Bibliography

Abercrombie, D. 1967. Element of General Phonetics. Edinburgh: Edinburgh University Press.

Abercrombie, D. 1968. Some functions of silent stress. Work in Progress. University of Edinburgh. 2: 1-10.

Abercrombie, D. 1976. Stress and some other terms. Work in Progress. University of Edinburgh. 9: 51-53.

Ainsworth, M., Bell, S., and Slayton, D. 1974. Infant-mother attachment and social development "Socialization" as a product of reciprocal responsiveness to signals. In M. Richards (ed.), The Integration of a Child into a Social World. New York: Cambridge University Press.

Anderson, E.S. 1992. Speaking with Style: The Sociolinguistic Skills of Children. 2nd ed. London: Routledge.

Austin, J.L. 1962. How to Do Things with Words. London: Oxford University Press.

Authapaiboon, C. 1996. A comparison of infant directed speech and adult directed speech in Thai. Proceedings of the Fourth International Symposium on Languages and Linguistics: 2043-2051.

Barton, M.E. and Tomasello, M. 1994. The rest of the family: The role of fathers and siblings in early language development. In C. Gallaway and B.J. Richards (eds.), Input and Interaction in Language Acquisition, pp. 109-134. Cambridge: Cambridge University Press.

Bellugi, U. 1965. The development of interrogative structures in children's speech. In K. Riegel (ed.), The Development of Language Functions, pp. 103-138. University of Michigan Language Development Program, Report No.8.

Bloom, L. 1970. Language Development: Form and Function in Emerging Grammar. Cambridge: MIT Press.

Boomer, D. 1965. Hesitation and grammatical encoding. Language and Speech 8: 148-158.

Bornstein, M.H., Tal, J., Rahn, C., Galperin, C.Z., Pecheux, M.G., Lamour, M., Toda, S., Azuma, H., Ogino, M., and Tamis-LeMonda, C.S. 1992. Functional analysis of the contents of maternal speech in Infants of 5 and 13 months in four cultures: Argentina, France, Japan, and the United States. Developmental Psychology 28: 593-603.

Bower, T.G.R. 1966. The visual world of infants. Scientific American 215: 80-92.

Brenstein Ratner, N. 1986. Durational cues which mark clause boundaries in mother-child speech. Journal of Phonetics 14: 303-309.

Brenstein Ratner, N.B., and Pye, C. 1984. Higher pitch in BT is not universal: acoustic evidence from Quiche Mayan. Journal of Child Language 11: 515-522.

Broen, P.A. 1972. The verbal environment of the language-learning child. Monograph of American Speech and Hearing Association no. 17, December.

Brown, R. 1973. A First Language: The Early Stages. Cambridge, Mass.: Harvard University Press.

Brown, R. 1977. Introduction. In C.E. Snow and C.A. Ferguson (eds.), Talking to Children: Language Input and Acquisition, pp. 1-27 Cambridge: Cambridge University Press.

Brown, H.D. 1984. Principles of Language Learning and Teaching. Englewood Cliffs: Prentice-Hall.

Burnham, D.K. 1986. Developmental loss of speech perception: Exposure to and experience with a first language. Applied Psycholinguistics 7: 207- 240.

Burnham, D.K. 1993. Visual recognition of mother by young infants: Facilitation by speech. Perception 22: 1133-1153.

Burnham, D.K., Francis, E., Kitamura, C., Vollmer-Conna, U., Averkiou, V., Nguyen, M., Olley, A., Paterson, C. 1997. Are you my little pussy-cat? Infant-, pet-, and adult-directed speech. 5th Australian Language and Speech Conference, Melbourne University. November 13-14, 1997.

Chafe, W. 1977. Creativity in verbalization and its implications for the nature of stored knowledge. In R. Freedle (ed.), Discourse Production and Comprehension, pp. 41-55. Norwood, NJ: Ablex.

Chao, Y.R. 1973. The Cantian idiolect: An analysis of the Chinese spoken by a twenty-eight-month-old child. In C.A. Ferguson and D.I. Slobin (eds.), Studies of Child Language Development. New York: Holt, Rinehart, and Winston.

Cherry, L. 1974. Sex differences in preschool teacher-child verbal interaction. Child Development 46: 532-535.

Chodchoey, S. 1987. American-foreigner encounter. Journal of Language and Linguistics Year 16 No. 2 July- December: 62-76.

Chomsky, N. 1957. Syntactic structures. The Hague: Mouton.

Chomsky, N. 1959. Review of Skinner's verbal behavior. Language 35: 26-58

Chomsky, N. 1965. Aspects of the Theory of Syntax. Massachusetts: The MIT. Press.

Clark, E.V. 1973. What's in a word? On the child's acquisition of semantics in his first language. In T.E. Moore (ed.), Cognitive Development and the Acquisition of Language, pp. 65-110. New York: Academic Press.

Clarke-Stewart, K.A., and Havey, C.M. 1981. Longitudinal relations in repeated observations of mother-child interaction from 1 to 2 1/2 years. Developmental Psychology 17: 127-145.

Clarke-Stewart, A., Friedman, S., and Koch, J. 1985. Child Development: A Topical Approach. New York: John Wiley & Sons.

Clumeck, H. 1980. The acquisition of tone. In G.H. Yeni-Komshian, J.F. Kavanagh, and C.A. Ferguson (eds.), Child Phonology: Volume 1 Production. Academic Press.

Conti-Ramsden, G. 1994. Language interaction with atypical language learners. In C. Gallaway & B.J. Richards (eds.), Input and Interaction in Language Acquisition, pp.183-196. Cambridge: Cambridge University Press.

Cruttenden, A. 1974. An experiment involving comprehension of intonation in children from 7 to 10. Journal of Child Language 1: 221-231.

Cruttenden, A. 1994. Phonetic and prosodic aspects of Baby Talk. In C. Gallaway & B.J. Richards. (eds.), Input and Interaction in Language Acquisition, pp. 135-152. Cambridge: Cambridge University Press.

Crystal, D. 1975. The English Tone of Voice. London: Edward Arnold.

Crystal, D. 1976. Child Language, Learning and Linguistics. London: Edward Arnold.

Crystal, D. 1976. Developmental Intonology. In W.von Raffler-Engle and Y. Lebrun (eds.), Baby Talk and Infant Speech, pp. 56-65. Amsterdam: Swets and Zeilinger B.V.

Crystal, D. 1985. A Dictionary of Linguistics and Phonetics. Oxford: Basil Blackwell.

Crystal, D. 1987. The Cambridge Encyclopedia of Language. London: Cambridge University Press.

Dale, P.S. 1976. Language Development: Structure and Function. New York: Holt, Rinehart, and Winston.

DeCasper, A.J. and Fifer, W.P. 1980. Of human bonding: Newborns prefer their mothers' voices. Science 208: 1174-1176.

Drach, K. 1969. The language of the parent: A pilot study. Working Paper 14, Language-Behavior Research Laboratory, University of California, Berkeley.

Elimas, P.D., Siqueland, E.R., Jusczyk, P., and Vigorito, J. 1971. Speech perception in infants. Science 171: 303-306.

Elliot, A.J. 1983. Child Language. London: Cambridge University Press.

Fantz, R.L. 1963. Pattern vision in newborn infants. Science 140: 296-297.

Ferguson, C.A. 1964. Baby talk in six languages. American Anthropologist 66: 103-114.

Ferguson, C.A. 1975. Toward a characterization of foreigner talk. Anthropological Linguistics 17: 1-14.

Ferguson, C.A. 1977. Baby Talk as a simplified register. In C.E. Snow & C.A. Ferguson (eds.), Talking to Children: Language Input and Acquisition, pp. 209-235. Cambridge: Cambridge University Press.

Fernald, A. 1978. Rhythm and intonation in mothers' speech to newborns. Paper Presented at the 3rd Annual Boston University Conference on Language Development, Boston.

Fernald, A. 1984. The perceptual and affective salience of mothers' speech to infants. In L. Feagans, C. Garvey, and R. Golinkoff (with M.T. Greenberg, C. Harding, and J. Bohannon) (eds.), The Origins and Growths of Communication. Norwood, NJ: Ablex.

Fernald, A., and Mazzie, C. 1991. Prosody and focus in speech to infants and adults. Developmental Psychology 27: 209-221.

Fernald, A., and Simon, T. 1984. Expanded intonation contours in mother's speech to newborns. Developmental Psychology 20: 104-113.

Fernald, A., Taeschner, T., Dunn, J., Papousek, M., De Boysson-Bardies, B., and Fukui, I. 1989. A cross-language study of prosodic modifications in mothers' and fathers' speech to preverbal infants. Journal of Child Language 16: 477-501.

Firth, J.R. 1935. The use and distribution of certain English sounds. English Studies Vol. XVII, No. I. Republished in Firth, J.R. 1957. Papers in Linguistics 1934-1951. (5th impression, 1969) Oxford University Press.

Fromkin, V. and Rodman, R. 1978. An Introduction to Language. New York: Holt, Rinehart, and Winston.

Furrow, D., Nelson, K., and Benedict, H. 1979. Mothers' speech to children and syntactic development: Some simple relationships. Journal of Child Language 6: 423:442.

Gallaway, C. and Richards, B.J., eds. 1994. Input and Interaction in Language Acquisition. Cambridge: Cambridge University Press.

Ganchrow, J.R., Steiner, J.E., and Daher, M. 1983. Neonatal facial expressions in response to different qualities and intensities of gustatory stimuli. Infant Behavior and Development 6: 189-200.

Garnica, O. 1977. Some prosodic and paralinguistic features of speech to young children. In C.E. Snow & C.A. Ferguson (eds.), Talking to Children: Language Input and Acquisition, pp. 63-88. Cambridge: Cambridge University Press.

Geekie, P., and Raban, B. 1994. Language learning at home and school. In C. Gallaway and B.J. Richards (eds.), Input and Interaction in Language Acquisition, pp. 153-180. Cambridge: Cambridge University Press.

Gesell, A.L. 1928. Infancy and Human Growth. New York: Macmillan.

Gleason, J.B. 1975. Fathers and other strangers: Men's speech to young children. In D.P. Dato (ed.), Georgetown University Round Table on Language and Linguistics, pp. 289-297. Washington D.C.: Georgetown University Press.

Gleitman, L.R, Newport, E.L., and Gleitman, H. 1984. The current status of the motherese hypothesis. Journal of Child Language 11: 43-79.

Greiser, D.L., and Kuhl, P.K. 1988. Maternal speech to infants in a tonal language: Support for universal prosodic features in motherese. Developmental Psychology 24: 14-20.

Grice, H.P. 1975. Logic and conversation. In P.Cole and J.L. Morgan (eds.), Syntax and Semantics 3: Speech Acts, pp. 41-58. New York: Academic Press.

Halliday, M.A.K. 1967. Notes on transitivity and theme in English. Journal of Linguistics 3: 37-81.

Halliday, M.A.K. 1973. Explorations in the Function of Language. London: Edward Arnold.

Halliday, M.A.K. 1975. Learning how to Mean. London: Edward Arnold.

Harkness, S. 1977. Aspects of social environment and first language acquisition in Rural Africa. In C.E. Snow and C.A. Ferguson (eds.), Talking to Children: Language Input and Acquisition, pp. 309-316. Cambridge: Cambridge University Press.

Harris, Z. 1951. Methods in Structural Linguistics. Chicago: University of Chicago.

Hirsh-Pasek, K. and Treiman, R. 1983. Doggerel: Motherese in a new context. Journal of Child Language 10: 23-27.

Hymes, D. 1972. On communicative competence. In J.B. Pride and J. Holmes (eds.), Sociolinguistics: Selected Readings, pp. 269-293. Baltimore: Penguine.

Ingram, D. 1989. First Language Acquisition. Cambridge: Cambridge University Press.

Jakobson, R. 1941. Kindersprache, Aphasie, und allgemeine Lautgesetze. Uppsala: Almgvist and Wiksell. (English trans. by A. Keiler, 1968, Child language, aphasia, and general sound laws. The Hague: Mouton.

Jocić, M. 1978. Types of adaptations in adult speech when communicating with a child. In N. Waterson and C.E. Snow (eds.), Development of Communication: Social and Pragmatic Factors in Language Acquisition, pp. 159-171. London: John Wiley & Sons.

Kay Elemetrics Corp. 1996. Instruction Manual: Multi-Speech Model 3700. New Jersey: USA.

Khaonoo, K. 1996. Infant Directed Speech in Thai. Master's Thesis, Department of Linguistics, Graduate School, Chulalongkorn University.

Kitamura, C. 1992. The Production and Perception in Infant Directed Speech: An Evaluation of its Basis and Benefits. B.A. Honours Thesis, Department of Psychology, University of New South Wales.

Kitamura, C. (in progress). Perception and Production of Infant Directed Speech: Affective and Communicative Functions. Doctoral Dissertation, School of Psychology, University of New South Wales.

Kitamura, C., and Burnham, D. 1996. Infant preferences for infant-directed speech: Is vocal affect more salient than pitch? In P. McCormack, and A. Russell (eds.), Proceedings of the Sixth Australian International Conference on Speech Science and Technology. pp. 343-348. Australian Speech Science and Technology Association, Canberra, 1996.

Kobashigawa, B. 1969. Repetitions in a mother's speech to her child. Working Paper 14, Language-Behavior Research Laboratory, University of California, Berkeley.

Lansdown, R. 1984. Child Development. Heinemann: London.

Laver, J. 1970. The production of speech. In J. Lyons (ed.), New Horizons in Linguistics, pp. 53-75. England: Penguin Books.

Laver, J. 1981. Linguistic routines and politeness in greeting and parting. In F. Coulmas (ed.), Conversational Routine. The Hague: Mouton.

Laver, J. 1994. Principles of Phonetics. Cambridge: Cambridge University Press.

Laver, J. and Hutcheson, S., eds. 1972. Communication in Face to Face Interaction: Selected Readings. Middlesex: Penguin Books.

Ladefoged, P. 1962. Elements of Acoustic Phonetics. Chicago: The University of Chicago Press.

Ladefoged, P. 1975. A Course in Phonetics. New York: Harcourt Brace Jovanovich.

Lehiste, I. 1970. Suprasegmental. Cambridge: The MIT Press.

Lenneberg, E.H. 1967. Biological Foundations of Language. New York: John Wiley & Sons.

Li, C.N., and Thompson, S.A. 1977. The acquisition of tone in Mandarin-speaking children. Journal of Child Language 4: 185-199.

Lieven, V.M.E. 1994. Crosslinguistic and crosscultural aspects of language addressed to children. In C. Gallaway and B.J. Richards (eds.), Input and Interaction in Language Acquisition, pp. 56-73. Cambridge: Cambridge University Press.

Lipsitt, L.P., Engen, T., Kaye, H. 1963. Developmental changes in the olfactory threshold of the neonate. Child Development 34: 371-376.

Locke, J. 1983. Phonological Acquisition and Change. New York: Academic Press.

Luangthongkum, T. 1978. Rhythm in Thai. Doctoral dissertation, University of Edinburgh.

Luksaneeyanawin, S. 1976. Some phonetics observation on the speech of Thai children. Pasaa. 6. 1&2. A Festschrift for Richard B. Noss. CIEL. Bangkok. Republished in S. Luksaneeyanawin. 1986. Phonetics and Linguistics, pp. 103-107. Bangkok: Techpress Service.

Luksaneeyanawin, S. 1983. Intonation in Thai. Doctoral dissertation, University of Edinburgh.

Luksaneeyanawin, S. 1988. The phonetic correlates and the functions of speech pause in Thai. Research Monograph, The Linguistics Research Unit, Faculty of Arts, Chulalongkorn University.

Luksaneeyanawin, S. 1994. Asking and answering a question from Thai perspectives. Lecture Note for a Course in Thai Language in its Social and Culture Context. (unpublished paper). Faculty of Arts, Chulalongkorn University.

Luksaneeyanawin, S. 1994. Language and Communication Meaning. In Developmentof Language Skills. Unit 2. pp. 35-95. School of Education, Graduate School Sukhothai Thammathirach University. (in Thai)

Luksaneeyanawin, S. 1994. Language and Communication Meaning. In Development of Language Skills. Unit 3. pp. 97-152. School of Education, Graduate School, Sukhothai Thammathirach University. (in Thai)

Lyons, J. 1968. Introduction to Theoretical Linguistics. Cambridge: Cambridge University Press.

McCarthy, D. 1954. Language Development in Children. In L. Carmichael (ed.), Manual of Child Psychology, pp. 103-138. New York: John Wiley & Sons.

McManis, C., Stollenwerk, D., and Zheng-Sheng, Z. 1987. Language Files: Materials for an Introduction to Language. Ohio: Advocate Publishing Group.

McNeill, D. 1966. Developmental psycholinguistics. In F. Smith and G.A. Miller (eds.), The Genesis of Language: A Psycholinguistic Approach. Cambridge: MIT Press.

McNeill, D. 1970. The Acquisition of Language: The Study of Developmental Psycholinguistics. New York: Harper & Row.

Montgomery, D.C. 1991. Design and Analysis of Experiments. 3rd ed. New York: John Wiley & Sons.

Moore, T.E., ed. 1973. Cognitive Development and the Acquisition of Language. New York: Academic Press.

Morse, P. 1972. The discrimination of speech and nonspeech stimuli in early infancy. Journal of Experimental Child Psychology 14: 477-492.

Nelson, K. 1974. Concept, word and sentence: Interrelations in acquisition and development. Psychological Review 81: 267-285.

Neter, J., Wasserman, W., and Whitmore, G.A. 1993. Applied Statistics. 4th ed. Boston: Allyn and Bacon.

Newport, E.L. 1976. Motherese: The speech of mothers to young children. In J.J. Castellan, D.B. Pisoni, and G.R. Potts (eds.), Cognitive Theory, Volume 3. Hillsdale, N.J.: Lawrence Erlbaum Associates.

Newport, E.L., Gleitman, H., and Gleitman, L.R. 1977. Mother, I'd rather do it myself: some effects and non-effects of maternal speech style. In C.E. Snow and C.A. Ferguson (eds.), Talking to Children: Language Input and Acquisition, pp. 51-61. Cambridge: Cambridge University Press.

Newport, E.L. 1996. Maturational constrains on language learning. In L. Bloom (ed.), Language Acquisition: Core Readings, pp. 543-560. Cambridge: The MIT Press.

Ochs, E. 1982. Talking to children in Western Samoa. Language Society 11: 77-104.

O'Connor, J.D. 1973. Phonetics. A Penguin Book.

O'Grady, W., Dobrovolsky, M., and Aronoff, M. 1989. Contemporary Linguistics: An Introduction. New York: St. Martin's Press.

Owens, E.R., JR. 1992. Language Development: An Introduction. 3rd ed. New York: Macmillan Publishing Company.

Palmer, F.R. 1976. Semantics: A New Outline. Cambridge: Cambridge University Press.

Pansottee, S. 1991. Term Paper in Semantic Course. Second Semester of 1990. (unpublished paper). Department of Linguistics, Chulalongkorn University. (in Thai)

Phillips, J. 1970. Formal Characteristics of Speech Which Mothers Address to Their Young Children. Doctoral Dissertation, John Hopkins University.

Phillips, J. 1973. Syntax and vocabulary of mothers' speech to young children: Age and sex comparison. Child Development 44: 182-185.

Piaget, J. 1952. The Origins of Intelligence in Children. New York: International Universities Press.

Piaget, J. 1955. The Language and Thought of the Child. Cleveland, III: University of Chicago Press.

Piaget, J. 1971. Biology and Knowledge: An Essay on the Relations between Organic Regulations and Cognitive Processes. Edinburgh: Edinburgh University Press.

Pratt, M., Bumstead, D., and Raines, N. 1976. Attendant staff speech to the institutionalized retarded: Language use as a measure of the quality of care. Journal of Child Psychology and Psychiatry 17: 133-144.

Pye, C. 1986. Quiché Mayan speech to children. Journal of Child Language 13: 85-100.

Remick, H. 1976. Maternal speech to children during language acquisition. In W.von Raffler-Engle and Y. Lebrun (eds.), Baby Talk and Infant Speech. Lisse, Netherlands: Swets and Zeitlinger.

Richards, B.J., and Gallaway, C. 1994. Conclusions and directions. In C. Gallaway and J.B. Richards (eds.), Input and Interaction in Language Acquisition, pp. 253-269. Cambridge: Cambridge University Press.

Ryan, M.L. 1978. Contour in context. In R.N. Campbell and P.T. Smith (eds.), Recent Advances in the Psychology of Language. New York: Plenum Press.

Sachs, J., Brown, Rt., and Salerno, R.A. 1976. Adults' speech to children. In W. von Raffler-Engle and Y. Lebrun (eds.), Baby Talk and Infant Speech. Lisse, Netherlands: Swets and Zeitlinger.

Sachs, J. 1977. The adaptive significance of linguistic input to prelinguistic infants. In C.E. Snow and C.A. Ferguson (eds.), Talking to Children: Language Input and Acquisition, pp. 51-61. Cambridge: Cambridge University Press.

Schieffelin, B.B. 1979. Getting it together: An ethnographic approach to the study of the development of communicative competence. In E. Ochs and B.B. Schieffelin (eds.), Developmental Pragmatics. New York: Academic Press.

Searle, J.R. 1969. Speech acts. Cambridge: Cambridge University Press.

Searle, J.R. 1971. What is a speech act? In J.R. Searle (ed.), The Philosophy of Language, pp. 39-53. London: Oxford University Press.

Searle, J.R., and Vanderveken, D. 1985. Foundations of Illocutionary Logic. Cambridge: Cambridge University Press.

Sittigasorn, S. 1997. The Role of Interrogative Sentences in Thai Motherese: A Longitudinal Study. Master's Thesis, Department of Linguistics, Graduate School, Chulalongkorn University. (in Thai)

Skinner, B.F. 1957. Verbal behavior. New York: Appleton-Century-Croft.

Snow, C.E. 1972. Mothers' speech to children learning language. Child Development 43: 549:565.

Snow, C.E. 1977a. Mothers' speech research: From input to interaction. In C.E. Snow and C.A. Ferguson (eds.), Talking to Children: Language Input and Acquisition, pp. 31-49. Cambridge: Cambridge University Press.

Snow, C.E. 1977b. The development of conversation between mothers and babies. Journal of Child Language 4:1-22.

Snow, C.E. 1986. Conversations with children. In P. Fletcher and M. Garman (eds.), Language Acquisition: Studies in Second Language Development. 2nd ed. Cambridge: Cambridge University Press.

Snow, C.E. 1994. Beginning from baby talk: Twenty years of research on input and interaction. In C. Gallaway and B.J. Richards (eds.), Input and Interaction in Language Acquisition, pp. 3-12. Cambridge: Cambridge University Press.

Snow, C.E. and Ferguson, C.A., eds. 1977. Talking to Children: Language Input and Acquisition. Cambridge: Cambridge University Press.

Snow, C.E., Blaum, A.D., and Roosmalen, G.V. 1979. Talking and playing with babies: The role of ideologies in child-rearing. In M. Bullowa (ed.), Before Speech, pp. 267-688. New York: Cambridge University Press.

Stern, D.N. 1977. The First Relationship. Cambridge: Harvard University Press.

Stern, D.N., Spieker, S., and MacKain, K. 1982. Intonation contours as signals in maternal speech to prelinguistic infants. Developmental Psychology 18: 727-735.

Stern, D.N.; Spieker, S., Barnett, R.K., and MacKain, K. 1983. The prosody of maternal speech: Infant age and context related changes. Journal of Child Language 10: 1-15.

Thanavisuth, C. 1997. Phonetic and Pragmatic Characteristics of Infant Directed Speech in Thai: A Longitudinal Study. Doctoral dissertation, Department of Linguistics, Graduate School, Chulalongkorn University.

Toda, S., Fogel, A., and Kawai, M. 1990. Maternal speech to three-month-old infants in the United States and Japan. Journal of Child Language 17: 279-294.

Trehub, S.E. and Rabinovitch, M.S. 1972. Auditory-linguistic sensitivity in early infancy. Developmental Psychology 6: 74-77.

Tse, J.K.P. 1978. Tone acquisition in Cantonese: A longitudinal case study. Journal of Child Language 5: 191-204.

Tuaycharoen, P. 1977. The Phonetic and Phonological Development of a Thai Baby: From Early Communicative Interaction to Speech. Doctoral dissertation, University of London.

Tuaycharoen, P. 1978. The babbling of a Thai Baby. In N. Waterson and C.E. Snow (eds.), The Development of Communication, pp. 111-125. New York: John Wiley & Sons.

Tuaycharoen, P. 1979. An account of speech development of a Thai child. In T.L. Thongkum et al. (eds.), Studies in Tai and Mon Khmer Phonetics and Phonology: In Honor of Eugenie J.A. Henderson, pp. 261-277. Bangkok: Chulalongkorn University Press.

Tuaycharoen, P. 1984. Developmental strategies in the acquisition of classifiers in Thai. In P. Tuaycharoen et al. (eds.), Selected Papers from the International Symposium on Language and Linguistics, pp. 203-221. Chiang Mai: Chiang Mai University Press.

Tuaycharoen, P. 1993. Psycholinguistics. 2nd ed. Bangkok: Thammasat University Press. (in Thai).

Vanderveken, D. 1990. Meaning and Speech Acts: Volume 1 Principles or Language Use. Cambridge: Cambridge University Press.

Verschuren, J. 1985. What People Say They Do with Words: Prolegomena to an Empirical Conceptual-Approach to Linguistic Action. Norwood, NJ: Ablex.

Verschuren, J. 1994. Speech act verbs. In R.E. Asher & J.M.Y. Simpson (eds.), The Encyclopedia of language and linguistics: Volume 8, pp. 4138-4140. Oxford: Pergamon Press.

Wanitchanon, S. 1998. The Speech Act of Promising in Thai Children: A Metapragmatic Study. Master's Thesis, Department of Linguistics, Graduate School, Chulalongkorn University.

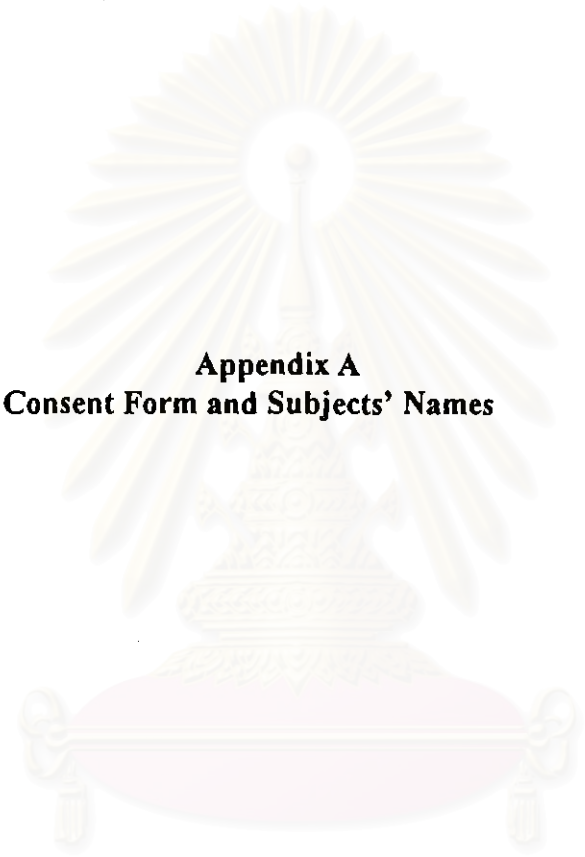
Waterman, J.T. 1963. Perspectives in Linguistics. Chicago: The University of Chicago Press.

Wesche, M.B. 1994. Input and interaction in second language acquisition. In C. Gallaway and B.J. Richards (eds.), Input and Interaction in Language Acquisition, pp. 219-249. Cambridge: Cambridge University Press.

Wills, D.D. 1977. Participants deixis in English and baby talk. In C.E. Snow and C.A.Ferguson (eds.), Talking to Children: Language Input and Acquisition, pp. 271-295. Cambridge: Cambridge University Press.

Yeni-Komshian, G.H., Kavanagh, J.F., and Ferguson, C.A., eds. 1980. Child Phonology Volume 1: Production. New York: Academic Press.

Appendices



Appendix A
Consent Form and Subjects' Names

ต้นฉบับไม่มีหน้านี้

NO THIS PAGE IN ORIGINAL

ประวัติผู้เข้าร่วมโครงการ IDS

ชื่อ..... สกุล.....
อาชีพ.....
วันครบกำหนดคลอด.....
แพทย์เจ้าของไข้.....
เพศของบุตร.....
ที่อยู่.....
โทรศัพท์.....

แผนที่บ้านโดยสังเขป

List of Subjects

IDS 01 Name: Mrs Manaporn Lastname: Vittayavongruji
Occupation: government official Delivery day: 21 Dec 94
Sex: Girl

IDS 02 Name: Mrs. Chompu Lastname: Yongprasert
Occupation: police official Delivery day: 22 Dec 94
Sex: Girl

IDS 04 Name: Mrs. Siripom Lastname: Srideij
Occupation: employer Delivery day: 27 Dec 94
Sex: Girl

IDS 05 Name: Mrs. Sureephun Lastname: Senanud
Occupation: housewife Delivery day: 3 Jan 95
Sex: Boy

IDS 07 Name: Mrs. Rattana Lastname: Mungonphanao
Occupation: police official Delivery day: 19 Jan 95
Sex: Boy

IDS 09 Name: Mrs. Supom Lastname: Nithiphathrakul
Occupation: housewife Delivery day: 12 Feb 95
Sex: Boy

Appendix B
Transcription of Acoustic Analysis

[illegible]	[illegible]	ICS 04-N-F	ICS 05-N-M	ICS 07-N-M	ICS 08-N-M
153. [illegible]	74. [illegible]	12. [illegible]	10. [illegible]	485. [illegible]	26. [illegible]
154. [illegible]	75. [illegible]	13. [illegible]	11. [illegible]	486. [illegible]	27. [illegible]
155. [illegible]	91. [illegible]	14. [illegible]	12. [illegible]	487. [illegible]	28. [illegible]
156. [illegible]	96. [illegible]	15. [illegible]	13. [illegible]	488. [illegible]	30. [illegible]
157. [illegible]	110. [illegible]	16. [illegible]	14. [illegible]	489. [illegible]	31. [illegible]
158. [illegible]	111. [illegible]	17. [illegible]	15. [illegible]	490. [illegible]	32. [illegible]
159. [illegible]	112. [illegible]	18. [illegible]	16. [illegible]	491. [illegible]	33. [illegible]
160. [illegible]	113. [illegible]	19. [illegible]	17. [illegible]	492. [illegible]	36. [illegible]
161. [illegible]	114. [illegible]	20. [illegible]	18. [illegible]	497. [illegible]	37. [illegible]
162. [illegible]	115. [illegible]	21. [illegible]	19. [illegible]	498. [illegible]	38. [illegible]
163. [illegible]	116. [illegible]	22. [illegible]	20. [illegible]	501. [illegible]	39. [illegible]
164. [illegible]	123. [illegible]	23. [illegible]	21. [illegible]	502. [illegible]	40. [illegible]
165. [illegible]	124. [illegible]	24. [illegible]	22. [illegible]	503. [illegible]	41. [illegible]
166. [illegible]	125. [illegible]	25. [illegible]	23. [illegible]	504. [illegible]	42. [illegible]
167. [illegible]	126. [illegible]	26. [illegible]	24. [illegible]	505. [illegible]	43. [illegible]
168. [illegible]	127. [illegible]	27. [illegible]	26. [illegible]	506. [illegible]	44. [illegible]
169. [illegible]	128. [illegible]	28. [illegible]	28. [illegible]	507. [illegible]	45. [illegible]
170. [illegible]	129. [illegible]	29. [illegible]	30. [illegible]	508. [illegible]	47. [illegible]
171. [illegible]	132. [illegible]	30. [illegible]	35. [illegible]	509. [illegible]	48. [illegible]
172. [illegible]	135. [illegible]	31. [illegible]	41. [illegible]	510. [illegible]	50. [illegible]

[illegible]	[illegible]	ICS 04-S-F	ICS 05-S-M	ICS 07-S-M	ICS 08-S-M
54. [illegible]	62. [illegible]	10. [illegible]	74. [illegible]	79. [illegible]	63. [illegible]
55. [illegible]	63. [illegible]	11. [illegible]	75. [illegible]	80. [illegible]	64. [illegible]
56. [illegible]	64. [illegible]	12. [illegible]	76. [illegible]	81. [illegible]	65. [illegible]
57. [illegible]	65. [illegible]	13. [illegible]	77. [illegible]	82. [illegible]	66. [illegible]
58. [illegible]	66. [illegible]	14. [illegible]	78. [illegible]	83. [illegible]	67. [illegible]
59. [illegible]	67. [illegible]	15. [illegible]	79. [illegible]	84. [illegible]	68. [illegible]
60. [illegible]	68. [illegible]	16. [illegible]	80. [illegible]	85. [illegible]	69. [illegible]
61. [illegible]	69. [illegible]	17. [illegible]	81. [illegible]	86. [illegible]	70. [illegible]
62. [illegible]	70. [illegible]	18. [illegible]	82. [illegible]	87. [illegible]	71. [illegible]
63. [illegible]	71. [illegible]	19. [illegible]	83. [illegible]	88. [illegible]	72. [illegible]
64. [illegible]	72. [illegible]	20. [illegible]	84. [illegible]	89. [illegible]	73. [illegible]
65. [illegible]	73. [illegible]	21. [illegible]	85. [illegible]	90. [illegible]	75. [illegible]
66. [illegible]	74. [illegible]	22. [illegible]	86. [illegible]	91. [illegible]	76. [illegible]
67. [illegible]	75. [illegible]	23. [illegible]	87. [illegible]	92. [illegible]	77. [illegible]
68. [illegible]	76. [illegible]	25. [illegible]	88. [illegible]	93. [illegible]	78. [illegible]
69. [illegible]	77. [illegible]	26. [illegible]	89. [illegible]	94. [illegible]	79. [illegible]
70. [illegible]	78. [illegible]	27. [illegible]	90. [illegible]	95. [illegible]	80. [illegible]
71. [illegible]	79. [illegible]	28. [illegible]	91. [illegible]	96. [illegible]	81. [illegible]
72. [illegible]	80. [illegible]	29. [illegible]	92. [illegible]	97. [illegible]	82. [illegible]
73. [illegible]	81. [illegible]	30. [illegible]	93. [illegible]	98. [illegible]	84. [illegible]

IDS 01-9-F [illegible]	IDS 02-9-F [illegible]	IDS 04-8-F [illegible]	IDS 05-9-M [illegible]	IDS 07-8-M [illegible]	IDS 08-9-M [illegible]
16. [illegible]	22. [illegible]	9. [illegible]	14. [illegible]	5. [illegible]	9. [illegible]
17. [illegible]	23. [illegible]	10. [illegible]	15. [illegible]	6. [illegible]	10. [illegible]
18. [illegible]	24. [illegible]	11. [illegible]	16. [illegible]	7. [illegible]	11. [illegible]
19. [illegible]	25. [illegible]	12. [illegible]	17. [illegible]	8. [illegible]	13. [illegible]
20. [illegible]	26. [illegible]	13. [illegible]	18. [illegible]	9. [illegible]	14. [illegible]
21. [illegible]	28. [illegible]	14. [illegible]	19. [illegible]	10. [illegible]	16. [illegible]
22. [illegible]	29. [illegible]	15. [illegible]	20. [illegible]	11. [illegible]	17. [illegible]
23. [illegible]	30. [illegible]	16. [illegible]	21. [illegible]	12. [illegible]	18. [illegible]
24. [illegible]	31. [illegible]	17. [illegible]	22. [illegible]	13. [illegible]	19. [illegible]
25. [illegible]	32. [illegible]	18. [illegible]	23. [illegible]	14. [illegible]	20. [illegible]
26. [illegible]	33. [illegible]	19. [illegible]	24. [illegible]	15. [illegible]	21. [illegible]
27. [illegible]	34. [illegible]	20. [illegible]	25. [illegible]	16. [illegible]	22. [illegible]
28. [illegible]	35. [illegible]	21. [illegible]	26. [illegible]	17. [illegible]	23. [illegible]
29. [illegible]	36. [illegible]	22. [illegible]	27. [illegible]	18. [illegible]	24. [illegible]
30. [illegible]	37. [illegible]	23. [illegible]	28. [illegible]	19. [illegible]	25. [illegible]
31. [illegible]	38. [illegible]	24. [illegible]	29. [illegible]	20. [illegible]	26. [illegible]
32. [illegible]	39. [illegible]	25. [illegible]	30. [illegible]	21. [illegible]	27. [illegible]
33. [illegible]	40. [illegible]	26. [illegible]	31. [illegible]	22. [illegible]	28. [illegible]
34. [illegible]	41. [illegible]	27. [illegible]	32. [illegible]	23. [illegible]	29. [illegible]
35. [illegible]	42. [illegible]	28. [illegible]	33. [illegible]	24. [illegible]	30. [illegible]

IDS 01-9-F [illegible]	IDS 02-9-F [illegible]	IDS 04-8-F [illegible]	IDS 05-9-M [illegible]	IDS 07-8-M [illegible]	IDS 08-9-M [illegible]
63. [illegible]	4. [illegible]	11. [illegible]	77. [illegible]	3. [illegible]	24. [illegible]
64. [illegible]	5. [illegible]	13. [illegible]	78. [illegible]	4. [illegible]	25. [illegible]
65. [illegible]	6. [illegible]	14. [illegible]	79. [illegible]	5. [illegible]	26. [illegible]
66. [illegible]	7. [illegible]	15. [illegible]	80. [illegible]	6. [illegible]	27. [illegible]
67. [illegible]	8. [illegible]	16. [illegible]	81. [illegible]	7. [illegible]	30. [illegible]
68. [illegible]	9. [illegible]	17. [illegible]	82. [illegible]	8. [illegible]	32. [illegible]
69. [illegible]	10. [illegible]	18. [illegible]	83. [illegible]	9. [illegible]	33. [illegible]
70. [illegible]	11. [illegible]	19. [illegible]	84. [illegible]	10. [illegible]	34. [illegible]
71. [illegible]	12. [illegible]	20. [illegible]	85. [illegible]	11. [illegible]	35. [illegible]
72. [illegible]	13. [illegible]	25. [illegible]	86. [illegible]	12. [illegible]	36. [illegible]
73. [illegible]	14. [illegible]	26. [illegible]	87. [illegible]	13. [illegible]	37. [illegible]
74. [illegible]	15. [illegible]	27. [illegible]	88. [illegible]	14. [illegible]	38. [illegible]
75. [illegible]	16. [illegible]	29. [illegible]	89. [illegible]	15. [illegible]	39. [illegible]
76. [illegible]	17. [illegible]	30. [illegible]	90. [illegible]	16. [illegible]	40. [illegible]
77. [illegible]	18. [illegible]	31. [illegible]	91. [illegible]	17. [illegible]	43. [illegible]
78. [illegible]	19. [illegible]	32. [illegible]	92. [illegible]	18. [illegible]	44. [illegible]
79. [illegible]	20. [illegible]	33. [illegible]	93. [illegible]	19. [illegible]	49. [illegible]
80. [illegible]	21. [illegible]	34. [illegible]	94. [illegible]	20. [illegible]	51. [illegible]
81. [illegible]	22. [illegible]	35. [illegible]	95. [illegible]	21. [illegible]	59. [illegible]
82. [illegible]	23. [illegible]	36. [illegible]	96. [illegible]	22. [illegible]	60. [illegible]

Appendix C
Results of Pilot Study of Prosody of IDS and ADS

Pilot Study of Prosody in IDS and ADS

From my pilot study, the 720 speech samples were analyzed acoustically using WinCECIL which is a speech analysis system produced by the Summer Institute of Linguistics (SIL) for the measurement of fundamental frequency, duration and intensity. The measurement of fundamental frequency, duration and intensity were made for each syllable in each utterance. The total number of syllables in the 720 utterances analyzed was 3211 syllables.

Pitch

The beginning and the end point of the Fø of the syllable were marked. The highest and the lowest Fø were recorded if there is only one direction, for example, a fall or a rise. If the syllable contained a complex movement of Fø, for example, a rise-fall or a fall-rise, these complex movements will be divided into two slopes to be measured. Then the highest and the lowest of Fø of each slope will be recorded. There were 3,211 syllables which have been used. The descriptive analysis of this fundamental frequency given in Table 1 below

Table 1 The Descriptive Statistics of Fundamental Frequency across Age Groups

	NB IDS	3MO IDS	6MO IDS	9MO IDS	12MO IDS	Mean IDS	ADS
MEAN	174.33	181.71	198.54	203.94	201.55	192.01	204.78
S.D	69.23	68.94	83.25	84.51	76.83	76.55	77.71
MIN	82.48	84.35	82.14	81.95	80.7	82.32	81.48
MAX	446.69	412.01	479.46	480.55	426.31	449	434.75
RANGE	364.2	327.65	397.32	398.6	345.6	366.67	353.27

The average fundamental frequency is 192.01 Hz in IDS and 204.78 Hz in ADS. The results show that mothers use higher pitch in ADS than IDS. This objects the universal prosodic features in Motherese which claims that IDS will use higher pitch than ADS.

One possibility to explain this case is that Thai is a tonal language. If there is a change in pitch contour, it will alter the meaning of the word. For example, Thai has five distinct tones- /kha:0/ (a kind of grass), /kha:1/ (a kind of plant), /kha:2/ (value), /kha:3/ (to trade) and /kha:4/ (leg). In Thai, fundamental frequency is used phonemically as well as prosodically. Thus, Thai motherese may not show an increase in pitch because pitch can change the meaning of the word. Then, we classified each syllable into five tones and into unstressed, stressed and prominently stressed syllables to see whether the behavior of the five contrastive tones showed different patterns as shown in Table 2 below.

Table 2 Mean Fundamental Frequency of Each Syllable Classified by Tone and Stress

IDS 01	N	3	6	9	12	Mean IDS	ADS
Tone 0							
0	154.1	130.2	120.8	221.1	223.2	168.1	198.7
0'	155.9	131.5	128.9	256.3	207.9	176.1	184.7
0''	158.5	134.08	124.3	261.7	194.8	178.4	160
Tone 1							
1	185.1	154.9	108.7	209.7	173	166.3	210.7
1'	159.7	144.2	173.9	209.9	173.5	172.2	191.5
1''	163.6	136.7	181.3	180.4	164.8	165.4	185.2
Tone 2							
2	140.7	134.4	-	255.1	215	186.3	198.9
2'	148.5	136.7	154.1	215	188.7	168.6	212.4
2''	167.6	123.6	148.6	189.8	187.8	163.5	169
Tone 3							
3	-	-	116.1	205.4	193.6	171.7	201.5
3'	168.5	120.4	169.3	283.4	228.8	194.1	193.1
3''	169.1	139.1	255.4	231.1	188.7	196.7	168.8
Tone 4							
4	146.1	123.7	-	149.9	212.3	158	224.1
4'	161.3	136.1	-	239	183	175.9	159.9
4''	138.9	135.9	142.7	150.9	268.5	167.3	168.9

*Note: Tone 0 = mid, Tone 1 = low, Tone 2 = fall, Tone 3 = high, Tone 4 = rise, - unstressed syllables, ' stressed syllables, '' prominently stressed syllables

Although we classified each syllable into five tones and into different syllables described above, most Fø values of ADS seems to be higher than IDS which objects the universal hypothesis. There are three possible explanations: 1) the differences in the distribution of tones of IDS and ADS 2) the differences in the position of tone in intonation group of IDS and ADS 3) the method of pitch measures. The measurement at the beginning and end point of the peak pitch of each syllable as in the work of Khaonoo (1996) cannot be used here because this study examines the pitch feature as age-related changes. This can be done by using Multi-Speech (See detail in 4.2).

Tempo

In tempo analysis, the duration of each syllable and the number of syllables in each utterance were investigated. In terms of duration, it was expected that the articulation rate of mothers would be much shorter as the child get older. It was

also expected that IDS would be slower than ADS. The average duration is reported in millisecond per syllable (ms/syll) was given in Table 3.

Table 3 The Descriptive Statistics of Syllable Duration in IDS and ADS (time in ms. per syllable)

	NB IDS	3MO IDS	6MO IDS	9MO IDS	12MO IDS	Mean IDS	ADS
MEAN	268	280	295	258	241	268	175
S.D.	214	217	212	200	178	204	96
MIN	78	77	76	73	67	74	50
MAX	1273	1050	999	1094	922	1068	601
RANGE	1196	974	923	1021	855	994	550

The average duration per syllable is 268 ms. in NB, 280 ms. in 3MO, 295 ms. in 6MO, 258 ms. in 9MO, 241 ms. in 12MO. In ADS the average duration is 175 ms. per syllable. The results show that in IDS mothers used the longest duration per syllable with their 6-months-olds. The duration of syllable is much larger in IDS compared to ADS. Average duration of syllable in IDS is 268 ms. but ADS is 175 ms. It can be concluded here that the tempo of IDS is slower than that of ADS.

In the analysis of the number of syllable per utterance in the next part, the result is very similar to this one (See detail in 4.2.2.2).

Loudness

In auditorily speaking, we notice very soft degree of loudness in newborn IDS and the degree of loudness seems to increase as the child gets older. That way we want to investigate the intensity.

The intensity was calculated by measuring the peak point of the vowel in each syllable because vowels are believed to be the most sonorous segment (Ladefoged, 1975). The beginning and end of each vowel was located by the cursor. We could get the duration of each vowel. Then the vowel duration was divided by two. The intensity was measured at that time point. The results of loudness given below.

Table 4 Intensity in Decibel

	NB IDS	3MO IDS	6MO IDS	9MO IDS	12MO IDS	ADS
MEAN	-17.4	-21.4	-18.1	-20.4	-17.8	-16.4
S.D.	2	4	3	4	4	4
RANGE	11.3	15.5	13.3	16.7	16.9	17.5

In doing acoustic analysis, we analyze the intensity of the speech as the reference to degree of loudness. However, speech with very low intensity cannot be registered by the acoustic analyzer. We have to increase the speech intensity by increasing the input volume until the machine registers the signal. Therefore, in doing a comparative study of degree of loudness, we cannot find any differences in

terms of acoustic intensity values. This is a very big problem when we do the analysis across different groups of speech samples. It seems that we can only do a comparative study within one speaker in one speech sample only. In the pilot study WinCECIL could not register and analyze intensity values properly. We got the negative value of the average intensity values which cannot be used in this pilot study.

Appendix D
Macro Commands of Multi-Speech

```
*Chayada and onwadee macro
USE B
COPY ! SS SE
USE C
PURGE = YES
SOURCE B
PITCH ! SS SE
USE D
SOURCE B
ENERGY ! SS SE
USE B
SAVE =
USE C
RESULT
USE D
RESULT
SOURCE A
```

```
[PATH]
SIGNAL=A:
MACRO=C:\MSPEECH\MACROS
FILTER=C:\MSPEECH\FILTERS
LOG=C:\MSPEECH
OUTPUT=C:\MSPEECH\CHAYADA\OUTPUT
[WINDOW]
SOURCE=B
PEN=RED
[LPC]
LENGTH=20
ORDER=20
PRE-EMPHASIS=0.900
METHOD=AUTOCORRELATION
SYNCHRONOUS=TRUE
WINDOW=TRUE
FREQUENCY=0 0
PERCENT=0 80
DISPLAY=PERCENT
[FFT]
LENGTH=512
FRAME=FFT
WINDOW=BLACKMAN
PRE-EMPHASIS=0.000
SMOOTHING=NONE
RANGE=0 80
FREQUENCY=0 4000
PERCENT=0 80
DISPLAY=PERCENT

[SPG]
LENGTH=50
WINDOW=BLACKMAN
PRE-EMPHASIS=0.800
FREQUENCY=0 4000
PERCENT=0 100
DISPLAY=PERCENT,LINEAR
```

```
SCALE=55.00;50.00;45.00;40.00;35.00;30.00;25.00;20.00;15.00
ADJUST=0
PALETTE=0

[FMT]
LENGTH=20
ADVANCE=10
ORDER=20
METHOD=COVARIANCE
PRE-EMPHASIS=0.900
SYNCHRONOUS=TRUE
BANDWIDTH=FALSE
LIMIT=TRUE
WEIGHTING=TRUE
CUTOFF=500
DISPLAY=PERCENT,LINEAR
FREQUENCY=0 4000
PERCENT=0 80

[Multi-Speech]
STATE=MAXIMIZED
CMDLINE=47,709

[PITCH]
LENGTH=25
SYNCHRONOUS=TRUE
DOT=TRUE
RANGE=80 500
DISPLAY=0 500
CLIPPING=15
CUTOFF=25
PEAK=100

[DEFINE]
Ctrl+P="MACRO RUN PITCHIDS.MAC" "Runs the macro for analyzing motherese pitch"
Ctrl+D="MACRO RUN DELBCD.MAC" "Runs macro to purge screens B, C, & D"
```

Ctrl+C="MACRO RUN ONWADEE.MAC" "Runs macro to show selected , do impulse to B and do energy to C"

Ctrl+S="MACRO RUN SAVESPE.MAC" "Runs macro to save pitch and energy"

Ctrl+V="MOVE = {" "Moves to previous impulse"

Ctrl+N="MOVE = }" "Moves to next impulse marker"

Ctrl+X="EDIM D =" "Deletes impulse at cursor"

Ctrl+A="EDIM A =" "Adds impulse at cursor"

Ctrl+M="EDIM R =" "Moves previous impulse to cursor"

[CAPTURE]

RATE=11025

LENGTH=50

MODE=MONO

CHANNEL=STEREO

DISPLAY=TRUE

SCROLL=FALSE

UPDATE=10

[SIGNAL]

IMPULSE=TRUE

TAG=TRUE

PALATE=FALSE

TRANSCRIPT=NONE

FONT=16

[SPEAK]

REPEAT=SINGLE

MODE=MONO

MUTING=OFF

SPLICE=FALSE

[IMPULSE]

LOCATION=PEAK

FLIP=FALSE

RANGE=80 500

OFFSET=0

PEAK=100

```
[FILTER]
FILTER=C:\MSPEECH\FILTERS\LPHM1000.FLT
ORDER=80
WINDOW=Hamming
TYPE=Low Pass
LIMIT=18

[GROUP.AT START]
A=A 0 0 10000 2230 BLACK +N +R -H -V
B=B 0 2230 9969 2417 RED -N +R -H -V
C=C 0 4521 10032 1813 RED -N +R -H -V
D=D 0 6313 10047 1605 RED -N +R -H -V
LIST=A,B,C,D

[GROUP.WORKAREA]
A=A 16 0 9844 2292 BLACK +N +R -H -V
B=B 0 2230 9969 2417 RED -N +R -H -V
C=C 0 4521 10032 1813 RED -N +R -H -V
D=D 0 6313 10047 1605 RED -N +R -H -V
LIST=A,B,C,D
```

Appendix E
Descriptive Statistics of Acoustic Analysis of Six Subjects

FUNDAMENTAL FREQUENCY		Age					Type		Sex		Group
		Newborn	3 Months	6 Months	9 Months	12 Months	IDS	ADS	Female	Male	Total
Subject 01	Maximum	479.35	479.35	479.35	479.35	479.35	479.35	479.35	479.35		479.35
	Minimum	80.47	80.47	82.89	81.07	81.67	80.47	80.47	80.47		80.47
	Range	398.88	398.88	396.46	398.28	397.68	398.88	398.88	398.88		398.88
	Median	208.02	268.9	315	275.63	256.4	256.4	229.69	250.57		250.57
	Mode	250.57	315	315	262.5	268.9	315	250.57	315		315
	Mean	210.87	262.96	308.89	273.1	260.04	257.75	230.93	251.95		251.95
	Std Deviation	69.2	79.62	71.98	93.66	73.36	83.68	71.16	81.88		81.88
	Count	3911	3926	2182	2892	3062	15973	4408	20381		20381
Subject 02	Maximum	479.35	479.35	479.35	479.35	479.35	479.35	479.35	479.35		479.35
	Minimum	80.47	80.47	80.47	82.28	80.47	80.47	80.47	80.47		80.47
	Range	398.88	398.88	398.88	397.07	398.88	398.88	398.88	398.88		398.88
	Median	297.97	297.97	275.63	268.9	256.4	282.69	262.5	275.63		275.63
	Mode	315	334.09	275.63	262.5	408.33	297.97	290.13	297.97		297.97
	Mean	282.3	290.75	275.34	270.48	269.66	278.96	254.17	273.02		273.02
	Std Deviation	84.89	74.24	48.81	46.35	109.23	73.66	72.35	74.1		74.1
	Count	4506	5274	3430	4870	2542	20622	6495	27117		27117
Subject 04	Maximum	479.35	479.35	479.35	479.35	479.35	479.35	479.35	479.35		479.35
	Minimum	80.47	80.47	81.67	81.67	80.47	80.47	80.47	80.47		80.47
	Range	398.88	398.88	397.68	397.68	398.88	398.88	398.88	398.88		398.88
	Median	134.45	268.9	220.5	239.67	175	229.69	234.57	229.69		229.69
	Mode	122.5	306.25	216.18	245	172.27	245	408.33	245		245
	Mean	162.36	281.26	241.16	258.75	188.65	238.05	262.07	244.27		244.27
	Std Deviation	68.17	69.67	79.63	79.78	66.84	84.08	109.42	91.92		91.92
	Count	2525	8472	5254	3411	5228	24940	8721	33661		33661
Subject 05	Maximum	479.35	479.35	479.35	479.35	479.35	479.35	479.35		479.35	479.35
	Minimum	88.91	80.47	80.47	80.47	80.47	80.47	80.47		80.47	80.47
	Range	390.44	398.88	398.88	398.88	398.88	398.88	398.88		398.88	398.88
	Median	250.57	204.17	297.97	297.97	234.57	262.5	220.5		256.4	256.4
	Mode	262.5	262.5	344.53	324.26	225	262.5	245		262.5	262.5
	Mean	267.71	205.67	297.49	290.58	246.09	268.85	237.92		265.26	265.26
	Std Deviation	77.63	68.55	68.5	82.98	82.97	82.38	84.3		83.19	83.19
	Count	6086	2324	5760	6239	6449	26858	3527		30385	30385
Subject 07	Maximum	479.35	479.35	479.35	479.35	479.35	479.35	479.35		479.35	479.35
	Minimum	80.47	80.47	80.47	82.28	80.47	80.47	80.47		80.47	80.47
	Range	398.88	398.88	398.88	397.07	398.88	398.88	398.88		398.88	398.88
	Median	234.57	216.18	212.02	216.18	220.5	220.5	216.18		220.5	220.5
	Mode	256.4	216.18	212.02	208.02	355.65	208.02	229.69		204.17	204.17
	Mean	248.2	228.77	235.69	230.28	246.38	239.06	229.46		237.31	237.31
	Std Deviation	77.46	73.52	97.42	62.74	82.08	79.58	77.51		79.29	79.29
	Count	4681	3004	3928	5013	6206	22832	5108		27940	27940
Subject 09	Maximum	479.35	479.35	479.35	479.35	479.35	479.35	479.35		479.35	479.35
	Minimum	82.28	81.67	80.47	80.47	82.89	80.47	80.47		80.47	80.47
	Range	397.07	397.68	398.88	398.88	396.46	398.88	398.88		398.88	398.88
	Median	268.9	315	315	268.9	344.53	297.97	256.4		290.13	290.13
	Mode	275.63	315	324.26	306.25	355.65	315	268.9		315	315
	Mean	273.1	315.4	311.73	261	327.95	295.37	256		288.58	288.58
	Std Deviation	60.42	69.08	70.51	88.76	64.18	75.44	84.97		78.59	78.59
	Count	6076	5974	5638	4893	2809	25390	5292		30682	30682
Maximum		479.35	479.35	479.35	479.35	479.35	479.35	479.35	479.35	479.35	479.35
Minimum		80.47	80.47	80.47	80.47	80.47	80.47	80.47	80.47	80.47	80.47
Range		398.88	398.88	398.88	398.88	398.88	398.88	398.88	398.88	398.88	398.88
Median		245	282.69	275.63	262.5	229.69	262.5	239.67	256.4	256.4	256.4
Mode		256.4	315	324.26	262.5	355.65	262.5	256.4	262.5	324.26	262.5
Mean		250.23	276.04	278.04	264.81	247.39	263.4	247.99	255.81	264.52	260.37
Std Deviation		81.68	78.87	80.56	78.75	88.5	82.65	88.09	84.74	83.05	83.97
Count		27835	28974	26192	27318	26296	136615	33551	81159	89007	170166
Skewness							0.256	-0.139			
Kurtosis							0.474	-0.195			

MINIMUM		Age					Type		Sex		Group
		New Born	3 Months	6 Months	9 Months	12 Months	IDS	ADS	Female	Male	Total
Subject 01	Maximum	190.09	290.13	315	200.45	229.69	315	216.18	315		315
	Minimum	83.52	88.91	91.12	101.15	100.23	83.52	94.23	83.52		83.52
	Range	106.57	201.22	223.88	99.3	129.46	231.48	121.95	231.48		231.48
	Median	98.01	117.34	220.5	126.74	131.27	126	116.7	123.88		123.88
	Mode	87.5	114.84	220.5	111.36	186.86	111.36	114.84	111.36		111.36
	Mean	106.32	133.71	197.93	134.34	149.21	144.3	131.67	142.2		142.2
	Std Deviation	25.12	47.08	58.98	28.38	43.51	51.5	35.67	49.31		49.31
	Count	20	20	20	20	20	100	20	120		120
Subject 02	Maximum	306.25	282.69	268.9	306.25	256.4	306.25	282.69	306.25		306.25
	Minimum	100.23	104.01	106.01	113.66	107.04	100.23	90.37	90.37		90.37
	Range	206.02	178.68	162.89	192.59	149.36	206.02	192.32	215.88		215.88
	Median	133.68	155.41	190.09	214.58	141.35	147.03	133.01	145.07		145.07
	Mode	118.55	129.71	145.07	256.4	141.35	256.4	105	256.4		256.4
	Mean	151.5	169.63	193.66	201.33	154.08	174.04	161.36	171.93		171.93
	Std Deviation	55.58	52.35	50.5	67.77	35.34	56.08	63.83	57.35		57.35
	Count	20	20	20	20	20	100	20	120		120
Subject 04	Maximum	344.53	245	256.4	245	141.35	344.53	183.75	344.53		344.53
	Minimum	86.13	81.67	96.71	86.13	80.47	80.47	100.23	80.47		80.47
	Range	258.4	163.33	159.69	158.87	60.88	264.06	83.52	264.06		264.06
	Median	108.1	125.35	129.06	154.2	110.81	120.5	123.88	121.83		121.83
	Mode	100.23	110.25	109.16	119.84	119.84	110.25	123.88	110.25		110.25
	Mean	121.39	139.85	145.11	154.7	113.92	135	129.85	134.14		134.14
	Std Deviation	56.77	47.78	42.71	40.99	17.34	44.92	24.96	42.22		42.22
	Count	20	20	20	20	20	100	20	120		120
Subject 05	Maximum	245	180.74	250.57	167.05	216.18	250.57	186.86		250.57	250.57
	Minimum	95.04	80.67	80.47	80.47	81.67	80.47	82.89		80.47	80.47
	Range	149.96	100.07	170.1	86.58	134.51	170.1	103.97		170.1	170.1
	Median	160.95	103.54	129.78	101.62	133.54	123.88	138.82		125.07	125.07
	Mode	162.13	84.16	80.47	107.04	147	132.83	186.86		107.04	107.04
	Mean	155.29	108.42	136.29	107.91	137.19	129.02	140.75		130.98	130.98
	Std Deviation	34.12	25.36	47.67	25.47	31.9	37.97	30.45		36.97	36.97
	Count	20	20	20	20	20	100	20		120	120
Subject 07	Maximum	196.88	190.09	145.07	212.02	200.45	212.02	183.75		212.02	212.02
	Minimum	80.47	9.16	81.07	89.63	82.28	9.16	93.43		9.16	9.16
	Range	116.41	180.93	64	122.39	118.17	202.86	90.32		202.86	202.86
	Median	123.22	105.51	95.87	167.05	141.37	122.52	116.07		119.84	119.84
	Mode	95.04	97.57	102.08	167.05	132.83	167.05	102.08		102.08	102.08
	Mean	131.99	109.12	98.31	161.16	149.23	129.96	125.41		129.2	129.2
	Std Deviation	34.38	36.96	13.46	24.36	34.73	37.84	28.75		36.41	36.41
	Count	20	20	20	20	20	100	20		120	120
Subject 09	Maximum	290.13	306.25	268.9	229.69	324.26	324.26	290.13		324.26	324.26
	Minimum	102.08	97.57	111.36	82.89	155.28	82.89	104.01		82.89	82.89
	Range	188.05	208.68	157.54	146.8	168.98	241.37	186.12		241.37	241.37
	Median	183.8	190.14	176.51	135.28	222.94	180.74	195.27		183.75	183.75
	Mode	147	268.9	157.5	121.15	256.4	229.69	200.45		229.69	229.69
	Mean	180.27	210.26	179.84	149.3	228.77	189.69	191.28		189.95	189.95
	Std Deviation	51.25	59.59	49.35	43.36	54.29	57.8	44.34		55.62	55.62
	Count	20	20	20	20	20	100	20		120	120
Maximum		344.53	306.25	315	306.25	324.26	344.53	290.13	344.53	324.26	344.53
Minimum		80.47	9.16	80.47	80.47	80.47	9.16	82.89	80.47	9.16	9.16
Range		264.06	297.09	234.53	225.78	243.79	335.37	207.24	264.06	315.1	335.37
Median		126	123.88	145.07	140.45	139.56	136.11	128.2	129.71	141.35	134.45
Mode		95.04	114.84	145.07	167.05	132.83	186.86	114.84	119.84	147	186.86
Mean		141.13	145.16	158.52	151.46	155.4	150.33	146.72	149.42	150.04	149.73
Std Deviation		49.95	57.69	57.46	49.33	51.36	53.49	45.66	52.46	52.13	52.26
Count		120	120	120	120	120	600	120	360	360	720
Skewness							0.97	1.081			
Kurtosis							0.5	0.586			

MAXIMUM		Age					Type		Sex		Group
		New Born	3 Months	6 Months	9 Months	12 Months	IDS	ADS	Female	Male	Total
Subject 01	Maximum	424.04	479.35	479.35	459.38	479.35	479.35	441	479.35		479.35
	Minimum	200.45	245	306.25	275.63	262.5	200.45	220.5	200.45		200.45
	Range	223.59	234.35	173.1	183.75	216.85	278.9	220.5	278.9		278.9
	Median	276.32	306.25	386.96	367.5	334.09	339.31	290.13	315		315
	Mode	355.65	306.25	393.75	459.38	282.69	344.53	297.97	344.53		344.53
	Mean	291.25	323.13	387.45	366.32	337.81	341.19	288.78	332.46		332.46
	Std Deviation	64.08	63.56	52.82	64.53	67.39	70.01	54.85	70.31		70.31
	Count	20	20	20	20	20	100	20	120		120
Subject 02	Maximum	459.38	459.34	479.35	393.75	479.35	479.35	424.4	479.35		479.35
	Minimum	282.69	290.13	275.63	282.69	220.5	220.5	245	220.5		220.5
	Range	176.69	169.21	203.72	111.06	258.85	258.85	179.4	258.85		258.85
	Median	355.65	355.65	306.25	319.63	324.26	334.09	306.49	324.26		324.26
	Mode	380.17	344.53	306.25	297.97	324.26	297.97	290.13	290.13		290.13
	Mean	357.63	360.77	326.06	324.43	348.37	343.45	321.85	339.85		339.85
	Std Deviation	46.16	47.36	46.23	32.88	74.44	52.54	46.13	51.98		51.98
	Count	20	20	20	20	20	100	20	120		120
Subject 04	Maximum	479.35	479.35	479.35	479.35	479.35	479.35	424.04	479.35		479.35
	Minimum	131.25	256.4	225	262.5	186.8	131.25	234.57	131.25		131.25
	Range	348.1	222.95	254.35	216.85	292.55	348.1	189.47	348.1		348.1
	Median	253.49	339.31	329.17	361.58	344.87	334.09	329.77	334.09		334.09
	Mode	245	334.09	479.35	282.69	393.75	479.35	393.75	479.35		479.35
	Mean	266.97	378.38	346.55	361.59	330.38	336.77	323.12	334.5		334.5
	Std Deviation	83.87	72.42	85.04	77.48	95.89	90.26	70.74	87.2		87.2
	Count	20	20	20	20	20	100	20	120		120
Subject 05	Maximum	479.35	424.04	479.35	479.35	479.35	479.35	459.38		479.35	479.35
	Minimum	250.57	193.42	275.63	306.25	250.57	193.42	216.18		193.42	193.42
	Range	228.78	230.62	203.72	173.1	228.78	285.93	243.2		285.93	285.93
	Median	380.63	282.69	424.04	416.19	306.25	367.5	302.11		355.65	355.65
	Mode	479.35	282.69	479.35	479.35	290.13	479.35	262.5		479.35	479.35
	Mean	374.93	291.08	417.25	409.14	333.81	365.24	314.35		356.76	356.76
	Std Deviation	86.11	64.18	61.33	62.39	66.71	82.48	69.56		82.43	82.43
	Count	20	20	20	20	20	100	20		120	120
Subject 07	Maximum	479.35	380.17	479.35	459.38	459.38	479.35	393.75		479.35	479.35
	Minimum	220.5	208.02	225	216.18	172.27	172.27	204.17		172.27	172.27
	Range	258.85	172.15	254.35	243.2	287.11	307.08	189.58		307.08	307.08
	Median	306.49	279.16	380.17	315	361.58	329.17	268.9		319.6	319.6
	Mode	315	208.02	479.35	315	367.5	315	250.57		315	315
	Mean	315.83	291.7	384.89	321.96	347.38	332.35	287.05		324.8	324.8
	Std Deviation	67.5	58.94	90.3	68.98	74.74	78.14	61.01		77.21	77.21
	Count	20	20	20	20	20	100	20		120	120
Subject 09	Maximum	479.35	479.35	479.35	393.75	479.35	479.35	441		479.35	479.35
	Minimum	275.63	245	282.69	229.69	324.26	229.69	275.63		229.69	229.69
	Range	203.72	234.35	196.66	164.06	155.09	249.66	165.37		249.66	249.66
	Median	329.17	408.33	393.75	334.4	393.75	367.5	334.09		367.5	367.5
	Mode	315	441	393.75	367.5	393.75	324.26	334.09		367.5	367.5
	Mean	347.91	390.37	384.91	329.28	392.67	369.03	338.57		363.95	363.95
	Std Deviation	51.85	64.86	62.17	51.45	44.51	60.15	49.68		59.45	59.45
	Count	20	20	20	20	20	100	20		120	120
Maximum		479.35	479.35	479.35	479.35	479.35	479.35	459.38	479.35	479.35	479.35
Minimum		131.25	193.42	225	216.18	172.27	131.25	204.17	131.25	172.27	131.25
Range		348.1	285.93	254.35	263.17	307.08	348.1	255.21	348.1	307.08	348.1
Median		315	334.09	367.5	344.53	355.65	344.53	297.97	324.26	349.77	334.09
Mode		355.65	344.53	479.35	324.26	393.75	479.35	297.97	290.13	479.35	479.35
Mean		325.75	339.24	374.52	352.12	348.4	348.01	312.29	335.6	348.5	342.05
Std Deviatior		76.92	72.89	73.2	67.57	73.73	74.44	61.09	71.16	75.43	73.56
Count		120	120	120	120	120	600	120	360	360	720
Skewness							0.111	0.413			
Kurtosis							-0.702	-0.762			

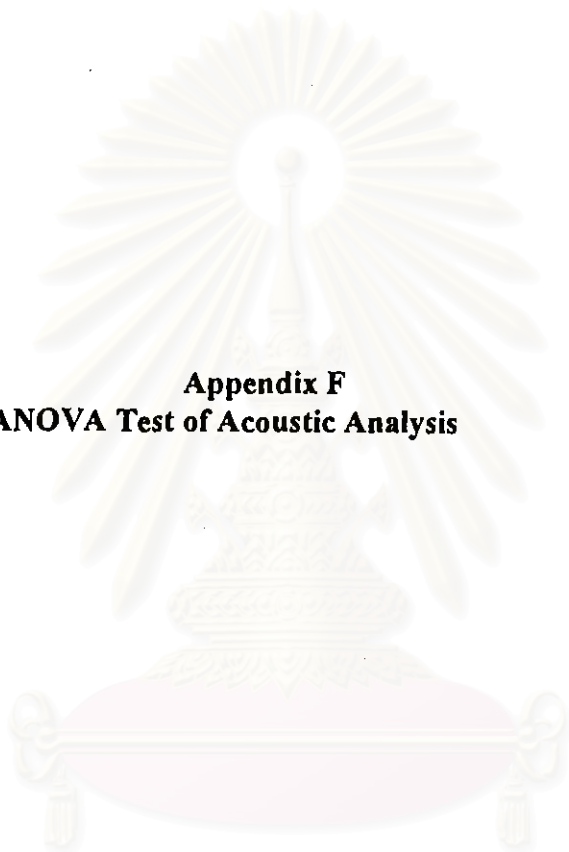
SEMITONES		Age					Type		Sex		Group
		New Born	3 Months	6 Months	9 Months	12 Months	IDS	ADS	Female	Male	Total
Subject 01	Maximum	24.6836	24.7375	25.3373	24.5335	26.2883	26.2883	21.9613	26.2883		26.2883
	Minimum	10.8453	1.4238	4.4926	11.7094	2.3116	1.4238	2.8922	1.4238		1.4238
	Range	13.8383	23.3136	20.8447	12.824	23.9767	24.8645	19.0692	24.8645		24.8645
	Median	16.4004	16.2959	11.6196	16.2176	15.3379	15.4849	14.5027	15.2284		15.2284
	Mode	10.8453	24.7375	11.6196	11.7094	2.3116	11.6196	16.5065	11.6196		11.6196
	Mean	17.4319	15.7834	12.3326	17.4487	14.4931	15.4979	13.8418	15.2219		15.2219
	Std Deviation	4.1624	6.0872	5.3872	3.6909	6.5959	5.5443	4.0304	5.3433		5.3433
	Count	20	20	20	20	20	100	20	120		120
Subject 02	Maximum	23.08	21.0806	20.4052	19.7488	20.405	23.08	23.1464	23.1464		23.1464
	Minimum	2.589	4.5423	2.1396	2.039	2.6012	2.039	2.8922	2.039		2.039
	Range	20.491	16.5384	18.2655	17.7098	17.8037	21.041	20.2543	21.1074		21.1074
	Median	16.6686	13.7833	8.6621	7.9332	14.3576	13.7833	14.913	13.9136		13.9136
	Mode	2.589	4.5423	2.1396	4.0651	2.6012	2.1396	2.8922	2.1396		2.1396
	Mean	15.5825	13.6688	9.4868	9.1958	14.1292	12.4126	13.0044	12.5112		12.5112
	Std Deviation	5.7122	5.052	5.1826	5.9354	3.9955	5.7362	6.1904	5.7915		5.7915
	Count	20	20	20	20	20	100	20	120		120
Subject 04	Maximum	20.903	30.6384	26.935	25.7047	30.158	30.6384	21.8646	30.6384		30.6384
	Minimum	4.8259	6.6125	1.6899	6.132	5.0473	1.6899	6.7549	1.6899		1.6899
	Range	16.0711	24.0259	25.2451	19.5727	25.1107	28.9485	15.1097	28.9485		28.9485
	Median	15.0474	18.0871	15.2896	14.7271	18.0445	15.8394	15.0137	15.6158		15.6158
	Mode	4.8259	6.6125	1.6899	15.3071	5.0473	15.3071	6.7549	15.3071		15.3071
	Mean	13.9104	17.8047	15.2151	14.9289	17.8772	15.9473	15.6575	15.899		15.899
	Std Deviation	4.0099	6.8217	6.5401	5.2889	6.1432	5.9534	4.3771	5.7058		5.7058
	Count	20	20	20	20	20	100	20	120		120
Subject 05	Maximum	27.2511	23.4694	30.8947	30.7661	21.0806	30.8947	22.2513		30.8947	30.8947
	Minimum	4.7824	6.6472	11.2304	10.4932	9.2328	4.7824	7.2918		4.7824	4.7824
	Range	22.4687	16.8222	19.6643	20.2729	11.8479	26.1123	14.9596		26.1123	26.1123
	Median	14.2709	17.0225	19.8858	24.3195	15.4506	18.2718	13.4583		17.0156	17.0156
	Mode	4.7824	6.6472	11.2304	10.4932	9.2328	13.8902	7.2918		13.8902	13.8902
	Mean	15.2103	17.0898	20.1641	23.2986	15.5079	18.2541	13.9145		17.5309	17.5309
	Std Deviation	6.1499	4.3273	5.6688	4.9827	3.3654	5.7884	4.2722		5.7815	5.7815
	Count	120	20	20	20	20	100	20		120	120
Subject 07	Maximum	25.7272	63.3476	28.5991	22.2612	21.2235	63.3476	21.6883		63.3476	63.3476
	Minimum	4.573	3.9316	16.3091	4.4634	9.4229	3.9316	3.7349		3.7349	3.7349
	Range	21.1542	59.416	12.29	17.7977	11.8006	59.416	17.9533		59.6127	59.6127
	Median	15.4348	16.3313	23.8615	11.253	14.6116	16.314	14.7711		15.6636	15.6636
	Mode	4.573	3.9316	26.7766	4.4634	16.7623	26.7766	3.7349		26.7766	26.7766
	Mean	15.3103	18.4807	23.26	11.8266	14.653	16.7061	14.3746		16.3175	16.3175
	Std Deviation	5.1452	11.7575	4.0477	4.7169	3.3075	7.5163	4.5206		7.1431	7.1431
	Count	20	20	20	20	20	100	20		120	120
Subject 09	Maximum	19.956	22.3914	23.8266	20.903	18.7778	23.8266	21.6889		23.8266	23.8266
	Minimum	5.9164	3.658	5.8251	7.4366	3.5251	3.5251	3.1565		3.1565	3.1565
	Range	14.0396	18.7334	18.0014	13.4665	15.2527	20.3015	18.5323		20.67	20.67
	Median	13.6808	10.6943	14.1452	12.8678	9.2718	12.4525	8.9623		11.2224	11.2224
	Mode	5.9696	3.658	5.8251	9.4304	3.5251	5.9696	3.1565		5.9696	5.9696
	Mean	11.8911	11.1819	13.7593	14.1701	9.7124	12.143	10.1882		11.8172	11.8172
	Std Deviation	4.7093	5.0535	5.1001	4.2578	4.2955	4.8909	4.4031		4.8509	4.8509
	Count	20	20	20	20	20	100	20		120	120
Maximum		27.2511	63.3476	30.8947	30.7661	30.158	63.3476	23.1464	30.6384	63.3476	63.3476
Minimum		2.589	1.4238	1.6899	2.039	2.3116	1.4238	2.8922	1.4238	3.1565	1.4238
Range		24.6621	61.9238	29.2048	28.727	27.8464	61.9238	20.2543	29.2146	60.1911	61.9238
Median		15.3132	14.9033	15.743	14.933	14.5355	15.1377	14.0789	14.9134	14.7634	14.8659
Mode		5.9696	7.4003	26.7766	4.0651	13.8902	11.6196	8.8436	11.6196	26.7766	11.6196
Mean		14.8894	15.6682	15.703	15.1448	14.3955	15.1602	13.4968	14.544	15.2219	14.883
Std Deviation		5.2188	7.2838	7.0479	6.5352	5.2894	6.3328	4.8875	5.7899	6.4692	6.144
Count		120	120	120	120	120	600	120	360	360	720
Skewness							0.75	-0.115			
Kurtosis							4.827	-0.712			

UTTERANCE DURATION		Age					Type		Sex		Group
		Newborn	3 Months	6 Months	9 Months	12 Months	IDS	ADS	Female	Male	Total
Subject 01	Maximum	2250	4048	915	1923	1926	4048	4986	4986		4986
	Minimum	657	155	67	150	82	67	33	33		33
	Range	1593	3893	848	1773	1844	3981	4953	4953		4953
	Median	1339	800	392	593	569	731	784	737		737
	Mode	657	155	67	150	82	283	33	283		283
	Mean	1355	1079	426	811	746	883	1360	963		963
	Std Deviation	516	884	243	624	518	662	1337	826		826
	Count	20	20	20	20	20	100	20	120		120
Subject 02	Maximum	2435	2458	1529	2390	1527	2458	5589	5589		5589
	Minimum	269	140	112	208	37	37	239	37		37
	Range	2166	2318	1417	2182	1490	2421	5350	5552		5552
	Median	1139	1032	620	992	550	913	1567	932		932
	Mode	269	140	932	208	37	932	239	932		932
	Mean	1198	1165	716	1044	676	960	1922	1120		1120
	Std Deviation	640	643	367	710	412	602	1381	858		858
	Count	20	20	20	20	20	100	20	120		120
Subject 04	Maximum	3188	2944	3972	1539	2646	3972	8658	8658		8658
	Minimum	84	536	100	209	673	84	164	84		84
	Range	3104	2408	3872	1330	1973	3888	8494	8574		8574
	Median	1517	1911	1060	813	1683	1231	1574	1288		1288
	Mode	84	2013	100	209	673	111	164	111		111
	Mean	1461	1808	1369	864	1682	1437	2230	1569		1569
	Std Deviation	978	730	1299	346	620	902	2157	1228		1228
	Count	20	20	20	20	20	100	20	120		120
Subject 05	Maximum	2703	1774	3443	3749	4052	4052	2019		4052	4052
	Minimum	251	112	134	220	123	112	102		102	102
	Range	2452	1662	3309	3529	3929	3940	1917		3950	3950
	Median	942	563	860	963	1174	906	880		897	897
	Mode	251	112	134	220	123	112	102		1119	1119
	Mean	1223	794	1141	1308	1563	1206	878		1151	1151
	Std Deviation	800	579	820	1069	1243	946	514		896	896
	Count	20	20	20	20	20	100	20		120	120
Subject 07	Maximum	3307	1910	3194	3316	4637	4637	3404		4637	4637
	Minimum	191	203	287	109	205	109	103		103	103
	Range	3116	1707	2907	3207	4432	4528	3301		4534	4534
	Median	677	709	838	1051	1466	910	1108		928	928
	Mode	191	203	287	109	205	109	103		103	103
	Mean	1141	797	1079	1181	1487	1137	1312		1166	1166
	Std Deviation	959	467	819	776	960	830	1108		879	879
	Count	20	20	20	20	20	100	20		120	120
Subject 09	Maximum	2188	3095	3344	4140	1168	4140	3517		4140	4140
	Minimum	534	101	222	82	247	82	241		82	82
	Range	1654	2994	3122	4058	921	4058	3276		4058	4058
	Median	1055	875	459	1265	419	784	1261		858	858
	Mode	534	101	222	82	247	247	241		247	247
	Mean	1193	1049	967	1402	468	1016	1335		1069	1069
	Std Deviation	479	919	873	1046	202	817	949		845	845
	Count	20	20	20	20	20	100	20		120	120
Maximum		3307	4048	3972	4140	4637	4637	8658	8658	4637	8658
Minimum		84	101	67	82	37	37	33	33	82	33
Range		3223	3947	3905	4058	4600	4600	8625	8625	4555	8625
Mode		1164	929	659	997	864	916	1063	962	891	934
Median		1354	302	307	485	283	283	956	283	287	283
Mean		1262	1115	950	1102	1104	1106	1506	1217	1129	1173
Std Deviation		748	784	855	814	877	820	1383	1018	872	948
Count		120	120	120	120	120	600	120	360	360	720
Skewness							1.234	2.05			
Kurtosis							1.633	6.169			

SYLLABLE DURATION		Age					Type		Sex		Group
		Newborn	3 Months	6 Months	9 Months	12 Months	IDS	ADS	Female	Male	Total
Subject 01	Maximum	1303	1439	802	1225	1824	1824	277	1824		1824
	Minimum	129	111	67	42	55	42	33	33		33
	Range	1174	1328	735	1183	1769	1782	244	1791		1791
	Mode	218	111	116	252	55	116	33	116		116
	Median	235	355	290	183.5	214.5	233.5	222.5	232		232
	Mean	369.4	509.65	293.15	284.25	307.3	352.75	197.55	326.88		326.88
	Std Deviation	270.96	396.05	185.47	314.26	381.39	323.7	65.01	302.02		302.02
	Count	20	20	20	20	20	100	20	120		120
Subject 02	Maximum	720	985	919	615	1527	1527	605	1527		1527
	Minimum	173	140	112	170	37	37	154	37		37
	Range	547	845	807	445	1490	1490	451	1490		1490
	Mode	173	153	466	170	176	153	211	211		211
	Median	292.5	202.5	380.5	303	264	307.5	199.5	266.5		266.5
	Mean	328.9	310.7	411.8	359.65	442.8	370.77	235.3	348.19		348.19
	Std Deviation	153.69	214.55	189.57	155.94	447.62	256.67	116.46	244.02		244.02
	Count	20	20	20	20	20	100	20	120		120
Subject 04	Maximum	1132	570	484	794	337	1132	378	1132		1132
	Minimum	84	226	100	139	142	84	143	84		84
	Range	1048	344	384	655	195	1048	235	1048		1048
	Mode	232	226	100	139	142	111	159	111		111
	Median	246	322	254	267	199.5	260.5	211	245.5		245.5
	Mean	341.7	344.95	253.1	294.45	212.05	289.25	218.3	277.43		277.43
	Std Deviation	272.23	91.32	118.49	159.92	50.44	163	61.1	152.99		152.99
	Count	20	20	20	20	20	100	20	120		120
Subject 05	Maximum	1697	742	936	1155	820	1697	839		1697	1697
	Minimum	123	69	111	100	124	69	34		34	34
	Range	1574	673	825	1055	696	1628	805		1663	1663
	Mode	123	161	111	100	124	161	34		161	161
	Median	220.5	165	286	251	277.5	239	180		229	229
	Mean	316.15	226.6	366.2	381.35	316.6	321.38	240.25		307.86	307.86
	Std Deviation	337.81	161.03	236.84	314.58	191.18	258.08	171.84		247.08	247.08
	Count	20	20	20	20	20	100	20		120	120
Subject 07	Maximum	708	743	847	598	751	847	473		847	847
	Minimum	95	188	171	109	182	95	104		95	95
	Range	613	555	676	489	569	752	369		752	752
	Mode	95	188	288	109	182	202	104		202	202
	Median	332.5	324.5	357	259	375	316	216.5		299.5	299.5
	Mean	390.6	356	381.65	281.1	396.2	361.11	231.6		339.53	339.53
	Std Deviation	198.6	152.39	168.91	120.34	167.6	165.77	98.05		163.54	163.54
	Count	20	20	20	20	20	100	20		120	120
Subject 09	Maximum	880	910	590	811	624	910	298		910	910
	Minimum	151	101	111	82	131	82	136		82	82
	Range	729	809	479	729	493	828	162		828	828
	Mode	151	101	111	82	131	131	207		168	168
	Median	351.5	304.5	267	428.5	263	335	194		286.5	286.5
	Mean	409.2	357.45	292.2	445	295.45	359.86	198.45		332.96	332.96
	Std Deviation	208.28	251.34	141.92	203.06	161.3	202.34	44.44		195	195
	Count	20	20	20	20	20	100	20		120	120
Maximum		1697	1439	936	1225	1824	1824	839	1824	1697	1824
Minimum		84	69	67	42	37	37	33	33	34	33
Range		1613	1370	869	1183	1787	1787	806	1791	1663	1791
Mode		222	121	307	252	176	161	236	159	161	161
Median		277.5	292.5	307	271	246.5	286.5	202	245	268	252
Mean		359.33	350.89	333.02	340.97	328.4	342.52	220.24	317.5	326.78	322.14
Std Deviation		244.73	242.45	182.88	228.23	275	236.05	101.47	242.1	204.68	224.07
Count		120	120	120	120	120	600	120	360	360	720
Skewness							2.309	2.88			
Kurtosis							7.93	13.053			

NUMBER OF SYLLABLE		Age					Type		Sex		Group
		Newborn	3 Months	6 Months	9 Months	12 Months	IDS	ADS	Female	Male	Total
Subject 01	Maximum	9	12	7	11	9	12	23	23		23
	Minimum	1	1	1	1	1	1	1	1		1
	Range	8	11	6	10	8	11	22	22		22
	Median	5	2	1	3	4	3	5	3		3
	Mode	6	1	1	1	4	1	1	1		1
	Mean	4.65	3.05	1.9	3.8	3.7	3.42	6.75	3.98		3.98
	Std Deviation	2.06	2.8	1.71	3.24	2.23	2.59	6.09	3.61		3.61
	Count	20	20	20	20	20	100	20	120		120
Subject 02	Maximum	11	10	4	9	6	11	31	31		31
	Minimum	1	1	1	1	1	1	1	1		1
	Range	10	9	3	8	5	10	30	30		30
	Median	3.5	4	2	2	2	2	8	3		3
	Mode	2	4	1	1	1	1	1	1		1
	Mean	4.25	4.35	1.85	3.45	2.4	3.26	9.65	4.33		4.33
	Std Deviation	2.92	2.39	0.99	2.84	1.6	2.44	7.52	4.44		4.44
	Count	20	20	20	20	20	100	20	120		120
Subject 04	Maximum	11	10	15	7	15	15	39	39		39
	Minimum	1	1	1	1	2	1	1	1		1
	Range	10	9	14	6	13	14	38	38		38
	Median	5.5	7	4	4	8	5	7	5.5		5.5
	Mode	1	7	1	4	8	1	3	1		1
	Mean	4.9	5.75	4.5	3.6	8.3	5.41	10.05	6.18		6.18
	Std Deviation	3.4	2.81	3.82	1.96	3.29	3.46	9.6	5.26		5.26
	Count	20	20	20	20	20	100	20	120		120
Subject 05	Maximum	16	9	6	16	15	16	13		16	16
	Minimum	1	1	1	1	1	1	1		1	1
	Range	15	8	5	15	14	15	12		15	15
	Median	4.5	3.5	3	3	4.5	3	4		3	3
	Mode	1	1	3	2	1	1	1		1	1
	Mean	5.3	3.85	3.35	4.5	5.65	4.53	4.55		4.53	4.53
	Std Deviation	4.28	2.32	1.6	4.25	4.34	3.59	3.15		3.51	3.51
	Count	20	20	20	20	20	100	20		120	120
Subject 07	Maximum	12	8	9	11	8	12	18		18	18
	Minimum	1	1	1	1	1	1	1		1	1
	Range	11	7	8	10	7	11	17		17	17
	Median	2.5	2	2	4.5	4	3	3.5		3	3
	Mode	1	1	1	6	3	1	1		1	1
	Mean	3.1	2.6	3.3	4.55	3.95	3.5	6.15		3.94	3.94
	Std Deviation	2.65	2.04	2.7	2.8	2.14	2.53	5.61		3.37	3.37
	Count	20	20	20	20	20	100	20		120	120
Subject 09	Maximum	8	7	9	7	4	9	20		20	20
	Minimum	1	1	1	1	1	1	1		1	1
	Range	7	6	8	6	3	8	19		19	19
	Median	4.5	2	2	2	1.5	2	7		2.5	2.5
	Mode	1	1	2	2	1	2	1		1	1
	Mean	3.95	2.9	3	3.1	2	2.99	7.45		3.73	3.73
	Std Deviation	2.52	2.27	2.03	1.68	1.12	2.04	5.54		3.34	3.34
	Count	20	20	20	20	20	100	20		120	120
Maximum		16	12	15	16	15	16	39	39	20	39
Minimum		1	1	1	1	1	1	1	1	1	1
Range		15	11	14	15	14	15	38	38	19	38
Median		4	3	2	3	3.5	3	5	4	3	3
Mode		1	1	1	1	1	1	1	1	1	1
Mean		4.36	3.75	2.98	3.83	4.33	3.85	7.43	4.83	4.07	4.45
Std Deviation		3.08	2.63	2.45	2.91	3.38	2.94	6.7	4.58	3.41	4.05
Count		120	120	120	120	120	600	120	360	360	720
Skewness							1.287	1.714			
Kurtosis							1.816	4.563			

INTENSITY		Age					Type		Sex		Group
											Total
		New Born	3 Months	6 Months	9 Months	12 Months	IDS	ADS	Female	Male	
Subject 01	Maximum	80.3	84.32	82.77	84.78	81.57	84.78	83.2	84.78		84.78
	Minimum	46.79	55.83	54.94	56.86	55.14	46.79	57.47	46.79		46.79
	Range	33.51	28.49	27.83	27.92	26.43	37.99	25.73	37.99		37.99
	Median	66.56	71.32	70.59	69.72	71.34	69.75	72.26	70.35		70.35
	Mode	65.42	71.11	70.55	72.43	74.26	71.49	71.48	70.54		70.54
	Mean	66.49	71.4	70.37	69.76	70.94	69.62	71.87	70.11		70.11
	Std Deviation	4.85	4.35	4.56	4.68	3.83	4.88	4.28	4.84		4.84
	Count	4335	4112	2032	3099	3217	16795	4722	21517		21517
Subject 02	Maximum	84.99	84.81	83.66	78.91	85	85	83.12	85		85
	Minimum	40.41	45.55	50.35	41.27	56.68	40.41	49.02	40.41		40.41
	Range	44.58	39.26	33.31	37.64	26.32	44.59	34.1	44.59		44.59
	Median	73.66	69.26	77.24	69.14	72.24	71.81	71.35	71.66		71.66
	Mode	73.31	68.83	78.07	69.83	72.41	70.03	71.21	70.28		70.28
	Mean	72.79	68.47	76.36	68.61	72.5	71.43	70.59	71.21		71.21
	Std Deviation	5.74	5.3	3.21	3.69	4.83	5.58	4.79	5.4		5.4
	Count	4886	5038	3631	4442	2606	20603	7122	27725		27725
Subject 04	Maximum	80.2	81.69	74.8	84.72	80.63	84.72	84.86	84.86		84.86
	Minimum	52.75	51.11	35.56	46.03	41.07	35.56	48.96	35.56		35.56
	Range	27.45	30.58	39.24	38.69	39.56	49.16	35.9	49.3		49.3
	Median	67.96	71.73	64.31	73.95	64.24	68.88	69.7	69.11		69.11
	Mode	67.71	70.27	62.52	77.18	64.66	72.08	67.83	67.71		67.71
	Mean	67.89	71.3	64.05	73.26	64.16	68.18	69.74	68.57		68.57
	Std Deviation	2.82	3.56	4.98	5.77	6.3	6.03	5.41	5.92		5.92
	Count	3439	8753	5480	3603	5490	26765	9024	35789		35789
Subject 05	Maximum	83.58	82.67	84.79	75.81	82.1	84.79	84.82		84.82	84.82
	Minimum	63.32	56.25	52.64	47.77	51.56	47.77	48.93		47.77	47.77
	Range	20.26	26.42	32.15	28.04	30.54	37.02	35.89		37.05	37.05
	Median	80.78	70.41	74.37	64.91	68.32	71.11	70.01		70.94	70.94
	Mode	81.1	68.56	75.82	64.28	69.49	81.1	72.09		81.1	81.1
	Mean	79.98	70.55	73.58	64.53	68	71.27	69.49		71.06	71.06
	Std Deviation	2.46	4.06	4.97	5.42	4.56	7.15	6.23		7.07	7.07
	Count	6115	2551	5925	6461	6604	27656	3619		31275	31275
Subject 07	Maximum	84.49	83.57	84.14	78.3	78.42	84.49	78.96		84.49	84.49
	Minimum	72.01	48.37	48.31	42.7	36.93	36.93	48.74		36.93	36.93
	Range	12.48	35.2	35.83	35.6	41.49	47.56	30.22		47.56	47.56
	Median	82.26	68.07	67.79	69.24	69.14	69.98	65.37		69.15	69.15
	Mode	82.62	68.95	67.2	70.99	69.69	82.62	63.2		82.62	82.62
	Mean	81.79	68.03	67.95	67.85	67.76	70.73	65.1		69.71	69.71
	Std Deviation	1.58	4.46	4.54	5.21	6.4	7.44	4.78		7.36	7.36
	Count	4820	3130	4099	5075	6336	23460	5226		28686	28686
Subject 09	Maximum	81.48	83	83.59	82.3	78.26	83.59	84.81		84.81	84.81
	Minimum	64.66	60.73	67.29	49.93	53.54	49.93	48.91		48.91	48.91
	Range	16.82	22.27	16.3	32.37	24.72	33.66	35.9		35.9	35.9
	Median	78.76	80.64	80.6	67.73	70.31	78.64	67.41		77.06	77.06
	Mode	78.6	80.75	81.31	66.28	67.64	80.48	67.45		80.48	80.48
	Mean	78.16	79.86	79.84	67.95	69.9	75.91	67.05		74.4	74.4
	Std Deviation	2.36	2.59	2.66	4.85	3.48	5.98	5.43		6.77	6.77
	Count	6131	6078	5674	5384	2873	26140	5367		31507	31507
Maximum		84.99	84.81	84.79	84.78	85	85	84.86	85	84.82	85
Minimum		40.41	45.55	35.56	41.27	36.93	35.56	48.74	35.56	36.93	35.56
Range		44.58	39.26	49.23	43.51	48.07	49.44	36.12	49.44	47.89	49.44
Median		78.03	71.78	73.08	68.74	69.01	71.1	69.51	70.31	71.35	70.76
Mode		81.1	70.09	78.09	69.88	70.23	69.49	70.01	72.13	81.1	70.56
Mean		75.35	72.18	72.23	68.13	68.15	71.28	69.07	69.82	71.79	70.84
Std Deviation		6.65	5.73	7.06	5.63	5.86	6.8	5.59	5.61	7.33	6.63
Count		29726	29662	26841	28064	27126	141419	35080	85031	91468	176499
Skewness							-0.36	-1.5			
Kurtosis							-0.307	0.033			



Appendix F
ANOVA Test of Acoustic Analysis

Oneway of Fundamental Frequency (IDS & ADS)

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	6401044.306	1	6401044.306	912.632	0
Within Groups	1193500556	170164	7013.825		
Total	1199901601	170165			

General Linear Model of Fundamental Frequency

Levene's Test of Equality of Error Variances(a)

F	df1	df2	Sig.
377.232	11	170154	0

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.
A Design: Intercept + AGE + SEX + AGE * SEX

Tests of Between-Subjects Effects
Dependent Variable: PITCH

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Noncent. Parameter	Observed Power(a)
Corrected Model	48366446.202(b)	11	4396950	649.705	0	7146.759	1
Intercept	1.0935E+10	1	1.09E+10	1615729	0	1615729	1
AGE	29717228.9	5	5943446	878.22	0	4391.099	1
SEX	4684017.85	1	4684018	692.123	0	692.123	1
AGE * SEX	16313590.7	5	3262718	482.108	0	2410.541	1
Error	1151535155	170154	6767.606				
Total	1.2735E+10	170166					
Corrected Total	1199901601	170165					

A Computed using alpha = .05
B R Squared = .040 (Adjusted R Squared = .040)

Post Hoc Tests

Age

Multiple Comparisons
Dependent Variable: PITCH
Dunnett T3

(I) age	(J) age	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Newborn	3 months	-25.8109(*)	0.69	0.037	-27.7936	-23.8282
	6 months	-27.8034(*)	0.708	0.038	-29.8569	-25.7498
	9 months	-14.5767(*)	0.701	0.037	-16.5861	-12.5673
	12 months	2.8480(*)	0.707	0.039	0.6916	5.0045
	ADS	2.2444(*)	0.667	0.05	0.2258	4.2629
3 months	Newborn	25.8109(*)	0.69	0.037	23.8282	27.7936
	6 months	-1.9924	0.701	0.086	-3.9926	7.73E-03
	9 months	11.2342(*)	0.694	0.037	9.2794	13.189
	12 months	28.6590(*)	0.701	0.038	26.5533	30.7646
	ADS	28.0553(*)	0.66	0.033	26.091	30.0195

(I) age	(J) age	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
6 months	Newborn	27.8034(*)	0.708	0.038	25.7498	29.8569
	3 months	1.9924	0.701	0.086	-7.73E-03	3.9926
	9 months	13.2267(*)	0.711	0.038	11.2	15.2533
	12 months	30.6514(*)	0.718	0.038	28.4789	32.8239
	ADS	30.0477(*)	0.678	0.036	28.012	32.0835
9 months	Newborn	14.5767(*)	0.701	0.037	12.5673	16.5861
	3 months	-11.2342(*)	0.694	0.037	-13.189	-9.2794
	6 months	-13.2267(*)	0.711	0.038	-15.2533	-11.2
	12 months	17.4247(*)	0.711	0.038	15.2939	19.5556
	ADS	16.8211(*)	0.67	0.035	14.8299	18.8123
12 months	Newborn	-2.8480(*)	0.707	0.039	-5.0045	-0.6916
	3 months	-28.6590(*)	0.701	0.038	-30.7646	-26.5533
	6 months	-30.6514(*)	0.718	0.038	-32.8239	-28.4789
	9 months	-17.4247(*)	0.711	0.038	-19.5556	-15.2939
	ADS	-0.6037	0.678	1	-2.7432	1.5358
ADS	Newborn	-2.2444(*)	0.667	0.05	-4.2629	-0.2258
	3 months	-28.0553(*)	0.66	0.033	-30.0195	-26.091
	6 months	-30.0477(*)	0.678	0.036	-32.0835	-28.012
	9 months	-16.8211(*)	0.67	0.035	-18.8123	-14.8299
	12 months	0.6037	0.678	1	-1.5358	2.7432

Oneway of Intensity (IDS&ADS)

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	136790.75	1	136790.75	3166.153	0
Within Groups	7625391.191	176497	43.204		
Total	7762181.941	176498			

General Linear Model of Intensity

Levene's Test of Equality of Error Variances(a)

F	df1	df2	Sig.
1802.504	11	176487	0

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

A Design: Intercept + AGE + SEX + AGE * SEX

Tests of Between-Subjects Effects
Dependent Variable: ENERGYID

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Noncent. Parameter	Observed Power(a)
Corrected Model	2529337.504(b)	11	229939.8	7755.128	0	85306.41	1
Intercept	8.47E+08	1	8.47E+08	28558303	0	28558303	1
AGE	1001991	5	200398.1	6758.784	0	33793.92	1
SEX	190021.1	1	190021.1	6408.801	0	6408.801	1
AGE * SEX	1136192	5	227238.3	7664.017	0	38320.09	1
Error	5232844	176487	29.65				
Total	8.93E+08	176499					
Corrected Total	7762182	176498					

A Computed using alpha = .05
B R Squared = .326 (Adjusted R Squared = .326)

Post Hoc Tests

Age

Multiple Comparisons
Dependent Variable: ENERGYID
Dunnett T3

(I) Age	(J) Age	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
New Born	3 Months	3.1721(*)	0.045	0.036	3.0222	3.3219
	6 Months	3.1167(*)	0.046	0.037	2.9467	3.2868
	9 Months	7.2192(*)	0.045	0.037	7.0687	7.3698
	12 Months	7.2000(*)	0.046	0.037	7.0456	7.3543
	Adult	6.2766(*)	0.043	0.036	6.1332	6.42
3 Months	New Born	-3.1721(*)	0.045	0.036	-3.3219	-3.0222
	6 Months	-5.54E-02	0.046	0.996	-0.2154	0.1047
	9 Months	4.0471(*)	0.045	0.036	3.908	4.1862
	12 Months	4.0279(*)	0.046	0.037	3.8847	4.1711
	Adult	3.1045(*)	0.043	0.033	2.9731	3.2359
6 Months	New Born	-3.1167(*)	0.046	0.037	-3.2868	-2.9467
	3 Months	5.54E-02	0.046	0.996	-0.1047	0.2154
	9 Months	4.1025(*)	0.046	0.038	3.9418	4.2632
	12 Months	4.0832(*)	0.047	0.038	3.919	4.2475
	Adult	3.1599(*)	0.044	0.037	3.0058	3.3139
9 Months	New Born	-7.2192(*)	0.045	0.037	-7.3698	-7.0687
	3 Months	-4.0471(*)	0.045	0.036	-4.1862	-3.908
	6 Months	-4.1025(*)	0.046	0.038	-4.2632	-3.9418
	12 Months	-1.92E-02	0.046	1	-0.1632	0.1247
	Adult	-.9426(*)	0.044	0.035	-1.0748	-0.8104
12 Months	New Born	-7.2000(*)	0.046	0.037	-7.3543	-7.0456
	3 Months	-4.0279(*)	0.046	0.037	-4.1711	-3.8847
	6 Months	-4.0832(*)	0.047	0.038	-4.2475	-3.919
	9 Months	1.92E-02	0.046	1	-0.1247	0.1632
	Adult	-.9234(*)	0.044	0.037	-1.0599	-0.7869
Adult	New Born	-6.2766(*)	0.043	0.036	-6.42	-6.1332
	3 Months	-3.1045(*)	0.043	0.033	-3.2359	-2.9731
	6 Months	-3.1599(*)	0.044	0.037	-3.3139	-3.0058
	9 Months	.9426(*)	0.044	0.035	0.8104	1.0748
	12 Months	.9234(*)	0.044	0.037	0.7869	1.0599

Based on observed means. The error term is Error.
* The mean difference is significant at the .05 level.
A Dunnett t-tests treat one group as a control, and compare all other groups against it.

General Linear Model Maximum Fundamental Frequency

Levene's Test of Equality of Error Variances(a)

F	df1	df2	Sig.
1802.504	11	176487	0

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

A Design: Intercept + AGE + SEX + AGE * SEX

Tests of Between-Subjects Effects
Dependent Variable: MAXIMUM

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Noncent. Parameter	Observed Power(a)
Corrected Model	424421.662(b)	11	38583.79	7.881	0	86.689	1
Intercept	84239971	1	84239971	17206.24	0	17206.24	1
AGE	282619.8	5	56523.96	11.545	0	57.726	1
SEX	29962.96	1	29962.96	6.12	0.014	6.12	0.695
AGE * SEX	111838.9	5	22367.78	4.569	0	22.843	0.974
Error	3466294	708	4895.896				
Total	88130687	720					
Corrected Total	3890716	719					

A Computed using alpha = .05
B R Squared = .109 (Adjusted R Squared = .095)

Post Hoc Tests

Age of Child

Multiple Comparisons
Dependent Variable: MAXIMUM
Dunnett T3

(I) Age	(J) Age	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
New Born	3 Months	-13.4852	9.033	.929	-42.0807	15.1104
	6 Months	-48.7658*	9.033	.000	-77.4195	-20.1121
	9 Months	-26.3686	9.033	.075	-53.9994	1.2623
	12 Months	-22.6505	9.033	.267	-51.4024	6.1014
	Adult	13.4627	9.033	.880	-13.0569	39.9822
3 Months	New Born	13.4852	9.033	.929	-15.1104	42.0807
	6 Months	-35.2807*	9.033	.003	-63.1561	-7.4052
	9 Months	-12.8834	9.033	.919	-39.7028	13.9360
	12 Months	-9.1653	9.033	.997	-37.1417	18.8110
	Adult	26.9478*	9.033	.032	1.2775	52.6181
6 Months	New Born	48.7658*	9.033	.000	20.1121	77.4195
	3 Months	35.2807*	9.033	.003	7.4052	63.1561
	9 Months	22.3972	9.033	.195	-4.4858	49.2803
	12 Months	26.1153	9.033	.091	-1.9204	54.1511
	Adult	62.2285*	9.033	.000	36.4934	57.9636
9 Months	New Born	26.3686	9.033	.075	-1.2623	53.9994
	3 Months	12.8834	9.033	.919	-13.9360	39.7028
	6 Months	-22.3972	9.033	.195	-49.2803	4.4858
	12 Months	3.7181	9.033	1.000	-23.2696	30.7058
	Adult	39.8313	9.033	.000	15.2499	64.4126
12 Months	New Born	22.6505	9.033	.267	-6.1014	51.4024
	3 Months	9.1653	9.033	.997	-18.8110	37.1417
	6 Months	-26.1153	9.033	.091	-54.1511	1.9204
	9 Months	-3.7181	9.033	1.000	-30.7058	23.2696
	Adult	36.1132*	9.033	.001	10.2680	61.9584

(I) Age	(J) Age	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Adult	New Born	-13.4627	9.033	.880	-39.9822	13.0569
	3 Months	-26.9478*	9.033	.032	-52.6181	-1.2775
	6 Months	-62.2285*	9.033	.000	-87.9636	-36.4934
	9 Months	-39.8313*	9.033	.000	-64.4126	-15.2499
	12 Months	-36.1132*	9.033	.001	-61.9584	-10.2680

Based on observed means. The error term is Error.

* The mean difference is significant at the .05 level.

A Dunnett t-tests treat one group as a control, and compare all other groups against it.

Oneway Min, Max, Semitones (IDS&ADS)

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
MAXIMUM	Between Groups	127568.147	1	127568.147	24.34	0
	Within Groups	3763147.635	718	5241.153		
	Total	3890715.782	719			
MINIMUM	Between Groups	1305.726	1	1305.726	0.478	0.49
	Within Groups	1962223.587	718	2732.902		
	Total	1963529.313	719			
SEMITONE	Between Groups	276.666	1	276.666	7.394	0.007
	Within Groups	26865.098	718	37.417		
	Total	27141.764	719			

General Linear Model Minimum Fundamental Frequency

Levene's Test of Equality of Error Variances(a)

F	df1	df2	Sig.
3.536	11	708	0

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

A Design: Intercept + AGE + SEX + AGE * SEX

Tests of Between-Subjects Effects
Dependent Variable: MINIMUM

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Noncent. Parameter	Observed Power(a)
Corrected Model	155860.215(b)	11	14169.11	5.55	0	61.045	1
Intercept	16142233	1	16142233	6322.341	0	6322.341	1
AGE	25965.63	5	5193.125	2.034	0.072	10.17	0.682
SEX	69.757	1	69.757	0.027	0.869	0.027	0.053
AGE * SEX	129824.8	5	25964.97	10.17	0	50.848	1
Error	1807669	708	2553.205				
Total	18105762	720					
Corrected Total	1963529	719					

A Computed using alpha = .05

B R Squared = .079 (Adjusted R Squared = .065)

Post Hoc Tests

Age of Child
Multiple Comparisons
Dependent Variable: MINIMUM
Dunnett T3

(I) Age	(J) Age	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
New Born	3 Months	-4.0382	6.523	1	-24.6347	16.5584
	6 Months	-17.3974	6.523	0.177	-37.9472	3.1524
	9 Months	-10.33	6.523	0.815	-29.2736	8.6136
	12 Months	-14.2735	6.523	0.363	-33.6072	5.0602
	Adult	-5.5943	6.523	0.999	-23.8578	12.6691
3 Months	New Born	4.0382	6.523	1	-16.5584	24.6347
	6 Months	-13.3592	6.523	0.675	-35.3328	8.6143
	9 Months	-6.2918	6.523	0.999	-26.78	14.1964
	12 Months	-10.2353	6.523	0.905	-31.0824	10.6117
	Adult	-1.5562	6.523	1	-21.4208	18.3084
6 Months	New Born	17.3974	6.523	0.177	-3.1524	37.9472
	3 Months	13.3592	6.523	0.675	-8.6143	35.3328
	9 Months	7.0674	6.523	0.996	-13.3725	27.5074
	12 Months	3.1239	6.523	1	-17.6769	23.9248
	Adult	11.8031	6.523	0.704	-8.013	31.6192
9 Months	New Born	10.33	6.523	0.815	-8.6136	29.2736
	3 Months	6.2918	6.523	0.999	-14.1964	26.78
	6 Months	-7.0674	6.523	0.996	-27.5074	13.3725
	12 Months	-3.9435	6.523	1	-23.1604	15.2734
	Adult	4.7357	6.523	1	-13.403	22.8743
12 Months	New Born	14.2735	6.523	0.363	-5.0602	33.6072
	3 Months	10.2353	6.523	0.905	-10.6117	31.0824
	6 Months	-3.1239	6.523	1	-23.9248	17.6769
	9 Months	3.9435	6.523	1	-15.2734	23.1604
	Adult	8.6792	6.523	0.933	-9.8688	27.2272
Adult	New Born	5.5943	6.523	0.999	-12.6691	23.8578
	3 Months	1.5562	6.523	1	-18.3084	21.4208
	6 Months	-11.8031	6.523	0.704	-31.6192	8.013
	9 Months	-4.7357	6.523	1	-22.8743	13.403
	12 Months	-8.6792	6.523	0.933	-27.2272	9.8688

Based on observed means. The error term is Error.

Oneway Numbers of Syllable Per Utterance (IDS&ADS)

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1282.834	1	1282.834	87.494	0
Within Groups	10527.27	718	14.662		
Total	11810.1	719			

General Linear Model of No of Syllable

Levene's Test of Equality of Error Variances(a)

F	df1	df2	Sig.
14.703	11	708	0

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.
A Design: Intercept + AGE + SEX + AGE * SEX

Tests of Between-Subjects Effects
Dependent Variable: NOOFSYLL

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Noncent. Parameter	Observed Power(a)
Corrected Model	1922.315(b)	11	174.756	12.383	0	136.213	1
Intercept	14589	1	14589	1033.761	0	1033.761	1
AGE	134.335	1	134.335	9.519	0.002	9.519	0.869
SEX	1536.924	5	307.385	21.781	0	108.905	1
AGE * SEX	251.057	5	50.211	3.558	0.003	17.79	0.921
Error	9991.683	708	14.113				
Total	26503	720					
Corrected Total	11914	719					

A Computed using alpha = .05
B R Squared = .161 (Adjusted R Squared = .148)

Post Hoc Tests

Age

Multiple Comparisons
Dependent Variable: NOOFSYLL
Dunnett T3

(I) Age	(J) Age	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
New Born	3 Months	0.6083	0.485	0.791	-0.4843	1.701
	6 Months	1.2833(*)	0.485	0.006	0.2229	2.3438
	9 Months	0.4917	0.485	0.965	-0.6477	1.631
	12 Months	2.50E-02	0.485	1	-1.209	1.259
	Adult	-3.2667(*)	0.485	0	-5.2667	-1.2667
3 Months	New Born	-0.6083	0.485	0.791	-1.701	0.4843
	6 Months	0.675	0.485	0.458	-0.2941	1.6441
	9 Months	-0.1167	0.485	1	-1.1722	0.9388
	12 Months	-0.5833	0.485	0.886	-1.7409	0.5742
	Adult	-3.8750(*)	0.485	0	-5.8301	-1.9199
6 Months	New Born	-1.2833(*)	0.485	0.006	-2.3438	-0.2229
	3 Months	-0.675	0.485	0.458	-1.6441	0.2941
	9 Months	-0.7917	0.485	0.29	-1.8137	0.2304
	12 Months	-1.2583(*)	0.485	0.017	-2.3857	-0.131
	Adult	-4.5500(*)	0.485	0	-6.4879	-2.6121
9 Months	New Born	-0.4917	0.485	0.965	-1.631	0.6477
	3 Months	0.1167	0.485	1	-0.9388	1.1722
	6 Months	0.7917	0.485	0.29	-0.2304	1.8137
	12 Months	-0.4667	0.485	0.986	-1.6683	0.735
	Adult	-3.7583(*)	0.485	0	-5.739	-1.7776

(I) Age	(J) Age	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
12 Months	New Born	-2.50E-02	0.485	1	-1.259	1.209
	3 Months	0.5833	0.485	0.886	-0.5742	1.7409
	6 Months	1.2583(*)	0.485	0.017	0.131	2.3857
	9 Months	0.4667	0.485	0.986	-0.735	1.6683
	Adult	-3.2917(*)	0.485	0	-5.3264	-1.2569
Adult	New Born	3.2667(*)	0.485	0	1.2667	5.2667
	3 Months	3.8750(*)	0.485	0	1.9199	5.8301
	6 Months	4.5500(*)	0.485	0	2.6121	6.4879
	9 Months	3.7583(*)	0.485	0	1.7776	5.739
	12 Months	3.2917(*)	0.485	0	1.2569	5.3264

Based on observed means. The error term is Error.

* The mean difference is significant at the .05 level.

General Linear Model of Proportion F0 Mean

Levene's Test of Equality of Error Variances(a)

F	df1	df2	Sig.
1.689	9	20	0.158

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

A Design: Intercept + AGE + SEX + AGE * SEX

Tests of Between-Subjects Effects

Dependent Variable: MEAN

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Noncent. Parameter	Observed Power(a)
Corrected Model	.194(b)	9	2.16E-02	0.872	0.564	7.849	0.306
Intercept	34.048	1	34.048	1375.123	0	1375.123	1
AGE	7.37E-02	4	1.84E-02	0.744	0.573	2.977	0.198
SEX	3.47E-02	1	3.47E-02	1.401	0.25	1.401	0.204
AGE * SEX	8.60E-02	4	2.15E-02	0.868	0.5	3.471	0.227
Error	0.495	20	2.48E-02				
Total	34.738	30					
Corrected Total	0.69	29					

A Computed using alpha = .05

B R Squared = .282 (Adjusted R Squared = -.041)

Homogeneous Subsets

Duncan(a,b)

Age	N	Subset
Newborn	6	0.9867
12 Months	6	1.0483
3 Months	6	1.0733
9 Months	6	1.0783
6 Months	6	1.14
Sig.		0.144

Means for groups in homogeneous subsets are displayed.

Based on Type III Sum of Squares

The error term is Mean Square(Error) = 2.476E-02.

A Uses Harmonic Mean Sample Size = 6.000.

B Alpha = .05.

General Linear Model of Proportion Semitone

Levene's Test of Equality of Error Variances(a)

F	df1	df2	Sig.
3.766	9	20	0.006

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.
A Design: Intercept + AGE + SEX + AGE * SEX

Tests of Between-Subjects Effects
Dependent Variable: RANGE

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Noncent. Parameter	Observed Power(a)
Corrected Model	.761(b)	9	8.46E-02	2.284	0.06	20.553	0.745
Intercept	37.61	1	37.61	1015.378	0	1015.378	1
AGE	2.82E-02	4	7.04E-03	0.19	0.941	0.76	0.082
SEX	0.21	1	0.21	5.67	0.027	5.67	0.62
AGE * SEX	0.523	4	0.131	3.531	0.025	14.124	0.77
Error	0.741	20	3.70E-02				
Total	39.112	30					
Corrected Total	1.502	29					

A Computed using alpha = .05
B R Squared = .507 (Adjusted R Squared = .285)

Post Hoc Tests

Age of Child

Multiple Comparisons
Dependent Variable: RANGE
Dunnett T3

(I) Age	(J) Age	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
New Born	3 Months	-2.00E-02	0.111	1	-0.2732	0.2332
	6 Months	-4.33E-02	0.111	1	-0.6383	0.5516
	9 Months	-1.67E-02	0.111	1	-0.6369	0.6036
	12 Months	4.83E-02	0.111	0.997	-0.2114	0.3081
3 Months	New Born	2.00E-02	0.111	1	-0.2332	0.2732
	6 Months	-2.33E-02	0.111	1	-0.6527	0.6061
	9 Months	3.33E-03	0.111	1	-0.6567	0.6633
	12 Months	6.83E-02	0.111	0.707	-8.63E-02	0.223
6 Months	New Born	4.33E-02	0.111	1	-0.5516	0.6383
	3 Months	2.33E-02	0.111	1	-0.6061	0.6527
	9 Months	2.67E-02	0.111	1	-0.6961	0.7495
	12 Months	9.17E-02	0.111	0.998	-0.5016	0.6849
9 Months	New Born	1.67E-02	0.111	1	-0.6036	0.6369
	3 Months	-3.33E-03	0.111	1	-0.6633	0.6567
	6 Months	-2.67E-02	0.111	1	-0.7495	0.6961
	12 Months	6.50E-02	0.111	1	-0.5563	0.6863
12 Months	New Born	-4.83E-02	0.111	0.997	-0.3081	0.2114
	3 Months	-6.83E-02	0.111	0.707	-0.223	8.63E-02
	6 Months	-9.17E-02	0.111	0.998	-0.6849	0.5016
	9 Months	-6.50E-02	0.111	1	-0.6863	0.5563

Based on observed means. The error term is Error.

General Linear Model of Semitone Fundamental Frequency

Levene's Test of Equality of Error Variances(a)

F	df1	df2	Sig.
2.235	11	708	0.011

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

A Design: Intercept + AGE + SEX + AGE * SEX

Tests of Between-Subjects Effects
Dependent Variable: SEMITONES

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Noncent. Parameter	Observed Power(a)
Corrected Model	2243.155(b)	11	203.923	5.799	0	63.785	1
Intercept	159481.6	1	159481.6	4534.912	0	4534.912	1
AGE	421.999	5	84.4	2.4	0.036	12	0.765
SEX	82.699	1	82.699	2.352	0.126	2.352	0.334
AGE * SEX	1738.458	5	347.692	9.887	0	49.434	1
Error	24898.61	708	35.168				
Total	186623.4	720					
Corrected Total	27141.76	719					

A Computed using alpha = .05

B R Squared = .083 (Adjusted R Squared = .068)

Post Hoc Tests

Age of Child

Multiple Comparisons
Dependent Variable: SEMITONES
Dunnett T3

(I) Age	(J) Age	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
New Born	3 Months	-0.77881	0.766	0.998	-3.1991	1.641483
	6 Months	-0.81356	0.766	0.996	-3.18198	1.554859
	9 Months	-0.25534	0.766	1	-2.51315	2.002472
	12 Months	0.493971	0.766	1	-1.51117	2.499108
	Adult	1.392583	0.766	0.399	-0.53686	3.322027
3 Months	New Born	0.778806	0.766	0.998	-1.64148	3.199096
	6 Months	-3.48E-02	0.766	1	-2.76978	2.700276
	9 Months	0.523467	0.766	1	-2.11756	3.164494
	12 Months	1.272777	0.766	0.854	-1.15859	3.704144
	Adult	2.171389	0.766	0.103	-0.19885	4.541629
6 Months	New Born	0.813559	0.766	0.996	-1.55486	3.181977
	3 Months	3.48E-02	0.766	1	-2.70028	2.769781
	9 Months	0.55822	0.766	1	-2.03545	3.151886
	12 Months	1.30753	0.766	0.805	-1.07206	3.687119
	Adult	2.206142	0.766	0.076	-0.11101	4.523291
9 Months	New Born	0.255339	0.766	1	-2.00247	2.51315
	3 Months	-0.52347	0.766	1	-3.16449	2.117559
	6 Months	-0.55822	0.766	1	-3.15189	2.035446
	12 Months	0.749309	0.766	0.997	-1.52037	3.018989
	Adult	1.647922	0.766	0.343	-0.55594	3.85178

(I) Age	(J) Age	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
12 Months	New Born	-0.49397	0.766	1	-2.49911	1.511167
	3 Months	-1.27278	0.766	0.854	-3.70414	1.15859
	6 Months	-1.30753	0.766	0.805	-3.68712	1.07206
	9 Months	-0.74931	0.766	0.997	-3.01899	1.52037
	Adult	0.898612	0.766	0.939	-1.04478	2.842002
Adult	New Born	-1.39258	0.766	0.399	-3.32203	0.536862
	3 Months	-2.17139	0.766	0.103	-4.54163	0.198851
	6 Months	-2.20614	0.766	0.076	-4.52329	0.111008
	9 Months	-1.64792	0.766	0.343	-3.85178	0.555937
	12 Months	-0.89861	0.766	0.939	-2.842	1.044778

Based on observed means. The error term is Error.

* The mean difference is significant at the .05 level.

Oneway of Syllable Duration (IDS&ADS)

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1495199	1	1495199	31.025	0
Within Groups	34602434	718	48192.81		
Total	36097633	719			

General Linear Model of Syllable Duration

Levene's Test of Equality of Error Variances(a)

F	df1	df2	Sig.
4.756	11	708	0

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

A Design: Intercept + AGE + SEX + AGE * SEX

Tests of Between-Subjects Effects

Dependent Variable: SYLLDURA

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Noncent. Parameter	Observed Power(a)
Corrected Model	1886939.315(b)	11	171539.9	3.55	0	39.051	0.997
Intercept	74717538	1	74717538	1546.301	0	1546.301	1
AGE	1572550	5	314510.1	6.509	0	32.544	0.998
SEX	15503.17	1	15503.17	0.321	0.571	0.321	0.087
AGE * SEX	298885.9	5	59777.17	1.237	0.29	6.186	0.442
Error	34210694	708	48320.19				
Total	1.11E+08	720					
Corrected Total	36097633	719					

A Computed using alpha = .05

B R Squared = .052 (Adjusted R Squared = .038)

Post Hoc Tests

Age

Multiple Comparisons

Dependent Variable: SYLLDURA
Dunnette T3

(I) Age	(J) Age	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
New Born	3 Months	8.4333	28.378	1	-84.527	101.3936
	6 Months	26.3083	28.378	0.998	-56.1975	108.8142
	9 Months	18.3583	28.378	1	-71.9424	108.659
	12 Months	30.925	28.378	0.999	-68.4254	130.2754
	Adult	139.0833(*)	28.378	0	67.2516	210.9151
3 Months	New Born	-8.4333	28.378	1	-101.394	84.527
	6 Months	17.875	28.378	1	-64.134	99.884
	9 Months	9.925	28.378	1	-79.9273	99.7773
	12 Months	22.4917	28.378	1	-76.4512	121.4345
	Adult	130.6500(*)	28.378	0	59.3882	201.9118
6 Months	New Born	-26.3083	28.378	0.998	-108.814	56.1975
	3 Months	-17.875	28.378	1	-99.884	64.134
	9 Months	-7.95	28.378	1	-86.9051	71.0051
	12 Months	4.6167	28.378	1	-84.6301	93.8634
	Adult	112.7750(*)	28.378	0	56.187	169.363
9 Months	New Born	-18.3583	28.378	1	-108.659	71.9424
	3 Months	-9.925	28.378	1	-99.7773	79.9273
	6 Months	7.95	28.378	1	-71.0051	86.9051
	12 Months	12.5667	28.378	1	-83.899	109.0323
	Adult	120.7250(*)	28.378	0	53.0329	188.4171
12 Months	New Born	-30.925	28.378	0.999	-130.275	68.4254
	3 Months	-22.4917	28.378	1	-121.435	76.4512
	6 Months	-4.6167	28.378	1	-93.8634	84.6301
	9 Months	-12.5667	28.378	1	-109.032	83.899
	Adult	108.1583(*)	28.378	0.001	28.6238	187.6929
Adult	New Born	-139.0833(*)	28.378	0	-210.915	-67.2516
	3 Months	-130.6500(*)	28.378	0	-201.912	-59.3882
	6 Months	-112.7750(*)	28.378	0	-169.363	-56.187
	9 Months	-120.7250(*)	28.378	0	-188.417	-53.0329
	12 Months	-108.1583(*)	28.378	0.001	-187.693	-28.6238

Based on observed means. The error term is Error.
* The mean difference is significant at the .05 level.

Oneway Utterance Duration (IDS&ADS)

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	15985470	1	15985470	18.203	0
Within Groups	6.31E+08	718	878187.3		
Total	6.47E+08	719			

General Linear Model of Utterance Duration

Levene's Test of Equality of Error Variances(a)

F	df1	df2	Sig.
7.625	11	708	0

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

A Design: Intercept + AGE + SEX + AGE * SEX

Tests of Between-Subjects Effects
Dependent Variable: UTTDURA

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Noncent. Parameter	Observed Power(a)
Corrected Model	49035179.849(b)	11	4457744	5.282	0	58.105	1
Intercept	9.91E+08	1	9.91E+08	1174.005	0	1174.005	1
AGE	21842088	5	4368418	5.176	0	25.882	0.987
SEX	1406886	1	1406886	1.667	0.197	1.667	0.252
AGE * SEX	25786206	5	5157241	6.111	0	30.556	0.996
Error	5.97E+08	708	843910.7				
Total	1.64E+09	720					
Corrected Total	6.47E+08	719					

A Computed using alpha = .05
B R Squared = .076 (Adjusted R Squared = .061)

Post Hoc Tests

Age

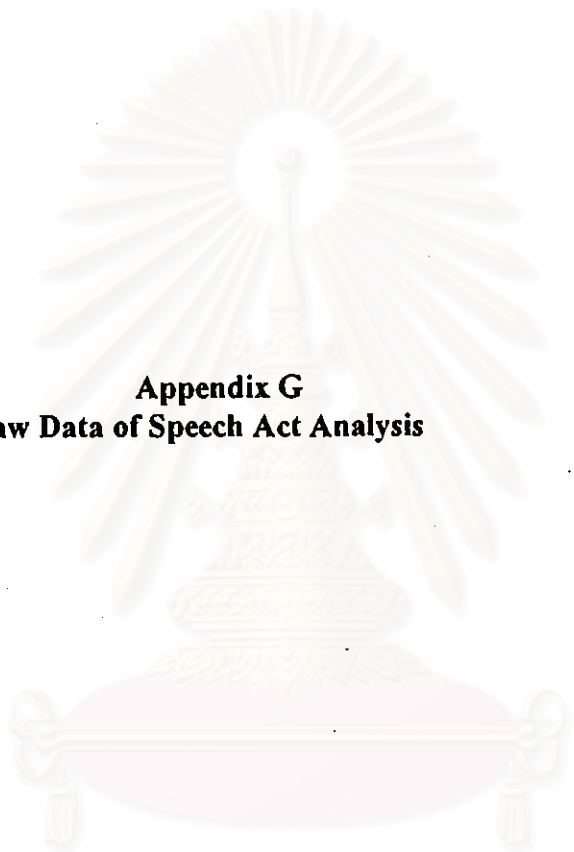
Multiple Comparisons
Dependent Variable: UTTDURA
Dunnett T3

(I) Age	(J) Age	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
New Born	3 Months	146.53	118.597	0.891	-145.87	438.92
	6 Months	312.08(*)	118.597	0.042	5.62	618.53
	9 Months	160.18	118.597	0.831	-138.11	458.48
	12 Months	158.1	118.597	0.879	-152.85	469.05
	Adult	-244.44	118.597	0.749	-669.94	181.06
3 Months	New Born	-146.53	118.597	0.891	-438.92	145.87
	6 Months	165.55	118.597	0.846	-147.53	478.63
	9 Months	13.66	118.597	1	-291.44	318.75
	12 Months	11.58	118.597	1	-305.89	329.04
	Adult	-390.97	118.597	0.109	-821.17	39.23
6 Months	New Born	-312.08(*)	118.597	0.042	-618.53	-5.62
	3 Months	-165.55	118.597	0.846	-478.63	147.53
	9 Months	-151.89	118.597	0.923	-470.45	166.66
	12 Months	-153.97	118.597	0.935	-484.36	176.41
	Adult	-556.52(*)	118.597	0.003	-996.14	-116.89
9 Months	New Born	-160.18	118.597	0.831	-458.48	138.11
	3 Months	-13.66	118.597	1	-318.75	291.44
	6 Months	151.89	118.597	0.923	-166.66	470.45
	12 Months	-2.08	118.597	1	-324.93	320.76
	Adult	-404.63	118.597	0.09	-838.73	29.48
12 Months	New Born	-158.1	118.597	0.879	-469.05	152.85
	3 Months	-11.58	118.597	1	-329.04	305.89
	6 Months	153.97	118.597	0.935	-176.41	484.36
	9 Months	2.08	118.597	1	-320.76	324.93
	Adult	-402.54	118.597	0.108	-845.21	40.13

(I) Age	(J) Age	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Adult	New Born	244.44	118.597	0.749	-181.06	669.94
	3 Months	390.97	118.597	0.109	-39.23	821.17
	6 Months	556.52(*)	118.597	0.003	116.89	996.14
	9 Months	404.63	118.597	0.09	-29.48	838.73
	12 Months	402.54	118.597	0.108	-40.13	845.21

Based on observed means. The error term is Error.

* The mean difference is significant at the .05 level.



Appendix G
Raw Data of Speech Act Analysis

	LAVs/SUBJECT			IDS01	F					IDS02	F					IDS04	F		
		N	3	6	9	12	Total	N	3	6	9	12	Total	N	3	6	9	12	Total
ASSERTIVES	inform	14	13	13	38	26	104	56	25	75	52	27	235	73	68	35	11	14	201
	describe	32	17	32	36	133	250	58	30	39	35	67	229	41	16	71	15	29	172
	explain	0	0	0	0	0	0	0	9	4	0	5	18	12	11	25	0	2	50
	count	0	20	29	0	4	53	0	3	0	0	0	3	0	0	1	0	4	5
	call	2	9	4	2	8	25	11	18	30	24	6	89	14	0	0	0	0	14
	Total	48	59	78	76	171	432	125	85	148	111	105	574	140	95	132	26	49	442
QUESTIONS	question	32	51	38	48	66	235	119	150	29	34	83	415	66	53	57	10	4	190
	Total	32	51	38	48	66	235	119	150	29	34	83	415	66	53	57	10	4	190
DIRECTIVES	order	46	18	48	56	78	246	71	109	95	81	101	457	48	9	55	23	25	160
	request	3	5	6	1	10	25	12	0	0	1	0	13	2	3	9	5	0	19
	blame	14	5	10	9	11	49	18	7	0	2	0	27	36	15	27	5	7	90
	warn	0	0	0	4	3	7	0	0	3	10	8	21	5	1	0	10	2	18
	threaten	0	0	0	3	1	4	0	0	0	0	0	0	0	0	0	1	5	6
	forbid	7	2	7	17	7	40	4	1	0	2	3	10	3	11	10	12	9	45
	persuade	0	4	2	9	4	19	5	2	2	1	3	13	5	2	0	3	1	11
	Total	96	118	156	152	342	864	250	170	295	222	210	1148	280	190	264	52	98	884
EXPRESSIVES	exclaim	3	10	6	15	18	52	4	3	1	0	2	10	5	0	1	1	0	7
	sing	0	26	28	30	5	89	1	1	31	3	14	50	7	1	4	0	1	13
	calm	19	9	4	9	23	64	4	30	0	0	3	37	18	8	5	0	0	31
	comfort	0	0	0	24	2	26	0	3	11	11	0	25	1	0	0	0	0	1
	praise	6	2	7	5	9	29	8	29	6	2	19	64	2	2	2	0	3	9
	tease	46	125	166	77	71	485	94	74	217	64	45	494	99	57	141	26	7	330
	complain	3	0	0	5	2	10	0	0	0	0	0	0	0	0	0	0	0	0
	reflect in word	2	0	1	1	1	5	0	0	0	0	0	0	0	0	4	0	0	4
	greet	0	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1	2
	Total	79	173	212	166	131	761	111	140	266	80	83	680	132	68	153	27	12	397
INTERACTION-	give turn	0	7	2	2	3	14	2	1	5	1	3	12	2	2	1	0	0	5
MANAGEMENT	keep turn	13	0	1	6	28	48	13	9	9	5	9	45	1	1	0	0	0	2
	Total	13	7	3	8	31	62	15	10	14	6	12	57	3	3	1	0	0	7
	TOTAL	242	324	404	397	513	1880	480	505	557	328	398	2268	440	260	449	122	114	1385
	No.of LAV Type	15	17	18	22	22		16	18	15	16	16		19	16	17	12	15	

	LAVs/SUBJECT			IDS05	M					IDS07	M					IDS09	M		
		N	3	6	9	12	Total	N	3	6	9	12	Total	N	3	6	9	12	Total
ASSERTIVES	inform	106	46	19	59	33	263	62	8	76	27	31	204	63	3	16	50	118	250
	describe	46	24	0	33	25	128	94	17	21	98	132	362	97	11	43	73	4	228
	explain	3	1	0	1	0	5	8	0	7	2	11	28	3	0	0	0	0	478
	count	0	0	0	0	0	0	0	7	0	0	0	7	0	0	0	0	46	46
	call	16	40	12	1	6	75	4	5	15	12	17	53	16	1	12	28	0	57
	Total	171	111	31	94	64	471	168	37	119	139	191	654	179	15	71	151	168	103
QUESTIONS	question	116	77	48	69	47	357	139	94	143	51	62	489	233	10	115	51	63	472
	Total	116	77	48	69	47	357	139	94	143	51	62	489	233	10	115	51	63	472
DIRECTIVES	order	32	16	0	32	37	117	171	10	62	84	87	414	109	2	6	142	101	360
	request	0	3	0	7	6	16	5	5	3	1	1	15	4	1	1	0	0	6
	blame	30	17	5	9	29	90	29	17	35	18	25	124	23	0	5	2	0	366
	warn	0	0	1	16	9	26	3	0	1	0	3	7	2	0	0	2	0	4
	threaten	2	0	0	1	0	3	0	0	0	3	3	6	0	0	0	0	0	0
	forbid	12	0	2	5	7	26	15	0	9	35	30	89	4	0	1	0	4	4
	persuade	8	3	13	6	6	36	4	9	5	11	22	51	7	0	3	1	14	25
	Total	84	39	21	76	94	314	227	41	115	152	171	706	149	3	16	147	119	434
EXPRESSIVES	exclaim	4	7	0	10	9	30	14	1	5	8	12	40	5	1	4	19	5	34
	sing	0	0	29	0	9	38	10	1	21	4	0	36	0	0	2	42	11	55
	calm	45	2	0	10	1	58	87	5	52	20	0	164	13	0	1	0	4	89
	comfort	1	0	0	9	1	11	6	0	42	0	0	48	0	0	0	0	0	0
	praise	9	5	3	11	12	40	35	0	7	3	3	48	60	0	8	38	9	115
	tease	99	229	239	149	142	858	238	253	173	78	60	802	97	128	400	273	53	115
	complain	20	8	0	0	1	29	1	0	0	8	8	17	0	0	0	0	0	0
	reflect in word	0	3	0	0	5	8	0	0	0	0	0	0	2	0	4	0	0	6
	greet	0	2	0	0	0	2	0	6	3	0	3	12	0	0	1	0	0	6
	Total	178	256	271	189	180	1074	391	266	303	121	86	1167	177	129	420	372	82	1180
INTERACTION-	give turn	13	23	1	0	3	40	12	28	14	8	2	64	21	1	5	1	0	28
MANAGEMENT	keep turn	10	0	3	3	4	20	16	0	11	3	8	38	10	1	3	0	0	14
	Total	23	23	4	3	7	60	28	28	25	11	10	102	31	2	8	1	0	42
	TOTAL	572	506	375	431	392	2276	953	466	705	474	520	3118	769	159	630	722	432	2712
	No.of LAV/Type	15	17	12	15	20		20	15	20	19	19		17	10	15	13	12	

	LAVs/SUBJECT			IDS01	F					IDS02	F					IDS04	F		
		N	3	6	9	12	Total	N	3	6	9	12	Total	N	3	6	9	12	Total
ASSERTIVES	inform	5.8	4.0	3.2	9.6	5.1	27.7	11.7	5.0	13.5	15.9	6.8	52.7	16.6	26.2	7.8	9.0	12.3	71.8
	describe	13.2	5.2	7.9	9.1	25.9	61.4	12.1	5.9	7.0	10.7	16.8	52.5	9.3	6.2	15.8	12.3	25.4	69.0
	explain	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.7	0.0	1.3	3.8	2.7	4.2	5.6	0.0	1.8	140.9
	count	0.0	6.2	7.2	0.0	0.8	14.1	0.0	0.6	0.0	0.0	0.0	0.6	0.0	0.0	0.2	0.0	3.5	3.7
	call	0.8	2.8	1.0	0.5	1.6	6.7	2.3	3.6	5.4	7.3	1.5	20.1	3.2	0.0	0.0	0.0	0.0	3.2
	Total	19.8	18.2	19.3	19.1	33.3	109.8	26.0	16.8	26.6	33.8	26.4	129.7	31.8	36.5	29.4	21.3	43.0	64.9
QUESTIONS	question	13.2	15.7	9.4	12.1	12.9	63.3	24.8	29.7	5.2	10.4	20.9	90.9	15.0	20.4	12.7	8.2	3.5	59.8
	Total	13.2	15.7	9.4	12.1	12.9	63.3	24.8	29.7	5.2	10.4	20.9	90.9	15.0	20.4	12.7	8.2	3.5	59.8
DIRECTIVES	order	19.0	5.6	11.9	14.1	15.2	65.8	14.8	21.6	17.1	24.7	25.4	103.5	10.9	3.5	12.2	18.9	21.9	67.4
	request	1.2	1.5	1.5	0.3	1.9	6.5	2.5	0.0	0.0	0.3	0.0	2.8	0.5	1.2	2.0	4.1	0.0	7.7
	blame	5.8	1.5	2.5	2.3	2.1	14.2	3.8	1.4	0.0	0.6	0.0	5.7	8.2	5.8	6.0	4.1	6.1	75.1
	warn	0.0	0.0	0.0	1.0	0.6	1.6	0.0	0.0	0.5	3.0	2.0	5.6	1.1	0.4	0.0	8.2	1.8	11.5
	threaten	0.0	0.0	0.0	0.8	0.2	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	4.4	5.2
	forbid	2.9	0.6	1.7	4.3	1.4	10.9	0.8	0.2	0.0	0.6	0.8	2.4	0.7	4.2	2.2	9.8	7.9	16.7
	persuade	0.0	1.2	0.5	2.3	0.8	4.8	1.0	0.4	0.4	0.3	0.8	2.9	1.1	0.8	0.0	2.5	0.9	5.2
	Total	28.9	10.5	18.1	24.9	22.2	104.6	22.9	23.6	18.0	29.6	28.9	122.9	22.5	15.8	22.5	48.4	43.0	152.1
EXPRESSIVES	exclaim	1.2	3.1	1.5	3.8	3.5	13.1	0.8	0.6	0.2	0.0	0.5	2.1	1.1	0.0	0.2	0.8	0.0	2.2
	sing	0.0	8.0	6.9	7.6	1.0	23.5	0.2	0.2	5.6	0.9	3.5	10.4	1.6	0.4	0.9	0.0	0.9	3.7
	calm	7.9	2.8	1.0	2.3	4.5	18.4	0.8	5.9	0.0	0.0	0.8	7.5	4.1	3.1	1.1	0.0	0.0	5.9
	comfort	0.0	0.0	0.0	6.0	0.4	6.4	0.0	0.6	2.0	3.4	0.0	5.9	0.2	0.0	0.0	0.0	0.0	0.2
	praise	2.5	0.6	1.7	1.3	1.8	7.8	1.7	5.7	1.1	0.6	4.8	13.9	0.5	0.8	0.4	0.0	2.6	4.3
	tease	19.0	38.6	41.1	19.4	13.8	131.9	19.6	14.7	39.0	19.5	11.3	104.0	22.5	21.9	31.4	21.3	6.1	4.5
	complain	1.2	0.0	0.0	1.3	0.4	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	reflect in word	0.8	0.0	0.2	0.3	0.2	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.9
	greet	0.0	0.3	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.9	0.9
	Total	32.6	53.4	52.5	41.8	25.5	205.9	23.1	27.7	47.8	24.4	20.9	143.8	30.0	26.2	35.2	22.1	10.5	124.0
INTERACTION-	give turn	0.0	2.2	0.5	0.5	0.6	3.7	0.4	0.2	0.9	0.3	0.8	2.6	0.5	0.8	0.2	0.0	0.0	1.4
MANAGEMENT	keep turn	5.4	0.0	0.2	1.5	5.5	12.6	2.7	1.8	1.6	1.5	2.3	9.9	0.2	0.4	0.0	0.0	0.0	0.6
	Total	5.4	2.2	0.7	2.0	6.0	16.3	3.1	2.0	2.5	1.8	3.0	12.5	0.7	1.2	0.2	0.0	0.0	2.1
	TOTAL	100.0	100.0	100.0	100.0	100.0	500.0	100.0	99.8	100.0	100.0	100.0	500.0	100.0	100.0	100.0	100.0	100.0	500.0
	No.of LAV types	15	17	18	22	22		17	19	15	17	16		19	16	17	12	15	

	LAVs/SUBJECT			IDS05 M						IDS07 M						IDS09 M			
		N	3	6	9	12	Total	N	3	6	9	12	Total	N	3	6	9	12	Total
ASSERTIVES	inform	18.5	9.1	5.1	13.7	8.4	54.8	6.5	1.7	10.8	5.7	6.0	30.7	8.2	1.9	2.5	6.9	27.3	46.9
	describe	8.0	4.7	0.0	7.7	6.4	26.8	9.9	3.6	3.0	20.7	25.4	62.6	12.6	6.9	6.8	10.1	0.9	37.4
	explain	0.5	0.2	0.0	0.2	0.0	1.0	0.8	0.0	1.0	0.4	2.1	4.4	0.4	0.0	0.0	0.0	0.0	84.3
	count	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0	0.0	1.5	0.0	0.0	0.0	0.0	10.6	10.6
	call	2.8	7.9	3.2	0.2	1.5	15.7	0.4	1.1	2.1	2.5	3.3	9.4	2.1	0.6	1.9	3.9	0.0	8.5
	Total	29.9	21.9	8.3	21.8	16.3	98.2	17.6	7.9	16.9	29.3	36.7	108.5	23.3	9.4	11.3	20.9	38.9	191
QUESTIONS	question	20.3	15.2	12.8	16.0	12.0	76.3	14.6	20.2	20.3	10.8	11.9	77.7	30.3	6.3	18.3	7.1	14.6	76.5
	Total	20.3	15.2	12.8	16.0	12.0	76.3	14.6	20.2	20.3	10.8	11.9	77.7	30.3	6.3	18.3	7.1	14.6	76.5
DIRECTIVES	order	5.6	3.2	0.0	7.4	9.4	25.6	17.9	2.1	8.8	17.7	16.7	63.3	14.2	1.3	1.0	19.7	23.4	59.4
	request	0.0	0.6	0.0	1.6	1.5	3.7	0.5	1.1	0.4	0.2	0.2	2.4	0.5	0.6	0.2	0.0	0.0	1.3
	blame	5.2	3.4	1.3	2.1	7.4	19.4	3.0	3.6	5.0	3.8	4.8	20.3	3.0	0.0	0.8	0.3	0.0	60.7
	warn	0.0	0.0	0.3	3.7	2.3	6.3	0.3	0.0	0.1	0.0	0.6	1.0	0.3	0.0	0.0	0.3	0.0	0.5
	threaten	0.3	0.0	0.0	0.2	0.0	0.6	0.0	0.0	0.0	0.6	0.6	1.2	0.0	0.0	0.0	0.0	0.0	0.0
	forbid	2.1	0.0	0.5	1.2	1.8	5.6	1.6	0.0	1.3	7.4	5.8	16.0	0.5	0.0	0.2	0.0	0.9	0.5
	persuade	1.4	0.6	3.5	1.4	1.5	8.4	0.4	1.9	0.7	2.3	4.2	9.6	0.9	0.0	0.5	0.1	3.2	4.8
	Total	14.7	7.7	5.6	17.6	24.0	69.6	23.8	8.8	16.3	32.1	32.9	113.9	19.4	1.9	2.5	20.4	27.5	71.7
EXPRESSIVES	exclaim	0.7	1.4	0.0	2.3	2.3	6.7	1.5	0.2	0.7	1.7	2.3	6.4	0.7	0.6	0.6	2.6	1.2	5.7
	sing	0.0	0.0	7.7	0.0	2.3	10.0	1.0	0.2	3.0	0.8	0.0	5.1	0.0	0.0	0.3	5.8	2.5	8.7
	calm	7.9	0.4	0.0	2.3	0.3	10.8	9.1	1.1	7.4	4.2	0.0	21.8	1.7	0.0	0.2	0.0	0.9	14.4
	comfort	0.2	0.0	0.0	2.1	0.3	2.5	0.6	0.0	6.0	0.0	0.0	6.6	0.0	0.0	0.0	0.0	0.0	0.0
	praise	1.6	1.0	0.8	2.6	3.1	9.0	3.7	0.0	1.0	0.6	0.6	5.9	7.8	0.0	1.3	5.3	2.1	16.4
	tease	17.3	45.3	63.7	34.6	36.2	197.1	25.0	54.3	24.5	16.5	11.5	131.8	12.6	80.5	63.5	37.8	12.3	16.4
	complain	3.5	1.6	0.0	0.0	0.3	5.3	0.1	0.0	0.0	1.7	1.5	3.3	0.0	0.0	0.0	0.0	0.0	0.0
	reflect in word	0.0	0.6	0.0	0.0	1.3	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.6	0.0	0.0	0.9
	greet	0.0	0.4	0.0	0.0	0.0	0.4	0.0	1.3	0.4	0.0	0.6	2.3	0.0	0.0	0.2	0.0	0.0	0.9
	Total	31.1	50.6	72.3	43.9	45.9	243.7	41.0	57.1	43.0	25.5	16.5	183.2	23.0	81.1	66.7	51.5	19.0	241.3
INTERACTION-	give turn	2.3	4.5	0.3	0.0	0.8	7.9	1.3	6.0	2.0	1.7	0.4	11.3	2.7	0.6	0.8	0.1	0.0	4.3
MANAGEMENT	keep turn	1.7	0.0	0.8	0.7	1.0	4.3	1.7	0.0	1.6	0.6	1.5	5.4	1.3	0.6	0.5	0.0	0.0	2.4
	Total	4.0	4.5	1.1	0.7	1.8	12.1	2.9	6.0	3.5	2.3	1.9	16.7	4.0	1.3	1.3	0.1	0.0	6.7
	TOTAL	100.0	100.0	100.0	100.0	100.0	500.0	100.0	100.0	100.0	100.0	100.0	500.0	100.0	100.0	100.0	100.0	100.0	500.0
	No.of LAV types	15	17	12	18	20		20	15	20	19	19		17	10	18	13	12	

SAVs	LAVs/SUBJECT				N							3							6						9				12			
		1	2	4	5	7	9	Total	1	2	4	5	7	9	Total	1	2	4	5	7	9	Total	1	2	4	5	7	9	Total	1	2	4	5	7	9	Total
ASSERTIVES	inform	14	56	73	106	62	63	374	13	25	68	46	8	3	163	13	75	35	19	76	16	234	38	52	11	59	27	50	237	26	27	14	33	31	118	249
	describe	32	58	41	46	94	97	368	17	30	16	24	17	11	115	32	39	71	0	21	43	206	36	35	15	33	98	73	290	133	67	29	25	132	4	390
	explain	0	0	12	3	8	3	26	0	9	11	1	0	0	21	0	4	25	0	7	0	36	0	0	0	1	2	0	3	0	5	2	0	11	0	18
	count	0	0	0	0	0	0	0	20	3	0	0	7	0	30	29	0	1	0	0	0	30	0	0	0	0	0	0	0	4	0	4	0	0	46	54
	call	2	11	14	16	4	16	63	9	18	0	40	5	1	73	4	30	0	12	15	12	73	2	24	0	1	12	28	67	8	6	0	6	17	0	37
	Total	48	125	140	171	168	179	831	59	85	95	111	37	15	402	78	148	132	31	119	71	579	76	111	26	94	139	151	597	171	105	49	64	191	168	748
QUESTIONS	question	32	119	66	116	139	233	705	51	150	53	77	94	10	435	38	29	57	48	143	115	430	48	34	10	69	51	51	263	66	83	4	47	62	63	325
	Total	32	119	66	116	139	233	705	51	150	53	77	94	10	435	38	29	57	48	143	115	430	48	34	10	69	51	51	263	66	83	4	47	62	63	325
DIRECTIVES	order	46	71	48	32	171	109	477	18	109	9	16	10	2	164	48	95	55	0	62	6	266	56	81	23	32	84	142	418	78	101	25	37	87	101	429
	request	3	12	2	0	5	4	26	5	0	3	3	5	1	17	6	0	9	0	3	1	19	1	1	5	7	1	0	15	10	0	0	6	1	0	17
	blame	14	18	36	30	29	23	150	5	7	15	17	17	0	61	10	0	27	5	35	5	82	9	2	5	9	18	2	45	11	0	7	29	25	0	72
	warn	0	0	5	0	3	2	10	0	0	1	0	0	0	1	0	3	0	1	1	0	5	4	10	10	16	0	2	42	3	8	2	9	3	0	25
	threaten	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	1	1	3	0	8	1	0	5	0	3	0	9
	forbid	7	4	3	12	15	4	45	2	1	11	0	0	0	14	7	0	10	2	9	1	29	17	2	12	5	35	0	71	7	3	9	7	30	4	60
	persuade	0	5	5	8	4	7	29	4	2	2	3	9	0	20	2	2	0	13	5	3	25	9	1	3	6	11	1	31	4	3	1	6	22	14	50
	Total	70	110	99	84	227	149	739	34	119	41	39	41	3	277	73	100	101	21	115	16	426	99	97	59	76	152	147	530	114	115	49	94	171	119	662
EXPRESSIVES	exclaim	3	4	5	4	14	5	35	10	3	0	7	1	1	22	6	1	1	0	5	4	17	15	0	1	10	8	19	53	18	2	0	9	12	5	46
	sing	0	1	7	0	10	0	18	26	1	1	0	1	0	29	28	31	4	29	21	2	115	30	3	0	0	4	42	79	5	14	1	9	0	11	40
	calm	19	4	18	45	87	13	186	9	30	8	2	5	0	54	4	0	5	0	52	1	62	9	0	0	10	20	0	39	23	3	0	1	0	4	31
	comfort	0	0	1	1	6	0	8	0	3	0	0	0	0	3	0	11	0	0	42	0	53	24	11	0	9	0	0	44	2	0	0	1	0	0	3
	praise	6	8	2	9	35	60	120	2	29	2	5	0	0	38	7	6	2	3	7	8	33	5	2	0	11	3	38	59	9	19	3	12	3	9	55
	tease	46	94	99	99	238	97	673	125	74	57	229	253	128	866	166	217	141	239	173	400	1336	77	64	26	149	78	273	667	71	45	7	142	60	53	378
	complain	3	0	0	20	1	0	24	0	0	0	8	0	0	8	0	0	0	0	0	0	0	5	0	0	0	8	0	13	2	0	0	1	8	0	11
	reflect in word	2	0	0	0	0	2	4	0	0	0	3	0	0	3	1	0	4	0	0	4	9	1	0	0	0	0	0	1	1	0	0	5	0	0	6
	greet	0	0	0	0	0	0	0	1	0	0	2	6	0	9	0	0	1	0	3	1	5	0	0	0	0	0	0	0	0	0	1	0	3	0	4
	Total	79	111	132	178	391	177	1068	173	140	68	256	266	129	1032	212	266	158	271	303	420	1630	166	80	27	189	121	372	955	131	83	12	180	85	82	574
INTERACTION	give turn	0	2	2	13	12	21	50	7	2	2	21	28	1	61	2	5	1	1	14	5	28	2	1	0	0	8	1	12	3	3	0	10	2	0	18
MANAGEMENT	keep turn	13	13	1	10	16	10	63	0	9	1	2	0	1	13	1	9	0	3	11	3	27	6	5	0	3	3	0	17	28	9	0	4	8	0	49
	Total	13	15	3	23	28	31	113	7	11	3	23	28	2	74	3	14	1	4	25	8	55	8	6	0	3	11	1	29	31	12	0	14	10	0	67
	TOTAL	241	480	447	572	953	769	3456	324	505	260	506	466	159	2220	404	557	449	375	705	630	3120	397	328	122	431	474	722	2474	503	393	114	392	520	434	2356

SAVs	LAVs/SUBJECT				N							3							6							9							12			
		1	2	4	5	7	9	Total	1	2	4	5	7	9	Total	1	2	4	5	7	9	Total	1	2	4	5	7	9	Total	1	2	4	5	7	9	Total
ASSERTIVES	inform	6	12	17	19	7	8	69	4	5	26	9	2	2	48	3	13	8	5	11	3	43	10	16	9	14	6	7	62	5	7	12	8	6	27	65
	describe	13	12	9	8	10	13	65	5	6	6	5	4	7	33	8	7	16	0	3	7	41	9	11	12	8	21	10	71	26	17	25	6	25	1	100
	explain	0	0	3	1	1	0	5	0	2	4	0	0	0	6	0	1	6	0	1	0	8	0	0	0	0	0	0	0	0	1	2	0	2	0	5
	count	0	0	0	0	0	0	0	6	1	0	0	2	0	9	7	0	0	0	0	0	7	0	0	0	0	0	0	0	1	0	4	0	0	11	16
	call	1	2	3	3	0	2	11	3	4	0	8	1	1	17	1	5	0	3	2	2	13	1	7	0	0	3	4	15	2	2	0	2	3	0	9
	Total	20	26	32	31	18	23	150	18	18	36	22	9	10	113	19	26	30	8	17	12	112	20	34	21	22	30	21	149	34	47	43	16	36	39	195
QUESTIONS	question	13	25	15	20	15	30	118	16	30	20	15	20	6	107	9	5	13	13	20	18	78	12	10	8	16	11	7	64	13	21	4	12	12	15	77
	Total	13	25	15	20	15	30	118	16	30	20	15	20	6	107	9	5	13	13	20	18	78	12	10	8	16	11	7	64	13	21	4	12	12	15	77
DIRECTIVES	order	19	15	11	6	18	14	83	6	22	3	3	2	1	37	12	17	12	0	9	1	51	14	25	19	7	18	20	103	15	25	22	9	17	23	111
	request	1	3	0	0	1	1	6	2	0	1	1	1	1	6	1	0	2	0	0	0	3	0	0	4	2	0	0	6	2	0	0	2	0	0	4
	blame	6	4	8	5	3	3	29	2	1	6	3	4	0	16	2	0	6	1	5	1	15	2	1	4	2	4	0	13	2	0	6	7	5	0	20
	warn	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	3	8	4	0	0	16	1	2	2	2	1	0	8
	threaten	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	3	0	0	4	0	1	0	5
	forbid	3	1	1	2	2	1	10	1	0	4	0	0	0	5	2	0	2	1	1	0	6	4	1	10	1	7	0	23	1	1	8	2	6	1	19
	persuade	0	1	1	1	0	1	4	1	0	1	1	2	0	5	0	0	0	3	1	0	4	2	0	2	1	2	0	7	1	1	1	2	4	3	12
	Total	29	24	22	14	24	20	133	12	23	15	8	9	2	69	17	18	22	5	16	2	80	24	30	24	17	31	20	170	23	29	43	24	34	27	179
EXPRESSIVES	exclaim	1	1	1	1	1	1	6	3	1	0	1	0	1	6	1	0	0	0	1	1	3	4	0	1	2	2	3	12	4	1	0	2	2	1	10
	sing	0	0	2	0	1	0	3	8	0	0	0	0	0	8	7	6	1	8	3	0	25	8	1	0	0	1	6	16	1	4	1	2	0	3	11
	calm	8	1	4	8	9	2	32	3	6	3	0	1	0	13	1	0	1	0	7	0	9	2	0	0	2	4	0	8	4	1	0	0	0	1	6
	comfort	0	0	0	0	1	0	1	0	1	0	0	0	0	1	0	2	0	0	6	0	8	6	3	0	2	0	0	11	0	0	0	0	0	0	0
	praise	2	2	0	2	4	8	18	1	6	1	1	0	0	9	2	1	0	1	1	1	6	1	1	0	3	1	5	11	2	5	3	3	1	2	16
	tease	19	20	23	17	25	13	117	39	15	22	45	54	81	256	41	39	31	64	25	63	263	19	20	21	35	16	38	149	14	11	7	36	12	12	92
	complain	1	0	0	3	0	0	4	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	2	0	2
	reflect in word	1	0	0	0	0	0	1	0	0	0	1	0	0	1	0	0	1	0	0	1	2	0	0	0	0	0	0	0	0	0	0	1	0	0	1
	greet	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2
	Total	32	24	30	31	41	24	182	54	29	26	50	56	82	297	52	48	34	73	43	66	316	40	25	21	44	26	52	209	25	22	12	44	18	19	140
INTERACTION	give turn	0	0	0	2	1	2	5	2	0	1	4	6	1	14	0	1	0	0	2	1	4	1	0	0	0	1	0	2	1	1	0	1	0	0	3
MANAGEMENT	keep turn	6	2	0	1	1	1	11	0	2	0	0	0	1	3	0	2	0	1	2	0	5	1	1	0	0	0	0	2	6	3	0	1	2	0	12
	Total	6	2	0	3	2	3	16	2	2	1	4	6	2	17	0	3	0	1	4	1	9	2	1	0	0	1	0	4	7	4	0	2	2	0	15
	TOTAL	100	100	100	100	100	100	600	100	100	100	100	100	100	600	100	100	100	100	100	100	600	100	100	100	100	100	100	600	100	100	100	100	100	100	600

Types of LAVs	N	3	6	9	12	N	3	6	9	12	X	X
inform	374	163	234	237	249	11	7	8	10	11	1257	9
describe	368	115	206	290	390	11	5	7	12	16	1369	10
explain	26	21	36	3	18	1	1	1	0	1	104	1
count	0	30	30	0	54	0	1	1	0	2	114	1
call	63	73	73	67	37	2	3	2	3	2	313	2
question	705	435	430	263	325	20	20	14	11	14	2158	16
order	477	164	266	418	429	14	7	9	17	18	1754	13
request	26	17	19	15	17	1	1	1	1	1	94	1
blame	150	61	82	45	72	4	3	3	2	3	410	3
warn	10	1	5	42	25	0	0	0	2	1	83	1
threaten	2	0	0	8	9	0	0	0	0	0	19	0
forbid	45	14	29	71	60	1	1	1	3	3	219	2
persuade	29	20	25	31	50	1	1	1	1	2	155	1
exclaim	35	22	17	53	46	1	1	1	2	2	173	1
sing	18	29	115	79	40	1	1	4	3	2	281	2
calm	186	54	62	39	31	5	2	2	2	1	372	3
comfort	8	3	53	44	3	0	0	2	2	0	111	1
praise	120	38	33	59	55	3	2	1	2	2	305	2
tease	673	866	1336	667	378	19	39	43	27	16	3920	29
complain	24	8	0	13	11	1	0	0	1	0	56	0
reflect in word	4	3	9	1	6	0	0	0	0	0	23	0
greet	0	9	5	0	4	0	0	0	0	0	18	0
give turn	50	63	28	12	11	1	2	1	0	0	164	1
keep turn	63	11	27	17	49	2	0	1	0	2	167	1
Total	3456	2220	3120	2474	2369	100	100	100	100	100	13639	100

SAVs/SUBJECT	IDS 01F						IDS 02F						IDS 04F					
	N	3	6	9	12	Total	N	3	6	9	12	Total	N	3	6	9	12	Total
ASSERTIVES	48	59	78	76	171	**432**	125	85	148	111	105	**574**	140	95	132	26	49	**442**
QUESTIONS	32	51	38	48	66	**235**	119	150	29	34	83	**415**	66	53	57	10	4	**190**
DIRECTIVES	70	34	73	99	114	**390**	110	119	100	97	115	**541**	99	41	101	59	49	**349**
EXPRESSIVES	79	173	212	166	131	**761**	111	140	266	80	83	**680**	132	68	158	27	12	**397**
INTERACTION MANAGEMENT	13	7	3	8	31	**62**	15	11	14	6	12	**58**	3	3	1	0	0	**7**
TOTAL	242	324	404	397	513	1880	480	505	557	328	398	2268	440	260	449	122	114	1385

SAVs/SUBJECT	IDS 05M						IDS 07M						IDS 09M					
	N	3	6	9	12	Total	N	3	6	9	12	Total	N	3	6	9	12	Total
ASSERTIVES	171	111	31	94	64	**471**	168	37	119	139	191	**654**	179	15	71	151	168	**584**
QUESTIONS	116	77	48	69	47	**357**	139	94	143	51	62	**489**	233	10	115	51	63	**472**
DIRECTIVES	84	39	21	76	94	**314**	227	41	115	152	171	**706**	149	3	16	147	119	**434**
EXPRESSIVES	178	256	271	189	180	**1074**	391	266	303	121	86	**1167**	177	129	420	372	82	**1180**
INTERACTION MANAGEMENT	23	23	4	3	7	**60**	28	28	25	11	10	**102**	31	2	8	1	0	**42**
TOTAL	572	506	375	431	392	2276	953	466	705	474	520	3118	769	159	630	722	432	2712

SAVs/SUBJECT	IDS 01F						IDS 02F						IDS 04F					
	N	3	6	9	12	Total	N	3	6	9	12	Total	N	3	6	9	12	Total
ASSERTIVES	20	18	19	19	33	**23**	26	17	27	34	26	**25**	32	37	29	21	43	**32**
QUESTIONS	13	16	9	12	13	**13**	25	30	5	10	21	**18**	15	20	13	8	4	**14**
DIRECTIVES	29	10	18	25	22	**21**	23	24	18	30	29	**24**	23	16	22	48	43	**25**
EXPRESSIVES	33	53	52	42	26	**40**	23	28	48	24	21	**30**	30	26	35	22	11	**29**
INTERACTION MANAGEMENT	5	2	1	2	6	**3**	3	2	3	2	3	**3**	1	1	0	0	0	**1**
TOTAL	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

SAVs/SUBJECT	IDS 05M						IDS 07M						IDS 09M					
	N	3	6	9	12	Total	N	3	6	9	12	Total	N	3	6	9	12	Total
ASSERTIVES	30	22	8	22	16	21	18	8	17	29	37	21	23	9	11	21	39	22
QUESTIONS	20	15	13	16	12	16	15	20	20	11	12	16	30	6	18	7	15	17
DIRECTIVES	15	8	6	18	24	14	24	9	16	32	33	23	19	2	3	20	28	16
EXPRESSIVES	31	51	72	44	46	47	41	57	43	26	17	37	23	81	67	52	19	44
INTERACTION MANAGEMENT	4	5	1	1	2	3	3	6	4	2	2	3	4	1	1	0	0	2
TOTAL	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Types of SAVs	N	3	6	9	12
Assertives	831	402	579	597	748
Questions	705	435	430	263	325
Directives	739	277	426	630	662
Expressives	1068	1032	1630	955	574
nteraction-managemen	113	74	55	29	60
	3456	2220	3120	2474	2369
Types of SAVs	**N**	**3**	**6**	**9**	**12**
Assertives	24	18	19	24	32
Questions	20	20	14	11	14
Directives	21	12	14	25	28
Expressives	31	46	52	39	24
nteraction-managemen	3	3	2	1	3
	100	100	100	100	100

	N							3							6						
Types of Questions	1	2	4	5	7	9	Total	1	2	4	5	7	9	Total	1	2	4	5	7	9	Total
Question Word Question	3	9	10	17	7	27	73	14	22	5	3	18	1	63	16	13	5	6	28	18	86
Yes-No Question	20	94	47	67	87	130	445	26	95	38	44	52	7	262	14	15	44	27	74	77	251
Alternative Question	0	0	1	0	0	1	2	0	1	0	0	0	0	1	0	0	1	0	2	0	3
Rising Intonation Question	0	0	1	0	7	2	10	1	7	0	2	1	0	11	0	0	1	0	5	2	8
Repetitive Question	9	16	7	32	38	73	175	10	25	10	28	23	2	98	8	1	7	15	34	16	81
Total	32	119	66	116	139	233	705	51	150	53	77	94	10	435	38	29	58	48	143	113	429

	9							12						
Types of Questions	1	2	4	5	7	9	Total	1	2	4	5	7	9	Total
Question Word Question	6	8	4	19	19	11	67	33	58	1	22	16	10	140
Yes-No Question	36	25	5	40	21	32	159	27	16	3	9	42	51	148
Alternative Question	0	0	1	0	0	0	1	0	0	0	0	0	0	0
Rising Intonation Question	0	0	0	0	1	1	2	0	5	0	2	0	2	9
Repetitive Question	6	1	0	10	10	7	34	6	4	0	14	4	0	28
Total	48	34	10	69	51	51	263	66	83	4	47	62	63	325

Types of Questions	N	3	6	9	12	N	3	6	9	12	X	X
Question Word Question	73	63	86	67	140	10	14	20	25	43	429	19.90
Yes-No Question	445	262	251	159	148	63	60	59	60	46	1265	58.67
Alternative Question	2	1	2	1	0	0	0	0	0	0	6	0.28
Rising Intonation Question	10	11	8	2	9	1	3	2	1	3	40	1.86
Repetitive Question	175	98	81	34	28	25	23	19	13	9	416	19.29
Total	705	435	428	263	325	100	100	100	100	100	2156	100

Appendix H
Raw Data of Acoustic Analysis
and
Appendix I
Transcription and Analysis of Speech Acts

Appendix H and I are in a diskette form. They are created on Windows' 95. The file name are LFN (Long File Name format). For Raw Data of Acoustic Analysis, the file name is SPSS 7.5.1. For Transcription and Analysis of Speech Acts, the file name is MS Excel 97. The ways to open these files are the following. Double click the file name of the file, which you desire to look at. These file names on Windows Explorer can extract these files in the diskette to the specific folder, as specified in the directory. The system software to investigate data of these appendices is MS office 97, SPSS for Windows release 7.5.1, and Winzip 6.3 (32 bit). The diskette is kept at Linguistic Research Unit, Infant Directed Speech Project, Department of Linguistics.

Biography

Mrs. Chayada Thanavisuth was born on 30 April 1968 in Amphur Muang, Saraburi. She graduated Bachelor degree in Education- Secondary Education from Faculty of Education, Chulalongkorn University in 1989. In 1992, she graduated Master of Arts in Linguistics- English as a Second Language from Department of Linguistics, California State University of Fresno, USA. In 1993, she continued her Ph.D. program in Linguistics at Department of Linguistics, Chulalongkorn University.