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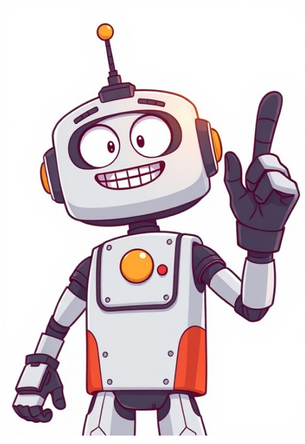

The circle of fifths is an instrument that can be used in many different ways when it comes to music theory. It can help us know what chord progressions will sound good together and what sharps or flats a key signature has.In this post, I’m going to give you a look at the useful musical concept and explain some of the ways that it can help you learn music theory.As the name implies, the circle of fifths is a circle that connect all 12 tones used in Western music. It is a visual representation of the musical relationship between these 12 tones.By using the circle of fifths, you can quickly and easily determine the key signature of any major or minor key and the chords that will sound good together in a given key.This make it an essential tool for anyone learning music theory or for musicians who want to better understand the underlying structure of the music they play.To build the circle of fifths, we put all 12 note letter names around a circle like a clock.But rather than putting them in order from A to G, each of the notes is separated by intervals of perfect fifths.We start with the note C at the top of the circle (where 12 would be on a clock face).Beginning the circleWe then add the next note in the circle by adding a note to the right of C (where one would be on a clock face) that is an interval of a perfect fifth above C.Going up a perfect fifth from C, we reach G, and we carry on clockwise around the circle, adding the note a perfect 5th above.Up a perfect fifthWe could go on going up perfect fifths from F# to C# and then C# to G#, but there is an easier way.We can go back to the C at the top in the middle and this time go down a perfect fifth and write notes to the left of C.To work out what note is a perfect fifth below C, we can go down seven semitones (half steps).Seven semitones down from C is F, so we can add the note F next to C (11 on a clock face).We can then continue adding each note a perfect fifth below the previous note.A perfect fifth below F is Bb, Bb to Eb, Eb to Ab, Ab to Db, and finally from Db to Gb.Going down a perfect fifthF# and Gb are what we call enharmonic equivalents, which is just a fancy way of saying they’re the same but with different names. So you’ll often see both notes at the bottom of the circle of fifths.Now that we’ve built a circle, we have to remember it rather than just memorize it through sheer repetition. We can do this in a few ways.The best way is through a mnemonic device — we create a sentence with the first letter of each word starting with a new note in the circle. For example, Charles Goes Dancing At Every Big Fun Celebration.The first letter of every word (C – G – D – A – E – B – F – C) follow the circle of fifths, starting at the top C and going right (the last two notes here are technically F# and C#, remember).This also represents the order of key signatures that have sharps (#) in them — C has no sharps, G has 1 sharp, D has 2, etc., all the way to C#, which has seven sharps.Starting at C and going the other way (to the left), we have the mnemonic example: Charles Falls Behind Everyone At Disc Golf Courses.Going this way, we have the notes C, F, Bb, Eb, Ab, Db, Gb, and Cb, which are also in order of how many flats they have in their key signatures: C has none, F has one flat, Bb has two, … and Cb has seven flats.However, as shown in the picture above, some of these keys are enharmonic equivalents: Cb = B, Gb = F#, and Db = C#.This is somethin to look out for when memorizin the mnemonic sentenses.The circle of fifths have several very handiUsing the Circle of Fifths for Music Theory ========== The circle of fifths can be used to determine relative major and minor keys, as well as chord progressions for many types of music. Going down the right side of the circle, you gain one sharp to your key signature every note for the first seven notes. Going down the left side, you gain one flat to your key signature for the first seven notes. If you're in any key, you can use the circle of fifths to figure out the relative major or minor of that key. If you start in a major key, to find the relative minor key, you go to the right three spaces in the circle. For example, if your key is C major, you go right three spaces (C – G – D – A) to get A, so the relative minor of C major is A minor.The Circle of Fifths: A Musical Concept with Many Useful Applications ========== I am looking forewrd to discusin this usefull musical concept and explain som of the ways that it can help you learn music theory.As the name implies, the circle of fifths is a circl that connects all 12 tones used in Western music. It is a visual representaton of the musical relationship between these 12 tones.By using the circl of fifths, you can quicky and easily determine the key signature of any major or minor key and the chords that will sound good together in a given key.This makes it an essental tool for anyone learning music theory or for musicians who want to better understand the underlying structre of the music they play.To build the circl of fifths, we place all 12 note letter names arouond a circl like a clock.But rather than putting them in order from A to G, each of the notes is seperated by intervuls of perfect fifths.We start with the note C at the top of the circl (where 12 would be on a clock face).Beginning the circlWe then add the next note in the circl by adding a note to the right of C (where one would be on a clock face) that is an intervul of a perfect fifth above C.Going up a perfect fifth from C, we reach G, and we carry on clockwise arouond the circl, adding the note a perfect 5th above.Up a perfect fifthWe could carry on going up perfict fifths from F# to C# and then C# to G#, but there is an eaiser way.We can go back to the C at the top in the middle and this time go down a perfect fifth and write notes to the left of C.To work out what note is a perfect fifth below C, we can go down seven semitones (half steps).Seven semitones down from C is F, so we can add the note F next to C (11 on a clock face).We can then continiue adding each note a perfict fifth below the previous note.A perfict fifth below F is Bb, Bb to Eb, Eb to Ab, Ab to Db, and finilly from Db to Gb.Going down a perfict fifthF# and Gb are what we call enharmonic equivalents, which is just a fancy way of saying they’re the same but with diferent names. 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For example, Charles Goes Dancing At Every Big Fun Celebration.The first letter of every word (C – G – D – A – E – B – F – C) follows the circl of fifths, starting at the top C and going right (the last two notes here are technically F# and C#, remember).This also represents the order of key signatures that have sharps (#) in them — C has no sharps, G has 1 sharp, D has 2, etc., all the way to C#, which has seven sharps.Starting at C and going the other way (to the left), we have the mnemonic example: Charles Falls Behind Everyone At Disc Golf Courses.Going this way, we have the notes C, F, Bb, Eb, Ab, Db, Gb, and Cb, which are also in order of how many flats they have in their key signatures: C has none, F has one flat, Bb has two, … and Cb has seven flats.However, as shown in the piture above, some of these keys are enharmonic equivalents: Cb = B, Gb = F#, and Db = C#.This is somethin to look out for when memorizing the mnemonic sentences.The circl of fifths has several very handy uses. Now I’ll cover a few things we can usethe circular arrangement of keys on a piano keyboard displays how each key is connected to others through intervals of perfect fifths, which are essential in music theory. ==========The Circle of Fifths: A Harmonious Organization of Music Theory ========== Circl of fifths arngdz ths mwsc thry, ith stdn syztm f tuning fr Wstn msc, th sqnce iz: C, G, D, A, E, B, F#,G-, C#,D-, G#,A-, D#,E-, A#,B-. Ths ord rls th most clynly rltd ky szgnatures adjoining nxt t othrz. Twtn-ntl ql tmprturng divdz each ctv into twlv eqvlnt smtnz, nd th circl f fifths lds t C sevnd octvz abv th strtng pnt. If th fifths r tuned wth xct frqncy rati 3:2 (th syztm f tuning knwn as jst ntjn), ths iz nt th kaz (th circl dznt "klzd"). Th circl f fifths ngdzncts pichtz n sqnce f prfkt fifths, gnerll shwn az kirl wth th pichtz nd thrir korrespndng ky szgnatures in cwz klwzrd orrz.The relationship between scale degree II and the dominant is a complex one, with various theories attempting to explain its proximity. According to Richard Franko Goldman's Harmony in Western Music, the IV chord is the farthest point from I in diatonic relationships, leading away from it rather than toward it. This is evident in the progression I–ii–V–I, which feels more final or resolved than I–IV–I. The circle of fifths diagram illustrates the similarity between these concepts. However, using a 3:2 ratio to define perfect fifths in just intonation does not result in a return to the starting note after completing the circle. Instead, it produces fifths that are seven octaves above the initial tone and have a different frequency ratio than the chromatic semitone. To address this issue, various tuning systems have been developed, including equal temperament with 12 pitches per octave. However, these tunings often result in dissonant intervals, such as the wolf fifth, which is approximately a quarter of a semitone wide. More complex systems like Pythagorean tuning and meantone use narrower fifths to close the circle. The development of the circle of fifths in the late 1600s and early 1700s was crucial for understanding modulation during the Baroque era. The first diagram appeared in Nikolay Diletsky's Grammatika, while Johann David Heinichen independently created a similar diagram in his Neu erfundene und gründliche Anweisung. ==========The Circle of Fifths: A Harmonious Framework ========== Heinichen's placement of relative minor keys alongside major keys laid the groundwork for later improvements. Johann Mattheson and others sought to refine this concept, proposing a system where major keys occupied one circle and relative minor keys resided on an inner, second circle. This idea eventually evolved into chordal space, incorporating parallel minor as well. Although some sources attribute knowledge of the circle of fifths to ancient Greece, particularly Pythagoras, this is a misconception. The concept actually originated in Ancient Mesopotamia, where tuning by fifths was employed; however, this was not extended to a twelve-note scale. Historically, Pythagorean tuning predates the development of a twelve-tone scale. Euclid and Chinese mathematicians independently calculated the Pythagorean comma, which demonstrates that the ancient Greeks were familiar with the concept of a cycle of twelve fifths, albeit without its practical application. This theoretical understanding was not utilized to construct a repeating twelve-tone scale or facilitate modulation. The modern circle of fifths gained popularity in Europe around 1500. Initially referred to as the "wheel of fifths," its Anglo-Saxon etymology has its roots in this name. Despite its widespread use in music theory, composers rarely employ the entire circle of fifths in their compositions. Instead, they often rely on a smaller segment of the tonal resources abstractly represented by the circle. The diatonic scale provides a more practical foundation for deriving the circle of fifths progression. By permuting the seven tones of the major or minor scale, one can create a diatonic version of the circle. However, this approach introduces an inconsistency in the fifth interval between F and B. The resulting chord progressions derived from the diatonic scales are presented as examples. Adding sevenths to these chords creates a sense of forward momentum, emphasizing harmony. According to Richard Taruskin, Arcangelo Corelli played a pivotal role in establishing this harmonic pattern as a standard trope.The circle of fifths was a revolutionary concept in music theory during the late seventeenth century. It became a primary driver of harmonic motion and Corelli was instrumental in putting it into practice. The progression frequently appeared in the compositions of J.S. Bach, as seen in Jauchzet Gott in allen Landen, BWV 51. In the following excerpt from Handel's Cantata 51, the solo bass line subtly implies the chords involved in a circle of fifths progression. Similarly, Handel utilized this technique in his Passacaglia movement from Harpsichord suite No. 6 in G minor. Baroque composers discovered that adding sevenths to chords within the circle of fifths enhanced its "propulsive force." By incorporating these dissonant notes, they created a sense of harmonic tension that needed to be resolved. This is exemplified in Handel's opera Amadigi di Gaula, particularly in the aria "Pena tiranna." Bach's keyboard arrangement of Alessandro Marcello's Concerto for Oboe and Strings also showcases this technique. Franz Schubert's Impromptu in E-flat major, D 899, features harmonies that move within a modified circle of fifths. Other notable composers, such as Mendelssohn and Robert Schumann, have also employed the circle of fifths progression in their works. Wagner's opera Götterdämmerung is another example of this technique being used effectively. The enduring popularity of the circle of fifths can be seen in its continued use in popular music during the twentieth century. Jazz musicians, in particular, have found it a valuable tool for improvisation and understanding chord relationships.The circle progression is a series of II–V–I progressions that temporarily pass through several tonalities. This phenomenon occurs when the diatonic chords of a key are used to create a harmonic structure. The diatonic circle of fifths is the circle of fifths encompassing only members of the diatonic scale, and it contains a diminished fifth in C major between B and F. The Circle Progression The circle progression is commonly a circle of fifths through the diatonic chords, including one diminished chord. A circle progression in C major with chords I–IV–viio–iii–vi–ii–V–I is shown below. The audio playback for this demonstration is not supported in your browser. Relation to Chromatic Circle The chromatic circle of equal-tempered pitch classes and the circle of fifths are closely related, yet distinct structures. While the chromatic circle views every point as a conceivable pitch class, the circle of fifths organizes these pitch classes through distinct intervals. ========== ## The Circle of Fifths is Not a Complete Spiral The traditional concept that fifths form a spiral, not a circle, needs to be revised. When ascending by fifths in equal temperament, the pitch class returns to its starting point after multiple iterations. This occurs because the ratio of frequencies used in just intonation is exact, whereas equal temperament uses an approximate value. ## The Pythagorean Comma The adjustment made in equal temperament tuning, known as the Pythagorean comma, creates a "broken" circle of fifths. This difference affects the pitches' enharmonic equivalences and results in notes with double or triple accidentals when continuing a sequence of fifths. ## Conventional Notation vs. Theoretical Keys Notation conventions vary in theoretical keys, which have double or triple sharps and flats in key signatures. These are rare but distinguishable from 12-tone equal temperament. Audio playback is not supported in your browser; you can download the audio file. ## History of Circle of Fifths The development of the circle of fifths has a rich history, with contributions from composers such as John Foulds and theoretical works like Max Reger's Supplement to the Theory of Modulation. Different approaches have been adopted in music notation software and theoretical works, including the use of single sharps or flats at the beginning of key signatures. ## References * Michael Pilhofer and Holly Day (23 Feb 2009). "The Circle of Fifths: A Brief History", www.dummies.com. * Broekhuis, Rogier (2022-10-11). "Wheel of Fifths – Harmonic Function". Wheel of Fifths. Retrieved 2023-10-05. * Nattiez 1990, p. 225. * Goldman 1965, p. 68. * Goldman 1965, chapter 3. * Nattiez 1990, p. 226. * Jensen 1992, pp. 306–307 * Johann David Heinichen, Neu erfundene und gründliche Anweisung (1711), p. 261 * Barnett 2002, p. 444. * Lester 1989, pp. 110–112. * Lerdahl, Fred (2005). Tonal Pitch Space. New York: Oxford University Press. p. 42. ISBNThe Circle of Fifths is a fundamental concept in music theory that has been extensively studied and utilized by musicians across various genres. As early as the 17th century, music theorists began to develop and refine their understanding of this circular pattern, which organizes notes and keys in a logical and harmonious way (Frazer, 2001, pp. 9-13). The Circle of Fifths has been employed in numerous musical compositions, including works by renowned composers such as Bach, Mozart, and Beethoven (Taruskin, 2010, p. 184). One notable example of the application of the Circle of Fifths is in the music of Mike Oldfield, a British musician who utilized this concept to create complex and intricate chord progressions (Oakes, 1980). Additionally, songwriters such as John Lennon and Paul McCartney have drawn upon the principles of the Circle of Fifths to craft memorable and catchy melodies (Gioia, 2012, p. 115). Despite its significance in music theory, the Circle of Fifths has not been without controversy. Some critics have argued that this concept oversimplifies the complexities of musical harmony, leading to a lack of nuance and sophistication in composition (Lester, 1989). However, proponents of the Circle of Fifths argue that it provides a valuable framework for understanding the relationships between notes and keys, facilitating creative exploration and innovation (Kostka et al., 2013). In recent years, music theorists have sought to expand our understanding of the Circle of Fifths by exploring its connections to other musical concepts, such as tonal harmony and semiotics (Nattiez, 1990). This ongoing research has shed new light on the fundamental principles governing music theory, enabling composers and musicians to push the boundaries of creative expression. Overall, the Circle of Fifths remains a vital component of music theory, with its influence extending far beyond the realm of classical music. Its widespread adoption across various genres serves as testament to the enduring power of this fundamental concept, which continues to inspire and guide musical innovation in the 21st century. ==========Toroidal Models in Tonal Theory and Pitch-Class Analysis in: Computing in Musicology 15 ("Tonal Theory for the Digital Age"): 73–98. ========== Typical discussion about the Circle of Fifths is mostly targeted at beginners and intermediate music theorists. The tricky part lies in explaining it without using excessive technical jargon that might confuse newcomers. We'll keep things as simple as possible, explaining any new terms that come up along the way. So, buckle up for a simplified journey from the fundamentals to the purpose and methods of utilizing the Circle of Fifths in songwriting and music theory. Initially, you may not need this approach. You'll find alternative ways to understand key signatures, chord progressions, and other strategies to stay on track. However, once you have a solid grasp of everything involved in our circular concept, there's no better organized way to organize it in your head than this. The key is exposure – knowing this tool exists is half the battle. Seeing it and working with it consistently will help you develop mastery, just like playing an instrument and writing songs. Most Western music follows established patterns, and other cultural styles also employ similar concepts. The Circle of Fifths can be applied to various modes, such as your typical Ionian major scale, Lydion, Dorian, Phrygian, etc. As you master manipulating it in your mind, the doors will open up for sophisticated songwriting. Quick History: The Circle of Fifths was created by Nikolai Diletskii in his late 1670s treatise on composition called the Grammatika. In 1728, Johann David Heinichen improved upon the design to bring us the modern version we use today. thay notes playd thegthr arnt all konsonnt and pleezin. The basik form of a chord iz th root of th chord, plus th third abov it, and then th fifht abov th root az well. You kan then dupeleate a not, ushally th root, to us as a bass not to form a bass melodi, and you kan evn invert chords and othir tricks. It's all builton chords and ezier than it soundz. ========== The Circle of Fifths iz a very importint tool for musikians. It showz how notes relate to each othir. The basic form of a chord iz th root, plus th third abov it, and then th fifht abov th root as wel. You kan dupeleate a not, ushally th root, to us az a bass not to form a bass melodi. ========== Thre types of fifths arn basd on th number of semitonez abov th root th fifht liez: Perfect fifths (7 semitonez), Diminshed fifths (6 semitonez), Augmentzd fifths (8 semitonez). In th Circle of Fifths, we onlee deal with perfect fifths going clockwise arond th cirkl. If you mov contor-clockwiz you'll fin th perfect fourth from th root, which iz why you rarely but sometimz hear thi referred to az th Circl of Fourthz. ========== It makez mor sense to rotat to th right and think with th perfect fifht intervall, wich iz why evrybody dizuz. It follozs th Western equal temperament sistim oz tuning we al uz in tonal musik. If you'r stil unsure whaz a fifht intervall iz, look up a picure of a pianoz keyboard and Midl C. Then count seven whit keyz to th rite. On th 8th count you'll fin yourself bak on C. You countd an octave. Now considur each count az "hal fayp" while inkluding th black keyz and count seven hal fayp, and you'll hav formd a perfek fivht. ========== A perfek fivht iz not majer or minur and workz in both majer and minur scalez and chords. Keen counting arond in seven hal fayp while refering to our big Circl of Fifths image az abov you'll see your self land on each scale degrez as you go. Thats how th pianoz keyboard and even fretted instrumentz work. Fretz on th fretbord iz layd out az wel. ========== Fir, I should mention that although Im talkin about th 7 scale degrez abov, th cirkl includz all 12 tonez of th chromatik scale. Som will includz th key signature of every majer and minur key too. If you wan to dig dezr, look up th koncept oz pitch-class space and pitch class, both builton on thsame chromatik cirkl. ========== It iz a perfek way to us geometrioz to visuzalize th relashunship between tons of musik konzeptz, especielly konsonanz and dizonanz, especielly in th ideaz oz "struktur implies multiplicity" and "cardinality equals variety". Even in equal temperament tuning sistimz it workz cleanly, closin th cirkl perfekli by slightly flattenz th perfek fivht to a 3:2 intervall ration (wit respect az its just intonation).The Circle of Fifths, A Universal Language in Music ========== A closer look at how the greats use it, from Baroque to The Beatles. Don't let anyone tell you it's unnecessary. You'll never use the whole circle in one song, just a section of it. Let's explore some fundamental aspects of any musical composition and examine the I - IV - V - I chord progression, which is the most popular in the world. Roman Numerals and Chord Functions You'll notice two things when looking at the Roman numeral representation of this progression: they're using capital letters to denote each scale degree. This indicates major chords built on the tonic, fourth, and fifth of a key. When you proceed through these chords one measure at a time in each of the 12 main keys, you'll recognize them immediately. You'll likely hear a cadence you know, too. Praise tonality. Finding Tonic Chords with Ease What's interesting is if you find the tonic of your key on the Circle, you've already found the fourth chord and the fifth chord in the key and can construct a catchy song in less than 10 seconds. Let's use the common folk key of G-Major as an example. Moving one step clockwise finds the fifth chord of the G-Major key, while moving one step counter-clockwise finds the fourth chord. You can see this working in C-Major below: Expanding Chord Choices Each key only has three major chords, but you've identified all three with the help of our friend, the Circle. Sticking to this side of the circle guarantees a nice, consonant chord progression for your song and allows you to create cadences and even write harmony. Remember that harmonic function plays a significant role in music. The dominant chord is closer to the tonic than the supertonic chord, despite their physical distance on the Circle. This explains why authentic cadences like I - ii - V - I feel more resolved than plagal cadences like I - IV - I. Relative Minors and Keys Every major key has a relative minor key, which means both use the exact same notes, including accidentals (sharps or flats). The difference lies in their tonic and the distance relationship between the notes. This distance won't impede you from using the relative key. Pro-Tip: One of my favorite ways to write a bridge to a song is to use the relative minor or major key, giving your music a familiar yet unique twist.To find the relative minor of a major key, simply move 90 degrees to the right (or three steps clockwise) in the Circle of Fifths. Conversely, to find the relative major from a minor key, move 90 degrees counter-clockwise (or three steps left). The Circle helps visualize this process, with the relative minor key located inside the circle. The Circle of Fifths is a mnemonic device used to help musicians remember the pattern of sharps and flats in music theory. The Circle is divided into sections, with sharps on one side and flats on the other. To determine the key signature of a major scale, count the number of sharps or flats in the key, starting from the tonic note. For example, to find the number of sharps in a B-Major key, start with B and subtract a semitone, which lands on A#. Then cycle through the Circle, starting at F, to determine that B-Major has 5 sharps. To use this trick for flats, take the tonic note and jump backwards a fifth on the Circle by moving counter-clockwise one step. A mnemonic device can help you commit information to memory, such as the order of the notes in the Circle. Create a phrase that tells a story with the first letter of each word representing the notes moving around the wheel, depending on if you're focused on sharps (clockwise) or flats (counter-clockwise). There are various mnemonic devices available, including ones for the major and minor scales. While interactive charts can be helpful in visualizing the Circle, The Circle of Fifths Chord Wheel by Jim Fleser remains a tried-and-true tool for musicians.The Chord Wheel: A Handy Guide to Mastering Keys and Chords ========== the circle above the I, IV, and V, keeping your mind from needing to reorganize it mentally for under lunch. you can get it done quickly with this method. it also displays enharmonically equivalent chords and keys, which is helpful if you've memorized it in a diffrent way. an example would be f# / gb, which are enharmonic equivalents both con at the 6 o'clock position on the circle. they represent the same keys but writen in different ways. f-sharp major has six sharps and gb major has six flats on diffrent notes that create the same set of notes in the key. what you get is a compact wheel, displayed on the front of a 12 page booklet, which teaches you to use it beyond initial glance. it's just a brief rehash of our previous discussion but presents an advantage as it keeps the wheel heavy and stiff while in use, making storage with music theory books more convenient. although the best studio monitors and headphones focus on audio clarity, they won't help decipher keys and chords being heard. however, the circle can... whether you require chord progressions, transpose songs, assist transcribing music, or recall which keys feature accented notes, the circle of fifths is essential. practice makes perfect. possessing The Chord Wheel book around, a printable pdf in your pocket, and memorizing the circle will position you for success... now you've taken the first step by reading The Circle of Fifths Explained! But there's more to explore