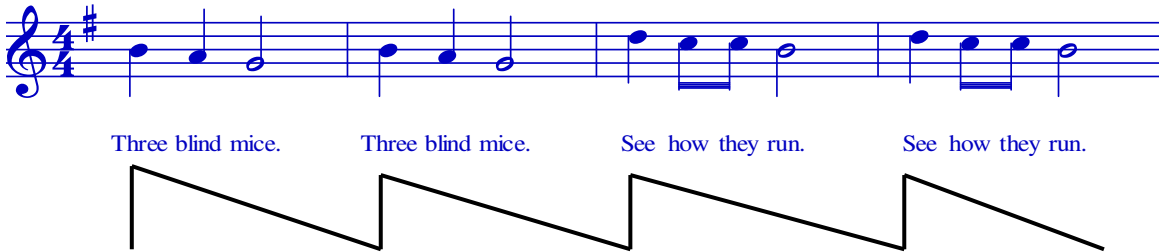


Technique 3

Creating Melody from Contour Waves

Ernst Toch was perhaps the first person to make the case in a text book for analysis and composition of music using the concept of waves and contours. He observed that melody is a temporal succession of pitches – one tone following another. He wrote: “with the combination of ascending and descending scales segments, melody approaches its real nature: the wave.”

Take a look at the first four bars of *Three Blind Mice* to see the wave in action.



The image shows the first four bars of the melody for "Three Blind Mice" in 4/4 time, key of D major. The melody is written on a single staff. Below the staff, the lyrics are written under each bar: "Three blind mice.", "Three blind mice.", "See how they run.", and "See how they run.". Below the lyrics is a black line graph representing the pitch contour of the melody. The contour consists of four distinct sawtooth shapes, each corresponding to a bar of music. Each sawtooth starts with a vertical line going up, followed by a diagonal line going down, and then a vertical line going up again to start the next bar. The overall effect is a series of repeating descending lines with sharp upward jumps at the beginning of each bar.

The contour of the melody forms a saw tooth wave. Each saw tooth describes a short motive or germ. The essence of this wave form is a falling line.

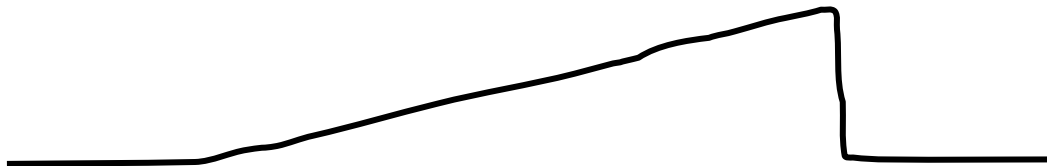
This wave form is one of nine described by Toch. Some very successful composers write music by starting with a sequence of this basic wave shapes. Generally a wave describes a motive or phrase. An entire work is a sequence of different forms of waves.

Here are the nine contours of music you should know.

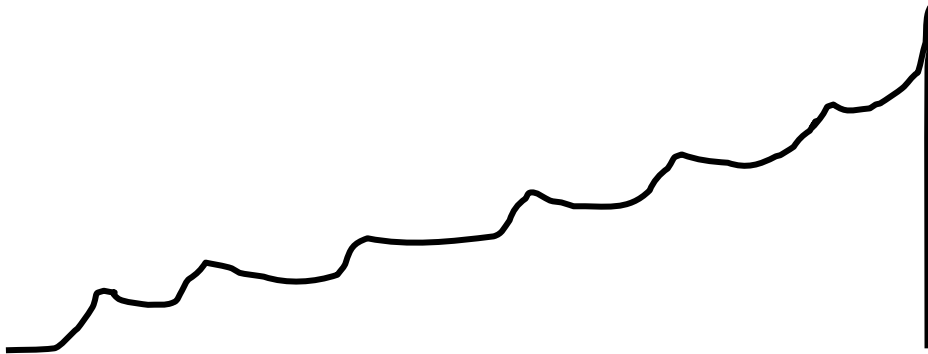
The Wave: a gentle undulation. Gregorian chants are good examples of the wave. This form produces tranquil melodies.



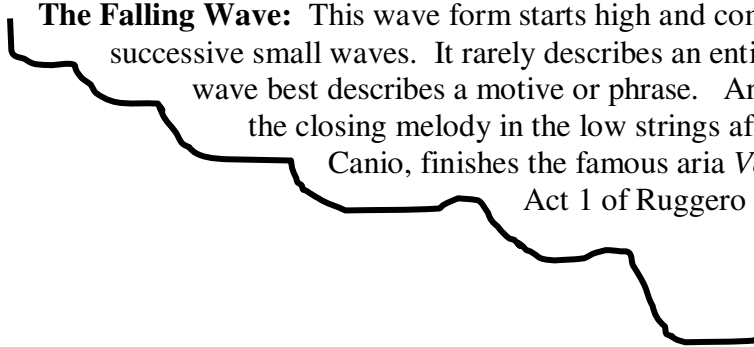
The Wave with Climax: A gentle rise to a high point just before the end of the phrase and then a return to quiescence. Many of the great arias in operas and Broadway music follow this form. *To Dream the Impossible Dream* and Ravel's *Bolero* are examples



The Rising Wave: This wave form swoops up in a series of small waves. It rises and drops and then rises again. Just before the end it reaches a grand climax and drops off. Each crest of the rise is successively higher.



The Falling Wave: This wave form starts high and comes down in a series of successive small waves. It rarely describes an entire composition. The falling wave best describes a motive or phrase. An example of the falling wave is the closing melody in the low strings after the tenor, in the role of Canio, finishes the famous aria *Vesti la Giubba* that concludes Act 1 of Ruggero Leoncavallo's opera *I Pagliacci*



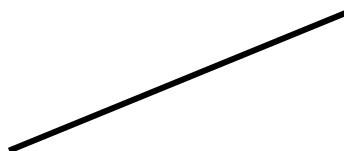
The Arch: This wave form rises and falls gently with the peak or climax in the middle. The arch may be a series of small waves. In that case it's called an ornamented arch.



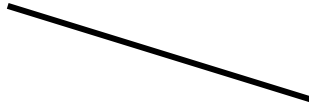
The Bowl: this wave form is the inverse of the arch. It falls and rises gently with the low point in the middle. Handel's *Joy to the World* is an example.



The Rising line: This is a straight, linear rise to a high point.



The Falling Line: This contour is the inverse of the rising line.



The Horizontal Line: This wave is “flat”. The music stays at one pitch level.



Toch maintained that ALL music could be analyzed using these nine basic shapes. In practice many composers string together these basic shapes to define the contour of the music before they write a note.

Here is an example of using Toch’s waves to analyze a composition. Look at the first five measures of Liberty and sketch the wave shapes of the music.

The shapes are:

Falling Line Four Horizontal lines bowl bowl Four horizontal lines bowl falling line

This process can go either way. Waves can be used to analyze a composition or to write a composition.

Here is an example of writing from wave contours.

The tune is called *The Rat and the Raven*. The tonal center is Bm. The graphical analysis of the tune is below. Remember, it was written by creating the contour waves and then choosing the pitch and duration of the notes. Also note the form is AABA

The motive is a repetitive falling line that becomes a saw tooth wave. Note that at the end of measure two there is a blank in the curve. This is because the three notes at the end of measure two are really pickup notes. They are not part of the shape of the melody. In fact they can be left out and the listener will follow the melody just as well. It is not necessary to account for every tone when either analyzing or designing a melody by use of contour waves.

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That 2nd motive of part A part is a bowl shaped contour. The 7th measure is an extension of new material to the motive. The 8th and 9th measures contain rising lines meant to counter the falling saw tooth lines of the 1st motive.

Measure 8 contains a series of 32nd notes. That's all about rhythm. These identical tones do not change the shape of the contour. Measure 8, in terms of waves, is two steady tones located an octave apart.

Part B is an undulating section driven by a strong chord progress that ends in the MAJOR V chord F#7. Resolution is created by the downward scale that returns the music to the Bm of part A

The contour is a mix of rising and falling lines, bowls and saw teeth. The first two measures combine a rising line with an arch. It looks like a sickle and it has the effect of grabbing the listener. The 5th measure in the line is a series of saw tooth waves setting up tension which is relieved by the falling line of the next measure that drops this listener back into the comfort of the tonal center, B minor.

Percussionists say about rhythm, “if you can say it you can play it.” Composers should have a similar aphorism:

“if you can draw it you can write it.”