–. 音声言語医学. 37: 73. 1996.

為川雄二. Pierre A. Halle. 出口利定. 林安紀子. 桐谷滋：日本人乳児における単語音声の獲得. 日本音響学会聴覚研究会資料. H-97-1. 1997.

千葉ルリ子, 世木秀明. 桐谷滋. 米川紘子：老人における有意味語、無意味語の受聴明瞭度比較. 音声言語医学. 37: 146-147. 1996.

中込和幸，福田正人，畑哲信，平松謙一，松下正明，湯本真人，伊藤憲治: 精神分裂病におけるNd. MMNの scalp current density mapping の検討. 第26回日本脳波・筋電図学会学術大会予稿集: 326.

平松謙一, 福田正人. 中込和幸. 畑哲信. 松下正明. 湯本真人, 伊藤憲治: 選択的注意課題を用いた注意関連磁場とミスマッチ磁場の検討. 脳波と筋電図, 24: 131. 1996.

宮地麻美子. 小田恂. 桐谷滋. 新美成二：声帯結節にみられた声帯振動について. 第9回日本喉頭科学会総会予稿集. 65. 1997.

森浩一.今泉敏,桐谷滋.湯本真人：音源定位は第一次聴覚領の外で行われるのか. 日本音響学会聴覚研究会資料.H-97-7: 1-7.1997.

山中盾, 石毛美代子. 岩本容武. 今川博. 桐谷滋. 新美成二：電気声門図(ＥＧＧ)の声帯超高速度ディジタル撮影法による解析. 第9回日本喉頭科学会総会予稿集. 64. 1997.

渡辺陽子. 桐谷滋. 世木秀明：運動障害性構音障害の構音の評価（第2報）–ピッチ周期に同期した分析–. 音声言語医学. 37: 127-128. 1996.

RECENT PUBLICATIONS

April 1996 - March 1997

Department of Speech Physiology

A. Publications in English

A. 1. Publications in Periodicals

A. 1. i. Original Contributions

Imaizumi. S.. Mori. K.. Kiritani. S. and Yumoto. M.: Neural Representation of Concurrent Sounds. Electroencephalography and Clinical Neurophysiology. Suppl. 47: 191-197. 1996.

The auditory magnetic fields (MEGs) elicited by spoken sound stimuli consisting of an isolated word (Sw), an isolated consonant (/k/) burst (Sk). and a concurrent but perceptually segregated version of them (concurrent word and segregated /k/ burst. So) were measured using a 37-channel SQUID magnetoencephalographic system. The responses over the right and left hemispheres during auditory stimulation of the contralateral ear were recorded for nine normal-hearing subjects. Three tasks were imposed: Tw and Tc. counting the number of times hearing the spoken word or the click respectively. and Ti. reading a book and ignoring the sound stimuli. Only for the left auditory cortex. task had a significant effect on the moment of the equivalent current dipole of N1m. which was the largest under the word counting task and the smallest under the ignoring task. The response of the right auditory cortex seemed to be more general compared to that of the left. which was specifically tuned to phonetic sounds. For both hemispheres. the segregated /k/ burst was found to elicit different activity at a more medial location in the auditory cortex in comparison with that elicited by the concurrent spoken word. the isolated spoken word. or the isolated /k/ burst. These findings suggest that neural processing of the concurrent sounds is simultaneously performed by at least partially different neural resources.

Ito. K., Mori. K. and Iwasaki. S.: Application of dynamic programming matching to classification of budgerigar contact calls. Journal of the Acoustic Society of America, 100: 3947-3956, 1996.

Dynamic programming (DP) matching was applied to classification of budgerigar contact calls. Our DP matching algorithm calculates distances between two calls with time warping. It was compared to other methods including linear matching methods and methods using cross correlation. and was evaluated in classifying calls into natural

groups. The DP matching method with two peak frequencies with some tolerance in frequency comparison (DP2peak) and the cross correlation method using two peak frequency tracks with frequency shift (Corr2shift) were equally effective in classifying obviously different calls. DP2peak proved more effective than any other methods tested in classifying minutely different cagemate calls. Use of two peak frequencies, time warping in matching calls. and tolerance of frequency shift were found to be the three most important factors in mimicking the bird's own classification of natural calls. whereas intensity differences of peak frequencies did not play an important role. The possibility of similar processes of call discrimination in the bird's brain, such as simultaneous perception of two frequencies and time warping in comparing calls. was discussed in relation to these results.

Tsunoda, K.. Ohta, Y., Soda, Y.. Niimi. S. And Hirose. H.:Laryngeal adjustment in whispering - Magnetic resonance imaging study. Ann. Otol. Rhinol. Laryngol., 106:41-43, 1997.

Previous studies confirmed that during whispering the glottis is kept open to prevent fold vibration and the supraglottal structures are constricted. However, there has been no study exploring the exact contour of the laryngeal luman in the frontal dimension during the production of whispering. and the role of supraglottal constriction in particular, we conducted a physiological study using magnetic resonance imaging. According to the results. the supraglottal structures were not only constricted but also shifted downward. attaching to the vocal fold to prevent vocal fold vibration completely during whispering. The results suggested the underlying mechanism of suppression of vocal fold vibration during the production of whispering.

A. 1. ii. Review Articles

none.

A. 1. iii. Contributions in Separate Publications

Imaizumi. S.. Mori. K.. Kiritani. S. and Yumoto, M.: Neural representation of concurrent sound objects. In Hashimoto. I.. Okada, Y. C. and Ogawa, S. (Ed.). Visualization of Information Processing in the Human Brain: Recent Advances in MEG and Functional MRI. Electroenceph. Clin. Neurophysiol., S47: 191-197. Tokyo. Elsevier, 1996.

A. 1. iv. Translations

none.

A. 1. v. Progress Report

none.

A. 2. Contributions in Meeting, Proceedings etc.

Kim, H-G. and Niimi, S.: Acoustic and aerodynamic studies of Koeran vowel devoicing. J. Acoust. Soc. America.100: 2659, 1996.

Kiritani, S., Iwamoto, Y., Imagawa, H., and Niimi, S.: Variation in vocal fold vibration associated with intonation pattern. J. Acoust. Soc. Am., 100: 2657, 1996.

Niimi, S.: Laryngeal gestures of traditional Japanese singing. J. Acoust. Soc. Am., 100: 2743, 1996.

Niimi, S. and Kumada, M.: Recent advances in techiniques for observing speech production. Preprint of papers presented at Special Session "Speech Communication for the Next Decade: New Directions of Research, Technological Development and Evolving Applications" 1-9, 1996.

Niimi, S., Kiritani, S. and Imagawa, H: High-speed digital imaging of vocal fold vibration. Proceedings of the 9th Combined Meeting of WCB and WCBE, 137, 1996.

Sakata, T., Ishige, M., Imaizumi, S., Niimi, S. and Hirose, H.: The emotional expression in singing voice. Abstracts of the 21th International Annual Congress of the Colegium Medicorum Theatri, Salsomaggiore, Italy.1996.

B. Publications in Japanese

B. 1. Publications in Periodicals

B. 1. i. Original Contributions

Miyaji, M., Oda, M., Hosako, Y., Kumada, M., Imagawa, H., Kiritani, S. and Niimi, S.: Specific vocal fold vibration patterns seen in accumulative lesions –analysis by high-speed digital imaging– （沈着性病変の声帯（いわゆる竹節状声帯）にみられた特異な振動パターン －高速度デジタル撮影を用いて－） Jpn. J. Logop. Phoniatr.（音声言語医学）, 37: 223-227, 1996.

Stroboscopy has often been clinically used for observation of vocal fold vibration. However, the validity of stroboscopy is limited since it depends on regularity of the vibration. To resolve this problem, we have been utilizing a computer-assisted high-speed digital imaging technique developed by the Research Institute of Logopedics and Phoniatrics, at the University of Tokyo. In this paper, abnormal vibratory patterns of the vocal fold seen in two cased of autoimmune disease are reported, where vocal folds revealed accumulative lesions which look like a "bamboo knots."

Saigusa, H., Ushio, K., Kunimoto, M., Niimi, S. and Yagi, T: A device for arytenoid subluxation in thyroplasty Type I（前方型披裂軟骨脱臼症の治療経験）. J. Jpn, Bronchoesophagol. Soc., 47: 539-544, 1996.

B. 1. ii. Review Articles

Ishige, M., Niimi, S. and Mori, K.: Electroglottography (EEG). Jpn. J. Logop. Phoniatr. (音声言語医学). 37: 347-354, 1996.

Mori, K.: Analysis of environmental sound and plasticity of hearing in the owl (フクロウの音環境解析と聴覚の可塑性). J. Acoust. Soc. Jpn. (日本音響学会誌), 52: 536-541, 1996.

Niimi, S.: Pharyngeal flap operation (咽頭弁手術). Otorhinolaryngology, Head and Neck., 68: 88-92, 1996.

Niimi, S.: Health care for children with speech disturbances (言語障害児の保健管理). Clin. Pediatr. (小児科臨床). 49: 1580-1585, 1996.

B. 1. iii. Contributions in Separate Publications

none.

B. 1. iv. Translation

none.

B. 1. v. Progress Report

none.

B. 2. Contributions in Meeting, Proceedings etc.

阿部雅子，石毛美代子，新美成二：側音化構音の構音動態の観察．第 41 回日本音声言語医学会総会予稿集. 120, 1996.

石毛美代子，新美成二：プッシング法のメカニズムに関する生理学的検討．第 41 回日本音声言語医学会総会予稿集, 159, 1996.

今泉敏. 森浩一. 桐谷滋. 湯本真人. 世木秀明: 視聴覚音声知覚の脳内過程：脳磁図による解析. Audiology Japan. 39: 533-534, 1996.

今泉敏. 森浩一. 桐谷滋. 湯本真人. 世木秀明. 八巻弘二: 視聴覚情報統合機能の脳磁図による解析. 電子情報通信学会技術報告, SP95-135: 1-6. 1996.

今泉敏, 森浩一. 桐谷滋, 湯本真人. 世木秀明: 読唇の脳内過程. 第 41 回音声言語医学総会学術講演会予稿集. 75. 1996.

今泉敏. 森浩一. 桐谷滋. 湯本真人. 世木秀明. 清水 一光: 視聴覚音声知覚の脳波・脳磁図による検討. 日本音響学会聴覚研究会資料 H-97-9. 1-7. 1997.

今川博，桐谷滋，新美成二：声帯振動ディジタル撮影装置の高速高解像度化．日本音響学会講演論文集 (平成 8 年春季)，1，325，1996.

岩本容武，山中盾，熊田政信，今川博，桐谷滋，新美成二：高速度ディジタル撮影装置による諸謂Vocal fryの声帯振動の観測．日本音声言語医学会予稿集. 102. 1996.

狩野章太郎，手塚克彦，三富夏彦，田山二朗，新美成二：シリコンブロック挿入 18 年後の喉頭病理所見．第 48 回日本気管食道科学会総会予稿集. 99. 1996.

桐谷滋，今川博，新美成二：痙攣性発声障害患者における声帯振動パタン．日本音声言語医学会予稿集，101，1996.

熊田政信，小林武夫，牧山清，小崎寛子，新美成二：痙攣性発声障害の新しい評価法：モーラ法と音節法．第 41 回日本音声言語医学会総会予稿集. 139. 1996.

三枝英人，豊田雅基，新美成二，八木聡明：人工咽頭作成の試み．第 48 回日本気管食道科学会総会予稿集. 96, 1996.

三枝英人，八木聡明，新美成二：後天性鼻咽腔閉鎖不全に対する口蓋咽頭側面縫縮術．第 41 回日本音声言語医学会総会予稿集. 104. 1996.

坂田知子，石毛美代子. 今泉敏. 新美成二: 歌声における感情表現について．音声言語医学. 37:84-85. 1996.

坂田知子，今泉敏，新美成二：歌声による感情表現の生理音響学的検討．第 41 回日本音声言語医学会総会予稿集，128. 1996.

島崎奈保子，工藤逸大，牧山清，今川博，新美成二：高速度ディジタル撮影法による声帯振動の観察．第 41 回日本音声言語医学会総会予稿集. 126. 1996.

田山二朗，手塚克彦，三富夏彦，新美成二：当科における声帯内コラーゲン注入術の成績．第 48 回日本気管食道科学会総会予稿集. 63, 1996.

新美成二：神経疾患に伴う音声障害．日本耳鼻咽喉科学会会報. 99: 1573. 1996.

細井裕司. 今泉敏. 渡壁徳大. 渡邊好章. 外池光雄. 森浩一. 村田清高. 西田尚司. 福井理雄: 超音波聴覚の検討日本音響学会. 聴覚研究会資料 H-97-4:1-8. 1997 (Trans. Tech. Com. Psycho. Physio. Acoust.).

三富夏彦，手塚克彦，横山正人，田山二朗，新美成二：造影剤の粘性変化による嚥下動態の差異．第 48 回日本気管食道科学会総会予稿集. 96, 1996.

森浩一. 今泉敏. 桐谷滋. 湯本真人: 音源定位は第 1 次聴覚領の外で行われるのか. 日本音響学会聴覚研究会資料 H-97-7:1-8. 1997.

横山正人，三富夏彦，手塚克彦，田山二朗，新美成二：加齢による嚥下動態の変化．第 48 回日本気管食道科学会総会予稿集. 94, 1996.

RECENT PUBLICATIONS

(April 1996 - March 1997)

Department of Cognitive Neuroscience

A. Publications in English

A. 1. Publications in periodicals

A. 1. i. Original Contributions

Endo, K., Makishita, H., Yanagisawa, N. and Sugishita, M.: Modality specific naming and gesture disturbances: A case with optic aphasia, bilateral tactile aphasia, optic apraxia and tactile apraxia. Cortex, 32: 3-28, 1996.

This study reports a patient who manifested optic aphasia, tactile aphasia, optic apraxia, and tactile apraxia following an operation for epidural left parietal haematoma. He could neither name nor pantomime the use of objects presented visually or tactually, but correctly performed semantic association tasks, thus demonstrating preserved recognition. He could name and pantomime the use of auditorily presented objects. Experimental results disproved that pantomime disorders were secondary to naming disorders, and suggested that modality specific aphasia and modality specific apraxia are independent clinical syndromes. CT scans showed injury to the posterior callosal radiations, the white matter of the angular gyrus, and the medial portion of the occipital lobe in the left hemisphere. We suggest that modality specific aphasia and modality specific apraxia can be explained by assuming a common semantic memory store.

Sugishita, M., Takayama, Y., Shiono, T., Yoshikawa, K. and Takahashi Y.: Functional magnetic resonance imaging (fMRI) during mental writing with phonograms. Neuroreport, 7:1917-1921, 1996.

Functional magnetic resonance imaging (fMRI) at 1.5 T using a gradient echo echo-planar sequence was employed to identify brain regions activated during the performance of a mental writing task using phonograms. Four regions were activated in all six subjects: the region surrounding the left intraparietal sulcus, the region surrounding the middle part of the left precentral sulcus and the posterior part of the left superior frontal sulcus, the region surrounding the right intraparietal sulcus, and the region surrounding either or both of the left and right cingulate sulci. The left intraparietal region was usually the most extensively activated. The results suggest that these four regions particularly the left intraparietal region, are essential in writing with phonograms. Since the left hemisphere was more extensively activated than the right, fMRI during the mental writing task is a good candidate for determining non-invasively which hemisphere is dominant for language.

Koike, A., Shimizu, H., Suzuki, I., Ishijima, B. and Sugishita, M.: Preserved musical abilities following right temporal lobectomy. J. Neurosurgery, 85(12): 1000-1004, 1996.

It has been widely accepted that the right temporal lobe plays a major role in the processing of music. One of the main lines of evidence was derived from Milner's study, published in 1962, which reported that right temporal lobectomy led to a decline in patient scores on four of the six subtests (Tonal Memory, Timbre, Loudness, and Time subtests) of the Seashore Measures of Musical Talents. That finding had led some surgeons and patients to hesitate in choosing right temporal lobectomy as a treatment for intractable epilepsy. The authors examined performance on the Seashore Measures before and after operations in 20 patients with right temporal lobectomy and nine patients with left temporal lobectomy. No disturbances in the Seashore Measures were detected after temporal lobectomy on either side. The extent of these temporal lobectomies was smaller than that of the temporal lobectomies in Milner's study, as measured along the sylvian fissure (1.5 - 4 cm; mean 2.7 cm, standard deviation (SD) 0.92 cm) and the base of the temporal lobe (3.5 - 5.5 cm; mean 4.7 cm, SD 0.63 cm). These findings indicate that the region resected on right temporal lobectomy in the present study is not essential for basic musical processing.

B. Publications in Japanese

B. 1. Publications in Periodicals

B. 1. i. Original Contributions

Watanabe, S., Ohashi, M., Yonemoto, K., Miyano, S. and Sugishita, M.: Neuropsychological evaluation in severe traumatic brain injury. (重症脳外傷患者の知的能力に関する問題点.) Jpn. J. Rehabil. Med. (リハビリテーション医学), 33:316-321, 1996.

The key issues of the social recovery of the traumatic brain injured (TBI) are not only physical disorders but intellectual disorders. We assessed intellectual disabilities of severe 15 TBI persons with the revised Wechsler Adult Intelligence Scale (WAIS-R) and the revised Wechsler Memory Scale (WMS-R) . In order to assess the significance of intellectual abilities on daily living, we adopted the memory and problem solving subscales of the Functional Independence Measure (FIM) . The results are as follows.

1. The mean scores and standard deviations of the verbal IQ (VIQ), performance IQ (PIQ) and full scale IQ (TIQ) were 87.2±20.39, 65.0±15.83 and 75.7±17.27 respectively. There was a characteristic finding that the PIQ was lower than VIQ in scores.
2. The scores were also lower in the revised Wechsler Memory Scale index In all subjects.
3. The memory and problem solving subscales of the FIM were significantly correlated with the PIQ scores, but not with VIQ or TIQ scores. It is likely that the traumatic brain injured with 80 or more of PIQ score become independent in daily living situations even at the onset of severe brain injury with rather prolonged coma.

B. 1. ii. Review Articles

Sugishita, M.: Functional magnetic resonance imaging. (機能的磁気共鳴画像について.) Modern Esprit (現代のエスプリ), 349: 28-35, 1996.

Sugishita, M. : Sex differences in human brain. (男の脳と女の脳). Modern Esprit (現代のエスプリ), 349: 137-146, 1996.

Sugishita, M. : Memory disteurbance in patients with Alzheimer's disease. (アルツハイマー型痴呆の記憶障害.) Geriatric Psychiatry (老年精神医学雑誌), 7: 879-882, 1996.

Sugishita, M.: Evaluation of Aphasia by Western Aphasia Battery (Japanese Edition). (失語症の評価—WAB 失語症検査を中心に—.) General Rehabilitation (総合リハビリテーション), 24: 1151-1155, 1996.

Sugishita, M.: The future of studies on mind. (脳から見た心理研究の未来.) imago (イマーゴ), 7: 190-192, 1996.

Sugishita, M.: Intimacy and brain. (心理的親密さと脳.) Modern Esprit (現代のエスプリ), 353: 192-197, 1997.

Sugishita, M.: Episode memory in Alzheimer type dementia. (痴呆におけるエピソード記憶.) Geriatric Psychiatry (老年精神医学雑誌), 8: 149-152,1997.

Sugishita, M. : Brain and Language. (脳と言語.) J. Clinical Science (臨床科学), 33: 624-631, 1997.

Sugishita, M.: Brain imaging and mind. (脳のイメージングと心の働き.) (月刊 医事研究), 5: 34, 1997.

Sugishita, M.: fMRI and PET studies on the hippocampus. (機能的 MRI および PET による海馬の機能の検討.) Progress in Medicine (医学のあゆみ), 182: 179-181, 1997.

B. 1. iii. Contributions Separate Publications

Sugishita, M.: Organization of the brain. (脳の組織化.) In Kojima K. (Ed.): Suckling Psychology. (編著 小嶋謙四郎, 乳児心理学—人間発達の基礎—), Kawashima Shoten (川島書店), 1-12, 1997.

Sugishita, M.: Cerebral hemisphere and consciousness. (分離脳と意識.) In Osaka N. (Ed.): Brain and consciousness. (編 苧阪直行. 脳と意識) Asakura Shoten (朝倉書店), 188-200, 1997.

Sugishita, M. : Blind sight (盲視) . In Iwata M. (Eds.): Keywords - Neurology (編集岩田誠 他 ,キーワードを読む 脳・神経) Igaku Shoin (医学書院), 133, 1997.

B. 1. iv. Translations

none.

B. 1. v. Progress Report

杉下守弘、大伴　潔, 清水弘之：難治性小児てんかん例に対する脳梁離断術の効果—『生活能力質問紙』を用いた術前・術後の比較—（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7年度研究班会議）報告書, 211-218, 1996.

八木和一、朝倉哲彦、渡辺一功、杉下守弘、中村克巳、鳥取孝安：難治てんかん外科治療の医学倫理性確立のための技術調査と開発に関する研究.てんかん治療研究振興財団研究年報, 8：192-196, 1996.
杉下守弘、小池　敦、清水弘之：高次脳機能の発達とその異常に関する神経心理学的研究—機能的大脳半球切除術後の変化について—.（平成7年度厚生省精神・神経疾患研究委託費による研究報告集—2年度班・初年度班—）報告集, 134, 1996.

杉下守弘、小池　敦、大伴　潔, 前原健寿, 清水弘之：小児の難治性てんかんに対する外科的治療の効果—大脳半球切除術および側頭葉前部切除術後の生活能力の比較—. 厚生省 精神・神経疾患研究委託 高次機能の発達異常に関する基礎的研究 平成8年度研究報告書, 119-124, 1997.

B.2. Contributions in Meeting ,Proceedings etc.

杉下守弘：てんかん外科と神経心理学. 第 16 回日本脳神経外科コングレンス. 1996.

杉下守弘、高山吉弘、吉川宏起：functional MRI による書字機能の研究.　第 37 回日本神経学会総会. 臨床神経学 36(12)：1519, 1996.

杉下守弘：【特別講演】脳磁図の高次機能への適用. 第 11 回日本生体磁気学会大会,　1996.

杉下守弘：【特別講演】高次神経機能についての最近の研究—機能的 MRI と脳磁図の適用. 第8回静岡脳機能研究会, 1996.

杉下守弘：機能的 MRI による高次脳機能の解明. 第 26 回新潟神経学夏期セミナー, 1996.

杉下守弘、米田孝一、関本荘太郎：MMF による弁別学習結果の識別. 第 4 回 MI 研究会, 1996.

遠藤邦彦、阿部晶子、柳　治雄、市川英彦、杉下守弘、柳澤信夫：クリック音計数検査 (Click Counting Test) の臨床的意義について. 第 20 回日本神経心理学会総会. 神経心理学 12(4):280, 1996.

阿部晶子、遠藤邦彦、柳　治雄、大木弘行、市川英彦、杉下守弘：失語症例のリズム認知能力と聴覚的時間解像力について. 第 20 回日本神経心理学会総会, 神経心学, 12(4):316, 1996.

杉下守弘、高山吉弘、片野田耕太、吉川宏起：functional MRI よる漢字・仮名の書字の検討. 第 20 回日本神経心理学会総会. 神経心理学 12:317, 1996.

杉下守弘、小池　敦、清水弘之、前原健寿：機能的大脳半球切除術後の高次機能の変化について. 第 30 回日本てんかん学会, 1996.

前原健寿、清水弘之、海渡信義、杉下守弘：難治てんかん患者に対する脳梁離断術—小児と成人の比較—. 第 30 回日本てんかん学会. 1996.

杉下守弘：機能的 MRI による海馬の研究の検討. 第 5 回海馬と高次脳機能学会, 1996.

阿部晶子、遠藤邦彦、柳　治雄、市川英彦、杉下守弘：失語症例における語音弁別能力と音の周波数変移弁別能力の関係について. 第 20 回日本失語症学会. 失語症研究. 17:80, 1996.

遠藤邦彦、阿部晶子、柳　治雄、市川英彦、杉下守弘、柳澤信夫：脳損傷部位と、クリック音融合閾の左右差について. 第 20 回日本失語症学会. 失語症研究, 17:81, 1996.

杉下守弘：高次脳機能の発達とその障害. 厚生省精神・神経疾患研究委託費 発達障害関係研究班 平成 8 年度公開合同シンポジウム～発達障害の克服へ向けて～. 1996.

杉下守弘：左右側頭葉前部の機能について. 第 6 回神経科学の基礎と臨床—側頭葉—, 1996.

杉下守弘、片野田耕太、高山吉弘、吉川宏起：歌唱時の機能的磁気共鳴画像. 第 38 回日本神経学会総会, 1997.