

# Tablatures and other non-staff notations for music

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MUSIC 253/CS 275A

STANFORD UNIVERSITY



# Common Western Notation (CMN)

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- References **specific** pitches and **relative** durations
- Assumes **regularity of meter**
- Has numerous **graphical** conventions
- Is **flexible** and **extensible** (up to a point)
- Potential includes hundreds (or thousands) or **graphical objects**
- Has numerous **organizational** conventions (scores, parts, etc.)
- **Meaning** of given object often **conferred contextually**

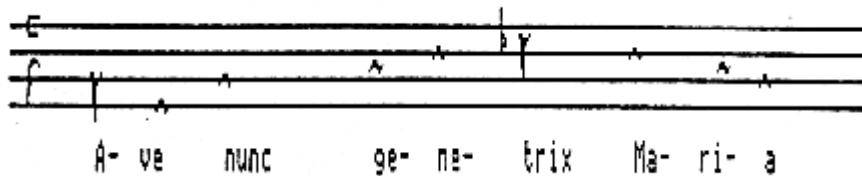
# Other representations of music

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## Western non-common

- **A. Neumes:** specifies relative pitches, often in *patterned* groups associated with particular words or syllables. **Many scripts.**
- **B. Mensural notation:** differentiates multiple *organizational hierarchies* for meter and duration. **Many scripts.**
- **C. Tablature:** pitch and note onset information tied to *gestural* info. **Many dialects.**
- **D. Music since 1950:** arbitrary requirements for *irregular* meter, unusual tunings, unusual gestures. **Arbitrary notations.**
- **E. Braille MN:** tactile output of binary representation. **Many organizational methods. Many national dialects.**

# Neumes



From the *Carmina Burana*

(Bavarian State Library [Hss Cgm 4660](#), Munich)

<http://daten.digital-sammlungen.de/~db/0008/bsb00085130/images/index.html?id=00085130&groesser=&fip=eayaxseayafsdrrxsxsdydxdsydyztsxsfsdr&no=1&seite=191>

- *Staves*: usually 4-line
- *Notes*: shapes not standardized
- *Durations*: not explicit
- *Lyrics* (lang.): mainly Latin
- *Lyrics* (script): special fonts, diacriticals

# Mensural notation

## Metrical hierarchies

Missa Alleluia  
1. Kyrie  
Pierre de la Rue

Discantus  
Cantus  
Tenor  
Bassus1  
Bassus2

Josquin: perfect

Requiem  
1 Introit

Discantus  
Contratenor

Hic iocundus sumit mundus

Dufay: imperfect

Ockeghem: Cut





Cantus  
Contratenor  
Tenor

# Mensuration signs

Measurement, grouping

*Metrical hierarchies*

**Mensuration signs**

| Tempus      | Prolatio | Sign | Semibreves | Minims  | Modern |     |     |
|-------------|----------|------|------------|---|--------|-----|-----|
|             |          |      |            |   | 1:4    | 1:2 | 1:1 |
| perfectum   | maior    | ⊙    | ooo        |    | 9/8    | 9/4 | 9/2 |
| perfectum   | minor    | ○    | ooo        |    | 3/4    | 3/2 | 3/1 |
| imperfectum | maior    | ⊕    | oo         |   | 6/8    | 6/4 | 6/2 |
| imperfectum | minor    | ⊖    | oo         |  | 2/4    | 2/2 | 2/1 |

# Fretted-instrument tablatures

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Six-string grid  
Duration separated  
Many graphical dialects



Lute

# Classical guitar



pollice-indice-medio-anulare-mignolo

## ALBORADA

Andalusian

Andante



## Plaisir D'amour

Fingerstyle Guitar Solo

Jean Paul Égide Martini (1741-1816)  
Arranged Bill Tyers

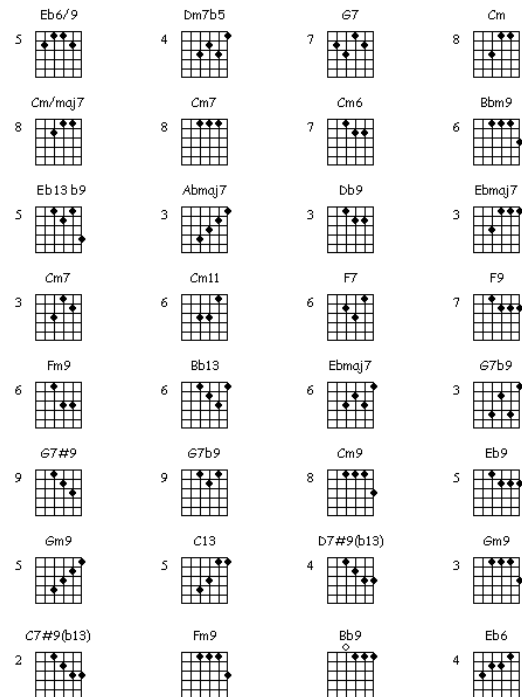
2 Slow Rock ♩ = 95





# Tablatures can take the form of...

- Pictographs
- Numeric codes
- Other graphs



www.jazzguitar.be

Guitar (correctly notated with correct pitch names)

E1 A1 D2 G2 B2 E3

T  
A  
B

6 strings

T  
A  
B

7 strings

Bergeronette

Borjon de Scellery, Traité de la Musette

Musette tablature

[http://en.wikipedia.org/wiki/List\\_of\\_guitar\\_tablature\\_software](http://en.wikipedia.org/wiki/List_of_guitar_tablature_software)

<http://en.wikibooks.org/wiki/Guitar/Tablature>

# Wind and keyboard tablatures

## Recorder tablature



Diagram illustrating Recorder tablature notation. The notation consists of vertical columns of dots and symbols, organized into two main sections separated by a horizontal line.

The top section shows two columns of notation, each labeled "(BIS)" below it. The notation uses black dots and circles to represent fingerings and breath marks.

The bottom section shows two columns of notation, each labeled "(BIS)" below it. The notation includes black dots, circles, and plus signs (+) to represent fingerings and breath marks.

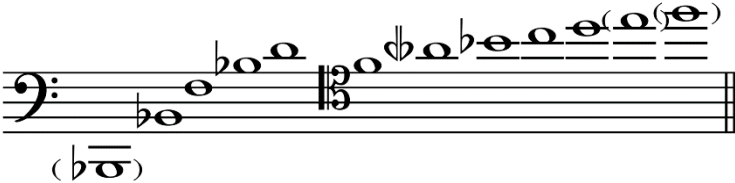
# Horns, trumpets, trombones



Military 6-valve trombone



Sackbuts



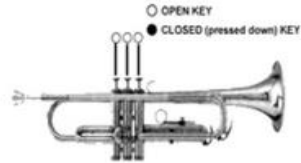
Trombone, first position overtone series

## Valveless instruments



Natural horn, Paris, 1797

# Trumpet tablature



|                  |                  |                  |                  |
|------------------|------------------|------------------|------------------|
| <b>F: G:</b><br> | <b>G</b><br>     | <b>G: A:</b><br> | <b>A</b><br>     |
| <b>A: B:</b><br> | <b>B</b><br>     | <b>C</b><br>     | <b>C: D:</b><br> |
| <b>D</b><br>     | <b>D: E:</b><br> | <b>E</b><br>     | <b>F</b><br>     |
| <b>F: G:</b><br> | <b>G</b><br>     | <b>G: A:</b><br> | <b>A</b><br>     |



# Anatolian folk instruments



# Yang qin (zither)



Map showing major sites, cities, and relative locations ancient sites. From *Music in the Age of Confucius*, page 115.

Neolithic Period ca.7000- 2000 B.C.

Bronze Age ca.2000-500B.C.

Shang dynasty ca. 1600-1050 B.C.

Zhou dynasty 1050-221 B.C.

Western Zhou 1050-771 B.C.

Eastern Zhou 771-221 B.C.

Warring States Period 480-221 B.C.

Qin dynasty 221-206 B.C.

Han dynasty 206 B.C.-A.D. 220

Western Jin dynasty A.D. 265-316

Tang dynasty A.D. 618-907

Song dynasty A.D. 960-1279

Northern Song A.D. 960-1127



Zhu, 5<sup>th</sup> cent. BCE



# Guqin notation (tablature)

Tablature for piece

Metadata

The image shows a page from a traditional Chinese music manuscript. The page is divided into several columns. On the right side, there is a large vertical title '臞仙神奇秘譜' (Zou Xian Shen Qi Mi Pu) and '下卷' (Lower Volume). Below the title are two red seals. To the left of the title, there is a column of text: '霞外神品' (Xia Wai Shen Pin) and '神品無射意' (Shen Pin Wu She Yi). Further left, there is a column of text: '黃鍾調 即無射' (Huangzhong Tuning, i.e., Wu She) and '取五品一及一山' (Take five notes, one and one mountain). The main body of the page contains tablature for the piece '黃雲秋塞' (Huangyun Qiu Sai). The tablature is written in vertical columns, with characters and numbers indicating fingerings and positions on the qin strings. There are several red seals interspersed within the tablature columns. At the bottom of the page, there is a large arrow pointing to the left, indicating the direction of reading.

- Vol. number
- Seals of the owner
- Title of volume
- Tuning, method of tuning
- name of modal “preface”
- tablature of modal preface

- Next page:
- title of piece
  - origins of piece
  - tablature for piece

# Recent music

- Articulation marks
- Compound meters
  - Polymeters
  - Quarter-tones
- Off-staff presentations

*Music Theory Spectrum* Volume 16, Number 1, Spring 1994  
 Peter H. Smith, "Brahms and Schenker: A Mutual Response to Sonata Form"  
 Example 12. Brahms, C-minor String Quartet, Op. 51 No. 1, i; Tonal Structure

31 75 136 143 173 216

I III V I

First Group Second Group Dev First Group Second Group Coda

6/8 3/4 6/8

*sf* *rfz* *pp*



# Systems of arbitrary complexity

Hyo-Shin Na's "Rain Study"

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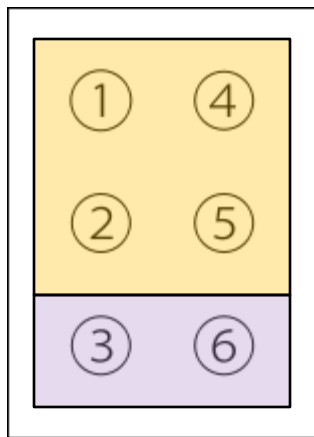


Typeset in SCORE by Craig Sapp (c. 2008)

# Braille music notation

Requires impact printing (raised “cells” of information)

Two chapters on Braille MN in *Beyond MIDI*



Cells 1, 2, 4, 5: “data” bits  
Cells 3, 6: switches

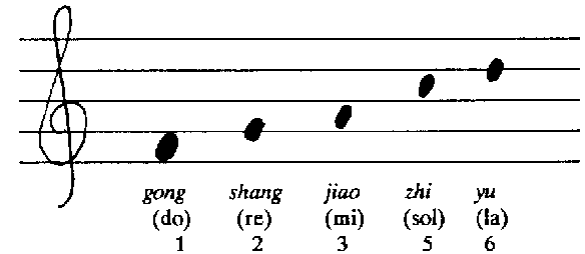
| Notes:                   | Octave Marks:                       |
|--------------------------|-------------------------------------|
| 8th, 128th               | <1st                                |
| quarter, 64th            | 1st                                 |
| half, 32nd               | 2nd                                 |
| Whole, 16th              | 3rd                                 |
|                          | 4th                                 |
|                          | 5th                                 |
|                          | 6th                                 |
|                          | 7th                                 |
|                          | >7th                                |
|                          | RH: fing: 1 2 3 4 5 LH              |
|                          | Intvis: 2nd 3rd 4th 5th 6th 7th 8th |
| 4 Meas. rest             | Dim.                                |
| Double Bar               | Rallentando                         |
| Dot                      | Ritardando                          |
| Music Hyphen             | Ritenuato                           |
| Triplet                  | Staccato                            |
| Repeat sign              | Staccatissimo                       |
| Slur                     | Tenuto                              |
| Tie                      | Tenuto-staccato                     |
| Chord Tie                | Accent                              |
| Bracket Slur (beginning) | Martellato                          |
| Bracket Slur (end)       | Swell                               |
| Word sign                | Fermata on a note                   |
| Word apostrophe          | Fermata between notes               |
| Crescendo (hairpin)      | Fermata over a bar line             |
| Cresc.                   | Measure in-accord                   |
| Dim. (shape)             | Part-measure in-accord              |
| Forte                    | Measure division sign               |
| Fortissimo               | Flat                                |
| fff                      | Sharp                               |
| Mezzo-forte              | Natural                             |
| Piano                    |                                     |
| Pianissimo               |                                     |
| Mezzo-piano              |                                     |

Note: Articulation marks (staccato, fermata, etc.) are shown as applied to a quarter note C (⠠⠴).

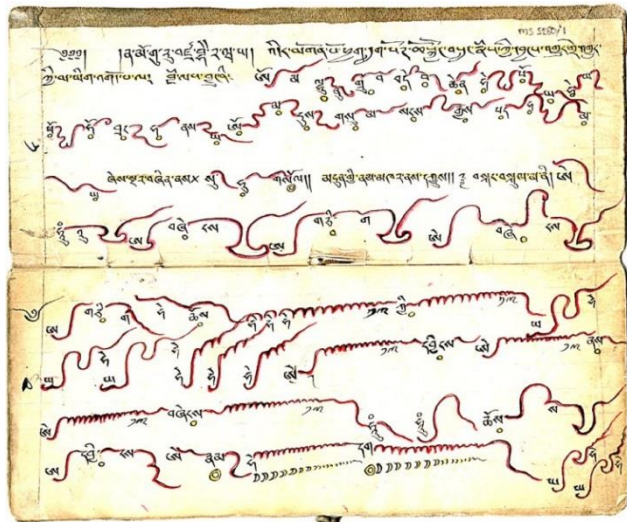
# Non-Western music

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- Tuning systems unpredictable
  - Ambiguities of tuning, temperament, scale degrees
- Non-Western instruments (gesture)
  - String
  - Wind
  - Percussion
  - Tuned percussion
- Different understandings of pitch and duration



# Other special-needs repertoires



MS 5280/1  
Yang chants with Tibetan Yang-Yig graphic music notation. Tibet, 19th c.

Tibetan chant

Cheironomic notation

Τῷ Σαββάτῳ ἑσπέρας. ᾠὴ Πα.

Κυριε ε κεκραξαα προ ο ος σε ε ρ ει  
 σε του σο ο ον μου ρ ει σα α του ου σο  
 ον μου ου Κυ υ υ ρι ι ι ι ε ρ Κυ ρι ε ε

A - men Lord I call to You, to . .

Ἄ - μὴν Κύ - ρι - ε ἔ - κε - κρα - ξα πρὸς  
 A - min Ki - ri - e e - ke - kra - xa pros

You O hear me O Lord O hear

Σέ - ει - σά - κου - σό - - ον μου ει - σά - κου -  
 Se - i - sa - ku - so - - on mu i - sa - ku -

Greek Orthodox chant

# Combinations of the above

Δειγμα τοῦ πῶς γράφονται τὰ κείμενα μετὰ μουσικῆς εἰς  
BRaille. Ἐκ τοῦ Ἀναστασιματαρίου Ἰωάννου τοῦ πρωτοψ.

The image displays a sample of Greek Orthodox chant notation in Braille. It consists of five lines of text, each line representing a musical phrase. The notation combines Greek letters (such as Η, Χ, Ο, Σ, Π, Α, Κ, Υ, Ρ, Λ, Ε, Κ, Ε, Κ, Ρ, Α, Ξ, Α, Σ, Α, Π, Ρ, Ο, Ο, Σ, Σ, Ε, Π, Α, ΕΙ, Σ, Α, Κ, Σ, Σ, Ο, Ο, V, Κ, Σ, Π, Α, ΕΙ, Σ, Α, Κ, Σ, Σ, Ο, Ο, V, Α) with various musical symbols like accents, slurs, and bar lines, all rendered in Braille characters. The notation is arranged in a way that suggests a melodic line with specific rhythmic values indicated by the symbols.

Greek Orthodox chant in Braille music notation

# SCORE for special notations

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Has extensive drawing capabilities

- Anticipated PostScript in use of splines

Has a few “palettes” for special characters

- Chant
- Mensural notation
- Tablatures (harp, trumpet, drum, guitar)
- Large-print notation (for plotter) [no Braille MN]

Legacy of large-print editions

# Score: Maximum user control

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Comes at price of parametric manipulation!