Preliminary information regarding Musi-Psyc G4233y. Subject to change. (Nov. 2004)

MUSI-PSYC G4233y. Language and Music. SPRING 2005.

I. Bulletin Description
II. A full description of the content of the course
III. The rationale for giving the course
IV. The reading list and weekly syllabus
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I. *Bulletin Description*

MUSI-PSYC G4233y
Term: Spring 2005
Faculty: Remez, Robert and Lerdahl, Fred
Title: Language and Music
Activity: Seminar
Pts: 3
Approval: Instructor
Days/Time: Tuesday, 6:10-8:00 pm
Bldg/Rm: 405 Schermerhorn Hall

Open to graduate students and advanced undergraduates with instructor's permission. A consideration of language and music with an emphasis on cognitive theory and research, including: commonalities and differences in structural properties; perceptual resolution of linguistic and musical form; neuropsychology; cultural practices and psychological universals.

II. *A full description of the content of the course*

The course is organized into four components. First, students will consider the descriptive literature to establish the parallel structural properties of musical form and linguistic form where these exist, as well as the properties unique to each communicative mode. Then, perceptual literature will be examined for evidence of natural constraints that limit or govern linguistic and musical form, from element to phrase to larger compositional constituents. Literature on the study of the alignment of music and language in songs will be investigated. Then, the attention of the seminar will turn to the scientific scrutiny of the remote evolutionary origins and the more proximate developmental expression of language and music. Throughout, the readings will draw on recent formal studies as well as behavioral research, including neuropsychological reports.

III. *The rationale for giving the course*

Within the study of cognitive psychology, recent advances in the accounts of spoken communication and musical communication have exhibited reciprocal influence. This seminar introduces classic and contemporary aspects of this technical literature, and is suitable for advanced undergraduates in the majors (Music and Psychology) and for graduate students pursuing the Masters and the Doctorate.

For undergraduates who are majoring in Psychology or in Neuroscience & Behavior, and for students participating in the Postbac Psychology Program, MUSI-PSYC G4233 will fulfill these degree requirements:

- For the Psychology major or concentration and the Psychology Postbac program, it will satisfy the Group I (perception and cognition) requirement
- For the Neuroscience & Behavior joint major, it will fulfill the 5th Psychology requirement—one advanced psychology seminar from a list approved by the Department.
- For the psychology Minor in Engineering, it will count toward the group requirement: "Any four courses from, at a minimum, two of the three groups."
- MUSI-PSYC 4233 might also satisfy the Senior Seminar requirement of the Barnard Psychology Major.

For the science requirements of the College and General Studies, MUSI-PSYC G4233 will qualify as one term of the requirement, provided that the student obtains permission of the instructor and has completed the necessary prerequisites. We anticipate that this course will rarely be used to fulfill this requirement.

At the graduate level MUSI-PSYC G4233 will apply toward the "two seriously graded advanced seminars" requirement of the Psychology Ph. D. Program.

IV. *The reading list and weekly syllabus*

Week 1 (January 18, 2005): *Introduction: parallels between language and music; organization of presentations*

Swain, J. P. (1997). *Musical Languages*. New York: Norton.

Winn, J. 1981. *Unsuspected Eloquence: A History of the Relations between Poetry and Music*. New Haven: Yale University Press.

Week 2 (January 25, 2005): *The atoms of analysis: Syllable & note*

Bell A. (1977). If native listeners can't count syllables, what can they do? Indiana University Linguistics Club.

Handel, S. (1989). *Listening*. Cambridge, MA: MIT Press.

Robinson, K., & Patterson, R. D. (1995). The duration required to identify the instrument, the octave, or the pitch chroma of a musical note. *Music Perception*, 13, 1-15.

Warren, R. M., Gardner, D. A., Brubaker, B. S., & Bashford, J. A. (1991). Melodic and nonmelodic sequences of tones: Effects of duration on perception. *Music Perception*, 8, 277-289.

Week 3 (February 1, 2005): *Rhythm, meter & stress* (1)

Hayes, B., & Kaun, A. (1996). The role of phonological phrasing in sung and chanted verse. *The Linguistic Review*, 13, 243-303.

Ladd, D. R.. (1996). *Intonational Phonology*. Cambridge, UK: Cambridge University Press.

Lerdahl, F., & R. Jackendoff (1983). *A Generative Theory of Tonal Music*. Cambridge, MA: MIT Press.

Liberman, M. & Prince, A. (1977). On stress and linguistic rhythm. *Linguistic Inquiry*, 8, 249-336.

Week 4 (February 8, 2005): *Rhythm, meter & stress* (2)

Boltz, M. (1989). Rhythm and "good endings:" Effects of temporal structure on tonality judgments. *Perception & Psychophysics*, 46, 9-17.

Cooper, G., & L. B. Meyer (1960). *The Rhythmic Structure of Music*. Chicago: University of Chicago Press.
Lerdahl, F., & R. Jackendoff (1983). *A Generative Theory of Tonal Music*. Cambridge, MA: MIT Press.

Week 5 (February 15, 2005): Basic psychoacoustics: Pitch, loudness, timbre

Hirsh, I. J. (1988). Auditory perception and speech. In R. C. Atkinson, R. J. Herrnstein, G. Lindzey, & R. D. Luce (Eds.) *Stevens' Handbook of Experimental Psychology, Volume I: Perception and Motivation*. (pp. 377-408). New York: Wiley-Interscience.

Week 6 (February 22, 2005): Acoustic and linguistic phonetics

Catford, J. C. (1988). *A Practical Introduction to Phonetics*. Oxford: Oxford University Press.
Liberman, A. M. (1996). Some assumptions about speech and how they changed. In A. M. Liberman, *Speech* (pp. 1-44). Cambridge, MA: MIT Press.

Week 7 (March 1, 2005): *Contour*

Ladd, D. R.. (1996). *Intonational Phonology*. Cambridge, UK: Cambridge University Press.
Morris, Robert D. (1993). New directions in the theory and analysis of musical contour. *Music Theory Spectrum*, 15, 205-228.
Pierrehumbert, J. and J. Hirschberg (1990). The meaning of intonation in the interpretation of discourse. In P. Cohen, J. Morgan, and M. Pollack, (Eds.), *Intentions in Communication* (pp. 271-311). Cambridge, MA: MIT Press.
Trainor, L. J., Desjardins, R. N., & Rockel, C. (1999). A comparison of contour and interval processing in musicians and nonmusicians using event-related potentials. *Australian Journal of Psychology*, 51, 147-153.

Week 8 (March 8, 2005): *Syntax* (1)

Chomsky, N. (1968). *Language and Mind*. New York: Harcourt, Brace & World.
Fodor, J. D. (1999). Comprehending sentence structure. In L. R. Gleitman and M. Y. Liberman (Eds.), *An Invitation to Cognitive Science, Volume 1: Language* (pp. 209-246). Cambridge, MA: MIT Press.
Lerdahl, F. (2001). *Tonal Pitch Space*. New York: Oxford University Press
Lerdahl, F., & R. Jackendoff (1983). *A Generative Theory of Tonal Music*. Cambridge, MA: MIT Press.

Week 9 (March 22, 2005): *Syntax* (2)

Lerdahl, F. (2004). *A Music-Theoretic Approach to the Sounds of Poetry*. In manuscript.

Week 10 (March 29, 2005): Perceptual constraints: Pulse & rhythm perception

Large, E., & C. Palmer (2002). Perceiving Temporal Regularity in Music. Cognitive Science, 26, 1-37.
Lashley, K. S. (1951). The problem of serial order in behavior. In L. A. Jeffress (Ed.), *Cerebral Mechanisms in Behavior: The Hixon Symposium* (pp. 112-136). New York: Wiley.

Week 11 (April 5, 2005): *Perceptual organization*

Bregman, A. S. (1990). *Auditory Scene Analysis*. Cambridge. MA: MIT Press.

Remez, R. E., Pardo, J. S., Piorkowski, R. L., & Rubin, P. E. (2001). On the bistability of sinewave analogs of speech. *Psychological Science*, 12, 24-29.

Remez, R. E., & P. E. Rubin, S. M. Berns, J. S. Pardo, & J. M. Lang (1994). On the perceptual organization of speech. *Psychological Review*, 101, 129-156.

Week 12 (April 12, 2005): *Text setting*

Halle, J., & F. Lerdahl (1994). A generative textsetting model. *Current Musicology*, 55, 3-26.

Yung, B. (1991). The relationship of text and tune in Chinese opera. In J. Sundberg, L. Nord, & R. Carlson, (Eds.), *Music, Language, Speech, and Brain* (pp. 000-000). Wenner-Gren International Symposium Series. London: Macmillan.

Week 13 (April 19, 2005): Neurocognition of language and music

Janata, P., Birk, J., Van Horn, J. D. Leman, M., Tillmann, B. & Bharucha, J. J. (2003). The cortical topography of tonal structures underlying western music. *Science*, 298, 2167-2170.

Patel, A. D. (2003). Language, music, syntax, and the brain. *Nature Neuroscience*, 6, 674-681.

Patel, A. D., & Peretz, I. (1997). Is music autonomous from language? A neuropsychological appraisal. In I. Deliege & J. Sloboda, (Eds.), *Perception and Cognition of Music* (pp. 000-000). Hove, UK: Psychology Press.

Peretz, I., & Coltheart, M. (2003). Modularity of music processing. *Nature Neuroscience*, 6, 688-691.

Peretz, I., & Hyde, K. L. (2003). What is specific to music processing? Insights from congenital amusia. *Trends in Cognitive Sciences*, 7, 362-367.

Week 14 (April 26, 2005): Evolution of language and music

Brown, S. (2001). The 'Musilanguage' model of music. In N. L. Wallin, B. Merker, & S. Brown, (Eds.) *The Origins of Music* (pp. 000-000). Cambridge, MA: MIT Press.

Chase, A. R. (2001). Musical discrimination by carp (*Cyprinus carpio*). *Animal Learning & Behavior*, 29, 226-253.

Huron, D. (2003). Is music an evolutionary adaptation? In I. Peretz & R. Zatorre (Eds.), *The Cognitive Neuroscience of Music* (pp. 57-75). New York: Oxford University Press.

Kluender, K. R., Diehl, R. L., & Killeen, P. D. (1987). Japanese quail can learn phonetic categories. *Science*, 237, 1195-1197.

Pinker, S. (1997). *How the Mind Works*. New York: Norton.

V. *Course requirements*

Each week, a pair of students will be designated as the leader and the rapporteur of the discussion of an assigned reading. The leader will present a summary and a critique of the reading, and propose questions to guide the discussion by the seminar. The discussion will be chronicled by the rapporteur, and posted on the website of the seminar as a record of our intellectual work. A student's grade in the course will

be based on participation as leader of the discussion, as rapporteur, and as discussant within the seminar. Equal weight will be placed on each of these three roles in setting the final grade.