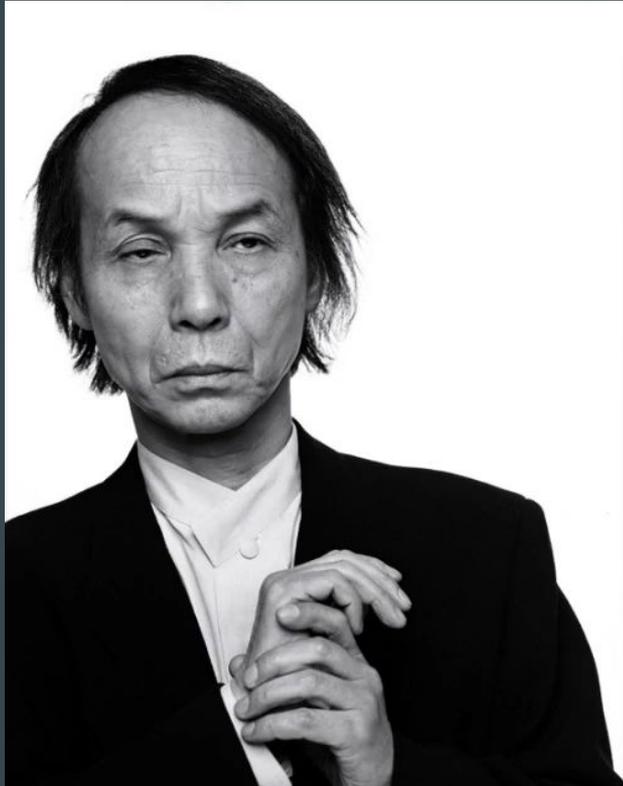


# Autumn



Toru Takemitsu  
Forrest Balman - MUS 716

# Life up until composition of *Autumn*



- Born October 8, 1930
- Spent early childhood in China
- Was drafted at 14
  - Grew resentful of Japanese society
- Founded Jikken Kobo
  - Mixed media, non-Japanese
- Began to research his heritage
  - Hears Cage's *Concert for PNO*
  - Learns to play biwa
- Writes for traditional instruments
  - *Eclipse* - Biwa & Shakuhachi
  - *November Steps* - Biwa, Shakuhachi & Orchestra
  - *Autumn* - Biwa, Shakuhachi & Orchestra

Percussion (4)

Trombones (3)

Trumpets (3)

Celesta

Oboes (2)

Clarinet (3)

Flutes (3)

Horns (4)

Harp (2)

Bassoons (2)

Violins (26)

Violas (10)

Cellos (8)

Double Basses (6)

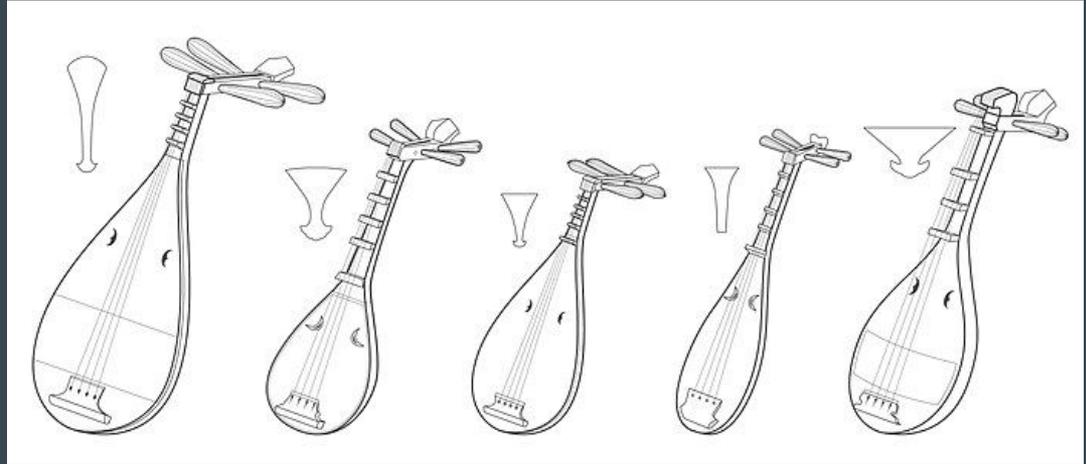
Biwa

Shakuhachi

# Instrumentation

# Biwa

- Japanese lute
  - Revised Chinese Pipa
- 4, or 5 strings
- Large plectrum
- Varied tunings
  - usually based on fifths



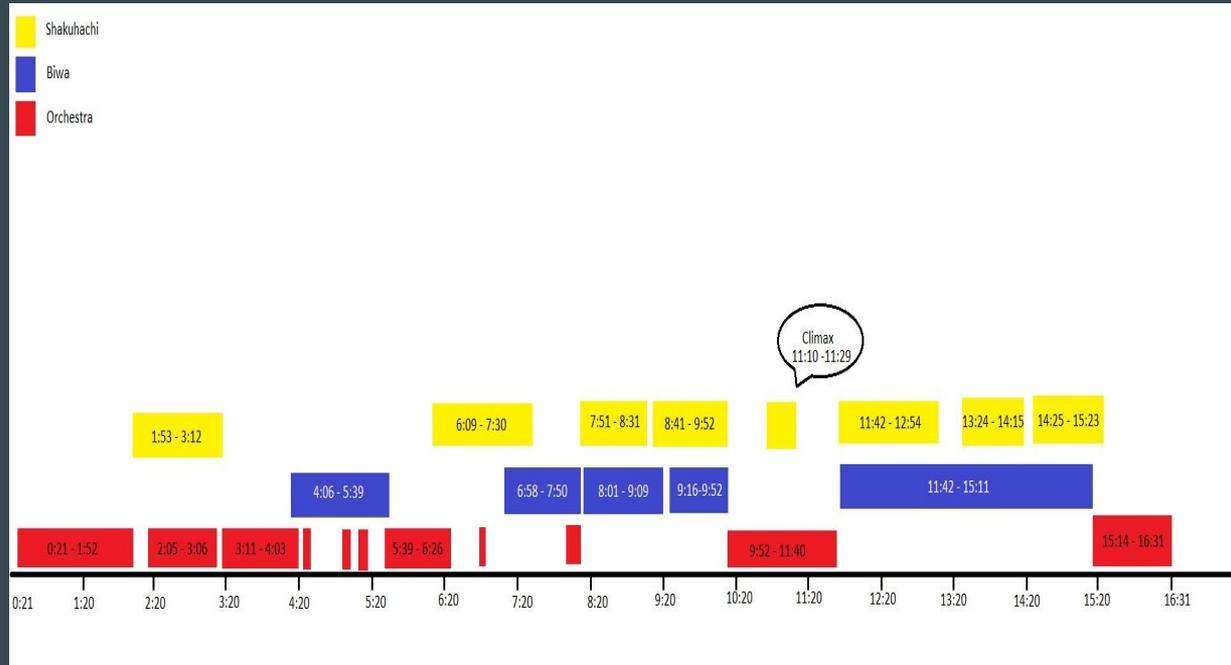
# Shakuhachi

- Japanese flute
- Varied sizes
  - Shaku - ~1 foot
  - hachi - 0.8 shaku
  - 1.8 shakuhachi most common
- Blown like a bottle
- D pentatonic scale
  - 2 octave range
  - can extend above



# Form

- Tone poem-esque
- Gagaku
- Separation of solo / orchestra
- Climax  $\frac{2}{3}$  through
- Narrative structure
  - monologue, dialogue, scene setting



**Rhythm**

# Meter

- Use of 3 different metric schemes:
  - Strict meter - quarter note pulse
    - exception m. 5 -  $\frac{3}{4} + \frac{3}{8}$
  - Time based “Sections”
    - “1S” or “2S”
      - Phrase lasts x seconds
  - Free
    - Traditional instruments
      - absence of meter / time
      - ad. lib

The diagram illustrates a musical score with three distinct sections. The first section, labeled 'm. 5', features a treble clef and two time signatures:  $\frac{3}{4}$  and  $\frac{3}{8}$ , with a plus sign between them. The second section, labeled 'm. 2', is marked with a circled '1S' above the staff and a bracket indicating a duration of '5" - 7"'. The third section, labeled 'm. 32', is marked 'SENZA TEMPO' above the staff. Each section contains a single quarter note on the staff.

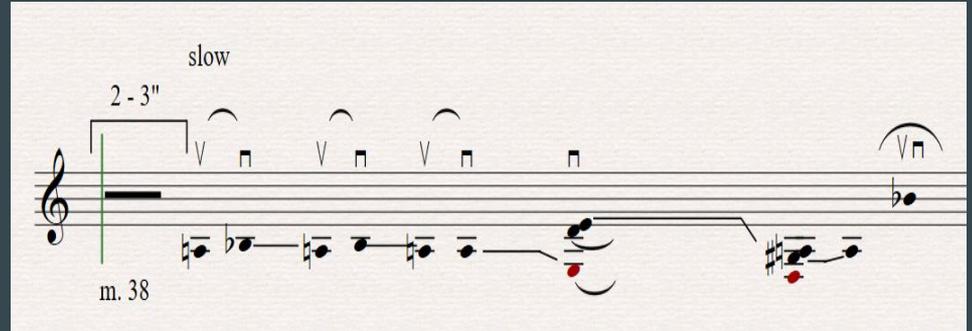
# Western Rhythm

- Multi-layered rhythmic organization
  - Meter
    - Beats divided by dashed lines
  - Beat subdivision
    - Each beat can assume “sub-meter”
      - Tempo is slow overall
        - Removes metric accents
        - Beat equality
- Polymeter at the beat level
  - Contrasting tuplets create freedom

The image shows a musical score for Flute (Fl.) and Oboe (Ob.) in 4/4 time, starting at measure 41. The score is written in treble clef with a key signature of one flat (B-flat). The time signature is 4/4, indicated by a large (4) above and below the staff. The score features complex rhythmic patterns, including triplets and quintuplets, and dynamic markings such as *ppp*, *p*, and *mf*. A red box highlights a section of the score, specifically measures 42-44, where the Flute and Oboe parts play a complex rhythmic pattern. The Flute part in this section consists of a triplet of eighth notes followed by a quarter note, and the Oboe part consists of a quintuplet of eighth notes followed by a quarter note. The dynamic markings are *p* and *mf*.

# Eastern Rhythm

- Absence of meter
  - Phrases
    - Gestures grouped together
    - Stemless noteheads imply pitch only
    - ad. lib by performer
  - Spatial relativity
    - Events spaced in relation to length
- Recreation of tablature
  - Traditional notation lacking
    - Translates fingerings to staff
    - Top > Bottom + Right > Left ⇒ Left > Right + Top > Bottom



# Pitch Organization

# motivic material - Half Steps

- Most frequently used melodic interval
  - Japanese sound-world
    - Existence in minor pentatonic/modes
    - Shakuhachi breath pitch control
    - Biwa string bending
  - Melodies bridged half steps
    - Sequential half steps approached by leap
  - Instances of canon throughout
- Examples
  - m. 18 First violins
  - m. 37 Horns
  - m. 47 Clarinets
  - mm. 60 -62 Strings



# Horns m. 37

- tremolo minor 2nds in the upper register, tremolo minor 3rds in the lower register
- swapping of voices in close proximity
  - minor 2nd interval shared by beat one of horns 1 + 2 / beat two of horns 3 + 4
  - minor 3rd interval shared by beat one of horns 3 + 4 / beat two of horns 1 + 2

The image displays a musical score for two horns in m. 37. The score is written in treble clef with a key signature of one flat (B-flat). The music consists of two staves. The upper staff (Horn 1) and lower staff (Horn 2) both play tremolo patterns. The upper register (treble clef) features tremolo minor 2nds, while the lower register (bass clef) features tremolo minor 3rds. The score is divided into two measures. In the first measure, the upper staff plays a tremolo minor 2nd interval (B-flat and C) and the lower staff plays a tremolo minor 3rd interval (B-flat and D). In the second measure, the voices swap: the upper staff plays a tremolo minor 3rd interval (B-flat and D) and the lower staff plays a tremolo minor 2nd interval (B-flat and C). Brackets labeled '5' indicate the five-line range of the staves. The notation includes stems, beams, and dots to indicate the tremolo effect.

# Clarinets m. 47

- ascending/descending minor seconds/augmented unisons approached by leap
- swapping of voices in close proximity, again
  - G/Ab => F#/Eb opposite one another in each clarinet

The image displays a musical score for two clarinets in 7/4 time. The score consists of two staves. The first staff begins with a treble clef and a 7/4 time signature. The melody starts with a quarter note, followed by a series of eighth notes: a half-flat, a sharp, a half-flat, a natural, a sharp, a natural, a sharp, and a half-flat. This is followed by a quarter rest, a quarter note, and a quarter rest. The second staff follows the same pattern but includes a blue highlight on the eighth note that is a half-flat, which corresponds to the F#/Eb mentioned in the text. The score ends with a double bar line.

# Strings m. 60 - 62

- minor seconds approached by leap in all strings

The image displays a musical score for strings, measures 60-62. The score is written for five staves, each representing a different string instrument. The tempo is marked "EXTREMELY SLOW" with a metronome marking of  $\text{♩} = 30$ . The performance style is "ESPRESSIVO". The time signature is 3/4, and the key signature is B-flat major. The score includes various dynamics such as *p* (piano), *f* (forte), *sub. p.* (sub-piano), *pp* (pianissimo), and *ppp* (pianississimo). The notation features long, sweeping lines with slurs and accents, indicating a slow, expressive movement. A specific instruction "DCCCV arcol." is written above the staves. The score shows a minor second leap in all strings, which is a key feature of the passage.

# Melody Summary

- Melodies make use of a wide variety of intervals
  - minor seconds are prominent but all intervals up to the tritone ( and their reflections ) are used frequently
  - no easily discernible hierarchy from interval analysis
    - if there is a pattern, it is deviated from heavily at Takemitsu's discretion

# harmonic material - PCS analysis

- 01X pitch class sets
  - chordal instruments/instruments in groups  $\geq$  three make use of trichords with 01
    - harps/celesta
    - strings
    - clarinets/trombones
  - Tetrachords are usually devoid of half steps.
- Examples
  - m. 5 Celesta
  - m. 8 - 10 Harps
  - m. 10 Clarinets/Trombones
  - m. 12 Harps
  - m. 17 Celesta
  - m. 37 Biwa
  - m. 69/70 Harps

# m.5 Celesta

- 014 trichords/0246 tetrachords prevalent in both hands
  - 01 and 02 prefixes across all chords

The image displays a musical score for a celesta, consisting of two staves: a treble clef staff and a bass clef staff. The score is divided into four measures, each with a chord diagram and a set of fingering numbers above it. The key signature is one sharp (F#).

Measure	Treble Clef Chord	Treble Clef Fingering	Bass Clef Chord	Bass Clef Fingering
1	014	014	0258	0258
2	0246	0246	0246	0246
3	026	026	014	014
4	0248	0248	0246	0246

# m.8 - 10 Harps

- 014/015 trichords across two measures of harmony
  - harps/celesta usually play aggregate of other parts, so these harmonies can be inferred from other instruments

The image displays musical notation for harp/celesta parts across three measures. The notation is presented on a grand staff with a treble clef on the upper staff and a bass clef on the lower staff. Above the treble staff, the following trichord aggregates are labeled: 016 + 025, 014 + 015, and 014 + 015. The notes are as follows:

Measure	Treble Staff	Bass Staff
016 + 025	F#4, G4, A4	F#3
014 + 015	Bb4, C5, D5	Bb3, C4, D4
014 + 015	Bb4, C5, D5	Bb3, C4, D4, E4, F4, G4, A4, Bb4

# m.12 Harps

- 01X trichords prevalent throughout phrase
  - exception of 037 (minor triad)
  - 015 particularly visible

The image displays a musical score for a harp in measure 12, consisting of two staves: a treble clef staff and a bass clef staff. The score is annotated with chord diagrams and labels. The treble staff has three chord diagrams with labels 015, 016, and 015 above them. The bass staff has four chord diagrams with labels 014, 037, 015, and 013 below them. The chord diagrams are represented by circles on a five-line staff, with lines indicating the strings and dots indicating the fret positions. The 015 chord is shown in both staves, while the 037 chord is only in the bass staff.

# m.12 Clarinets/Trombones

- 01X trichords prevalent throughout phrase
  - exception of 037 (minor triad)
  - 015 particularly visible

The image displays a musical score for Clarinets/Trombones in measure 12, illustrating trichord analysis. The score is written on a grand staff with a treble clef on the upper staff and a bass clef on the lower staff. The key signature is one sharp (F#). The score is divided into four measures, each with a trichord label above or below the staff. The trichords are: 015 (treble), 014 (bass), 037 (treble), 015 (bass), 016 (treble), 015 (bass), 015 (treble), and 013 (bass). The trichords are represented by three notes on a staff, with a sharp sign indicating the key signature. The 037 trichord is a minor triad, which is an exception to the 01X trichord prevalence mentioned in the text.

# m.12 Harps

- 0137 tetrachord in right hand
  - contains all intervals exactly once
  - 026 partial chord of first sonority heard in celesta, m. 5

0137 => all interval tetrachord

026

The image displays two staves of music. The upper staff, in treble clef, shows a tetrachord with notes G#4, A4, B4, and C5. Above the staff, the text '0137 => all interval tetrachord' is written. The lower staff, in treble clef, shows a partial chord with notes G#3, A3, and B3. Above the staff, the text '026' is written. The two staves are connected by a brace on the left side.

# m.17 Celesta

- 026 trichord growing in importance
  - 01X trichords still relevant throughout
  - 0X6 trichords virtually every chord in passage
  - planing => French impressionist influence?

The image displays a musical score for a celesta part, consisting of two staves (treble and bass clef) in 5/4 time. The key signature has one flat (B-flat). The score is divided into five measures, each with a trichord label above or below the notes. The notes are represented by circles with stems, indicating a simplified notation for chord analysis.

Measure	Trichord Label	Notes (Simplified)
1	016	C4, E4, G4
2	016	C4, E4, G4
3	016	C4, E4, G4
4	016	C4, E4, G4
5	013	C4, E4, G4

Below the treble staff, the bass staff contains notes and trichord labels. The first measure has a trichord label 036 and notes C3, E3, G3. The subsequent measures have trichord labels 026 and notes C3, E3, G3. The final measure has a trichord label 026 and notes C3, E3, G3.

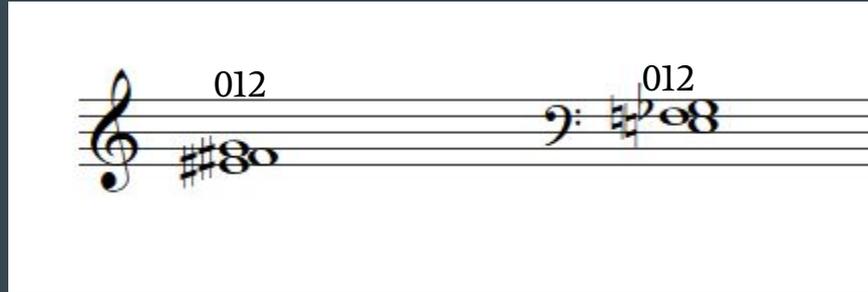
# m.37 Biwa

- 01X trichord source?
  - Biwa half step doubling exists in every voicing throughout first cadenza

The image displays a musical staff with a treble clef, showing six chords. Above the staff, the chords are labeled with numbers: 016, 012, 0157, 0158, 015, and 016. The chords are represented by notes on the staff, with some notes having accidentals (sharps and flats). The first chord (016) has a sharp sign above it. The second chord (012) has a sharp sign above it. The third chord (0157) has a flat sign above it. The fourth chord (0158) has a flat sign above it. The fifth chord (015) has a sharp sign above it. The sixth chord (016) has a flat sign above it. The staff ends with a double bar line.

# m.69-70 Harps

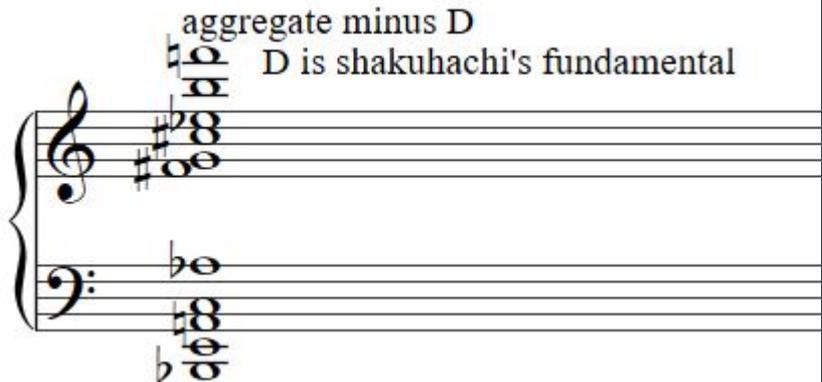
- 012 trichords
  - trichords that are an aggregate of consecutive half steps



# m.64 Climax

- 11 chord. Chromatic scale minus D
  - Shakuhachi is tuned to D.
  - Re-enters after climax with E quarter sharp moving down towards D

aggregate minus D  
D is shakuhachi's fundamental



# Harmony Summary

- Takemitsu favored 01X trichords and 02XX tetrachords
  - There is counterpoint, most of the harmonic analysis is based on unison harmonies.
  - Rhythmic organization makes overlapping harmonies that are a byproduct of counterpoint/suspensions challenging
    - These harmonic impacts are lessened by the spacing of parts across the orchestra

# Techniques

# Master Orchestrator

- Clear understanding of instrumental capability
- Use of many obscure techniques throughout
- High level of focus and technical demand
  - Techniques derived from attempt to emulate shakuhachi/biwa?
- Examples:
  - Double trill - flute m. 4 
  - Flutter-tongue + plunger mute - trombones m. 21 
  - Mute mixing - strings m. 70 

# Shakuhachi Orchestration

- Expressive, dialogal instrument
  - As powerful chromatically as a slide whistle
- Breath and control dictate phrase quality
- Examples:
  - Wide tremolo + pitch bend 
  - “Birthday candles” (overblowing) 
  - “Whistle vibrato” - 

# Biwa Orchestration

- Strong/concise phrasing
  - Capable of more complicated sounds
- Percussive, angry, violent => contemplative, sincere
- Examples:
  - Strummed chords
  - Plectrum “scrape”
  - Down strum slap -



# Takeaways / Summary

- Don't let notation detract from your ability to communicate to the performer
  - However, don't "reinvent the wheel."
- If a piece lacks structure, re-examine the form
  - Experiment with benchmarks to give yourself a point of arrival.
- Triplets can imply flexibility
  - If a phrase is meant to be felt, approximate, then subdivide the beat appropriately.
- Interesting pitch material can be derived from simple means
  - Don't necessarily fall into using a strict process. Listen to your intuitions.
- Texture and color juxtaposed
  - Instruments are capable of pitch content, as well as extra-musical effect.
  - Too much percussion can lead to novelty. Less can mean more.
- Subdividing orchestral sections to thin texture
  - Can create chaos or complexity.