

# Four Common Types of Symmetry in Music

*Horizontal Translation (repetition)*

*Vertical Translation (transposition)*

The first example shows a musical staff in 4/4 time with a key signature of one sharp (F#). The melody consists of quarter notes: G4, A4, B4, C5, B4, A4, G4. This sequence is repeated in the second measure. A horizontal arrow points to the right above the first measure. In the third measure, the sequence is transposed down one octave to G3, A3, B3, C4, B3, A3, G3. A vertical arrow points down from the first measure to the third measure. Below the staff is a guitar fretboard diagram with fret numbers 5, 0, 2, 3, 5, 0, 2, 3, 5, 0, 2, 5.

*Vertical Reflection (retrograde)*

*Horizontal Reflection (inversion)*

The second example shows a musical staff in 4/4 time with a key signature of one sharp (F#). The melody consists of quarter notes: G4, A4, B4, C5, B4, A4, G4. A vertical dashed line is placed between the second and third measures. The sequence is then played backwards: G4, A4, B4, C5, B4, A4, G4. A horizontal dashed line is placed between the third and fourth measures. The sequence is then inverted: G4, A4, B4, C5, B4, A4, G4. Below the staff is a guitar fretboard diagram with fret numbers 5, 0, 2, 3, 3, 2, 0, 5, 5, 0, 2, 3, 2, 0, 5, 4.

# Symmetry Examples

**Brother John** *Horizontal Translation (repetition)* *Horizontal Translation (repetition)*

1

You Sleep - ing Are You Sleep - ing Bro - ther John Bro - ther John

TAB

4 5 0 2 5 5 0 2 5 2 3 5 2 3 5

4 4

Detailed description: This block shows the first example of symmetry, 'Brother John'. It features a melody line in treble clef with a key signature of two sharps (F# and C#) and a 4/4 time signature. The melody consists of quarter notes: G4, A4, B4, C5, D5, E5, F#5, G5, A5, B5, C6, D6, E6, F#6, G6, A6, B6, C7. The lyrics are 'You Sleep - ing Are You Sleep - ing Bro - ther John Bro - ther John'. Below the melody is a guitar tablature line with fret numbers: 4, 5, 0, 2, 5, 5, 0, 2, 5, 2, 3, 5, 2, 3, 5. Two horizontal arrows labeled 'Horizontal Translation (repetition)' point to the right, indicating the repetition of the melodic phrase.

**Durham's Reel** *Vertical Translation (transposition)* *Vertical Reflection (retrograde)* *Vertical Reflection (retrograde)*

2 4 6 2 4 2 6 4 2 4 6 2 4 2 6 4 0 2 4 0 2 0 4 2 0 2 4 0 2 0 4 2

Detailed description: This block shows 'Durham's Reel'. The melody is in treble clef with a key signature of three sharps (F#, C#, G#) and a 4/4 time signature. The melody consists of eighth notes: G4, A4, B4, C5, D5, E5, F#5, G5, A5, B5, C6, D6, E6, F#6, G6, A6, B6, C7. The lyrics are 'You Sleep - ing Are You Sleep - ing Bro - ther John Bro - ther John'. Below the melody is a guitar tablature line with fret numbers: 2, 4, 6, 2, 4, 2, 6, 4, 2, 4, 6, 2, 4, 2, 6, 4, 0, 2, 4, 0, 2, 0, 4, 2, 0, 2, 4, 0, 2, 0, 4, 2. Two vertical arrows labeled 'Vertical Translation (transposition)' point upwards, and two vertical arrows labeled 'Vertical Reflection (retrograde)' point downwards, indicating the relationship between the original melody and its transposed and retrograde forms.

**Lonesome Road Blues**

Goin' Down — That Road Feel - in' Bad —

5 5 5 5 0 5 2 5 5 5

Detailed description: This block shows 'Lonesome Road Blues'. The melody is in treble clef with a key signature of one sharp (F#) and a 4/4 time signature. The melody consists of quarter notes: G4, A4, B4, C5, D5, E5, F#5, G5, A5, B5, C6, D6, E6, F#6, G6, A6, B6, C7. The lyrics are 'Goin' Down — That Road Feel - in' Bad —'. Below the melody is a guitar tablature line with fret numbers: 5, 5, 5, 5, 0, 5, 2, 5, 5, 5.

*Vertical Translation (transposition)*

Goin' Down — That Road Feel - in' Bad —

5 5 5 5 0 5 2 5 5 5

Detailed description: This block shows the transposed version of 'Lonesome Road Blues'. The melody is in treble clef with a key signature of one sharp (F#) and a 4/4 time signature. The melody consists of quarter notes: G4, A4, B4, C5, D5, E5, F#5, G5, A5, B5, C6, D6, E6, F#6, G6, A6, B6, C7. The lyrics are 'Goin' Down — That Road Feel - in' Bad —'. Below the melody is a guitar tablature line with fret numbers: 5, 5, 5, 5, 0, 5, 2, 5, 5, 5. A vertical arrow labeled 'Vertical Translation (transposition)' points downwards, indicating the relationship between the original melody and its transposed form.

**I've Got Rhythm** *Vertical Reflection (retrograde)*

I've — Got Rhy - thm I've — Got Mus - ic

0 0 2 5 0 0 0 5 2 0

Detailed description: This block shows 'I've Got Rhythm'. The melody is in treble clef with a key signature of two sharps (F# and C#) and a 4/4 time signature. The melody consists of quarter notes: G4, A4, B4, C5, D5, E5, F#5, G5, A5, B5, C6, D6, E6, F#6, G6, A6, B6, C7. The lyrics are 'I've — Got Rhy - thm I've — Got Mus - ic'. Below the melody is a guitar tablature line with fret numbers: 0, 0, 2, 5, 0, 0, 0, 5, 2, 0. A vertical arrow labeled 'Vertical Reflection (retrograde)' points downwards, indicating the relationship between the original melody and its retrograde form.

# Symmetry Examples (con't)

## Lean On Me

### *Vertical Reflection (retrograde)*

Some - times in our lives ————— We all have pain —————

0 0 2 4 5 5̣ | 5̣ 4̣ 2 0 0̣ |

Detailed description: This block shows the first example of symmetry. It features a treble clef staff with a key signature of two sharps (F# and C#). The melody is written in a 4/4 time signature. A vertical dashed line is placed at the midpoint of the phrase. The notes to the right of the line are a vertical reflection (retrograde) of the notes to the left. Below the staff is a guitar fretboard diagram with fingerings: 0, 0, 2, 4, 5, 5̣, 5̣, 4̣, 2, 0, 0̣.

## Little Rabbit

### *Vertical Reflection (retrograde)*

0 2 | 5 | 5 2 0 | 0 2 | 5 5 7 | 0 2

Detailed description: This block shows the second example of symmetry. It features a treble clef staff with a key signature of two sharps (F# and C#). The melody is written in a 4/4 time signature. A vertical dashed line is placed at the midpoint of the phrase. The notes to the right of the line are a vertical reflection (retrograde) of the notes to the left. Below the staff is a guitar fretboard diagram with fingerings: 0, 2, 5, 5, 2, 0, 0, 2, 5, 5, 7, 0, 2.

### *Horizontal Reflection combined with Vertical Translation*

0 4 5 0 4 0 | 5 4 2 5 0 2 5 2 0 5 | 4 0 2 4 0 3 2 0 | 5 5 5 5

Detailed description: This block shows the third example of symmetry. It features a treble clef staff with a key signature of two sharps (F# and C#). The melody is written in a 4/4 time signature. The notes to the right of the vertical dashed line are a horizontal reflection (mirror image) of the notes to the left, combined with a vertical translation. Below the staff is a guitar fretboard diagram with fingerings: 0, 4, 5, 0, 4, 0, 5, 4, 2, 5, 0, 2, 5, 2, 0, 5, 4, 0, 2, 4, 0, 3, 2, 0, 5, 5, 5, 5.

### *Vertical Reflection combined with Vertical Translation*

0 2 4 0 | 5 2 0 5 | 2 4 5 2 | 0 4 2 0 | 4 5 0 4 | 2 5 4 2 | 5 0 2 5 | 4 0 5 4 | 5 5 5 5

Detailed description: This block shows the fourth example of symmetry. It features a treble clef staff with a key signature of two sharps (F# and C#). The melody is written in a 4/4 time signature. The notes to the right of the vertical dashed line are a vertical reflection (retrograde) of the notes to the left, combined with a vertical translation. Below the staff is a guitar fretboard diagram with fingerings: 0, 2, 4, 0, 5, 2, 0, 5, 2, 4, 5, 2, 0, 4, 2, 0, 4, 5, 0, 4, 2, 5, 4, 2, 5, 0, 2, 5, 4, 0, 5, 4, 5, 5, 5, 5.

## Symmetry Examples (con't)

### *Horizontal Reflection with different lines of Reflection*

Musical notation for "Horizontal Reflection with different lines of Reflection". The piece is in G major (one sharp) and 4/4 time. It consists of four measures. The first measure contains a melody on a treble clef staff and a guitar fretboard diagram below it. The fretboard diagram shows fingerings: 0 4 5 0 2 5 4 2. The second measure contains a melody on a treble clef staff and a guitar fretboard diagram below it. The fretboard diagram shows fingerings: 0 4 5 0 5 2 0 5. The third measure contains a melody on a treble clef staff and a guitar fretboard diagram below it. The fretboard diagram shows fingerings: 0 4 5 0 0 3 2 0. The fourth measure contains a melody on a treble clef staff and a guitar fretboard diagram below it. The fretboard diagram shows fingerings: 0 4 5 0 2 5 3 2.

### Blackberry Blossom

Musical notation for "Blackberry Blossom". The piece is in G major (one sharp) and 4/4 time. It consists of four measures. The first measure contains a melody on a treble clef staff and a guitar fretboard diagram below it. The fretboard diagram shows fingerings: 3 5 7 3 2 5 3 2. The second measure contains a melody on a treble clef staff and a guitar fretboard diagram below it. The fretboard diagram shows fingerings: 0 3 5 2 5 2 0 5. The third measure contains a melody on a treble clef staff and a guitar fretboard diagram below it. The fretboard diagram shows fingerings: 2 4 5 2 0 2 5 0. The fourth measure contains a melody on a treble clef staff and a guitar fretboard diagram below it. The fretboard diagram shows fingerings: 2 0 5 2 0. Above the first three measures, there are circled numbers 1, 2, and 3, each with a bracket underneath it. A vertical dashed line is positioned between the first and second measures. To the right of the notation, there are two lines of text: "1 to 2: Vertical Reflection with Vertical Translation" and "2 to 3: Horizontal Reflection with Vertical Translation".

# Twinkle, Twinkle Little Star Using Various Forms of Symmetry

1

*Vertical Translation*      *Folded Scale*      *Vertical Reflection*

T  
A  
B

5

*Vertical Translation*      *Horizontal Translation*      *Vertical Translation*

*Folded Scale*    *Folded Scale*    *Folded Scale*      *Folded Scale*    *Folded Scale*    *Folded Scale*

9

*Vertical Reflection with Vertical Translation*      *Vertical Translation*

*Straight Scale*      *Note Enclosure*