Log of Current Activities and Applications

The main purpose of this listing is to make available information about work-in-progress prior to its publication. While the Center maintains a cumulative list of work undertaken since 1980, we offer information here only on newly undertaken, recently modified, or previously unreported work. Many projects listed in previous Center directories are still operating. Persons desiring further information about specific projects should contact the individual(s) involved. Those seeking a more complete view of current and recent work in the field should consult the directories published in 1985, 1986, and 1987.

The listing of applications that follows is divided into four sections. The first two sections contain projects which emphasize the gathering and processing of factual information. The first section (I), concerning bibliographies and databases of text, is arranged under several headings--composers, repertories, libretti, contextual indices (in which relations to external information are being explored), instruments, discographies, and iconography. Bibliographies and indices of musical material constitute the second section (II),

Analytical projects are subdivided into two categories--those exploring a particular methodololgy (section III) and those tailored to a specific repertory (section IV). In the latter instance, studies of historical repertories, of non-traditional and non-Western repertories, of text underlay, and of databases designed for analytical use are treated separately. An illustration is provided for listings with an asterisk.

A brief listing of sites at which multiple-purpose systems and programs of study are under development concludes this portion of the Directory.

I. Bibliographies and Databases of Text

A. Composers

Beethoven/Meredith
Title: *Beethoven Bibliography Project*
Scope: a comprehensive bibliography of published and unpublished Beethoven materials, to be made available through RLIN
Investigator: William Meredith
Associate: Patricia Elliott
Place: Ira F. Brilliant Center for Beethoven Studies, San Jose State University
Duration of project: 1987-1991
Online access: RLIN

Janaček/Mraček
Title: *Leos Janaček: A Guide to Research*
Scope: preparation of an extensive bibliography pertaining to the music and writings of Janaček
Investigator: Jaroslav Mraček
Place: San Diego State University
Computer: Apple Macintosh
Other devices: Apple LaserWriter
Software: Apple Hypercard

Scribe/Schweitzer
Title: *The Comédies-vaudevilles of Eugène Scribe*
Aim: investigation of the comedies, especially of the airs and their "timbres"; development of methods for historical research based on semantic data modelling and relational databases
Investigator: Rainer Schweitzer
Place: Musikwissenschaftliches Seminar, University of Heidelberg
Duration of project: 1988-90
Computer: IBM-PC compatible

Telemann/Stewart
Title: *Telemann Works Database (TWD)*
Scope: an on-line catalogue of the works of G.P. Telemann (1681-1767), intended as a continuously updatable supplement to the TWV/TVWV of Martin Ruhnke and Werner Menke
Investigator: Brian D. Stewart
Place: Pennsylvania State University
Computer: NEC APC IV
Software: dBase III+

B. Repertories

Early Keyboard Sources/Silbiger
Scope: development of a database for early keyboard sources, in connection with a proposed archive for such sources to be established at Duke University
Investigator: Alexander Silbiger

Italian Cantatas/Whenham
Title: *A Catalogue of the Sources of Italian Baroque Chamber Cantatas, 1600-1725*
Scope: comprehensive catalogue listing concordances among music manuscripts and printed sources of music and poetry
Investigator: John Whenham
Associate: Colin Timms
Place: Barber Institute of Fine Arts, Birmingham University
Duration of project: 1983-90
Computer: mainframe
Other devices: pen plotter
Software: custom

Orchestral Repertory/OLIS
Title: *Orchestra Library Information Service (OLIS)*
Purpose: to provide a thoroughly researched database of orchestral repertory, currently consisting of more than 4000 titles by more than 500 composers
Investigator: Heather Dinwiddie
Associate: Robyn Guilliams
Place: American Symphony Orchestra League
Computer: IBM PS/2
Software: OLIS (based on Revelation)

Portuguese Music/Castelo-Branco
Title: *Cross-cultural Processes in Music: The Role of Portuguese Music in the World from the Fifteenth Century*
Investigator: Salwa El-Shawan Castelo-Branco
Associates: Maria de São José Feraaz de Olveira, João Filipe S. Soeiro de Carvalho
Place: New University of Lisbon
Duration of project: 1987--
Computer: Amstrad PC 1512
Other devices: Amstrad DMP 3000 Printer
Software: dBase III+

Renaissance Liturgy/Crawford
Title: *Renaissance Liturgical Imprints: A Census*
Scope: creation of a database for books printed between 1450 and 1600 [2700 records to date; 10,000 records anticipated]
Investigator: David Crawford
Associate: James Borders
Place: University of Michigan
Duration of project: *c.*1983--
Computer: IBM 3090
Software: SPIRES, Professional Composer and Performer

C. Libretti

Ospedali Libretti/Berdes
Title: *Index of Libretti for Sacred Vocal Works performed in the Venetian* Ospedali
Investigator: Jane L. Berdes
Place: Bethesda, MD, and Three Lakes, WI
Duration of project: 1983-90
Computer: Epson PC
Software: Personal Composer
Associated Literature: "Musical Life at the Ospedali grandi of Venice, 1525-1855," thesis, Oxford University

RISM Libretti/Walker
Title: *U.S.-RISM Libretto Project*
Purpose: to catalogue the 19th-c. Italian libretti in the Albert Schatz Collection at the Library of Congress, as the initial stage in a many-year, multi-institutional plan to catalogue all historical libretti in the U.S. (RISM related project)
Principal Investigator: Marita P. McClymonds
Director: Diane Parr Walker
Associates: Scott L. Balthazar
Place: University of Virginia
Online access: RLIN

D. Contextual Indices

Arias/Mamy
Title: *Searchable Index of Venetian Opera Arias*
Scope: the repertoire of the Teatro S. Gio. Grisostomo of Venice (17th/18th centuries)
Investigator: Sylvie Mamy
Associate: Michel Monfils
Place: Paris: Laboratoire Informatique des Sciences Humaines, Centre National de la Recherche Scientifique
Duration of project: 1980--
Computer: IBM (SAS.MVS, MS/DOS)
Software: dBase III, SAS
Associated Literature: "La diaspora dei cantanti veneziani nella prima metà del Settecento," *Proceedings of the International Vivaldi Conference, Venice, 1987* [in press]

Motet Text Incipits/Fromson
Title: *Database of Motet Text Incipits, 1560-1605*
Scope: database holds names of composers who set each text, date of and number of voices in their setting, feast to which it was assigned, and references to source and chant-settings of the text; primary emphasis on printed motets, Italian composers
Investigator: Michele Fromson
Place: UC Davis
Computer: IBM
Software: PC-File III

E. Instruments

Early Pianos/Clinkscale
Title: *Early Pianos, 1720-1860*
Scope: comprehensive database with fields for maker, place, date, owners, physical characteristics, bibliographical references
Investigator: Martha Novak Clinkscale
Place: UC Riverside
Duration of project: 1987-1990
Computer: Compaq
Software: R:Base

Fiske Museum/Rogers
Title: *Catalogue of Musical Instruments in the Fiske Museum*
Scope: machine-readable inventory of the museum's collection of musical instruments
Director: Patrick J. Rogers
Place: Fiske Museum of Musical Instruments, Claremont University Center, Claremont, CA
Computer: IBM PC
Software: R:Base 5000

North American Indian Instruments/ Haefer
Title: *North American Indian Music Instruments belonging to the Smithsonian Institution*
Scope: complete descriptive database (including measurements) of North American Indian music/sound instruments housed in the Museum of Natural History (Dept. of Anthropology), Smithsonian Institution
Investigator: J. Richard Haefer
Associates: Jo Van Volkenberg, Tracy Walsh
Place: School of Music, Arizona State Univ.
Duration of project: 1987-88
Computer: Macintosh Plus, Everex EMAC20D (will be placed on Mac II LAN for class use)
Software: Double Helix II Pagemaker
Associated Literature: catalogue in preparation

F. Discographies

American Music/KWilliams
Title: *Computer Index of American Music*
Purpose: to develop an index of sound recordings and printed materials on American music in the holdings of the libraries of the Univ. of North Carolina at Greensboro
Investigators: J. Kent Williams, Eleanor McCrickard, Frank McCarty, Ron Crutcher
Place: UNC Greensboro
Duration of project: 1988-9
Computer: IBM-PC/AT compatible
Software: dBase III or IV

CBMR Database/Floyd
Title: *CBMR Database: A Union Catalog of Black Music Holdings in Chicago-Area Libraries and a Reference System*
Purpose: to provide reference lists of black music books, recordings, printed music, manuscripts, photographs, and vertical-file materials
Head of project: Samuel A. Floyd, Jr.
Associates: Marsha J. Reisser, Marion Gushee, Virginia McLaurin, Dian Raptosh
Place: Center for Black Music Research, Columbia College, Chicago
Time: 1985--
Computer (OS): PC with AM-170 co-processor board (AMOS)
Software: STAR database and information retrieval system

ETNO/Schaffrath
Title: *ETNO: Database to Retrieve and Catalogue Ethnomusicological Sound-material*
Scope: information from covers, booklets, etc. of published records, tapes, videos, etc. (unit is the single musical piece)
Investigator: Helmut Schaffrath
Associate: Barbara Jesser
Place: University of Essen
Duration of project: 1984-permanent
Computer: IBM 3207 (CMS mainframe)
Software: STAIRS/CMS; ESAC

Edelberg/Handel Discography
Title: *Comprehensive Index of Handel Recordings*
Purpose: to create a complete listing of all recorded performances of music by Handel (on cylinders, 33-, 45- and 78-rpm disks, tapes and CD's)
Investigator: David Edelberg
Place: Montréal
Computer: IBM-PC

Jazzbank/Robinson
Title: *Jazzbank*
Purpose: to design a central database for storage/retrieval of comprehensive jazz discographical information, accessible via dial-up from a PC
Investigator: Dave Robinson
Place: Fairfax, VA
Computer: mainframe
Software: Oracle RDBMS

G. Iconography

Iconography/Haefer
Title: *SLIDECAT/MUSICONCAT*
Scope: catalogue/database of ca. 15,000+ slides of music iconography/ethnology; contains descriptive and bibliographic information and digitized visual image for music iconography subjects, music instruments representations, and ethnographic object/ceremonies/etc.
Investigator: J. Richard Haefer
Associate: Kathleen Thompson
Place: Arizona State University
Duration of project: 1986--
Computer: Macintosh Plus/Jasmine DD80

RCMI/Brook
Title: *Music Iconography Database*
Purpose: to make accessible by means of a standardized vocabulary about 20,000 artworks with complete documentation and descriptions of their musical elements; encompasses all artworks (including non-Western ones) up to *c.* 1900
Investigator: Barry S. Brook
Associate: Terence Ford
Place: Research Center for Music Iconography, CUNY Graduate Center
Time: 1987-90
Computer: IBM 3081KX, IBM 3071
Software: SPIRES

II. Bibliographies and Indices of Musical Material

Auber/Schneider
Title: *Catalogue of the Works by Daniel-François-Esprit Auber*
Scope: thematic catalogue including all translations, arrangements, publishers, lithographers, etc.
Investigator: Herbert Schneider
Associate: Th. Betewiese
Place: Musikwissenschaftliches Seminar, University of Heidelberg
Duration of project: 1984-88
Computer: Compaq Portable III
Software: dBase

Chant Examples/Chartier
Title: *"Exempla Theorica"*
Scope: an index of chants quoted by music theorists from ca. 850 to 1600; compilation and statistics derived from them as to genres, modes, frequencies, geographical diffusion, etc.
Investigator: Yves Chartier
Place: University of Ottawa
Duration of project: 1988-90
Computer: IBM PC AT and compatibles
Other devices: Dot-matrix and laser printers
Software: XyWrite III+; ZyIndex; Professional Composer; dBase III+
Associated Literature: unpublished preliminary report

English sacred anonymi/Morehen
Title: *16th- and 17th-century Anonymous English Sacred Music*
Scope: English manuscript sources of liturgical music, 1549-1644
Investigator: John Morehen
Place: University of Nottingham
Duration of project: 1980-
Computer: ICL 2988
Other devices: Benson plotter
Software: FORTRAN77
Encoding: DARMS
Associated Literature: "Thematic Cataloguing by Computer," *Fontes Artes Musicae* **31** (1984), 32-8

Historical Editions/GHill
Title: *A Guide to Music in Collected Editions, Historical Sets, and Monuments*
Aim: to provide an index to the contents and a complete bibliography of the editions previously covered in Heyer's book; musical incipits are encoded if titles are ambiguous
Head of project: George R. Hill
Associate director: Barbara Renton
Place: City University of New York
Time: 1986-8
Musical encoding: custom (Garrett Bowles)

Italian Sonata/Mangsen
Title: *Instrumental Duos and Trios Printed in Italy, 1600-1675*
Scope: thematic catalogue of instrumental duos and trios in prints from 1600 to 1675 (to be extended to 1700 and to manuscript sources at a later date)
Investigator: Sandra Mangsen
Place: Cornell University; Montréal, Quebec
Duration of project: 1986-89
Computer: Macintosh 512E
Software: Helix, Data Desk
Encoding: MUSSCRIPT

Lute Tablature/Hultberg
Aims: to implement the tablature-to-standard-notation transcription processes for Spanish, Italian, English, French, and German styles of tablature, as well as tablature-to-tablature conversion; thematic indices of Spanish sources are in preparation
Head of project: Warren Hultberg
Associate: Mary Lou Hultberg
Place: SUNY Potsdam
Computer: Macintosh 512, SE
Other devices: DX7II FD Synthesizer
Software: BASIC, PASCAL; PFS--File and Report; Professional Composer/Performe
Encoding: modified DARMS; direct input from synthesizer or computer
Music printing: Professional Composer, Imagewriter

Madrigal/Lincoln
Title: *The Italian Madrigal and Related Repertories: Indexes to Printed Collections, 1500-1600* [Yale University Press, 1988]
Scope: incipits of all voices of 9500 pieces (total 38,000 incipits) printed in music staff notation; index to first lines; thematic locator index; index to RISM numbers for printed sources
Head of project: Harry B. Lincoln
Place: SUNY Binghamton
Hardware: IBM 3090 (data); Nicolet Zeta plotter (music printing)
Encoding: DARMS
Software: custom, in PL/1 and PASCAL
Associated Literature: "A Description of the Database in Italian Secular Polyphony held at SUNY Binghamton, N.Y.," *Fontes Artis Musicae* **XXXI/3** (1984); sample of music printing in 1986

Marcello/Selfridge-Field
Title: *The Music of the Marcellos--Benedetto and Alessandro: A Catalogue of Works* [Oxford University Press, 1989]
Scope: listing of textual and musical incipits of 800 works, based on a survey of 3000 sources, with multiple indices and source filiation
Investigator: Eleanor Selfridge-Field
Place: CCARH, Menlo Park, CA
Time: 1984-88
Hardware: HP-1000 (IBYCUS); HP LaserJet II
Software: custom designed by Walter B. Hewlett

Medieval Rhymed Office/Hughes
Title: *Late Medieval Rhymed Offices*
Scope: manuscript sources/inventories; complete textual and chant concordances; general information, catalogues, and inventories
Investigator: Andrew Hughes
Place: University of Toronto
Computer: various, mostly IBM and clones
Software: custom designed encoding system; FYI; Brigham Young Concordance Program
Associated literature: *Dictionary of the Middle Ages*: "Rhymed Office"; "Research Report," in *Journal of the Plainsong and Medieval Music Society* **8** (1985)

NTI: Wind Band Music/Camus
Title: *National Tune Index: Early American Wind and Ceremonial Music, 1636-1836*
Scope: a listing and concordance of eighteenth-century wind music in American, British, French, Hessian, and other sources
Head of project: Raoul Camus
Place: CUNY--Queensborough (supported by NEH)
Time: 1987-90
Publication: microfiche binder with printed contents guide (University Music 1987)

Swedish Hymn Tunes/Görannson
Title: *Index of Swedish Hymn Tunes*
Scope: 15,000 hymn tunes in use between 1500 and 1820
Investigator: Harald Görannson
Place: Royal Academy of Music, Stockholm

Symphonies/LaRue
Title: *A Catalogue of Eighteenth-Century Symphonies*: Vol I. *IDENTIFIER* Indiana University Press, 1988
Scope: identification and source files for all known symphonies from *c.* 1720 to *c.* 1810
Head of project: Jan LaRue
Assistants: Kathryn Shanks, David Cannata
Place: New York University
Time: 1982--
Computer: Cyber 180 (NOS)
Encoding: MUSTRAN

Walther Manuscripts/Schnell *et al.*
Title: *Sources for the Music of J. G. Walther*
Purpose: to assemble tables of contents, thematic concordances, and stemmata for the sources of the music of Johann Gottfried Walther
Investigator: Christoph Schnell *et al.*
Place: St. Gall, Switzerland
Software: Alpha/TIMES system

III. Analytical Methods, Tools, and Procedures

Cluster Analysis/Stepien and Logrippo
Title: "Cluster Analysis for the Computer-Assisted Statistical Analysis of Melodies," *Computers and the Humanities* **20** (1986)
Purpose: to explore the uses of cluster analysis [a method of classifying a set of entities] in the classification of melodies by pattern types
Repertory: monophonic songs
Measures: tonal density, interval density, melodic similarity
Investigators: Bernard Stepien, Luigi Logrippo
Place: University of Ottawa Dept. of Computer Science

Declarative Representations/Roeder
Title: *Declarative Music Representations*
Purpose: to use computers in the logical representation of analysis and composition
Investigator: John Roeder
Place: University of British Columbia
Computer: Apple Macintosh
Associated Literature: "A Declarative Model of Atonal Analysis", *Music Perception* [in press]

Fourier Index Sorting/Ferkova
Title: *Some Possibilities in Computer Assisted Analysis of Melody and Tonal Harmony*
Purpose: to explore translation of existing music-analytical procedures into algorithms for data processing, with special emphasis on Fourier index sorting for melodic analysis
Repertory: 554 melodies from Haydn symphonies
Procedures: differentiation of ascending and descending segments and numerous other measures
Investigator: Eva Ferkova
Associates: Andrej Ferko, Marian Dudek
Place: Slovak Academy of Science (Science of Art Institute), Bratislava
Duration of project: 1986-89
Computer: PDP-11/34 (RSX)
Software: custom
Encoding: modified ALMA
Associated Literature: doctoral thesis, Slovak Academy, Bratislava, 1986

Interactive Melodic Analysis/Schaffrath
Title: *Interactive Melodic Analysis*
Purpose: to input, analyze, catalogue, classify and play one-part melodies and variants
Repertory: 4200 German songs, 1000 Chinese songs, and 500 ballads
Approach: to provide a summary set of descriptive attributes that can be searched in isolation or combination and used as a tool for studies from diverse points of view
Measures: interval frequencies, scale degree frequencies, ambitus, succession of cadence tones and stressed tones, comparisons of pitch successions
Investigator: Helmut Schaffrath
Associate: Barbara Jesser
Place: Essen University
Duration of project: 1985-90
Computers: IBM 3207; IBM PC
Analysis Software: MAMMUT (PL/1)
Encoding: ESAC (MIDI input)
Associated Literature: Articles by Schaffrath in *Musikpädagogische Forschung* **5** (1985), *Musica* **2** (1987), proceedings of the ICTN World Conference (1987) and the Lancaster Conference (1988); articles by Jesser in ICTM proceedings (1987) and *Musikpädagogische Forschung* **8** (1988)

Layer Analysis/Wang Sen et al.*
Title: *Analysis of Tone Structure in Chinese Folk Melody*
Purpose: classification of regional differences in relation to patterns of differentiation between melodic foundation, framework, and ornament tones
Investigators: Wang Sen, Zhou Haihong
Associates: Wong Wei, Feng Yankun
Place: Central Conservatory of Music, Beijing
Duration of project: 1988-89
Computer: IBM PC
Analysis Software: LSA [=Layer and Structure Analysis]
Encoding: extended numeric
Associated Literature: "The Structure and Layer of Tones: The Possibilities of Stylistic Analysis Aided by the Computer" [in progress]

Melodic Analysis/Bevil*
Title: *MelAnaly: A Software Package and Query System for Comparative Analysis of British-American Folktunes*
Purpose: to extend the study of the centonate process and to establish a means of enquiry and a central database for other researchers
Investigator: J. Marshall Bevil
Place: Houston, TX
Duration of project: 1988
Computer: Apple IIgs (Apple II+ for field)
Other devices: ImageWriter II printer
Analysis Software: custom, for array scanning
Printing Software: Tunegraph (prints video images and hard copy of color-coded line graphs)
Encoding: numeric (pitch, duration, stress)
Associated Literature: "A Genre-Specific... Method of Comparative Melodic Analysis for the Assessment of Relationships between British-American Folksongs" (talk given to the Sonneck Society, April 1988)

Melodic Scaling/ISTAR*
Title: *Raga Classification*
Purpose: Two- and three-dimensional scaling of ragas on the basis of computer analysis of recorded music
Investigators: Bernard Bel, Wim van der Meer
Place: Amsterdam and Marseilles
Duration of project: 1988
Computer: Apple IIe, Macintosh+
Software: Meloscribe (automatic notation)
Encoding: MMA (Melodic Movement Analyser)

Melodic Similarity/Leppig
Title: *Melodic Similarity*
Scope: series of projects devoted to measuring melodic similarity between works
Repertory: German 18th-century classical and folk music
Measures: comparison of pitch profiles (absolute, with horizontal offset, with vertical offset, with suppression of repeated notes, with accented notes only)
Investigator: Manfred Leppig
Place: University of Duisburg, Faculty of Mathematics
Encoding: numeric
Associated Literature: "Musikuntersuchungen im Rechenautomaten," *Musica* **2** (1987), 140-150; "Tonfolgenverarbeitung in Rechenautomaten: Muster und Formen," *Zeitschrift für Musikpädagogik* **42** (1987), 59-65; "Die Untersuchung musikinterpretierbarer Eigenschaften in Zahl- und Zeichenfolgen, Eine Sachmotivation zum Programmierunterricht," *Beiträge zum Mathematikunterricht* **1** (1987); "Programmieraufgaben für Zahl- und Punktfolgen mit Deutungen in der Musiktheorie (II)," *BzMU* **2** (1988) [in press]

Melodic Variation/Boroda
Title: *A Methodology for Quantitative Investigation of Melodic Variation in Song Segments*
Purpose: to establish a methodology for quantifying variations between melodic segments both within one work and between works; uses R. K. Zaripov's concept of intervallic-metrical structure
Repertories: 500 melodies from works by Schubert, Dunayevsky, and Russian folksongs
Investigator: Moisei Boroda
Place: Conservatory of Music, Tbilisi
Duration of project: 1988
Associated Literature: "A Methodology of Quantitative Investigation of Methods of Variation of Segments in Song Melodies" in *Quantitative Aspects of the Systemic Organization of Text* (in Russian, Tbilisi, 1987); "Construction of Frequency Lexicons of Musical Segments for Analysis and Modelling of Melodies" [by R. K. Zaripov; in Russian] in *Science* **41** (Moscow, 1984), 207-252

Musical Language/Boroda
Title: *MUSLAN--A Systemic-Quantitative Approach to Musical Language*
Purpose: to study general regularities (especially rhythmic ones) of musical thinking, metastylistic principles of the organization of repetitions in musical composition, general principles of the paradigmatic organization of melody, and interrelations between music and language
Investigator: Moisei Boroda
Place: Tbilisi Conservatory
Duration of project: 1988-93
Computer: Soviet
Associated Literature: "The Frequency Organization of the Musical Work and the Problem of Universals of Musical Language" in *Applied Linguistics and Automatic Text Analysis* [in Russian; Tartu, 1988]; "Rhythmical Models in Folk Melodies: Towards the Quantitative Approach" [in Russian; forthcoming in *Quantitative Methods in Ethnomusicology and Music Theory* (Moscow, 1988)]

Petri Nets/Camurri et al.
Title: *Petri Nets as a Means of Describing Styles of Orchestration in the Seventeeth and Eighteenth Centuries*
Purpose: one of a series of projects designed to show how Petri nets (which can describe asynchrony, non-determinism, concurrency, causality, and hierarchy) can be used to describe musical processes
Investigators: A. Camurri, G. Haus, R. Zaccaria
Place: Milan (Laboratorio di Inf. Mus.)
Duration of project: 1986-90
Operating System: UNIX
Software: MAP system (Musical Actors by Petri Nets; produces sound sample files)
Associated Literature: "Describing and Performing Musical Processes" in *Human Movement Understanding*, ed. P. Morasso and V. Tagliasco (*Advances in Psychology* 33), Amsterdam: North Holland, 1986, 335-357

Phrase Identification and Analysis/ Camilleri*
Title: *Computer Generation and Description of Simple Tonal Melodies*
Purpose: to employ the concept of perfect and imperfect phrases by Lidov and some rules of prolongation and reduction by Lerdahl and Jackendoff to describe and generate melodies
Investigator: Lelio Camilleri
Place: CNUCE (Pisa) and Florence Conservatory
Duration of project: 1987--
Computer: IBM 8081, VM 370
Software: custom
Encoding: TELETAU
Associated Literature: "Theory of a Rule-Based System for Music Analysis" [forthcoming]

Polyphonic Analysis/Böker-Heil*
Title: *MUSAN: A Program for Elementary Analysis of Harmonic Intervals in Late Medieval Polyphony*
Scope: creates relational graphs and frequency tables differentiating specific intervals and kinds of motion
Investigator: Norbert Böker-Heil
Place: Staatliches Institut für Musikforschung, Berlin (West)
Duration of project: 1985--
Hardware: DEC mainframe, Benson 1233 plotter

Rhythmic Models/Boroda*
Title: *Rhythmic Models of Musical Language*
Purpose: use of Zipf-Mandelbrot law to show significant isomorphisms in rhythmic organization between literary and musical texts
Repertory: folksongs of Georgia and Armenia
Measures: motivic frequency and repetition
Investigators: Moisei Boroda, A. A. Polikarpov
Associate: V. Detlov
Place: Tbilisi Conservatory
Completion of project: 1984
Associated Literature: "The Zipf-Mandelbrot Law and Units of Different Text Levels" in *Quantitative Linguistics in Automatic Text Analysis* [in Russian and Estonian; Tartu, 1984]

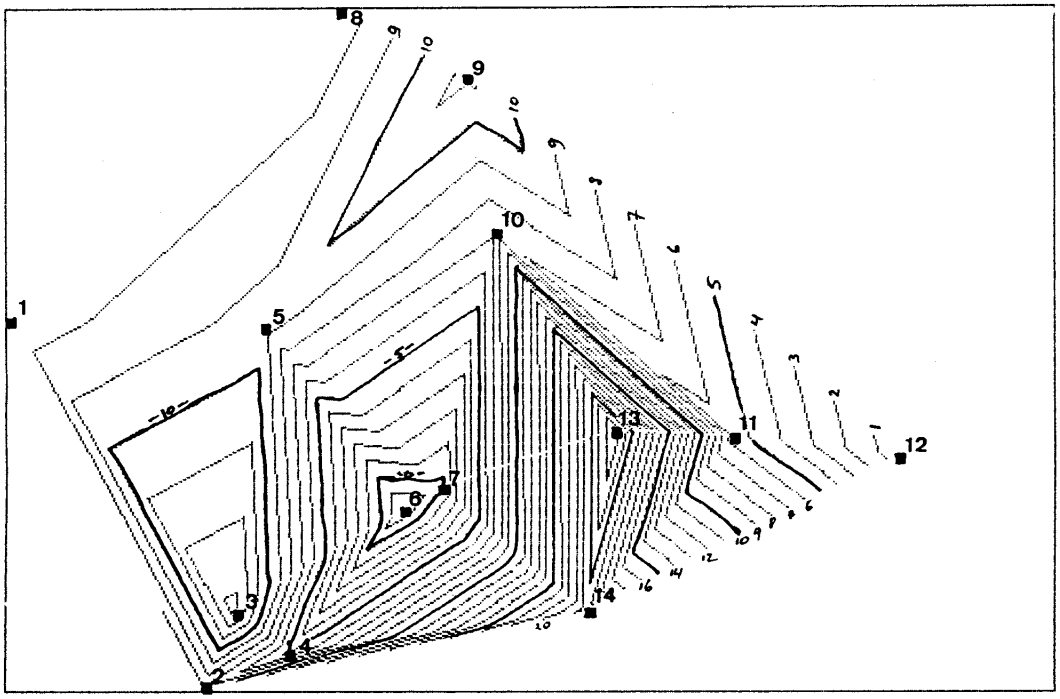
Segmentation Rule System/Camilleri
Title: *An Expert System for Musical Segmentation and the Harmonic Analysis of Tonal Music*
Purpose: to create a tool for music analysis based on a rule system and to verify the theoretical value of the rules
Investigator: Lelio Camilleri
Associates: Chiara Duranti, Francesco Carreras
Place: CNUCE (Pisa) and Florence Conservatory
Duration of project: 1987-89
Computer: IBM 8081, VM 370
Software: custom, using ESDE (Expert System Development Environment)
Encoding: TELETAU (enhanced)
Associated Literature: "Psychological and Theoretical Issues of Musical Segmentation" [Camilleri, forthcoming]; Analysis of Grouping Structure [thesis by Duranti, forthcoming]

Set Theory/Solomon
Title: *Set Theoretic Analysis Software*
Purpose: to create software for the analysis of chords and melodies based on set theory
Investigator: Larry J. Solomon
Place: Tucson, Arizona
Computers: Apple II, IBM PC, DEC
Associated Literature: "The List of Chords, Their Properties and Use in Analysis," *Interface* 11 (1982), 67-107

Structural Notations/Pope
Title: "Music Notations and the Representation of Musical Structure and Knowledge", *Perspectives on New Music* (1986), 156-189
Purpose: investigates the use of tree structures, state machines, control flow models, Petri nets, predicate transition nets and other data structures that can be supported by the Doubletalk music programming system under development by the author
Investigator: Stephen Pope
Place: ParcPlace Systems, Palo Alto, CA

Tonal Melody/KWilliams
Title: *Analysis Package for Tonal Melody*
Functions: isolates pitch strings, scale-degree strings, interval strings; identifies metrically equivalent rhythmic patterns; performs melodic reduction; finds latent melodic similarities
Investigator: J. Kent Williams
Place: Univ. of North Carolina, Greensboro
Duration of project: 1982-88
Computer: VAX/VMS, MS-DOS machines
Software: in SPITBOL
Encoding: MUSTRAN
Associated Literature: "Themes Composed by Jazz Musicians of the Bebop Era: A Study of Harmony, Rhythm, and Melody," Ph.D. dissertation, Indiana University, 1982 (UMI dissertation #8308888)

Three-dimensional map of 14 recordings of Indian music (Bernard Bel and associates)



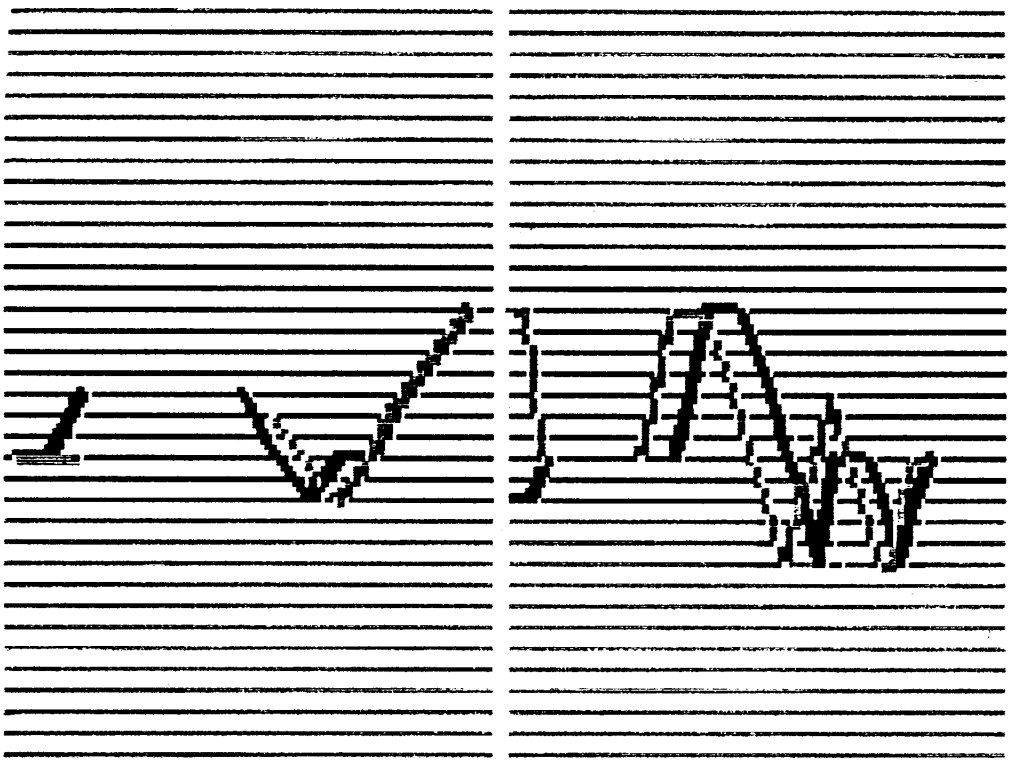
1. Multani by Bhimsen Joshi
2. Multani by Hirabai Barodekar
3. Multani by Wahid Khan
4. Multani by Nupur Roy Chaudhuri
5. Todi by Z. M. Dagar
6. Todi by Nupur Roy Chaudhuri (1st recording)
7. Todi by Nupur Roy Chaudhuri (2nd recording)
8. Todi by Kesar Bai Kerkar
9. Todi by Faiyaz Khan
10. Todi by Omkarnath Thakur
11. Todi by Mallikarjun Mansur
12. Todi by Kishori Amonkar
13. Vibhas by Kishori Amonkar
14. Vibhas by Malikarjun Mansur

Todi and Multani both use the scale C Db Eb F# G Ab B, though in different melodic sequences. Vibhas uses the scale C Db E G A. Multani is located distinctly in the "South-West", while Vibhas is situated in the "mountains". The position of the recordings 11-14 (both artists belong to the Jaipur school) indicates that the distance between the pieces of music is not exclusively a factor o different ragas but that there exists a consistency of individual and school interpretation.

Comparative Melodic Analysis

Superimposition of related melodic profiles on a graph (J. Marshall Bevil)

Reproduced from a two-color original



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COMPARISON #1       CONTROL: MTHGV/CHANDL   ***   TEST: SHGR/BRNH2

PRIMARY CELL DETAILS

INCIPIT  MEDCLOS  FINEOPN  FINAL

 1 2 3    1 2 3    1 2 3   1 2 3

 X X      X X X      X     X  X  X  DIRECT, PITCH
                                    1-2 CROSS
                                    2-1 CROSS
                                    DOUBLE-CROSS
                                    3-1 RESEQUENCING
                                    3-2 RESEQUENCING

    X     X X X    X X X           DURATION

 X  X     X X X    X X X      X    STRESS


STATISTICAL SUMMARY AND CONCLUSIONS, SHGR/BRNH2 TO MTHGV/CHANDL

< PC >  P: 67   D: 58   S: 75   PD: 33   PS: 50   DS: 58   PDS: 33
< CT >  EE: 82   (BE): 9   (SE): 18   BB: 50   (BS): 8   (SB): 8   SS: 39   AV: 57

C L O S E    R E L A T I O N S H I P
```

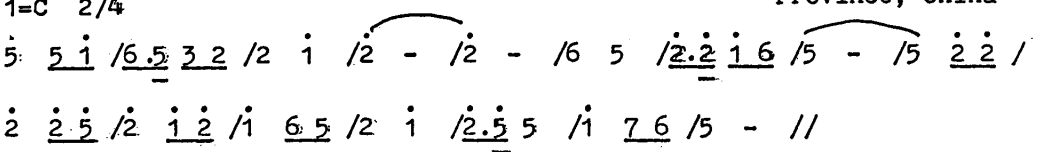
Results, comparative array scan for two melodies.

Layer Analysis

Differentiation of melodic foundation, framework, and embellishment in Chinese folk music (excerpt from a recent paper by Wang Sen *et al.*)

Example I. Driving Livestock North of Shanxi Province, China

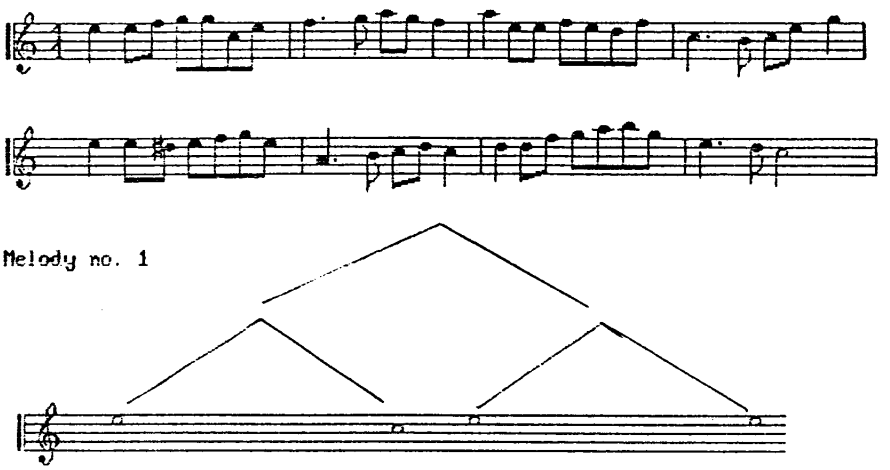
1=C 2/4



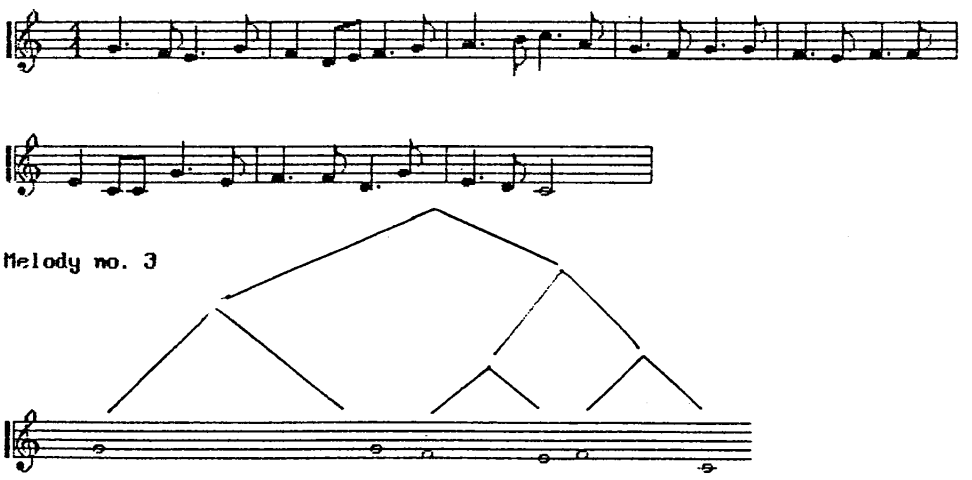
In this graph, "2" and "5" constitute the first basic layer because they assume a central status in the formation of the music. They are designated "framework tones". They second layer consists of "framework supporting tones" (1, 3, 6). A distinction is drawn between "principal supporting tones" and "subordinate supporting tones". "7", which has no structural function, is an "embellishing tone".

Phrase Identification and Analysis

Computer implementation of Lidov's distinction between perfect and imperfect phrases (Lelio Camilleri)



Perfect phrase structure

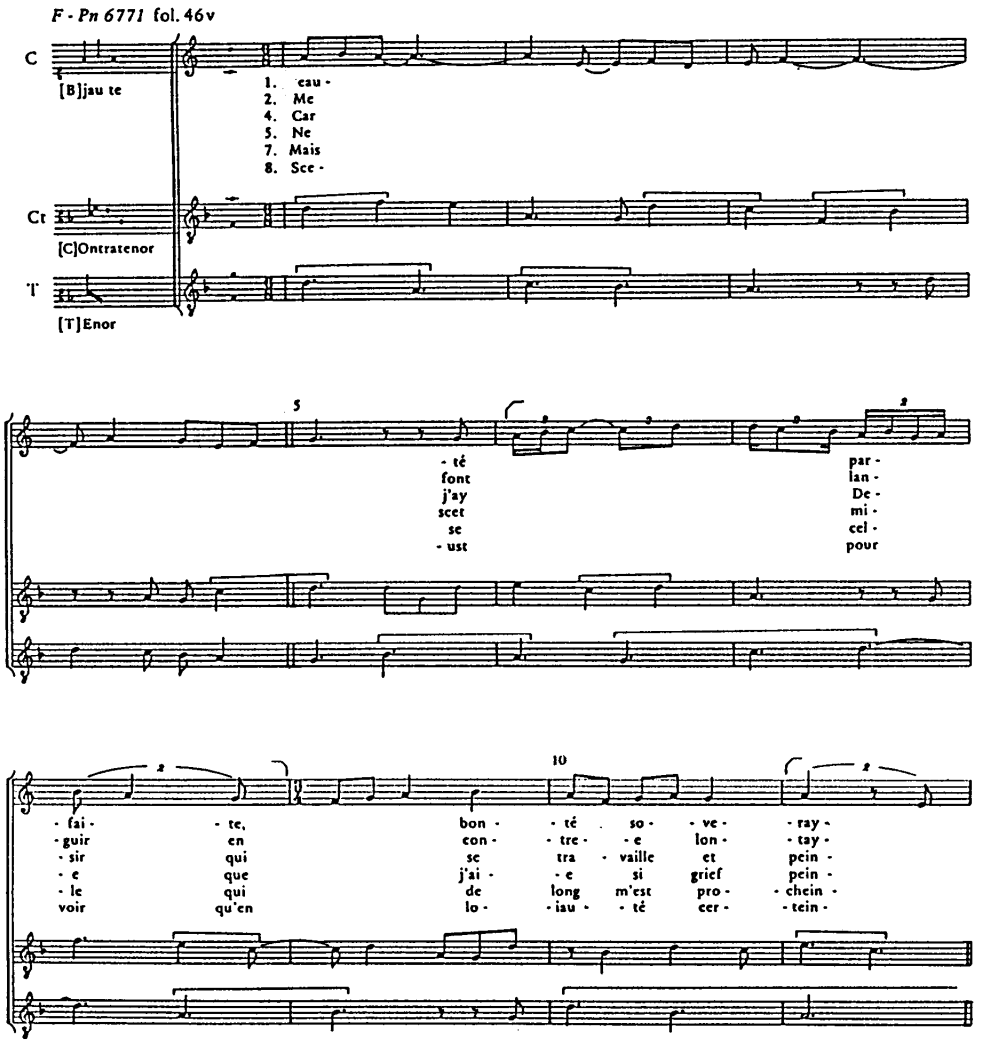


Imperfect phrase structure

Musical score of Anthonello de Caserta's "Beauté parfaite"

BEAUTÉ PARFAITE

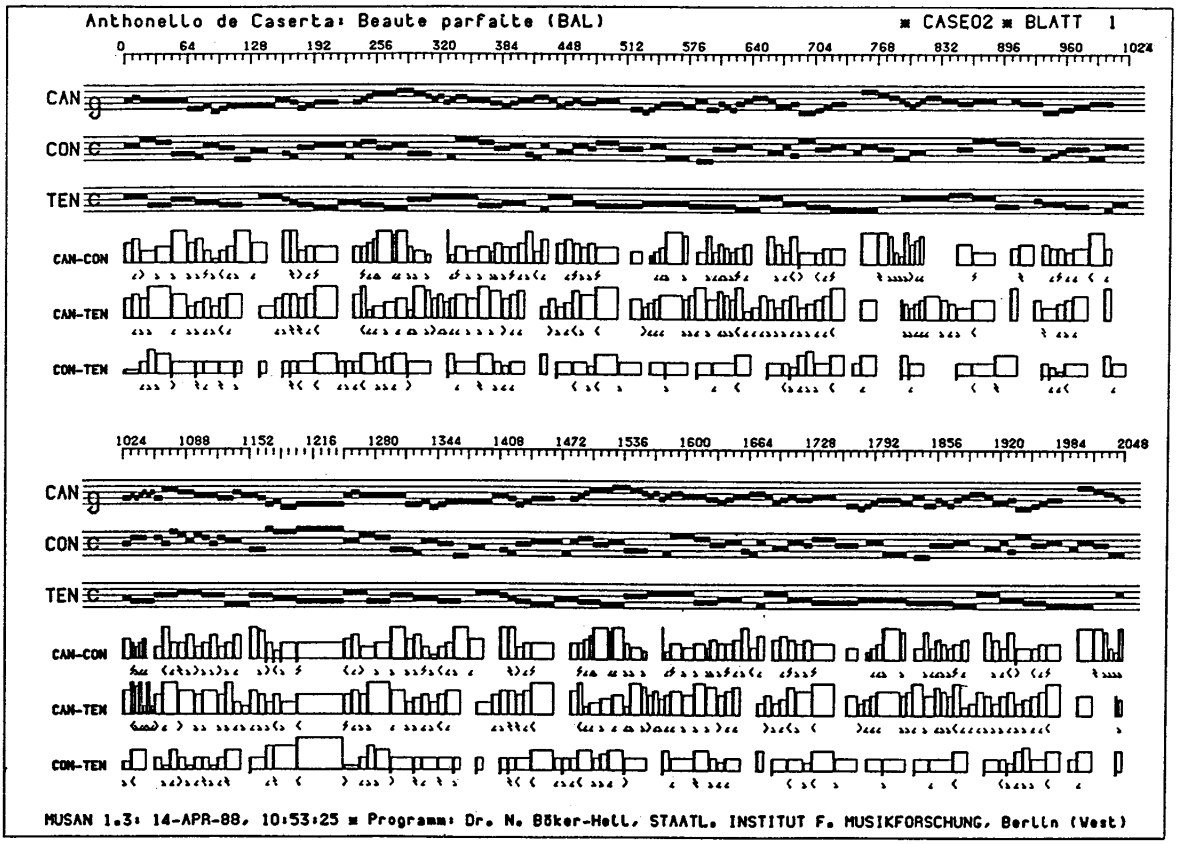
Anthonello de Caserta



Polyphonic Analysis/2
(Norbert Böker-Heil)

A. Horizontal bar graph of the score ["CAN" = Cantus, "CON" = Contratenor, "TEN" = Tenor].

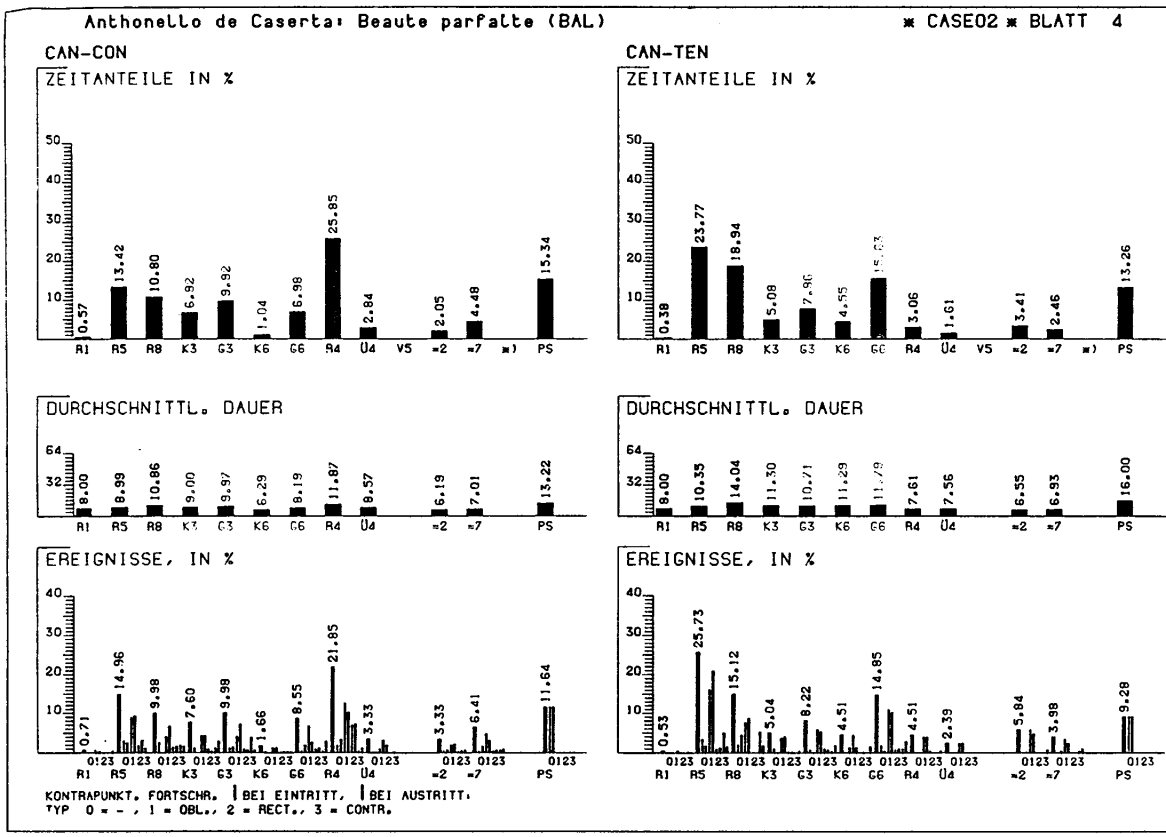
B. Vertical bar graph, showing intervals between voice parts. The symbols beneath this bar graph distinguish parallel, contrary, and oblique motion and also indicate direction (rising or falling).



Reproduced from a three-color original

Polyphonic Analysis/3
(Norbert Böker-Heil)

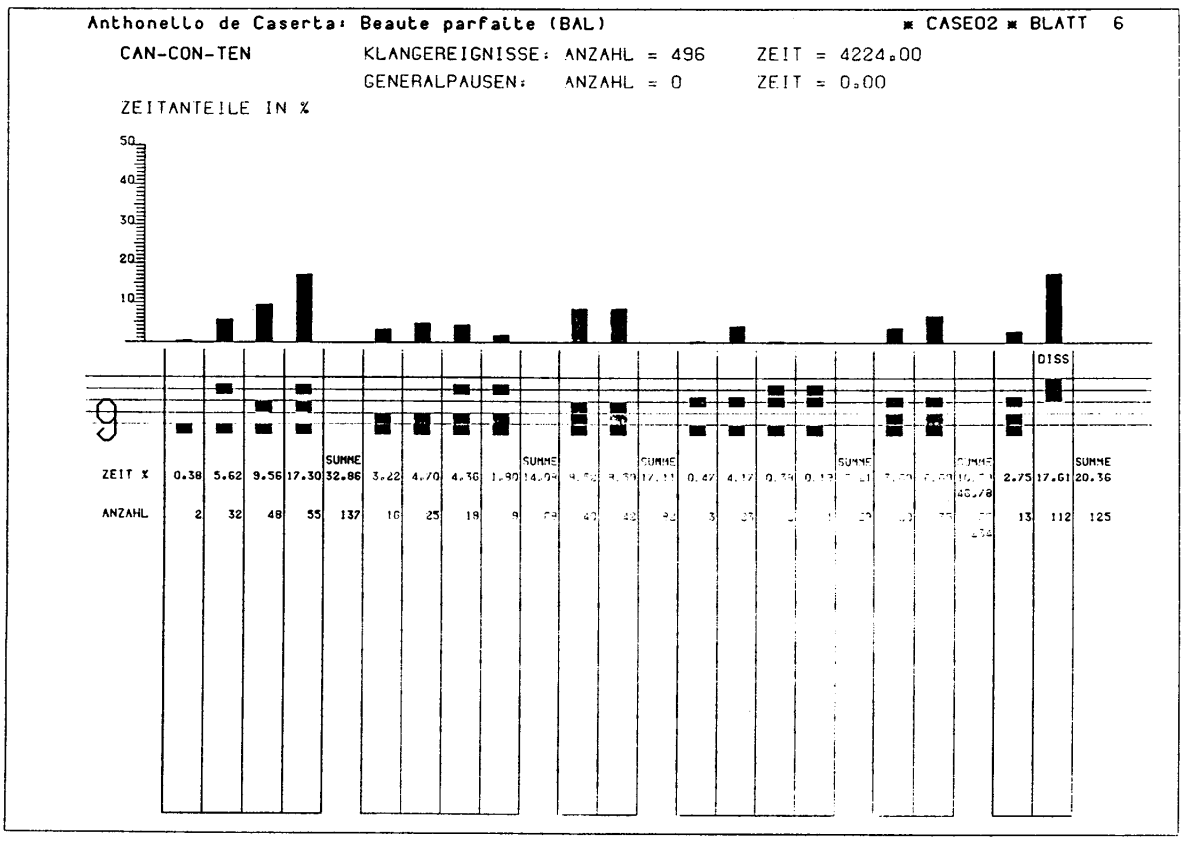
Frequency counts of intervals [R = reine (perfect), K = kleine (minor), G = grosse (major)]



Reproduced from a three-color original

Polyphonic Analysis/4
(Norbert Böker-Heil)

Subtotals and totals for the work: the columns to the left of the first summary column represent perfect intervals, the next four sections represent imperfect intervals, and the rightmost section represents dissonant intervals. These types are coded green, red, and black throughout the output.



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Stress Pattern Identification

Representation of short, intermediate, and long syllables used to differentiate rhythmic patterns in text setting (Katherine Rohrer)

Relative syllable lengths: o = short
o. = intermediate
o: = long

USES OF FORMULA I (♪♪♪ | ♩) IN LANIER'S "HERO AND LEANDER"

1. Lines beginning with three unstressed (and therefore short) syllables, for which Formula I is uniquely appropriate:

that have been oft
o o o o: TOTAL: 1

2. Lines with a stress on positions 2 and 4 and no word boundary between positions 2 and 3, for which Formula I is appropriate, though alternatives exist (e.g., ♪ | ♩ ♩ ♩.):

nor com'st thou yet (enclitic between 2 and 3)
o o. o. o:

who holds thee, cru[el?] (enclitic between 2 and 3)
o o. o. o.[o.]

the rosy-fin[ger'd]
o o.o. o. [o.]

[And similarly:]
my impreca[tions]
with faithless lines
thy chiefest calm
Leander's thine
the wary eyes
and even now
and tempests black
through cloudy night TOTAL: 11

3. Lines which have a stress on positions 2 and 4 and a word boundary between positions 2 and 3, and which therefore would be better set as ♪ | ♩. ♪ ♩ :

in these my lan[guishing]
o o: o o.

if far from hence
o o: o o:

[And similarly:]
upon thy na[tive]
invades the hor[ror]
ye Gods, 'tis so!
and seas my woe
forgets that e'er
retire your fu[ry]
and here beneath
in spite of fate TOTAL: 10

Vivaldi aria text contrafacta

Two examples in order of declining degrees of similarity (John Hill; Savvy PC relational database software)

Example 1. Two obviously similar texts:

Siroe rè di Persia	Orlando furioso
(Ferrara, Carnevale, 1739), 1/16/1	(Vicenza, 1738), 1/01/1
Laodice sung by Anna Cosimi	Angelica sung by Anna Cosimi
Configuration of lines:	Configuration of lines:
7 7t 7t 5 7 7 7 5	7 7t 7t 5 7 7 7 5
Parto confusa anch'io	Ardo ferita, oh Dio,
Ne sò quel che sarà;	Nè so quel, che farà
Non ho più libertà,	Non ò più libertà,
Non ho più pace.	Non ò più pace.
Vorrei del fato mio	Fa, si, che l'idol mio
Scoprir quall'è il tenore,	Al sen mi torni amante,
Ma timido il mio core	Ma quant'io son costante
E pena, e tace.	Alla sua face.

Example 2. Elaborate parody:

Il Tamerlano	Armida al campo d'Egitto
(Verona, Carnevale, 1735), 2/10/1	(Venezia, Carnevale, 1738), 2/14/1
I:Tn, Giordano 36	[No score survives]
Quartet	Quartet
Configuration of lines:	Configuration of lines:
8 8 4 8t 8t 8 8 4 4 4 5	8 8 8t 8t 8 8 4 4 4 5
8t 8t 8t 8t 8t 3 5 3 4	8t 8t 8t 8 8 4t 5 5 8t 8t 8t
Si crudel! questo è l'amore	Morte a me Fiero rigore
D'un tiranno, inique core.	Mi condonna traditore.
Mostro indegno	
Dispietato senza fè.	Non sei degno di mercè.
Morte al padre, oh Dio! perchè	Numi, cieli, oh Dio! Perchè
Cosl barbara sentenza?	Cosl barbara violenza?
Non è degno di clemenza	Donna rea la mia innocenza
Tanto fasto	Tanto fasto?
Tanto orgoglio	Tanto orgoglio?
Morte attendi	Morte attendi
E morte voglio	E morte voglio
Numi, aita oh Dio! pietà.	Morte, oh Dio! Ah nò pietà.
Nò non sà, che sia pietà.	Non è tempo di pietà.
Io non voglio sua pietà.	Questa è troppa crudeltà.
Nò non merita pietà.	La costanza, o la fortezza.
Questa è troppo crudeltà.	Il rigore, la fierezza.
Pur al fin	Del tuo cor.
La mia morte	Della mia sorte
Pur al fin	Dell'alma ingrata
Nostra morte.	La tua morte abbatterà.

In this database environment spelling, orthography, and punctuation are ignored in seeking matches. A coefficient of similarity calls the user's attention to those cases in which the extent of matching text in ostensibly independent arias exceeds the limits of chance.

In Example 1, it can be deduceds that Anna Cosimi sang the aria "Parto confusa anch'io" in Vivaldi's Siroe (1739) to the same music with which she sang "Ardo ferita, oh Dio" in Vivaldi's Orlando furioso (1738). [One general finding is that first lines are more commonly changed than subsequent lines.]

Motivic Frequency
(M. G. Boroda)

A. Numerical measures of motivic frequency (n) and repetition (n1, n2, n3) in eighteenth- and nineteenth-century instrumental music as shown in "Die melodische Elementareinheit" (*Quantitative Linguistics* 15, Bochum, 1982)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
lfd. Nr.	Materialquelle	N_o	P_{max}	n	n^*	δ	n_1	n_1^*	δ_1	n_2	n_2^*	δ_2	n_3	n_3^*	δ_3	$\frac{n_1}{n}$
1.	J.S. Bach (1685-1750). Präludium und Fuge Nr. 13 BWV 858; aus dem Wohltemperierten Klavier, 1.Teil (abgek.: WTK 1).	615	0.0910	186	153.0	21.6	105	93.0	12.9	31	31.0	0.0	12	15.5	-22.6	0.565
2.	ders. Präludium und Fuge Nr. 20 BWV 865; WTK 1.	1422	0.1958	296	252.0	17.45	192	126.0	58.4	39	42.0	-7.2	16	21.0	-23.8	0.648
3.	ders. Präludium und Fuge Nr. 2 BWV 871; WTK 2.	671	0.1430	168	145.0	15.8	96	72.5	32.4	26	24.2	8.3	9	12.1	-25.8	0.572
4.	ders. Präludium und Fuge Nr. 22 BWV 891; WTK 2.	1430	0.1350	310	272.0	13.6	191	136.0	41.3	26	45.0	-42.0	21	22.7	-7.5	0.616
5.	G.F. Händel (1685-1756). Fuge für Orgel Nr. 2 G-Dur.	765	0.1070	201	173.0	16.2	120	86.5	38.8	29	28.8	-2.8	8	14.0	-42.9	0.598
6.	D. Scarlatti (1685-1757). Sonate Nr. 1 (Zählung der Edition Peters).	250	0.1190	72	72.0	0.0	37	36.0	2.8	9	12.0	-25.0	3	6.0	-50.0	0.515
7.	ders. Sonate Nr. 5.	182	0.0659	60	67.0	-10.5	28	33.5	-16.2	16	11.2	42.9	1	5.6	-46.6	0.467
8.	ders. Sonate Nr. 9. (Ausgabe von B. Holdenweiser).	156	0.1090	53	52.0	1.9	20	26.0	-23.1	11	8.7	27.0	8	4.3	84.5	0.378
9.	ders. Sonate Nr. 13. (Ausgabe von L. Nikolaev).	568	0.0986	190	139.0	36.8	100	69.5	43.9	39	23.2	68.2	17	11.6	46.6	0.526
10.	ders. Sonate Nr. 25 (Edition Peters).	107	0.0655	51	47.2	8.1	25	23.6	5.9	15	7.9	90.7	3	3.4	-12.5	0.490
11.	G. Tartini (1692-1770). Sonate g-moll für Violine und Klavier.	828	0.0652	218	204.0	6.9	60	102.0	-41.2	85	34.0	150.0	11	17.0	-35.3	0.276
12.	J. Haydn (1732-1809). Symphonie Nr. 45 fis-moll "Abschieds-Symphonie".	1304	0.0437	340	317.0	7.3	164	158.5	3.5	65	52.8	23.1	25	28.5	-6.0	0.483
13.	W.A. Mozart (1756-1791). "Eine kleine Nachtmusik" KV 525.	1260	0.1143	205	252.0	-18.7	60	126.0	-52.4	61	42.2	44.6	13	21.1	-38.4	0.293
14.	ders. Fuge g-moll für Klavier.	731	0.1370	199	157.0	26.7	119	78.5	51.6	33	25.8	16.3	10	12.9	-14.7	0.548
15.	ders. Sonate für Klavier Nr. 10.	1249	0.0509	296	297.0	0.0	95	149.0	-36.2	98	49.5	98.0	14	24.8	-43.6	0.321
16.	J.G. Albrechtsberger (1736-1809). Fuge c-moll.	693	0.2160	168	138.0	20.9	111	69.8	70.0	17	23.0	-21.8	8	11.5	-30.8	0.661
17.	L. van Beethoven (1770-1827). Sonate für Klavier Nr. 19.	584	0.0565	151	163.0	-7.4	60	81.5	-26.4	36	27.2	32.4	13	13.6	-4.4	0.400

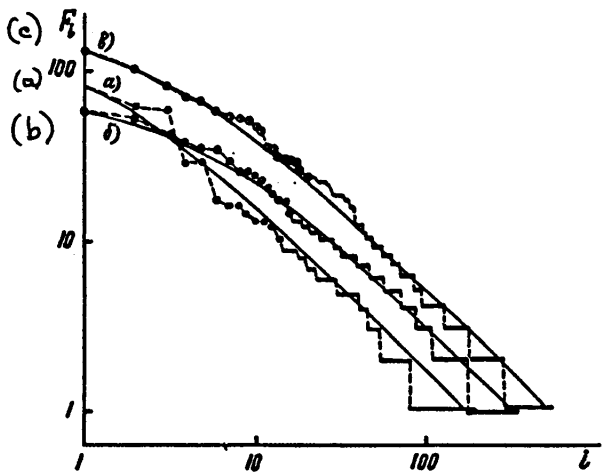

Рис. 3. Описание частотной структуры музыкальных текстов законом Ципфа-Мандельброта (1): а) Г.Ф.Гендель. Фуга № 2 для органа; б) Й. Гайдн. Симфония № 45 ("Прощальная"); в) Ф. Шопен. Соната № 3. Обозначения те же, что на Рис. 1. Шкала логарифмическая.

B. Graphic descriptions of motivic frequency in (a) Handel's Fugue No. 2 for Organ (No. 5 above), (b) Haydn's Symphony No. 45 (No. 12 above), and (c) Chopin's Sonata No. 3 as shown in "The Zipf-Mandelbrot Law . . ." in *Quantitative Linguistics in Automatic Text Analysis* (Tartu, 1984)

IV. Analysis of Specific Repertories

A. Historical Repertories

Ambrosian Chant/Halperin
Title: *Analysis of Ambrosian Chant*
Purpose: comparison of stylistic traits of different elements of the repertory with special emphasis on the melodic segment (by analogy to the linguistic morpheme)
Repertory: antiphonary of *c.* 1200 A.D.
Procedures: note and interval counts, phrase lengths, melodic features (leaps, pentatonicism, initial and final interval schemes, rates of melismatics), forward and reverse segment profiles
Results: statistical tests show correlations between stylistic traits and liturgical function, also between melodic behavior and modal ambience
Investigator: David Halperin
Place: Tel-Aviv University
Computer: mainframe
Software: custom, reproduced in thesis
Encoding: numeric representation of relative pitch
Associated Literature: "Contributions to a Morphology of Ambrosian Chant: A Computer-Aided Analysis of the *pars hiemalis* according to British Museum Add MS 34209 with a Package of Computer Programs for the Analysis of Monophonic Music," Ph.D. thesis, Tel-Aviv University, 1986

Bartok's Harmony/Li
Title: *Harmonic Organization of Bartok's String Quartets*
Purpose: to use an investigation of the harmonic features of Bartok's string quartets as the basis for developing a system for harmonic analysis of string and wind ensemble music
Investigator: Betty Li
Place: Hong Kong Baptist College
Duration of project: 1987-89
Computer: VAX mini 11/750
Software: in SPITBOL
Encoding: custom (alphanumeric)

Byrd and Tallis/Morehen
Title: *Sixteenth-Century English Polyphony: The* Cantiones Sacrae *(1575) of Thomas Tallis and William Byrd*
Investigator: John Morehen
Place: University of Nottingham
Duration of project: 1983--
Computer: ICL 2988
Associated Literature: "Computer-Assisted Musical Analysis: A Question of Validity," *Proceedings of the International Computer Music Conference 1986*

German Lute Tablature/Charnassé
Title: *Automatic Transcription of German Lute Tablature*
Aims: translation of tablature into staff notation; polyphonic analysis
Investigator: Hélène Charnassé
Associate: Bernard Stepien
Place: ERATTO (Paris); Ottawa
Duration of project: 1986-91
Other devices: Epson printer
Support software: TURBO-PROLOG
Analysis software: Luth (custom)
Encoding: SIT (custom)
Associated Literature: "Une Tentative d'introduction de l'informatique en musicologie" in *Aspects de la recherche musicologique au C.N.R.S.* (Paris, 1984), 179-195; "Automatic Transcription of Sixteenth-Century Notation" in *CHUM* **90/3** (1986), 179-190; "Le Point des travaux de l'Équipe ERATTO" in *Informatique et Musique* (Ivry: ELMERATTO, 1988), 129-145

Goudimel's Harmonic Grammar/Halperin
Title: *The Harmonic Grammar of Homophonic Psalm Settings*
Investigator: David Halperin
Place: Tel-Aviv University
Duration of project: 1988--
Computer: IBM PC/XT

Late Medieval Polyphony/Böker-Heil
Title: *Towards the "ars subtilior": Investigation of the Practice and Development of Counterpoint between 1340 and 1430*
Investigator: Norbert Böker-Heil (Berlin/West)
Associates: Ursula Günther (Göttingen)
Duration of project: 1984-90
Computers(OS): PDP 11/34 (RSX11-M), Macintosh II
Other devices: Benson 1233 plotter, Yamaha FB-01 synthesizer, Synclavier (proof-hearing)
Associated Literature: "Klingende Dokumentation aus dem Synthesizer," *Jahrbuch des Staatlichen Institut für Musikforschung (Preussischer Kulturbesitz) 1983/84* (1987), 27-33

Schubert/Nettheim
Title: *Analysis of the Works of Schubert*
Purpose: to provide basis for comparison with works of other composers
Investigator: Nigel Nettheim
Place: Sydney Conservatorium
Computers: IBM PC, Toshiba 1340

Troubadour Music/Halperin
Title: *A Structural Analysis of Troubadour Music*
Procedures: evaluation of interval frequencies, standard phrases, chord patterns, initial and final formulas, melodic segmentation
Results: stylistic traits examined in relation to internal behavior, modal ambience, and characteristics of other monophonic repertories
Investigator: David Halperin
Place: Tel-Aviv University
Software: custom, reproduced in thesis
Encoding: numeric representation of relative pitch
Associated Literature: "A Structural Analysis of Troubadour Music," M. A. thesis, 1978

Troubadour Music/Steel
Title: *Stylistic Analysis of Troubadour Music*
Scope: to assess relationship of this repertory to chant, cantigas de Santa Maria, *trouvere* and *Minnesinger* repertory
Investigator: Matthew Steel
Place: University of Michigan
Computer: IBM PC/XT, mainframe
Software: SPIRES
Encoding: custom

B. Non-traditional and non-Western Repertories

Jazz--Chord Sequences/Steedman and Cooper
Title: *Jazz Chord Sequences*
Scope: development of a generative grammar in the context of formal rule systems for computational analysis
Investigator: Mark J. Steedman
Associate: Robin Cooper
Place: University of Edinburgh
Associated Literature: "A Generative Grammar of Jazz Chord Sequences," *Music Perception* **2/1** (1984), 53-78

Jazz--Melodic Analysis/KWilliams
Title: *Analysis of Jazz Melody*
Scope: discusses a series of programs that perform rhythmic and melodic tests on a jazz repertory and discusses relation to other literature
Investigator: J. Kent Williams
Place: University of North Carolina, Greensboro
Computer: mainframe
Software: custom
Encoding: MUSTRAN
Associated Literature: "A Method for the Computer-Aided Analysis of Jazz Melody in the Small Dimensions," *Annual Review of Jazz Studies* 3 (1985), 41-70

Jazz--Rule Systems/Giomi and Ligabue
Title: *A Software Tool for Generation and Study of Jazz*
Purpose: to define a system of rules capable of providing models of jazz improvisation to support systematic study of the jazz idiom
Investigators: Francesco Giomi, Marco Ligabue
Place: CNUCE (Pisa), Florence Conservatory
Duration of project: 1985-88
Computer: IBM 3081 - VM SP/REL4
Encoding: TELETAU
Associated Literature: "Software for Studio Generation of Jazz" [in Italian], CNUCE internal report #C88-06

Tabla Music/Kippen
Title: *A Computer-Aided Social Anthropological Analysis of a Music System*
Purpose: to identify the structure of human thought specific to the creation, performance, and appreciation of the music of the North Indian tabla
Investigator: James Kippen
Place: Belfast, NI, and Lucknow, India
Duration of project: 1986-88
Software: Bol Processor (developed by B. Bel and author)

C. Analysis of Text Setting

Dutch Strophic Songs/Grijp
Title: *Voetenbank* [Footbank]
Purpose: to create a database and catalogue of strophic forms of 6000 Dutch songs from the early seventeenth century
Investigator: Louis Peter Grijp
Associates: Clara Strÿbosch, Johan Koisteeg, Rudolf Rasch
Place: Utrecht University
Duration of project: 1986-1990
Computer: Olivetti M28 (MS-DOS)0
Database Software: RBase
Associated Literature: " 'Voetenbank': Een methode om melodieën te zoehen," *Tijdschrift van de Vereriging voor Nederlandse Muziekgeschiedenis* 34/1 (1984), 26-48

English Declamation/Rohrer*
Title: *Stress Pattern Identification in English Declamation*
Purpose: comparative study of stress in declamatory settings of English text
Investigator: Katherine T. Rohrer
Place: Columbia University
Computer: IBM PC
Associated Literature: "The Myth of English Declamatory Style," [AMS, New Orleans, 1987]

Text Parody/JHill
Title: *Theatrical Music and Text Parody in Early Monodic Sources*
Purpose: to match monody texts with word books from theatrical productions
Investigator: John Hill
Place: University of Illinois
Computer: IBM PC/AT
Database Software: Savvy PC

Vivaldi Arias/JHill*
Title: *Self-Borrowing in Vivaldi's Operas*
Scope: index of 3700 complete aria texts from 128 opera productions with which Vivaldi was associated
Purpose: to identify all instances of text as evidence of musical borrowing
Procedure: after entry of full texts, probable matches are displayed; after user decisions, accepted matches are recorded in a separate file
Investigator: John Hill
Place: University of Illinois
Computer: IBM PC/AT
Database Software: Savvy PC

D. Analytically Oriented Databases

Bach/CCARH
Title: *Bach Database*
Purpose: to create a machine-readable version of all the musical works of J. S. Bach
Current contents: 48 keyboard works, 15 orchestral works, B-Minor Mass, passions, 69 cantatas
Data entry: Edmund Correia, Steven Rasmussen
Place: CCARH
Duration of project: 1985--
Computer(OS): HP 1000 (IBYCUS)
Other devices: Epson dot matrix printer, HP LaserJet
Software: custom (by Walter B. Hewlett)
Encoding: custom
Associated Literature: "Databases and the Practice of Musicology," *Proceedings of the Fourteenth Congress of the International Musicological Scoiety, Bologna, 1987* (1988)

Chinese Folksong/Beijing Conservatory
Title: *Database of Chinese Folksong*
Investigator: Zhang Bo Yu
Associates: Wang Xin Hua, Xu Bin, Wang Qing
Place: Conservatory of Music, Beijing
Duration of project: 1985-88
Computer: IBM PC
Encoding: ESAC (Essen Associative Code)

Corelli/CCARH
Title: *Corelli Database*
Purpose: to create a machine-readable version of all the works of Arcangelo Corelli
Current contents: 72 instrumental works (Opp. 1-6)
Data entry: Frances Bennion
Place: CCARH
Duration of project: 1986-87
Computer(OS): HP 1000 (IBYCUS)
Other devices: Epson dot matrix printer, HP LaserJet
Software: custom (by Walter B. Hewlett)
Encoding: custom

Handel/CCARH
Title: *Handel Database*
Purpose: to create a machine-readable version of all the works of G. F. Handel
Current contents: 42 instrumental works (Opp. 2, 3, 5, 6 *et al.*), one opera (*Radamisto*)
Data entry: Frances Bennion
Duration of project: 1987--
Computer(OS): HP 1000 (IBYCUS)
Other devices: Epson dot matrix printer, HP LaserJet
Software: custom (by Walter B. Hewlett)
Encoding: custom

LIAO/Essen
Title: *LIAO: a Database of Chinese Folksongs*
Purpose: to create a database of 1000 Chinese folksongs
Investigator: Helmut Schaffrath
Place: Hochschule, Univ. of Essen
Duration of project: 1986--
Computer: IBM 3207; IBM PC
Software: custom
Encoding: ESAC (Essen Associative Code)

LIED/Essen
Title: *LIED: a Database of German Folksongs*
Current contents: 4200 German folksongs of the nineteenth century; ballads edited by the German Volksliedarchiv will be used to verify the methodology
Investigator: Helmut Schaffrath
Associate: Barbara Jesser
Place: Hochschule, Univ. of Essen
Duration of project: 1984--
Computer: IBM 3207; IBM PC
Encoding: ESAC

Telemann/CCARH and Pennsylvania State University
Title: *Telemann Database*
Purpose: to create a machine-readable database of all the works of G. P. Telemann
Current contents: 18 suites (*Tafel=Musik*), 24 cantatas (RISM T 394, 403)
Editorial coordinator: Brian Stewart, Penn. State
Data entry: CCARH staff
Duration of project: 1987--
Computers(OS): HP 1000 (IBYCUS), IBM PC
Other devices: Epson dot matrix printer, HP LaserJet
Software design: Walter B. Hewlett

TELETAU/Florence Conservatory
Title: TELETAU Music Library
Purpose: to provide machine-readable versions of representative works of Western music from 1600 to the present
Current contents: 1000 works from Frescobaldi to Joplin and jazz
Investigators: Lelio Camilleri, Giovanni Nencini, Pietro Grossi
Place: Florence and Pisa
Duration of project: 1980--
Computer: mainframe
Software: analysis and other support software for using the data can be accessed online
Encoding: TAUMUS
Online access: MUSIC3@ICNUCEVM.bitnet
Associated Literature: *Studi Musicali: Modalità operative del TELETAU Software Sperimentale per le TELEMATICA MUSICALE, Release 1.0 (Pisa: CNUCE Division of Musicology, 1986)*

Musical Information Systems

The Center receives a significant volume of information from persons developing extensive systems for musical information processing. Some systems are design-oriented, while others are use-oriented. Some are intended primarily to support instructional programs, some to support acoustical research, and some to support basic research. We provide brief reports here on some of these efforts.

BEER SHEVA

Mira Balaban heads a team at Ben Gurion University in Beer Sheva, Israel, that is designing a music workstation based on multiple hierarchical views of music. The intention is that the workstation should serve as a kernel for music processing. The kernel can be extended easily for both theoretical and practical purposes.

The main piece of hardware is a Sun 3/50 workstation operating under UNIX control. LISP and a unique music code are used. Further information can be found in three internal reports from the State University of New York at Albany: TR-87-18, TR-87-27, and TR-87-28. The first, "The TTS Language for Music Description," will appear in the *International Journal of Man-Machine Studies*. Broader circulation of the other two--"Music Structures: A Temporal-Hierarchical Representation for Music" and "A Music Workstation Based on Multiple Hierarchical Views of Music"--is anticipated.

GHENT

At the Institute for Psychoacoustics and Electronic Music at the University of Ghent, Marc Leman is investigating the possibilities of parallel distributed networks for music processing. His work is based on an IBM PC and transputer system. An account is given in "Neural Networks in Music Research," which is report No. 11 from the Institute's seminar in musicology.

HELSINKI

The Helsinki University Music Analysis and Composition (HUMAC) system is concerned with the development of software tools for composition, analysis, and teaching. One practical result of their effort is the draft porposal for a "Time-Stamped Music File Format" [see description under **News: Standards**].

LANCASTER

The development of tools to facilitate the writing of computer assisted learning programs in music is one of the goals of the Centre for Research into the Applications of Computers to Music at Lancaster University. Another goal is to work towards a computer model of music that reflects fluidity and flexibility of musical cognition. Alan Marsden, Anthony Pople, and Roger Bray are involved in the Centre's works. Articles by Marsden and Pople are forthcoming in *Interface* and *Contemporary Music Review*.

MILAN

The team headed by Goffredo Haus and Luigi Finarelli at the Laboratorio di Informatica Musicale (University of Milan) continues work on the design and implementation of a workstation for musical analysis and music printing. The system is based on a Macintosh II microcomputer with custom encoding and software for analysis. Printing is implemented on Apple Laser Writer and ImageWriter printers and uses the Adobe "Sonata" font.

Current interests include the development of two-user environments, provisions for the use of external musical databases, quick encoding with multiple devices (music keyboard, pedals, computer keyboard, and mouse), and typographical refinements of the score. Details are provided in the talk "A Musicological/Publishing Workstation for the Processing of Musical Texts", which will appear in the proceedings of the 1988 International Computer Music Conference (to be held in Cologne in September 1988).

OSLO

A multifaceted program in music representation, printing, and analysis is being pursued in the MUSIKUS project at Oslo University. Analytical routines can investigate the harmony of chorales, explore melodic and rhythmic procedures jointly, and perform procedures suited to atonal and Norwegian folk music. The booklet "Music Encoding and Analysis in the MUSIKUS System" by Arvid Vollsnes and Tor Sverre Lande is available from the University (Blindern, N-0316 Oslo 3).

PADUA

The Centro di Sonologia Computazionale at the University of Padua, founded in 1972, has been closely associated with the biannual festival of contemporary music (the Biennale) in Venice. In 1980 a Laboratorio per l'Informatica Musicale (LIMB) was opened. A language called MUSICA has been used for the encoding of traditional scores, which have been used in synthesis projects. A series of one-week courses of study are in progress from July through November 1988. The Center also conserves a significant number of programs written to generate electronic works and hopes to preserve this collection for the purpose of facilitating the study of the compositional process in electronic music. The Center is on Via S. Francesco 11, 35121 Padua, Italy.