The Mental Effect of the (Temporary) Tonic

A study of tones in jazz tunes through John Curwen's Tonic Sol-fa

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Abstract

In general, the level of musicianship of (jazz) singers is considered to lag far behind that of their instrumentalist classmates. Are singers somehow not as musical? Or not as interested? Is something different in the approach? Or is the approach not different enough? Looking at what is really needed to be able to improvise in a jazz context, and approaching this through John Curwen's Tonic Sol-fa method, this research is an exploration of a vocal and mental alternative to the pianistic approach of vocal improvisation, that is true to our musical experience.

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1. Introduction

I'm learning how to listen
How to hear a melody
How to hear the song I'm singing
How to feel and let it be
And listen for the song
Knowing how it goes
And listen to the melody that flows[1]

This song, Abbey Lincoln's "Learning how to Listen", was one of the songs I sang on my final exam, finishing my bachelor's in jazz singing at Codarts Rotterdam. It is a song that had brought me to tears many times. To me, it was, and still is, an expression of what I wanted the most, and what I had been trying to do in my years at the conservatory: to understand and do justice to this beautiful and mysterious thing that I love the most of all things, music.

It was clear that in improvisation and musical literacy, I was far behind the instrumentalists that I knew and admired, and I think it can be said that generally, the level of musicianship of (jazz) singers is considered to lag far behind that of their instrumentalist classmates. Are singers somehow not as musical? Or not as interested? Is something different in the approach? Or is the approach not different enough?

"He that listens best will sing best." - John Curwen[2]

It took quite me some time to realise that all the instrumentalists that had taught me really did not understand the process of learning music through the voice. After years of frustration and fear, everything finally changed when my own ignorance of the history of vocal music education was slightly diminished and I found out about the efforts of Zoltan Kodály and, to me most significantly, I found the writings of John Curwen. I found what was missing: a real understanding of key relationship in which melody and harmony were integrated, and a matching vocabulary that would enable me to establish an immediate connection between my ear and voice and the sounds of music.

[1] Lincoln, (2007)
[2] Curwen (1875)„ p. 94, originally from *Grammar of Vocal Music.*

Many people are convinced that the main thing singers should do to come to understand music is play the piano. While it is obviously very useful to be able to accompany yourself and others, I would like to argue the opposite: we have to free ourselves from the idea that a piano is needed to develop a real understanding of music!

What I hope to offer here is a beginning to a vocal and mental alternative to the pianistic approach of vocal improvisation. The piano should not be regarded as the only point of entry to understand music. All we really need is sound and awareness. If we offer higher music education with voice as a major, we are obliged to enable singers to reach a deep and advanced understanding of music using their voice. Already in the 11th century A.D., in his "Letter to Michael", Guido of Arezzo spoke about depending on an instrument, in this case the monochord:

> "In order to pick out a completely new chant, blessed brother, this is the first rule: you should play on a monochord the letter names contained in the neumes [groups of notes], and thus hear it just as if a master had sung it to you. But this approach is puerile, and good [only for] beginners, but the worst for those who are taking the process seriously."[3]

A true and deep understanding of music cannot come only from parroting sounds from the piano. And further, there is a problem with the instrument in itself. John Curwen draws a parallel between the science of music and the science of colour when he observes that the piano has become the center of music theory:

> "If the fingerboard of a piano had itself faithfully represented the nature and relation of musical keys this might have been well; but unfortunately the piano is full of faults, and the adaptation of musical notes and musical theory to the exigences of its fingerboard has drawn off the attention of students from the great science of key-relationship, and concentered that attention on the entirely subordinate relations of absolute pitch. The instrument was thus allowed to rule the science. It is as though the science and art of colour, instead of being founded on the beautiful hues of nature, were subordinated to the necessities of some well-tempered but still most imperfect paint-box!"[4]

In my thesis I would like to look beyond the piano and see what is really at the core of the instrumental approach in jazz. With the core goals of jazz education in mind I will make an attempt to

[3] Arezzo, G. (1033).
[4] Curwen (1875), p. 3.

provide an alternative route that centers around our experience of music, based on John Curwen's Tonic Sol-fa system.

Through this effort, I not only hope to add a viewpoint that makes the materials offered in the mainstream of jazz education more accessible to music students who mainly use their inborn instrument, I also hope to appeal to educators to reconsider the vocabulary they use to refer to musical concepts. It has been my experience that an inconsistent system of labelling musical concepts leads to great confusion, leads people to think that music theory is very complicated, and ultimately lets them give up on the hope of ever understanding music.

In my attempt to minimise future confusion for myself and others in the study of jazz, I have come to this main research question:

- How can Tonic Sol-fa be used in dealing with (temporary) tonics in short musical forms, such as the 32-bar jazz standard?

To answer my question, I have come to the following subquestions:

- According to existing jazz improvisation methods, what is needed to acquire fluency in improvisation?
- To which degree does this depend on the use of an external instrument?
- Which vocabulary is used for musical concepts and how is notation dealt with?
- How are songs approached?
- How does John Curwen describe the "mental effects" of tones, modes, chords and key changes?
- How does Curwen address the topics regarding jazz improvisation? Which tools does he use in his vocal approach?
- How does he deal with chromaticism and change of key and/or mode in Tonic Sol-fa notation, and on which grounds does he do so?
- How can Curwen's approach to music be applied to studying jazz standard repertoire and improvisation?

In my research, I am focusing on the tonal aspect of music, leaving rhythm mostly out of the discussion. I think an excellent approach to rhythm has been given by Hoffman, Pelto and White in the Takadimi system of rhythmical solfège.[5]

While my belief that singers can be independent and understanding musicians, with concrete skills and advanced musical intuition that they can use in improvisation, composition and education is leading, I further hope that my research will be of interest to instrumentalists who are curious about and open to exploring music through their voice.

[5] Hoffman, Pelto & White (1996).

2. Research methods

This research is for a large part a literature review. Using written sources, I am investigating the views different people have expressed on the topics of interest.

The last part of the research is the practical application of my findings in the literature review, and has entailed experimenting with the materials I have developed in my own studies, as well as in my teaching practice.

3. Learning jazz

There are several methods on vocal improvisation available, from people like Bob Stoloff and Michelle Weir, and also a workbook has been published in connection to Barry Harris's vocal workshops. Because all of these publications focus on which notes to sing, by giving them in staff notation, and/or through sound files, to be "parroted" by the learner, and none of them focus on *how* we experience and can understand the sounds of the diatonic system, I have not considered them relevant to this research.

An attempt at an aural approach to studying jazz with the use of solfège has been made by William Edward Swan in his doctoral thesis (2000). Although he has studied much of the literature used in music education according to the Kodály concept, I find that there are major problems in his approach to naming and notating harmony, minor tonality (*do*-based minor), and other modes.[6]

The choice of the methods that I did choose to study, I acknowledge, is a personal one. There is an endless number of methods for jazz improvisation out there, and I have chosen to focus on Frans Elsen's and Lennie Tristano's approach, adding a recent method, *Improvise for Real*, developed by David Reed. I will review the methods and the viewpoints expressed in it to answer my first subquestions:

- According to existing jazz improvisation methods, what is needed to acquire fluency in improvisation?
- To which degree does this depend on the use of an external instrument?
- Which vocabulary is used for musical concepts and how is notation dealt with?
- How are songs approached?

I have not summarised Tristano's, Elsen's, and Reed's entire teaching methods, but have looked at the subjects relevant to this research. Before answering the questions, I will introduce all three and show why I think their work is of interest.

Lennie Tristano

Lennie Tristano (1919-1978) was a pioneering jazz pianist, but is also considered by many to be one of the pioneers in jazz education, with a teaching career that started in the 1940's and lasted until the

[6] Swann, W. E. (2000).

late 1970's. Students of his were Lee Konitz, Warne Marsh, Sheila Jordan, and many more. His ideas about teaching improvisation have been brought together in the work of researcher Eunmi Shim: *Lennie Tristano: his life in music* (2007). Still, additional research is done, for example by Marian Jago.

Frans Elsen

Frans Elsen (1934-2011), pianist, arranger, and the founding father of Dutch jazz education, wrote numerous educational works, helping the student-improviser on his way. His series *Jazzpracticum* and *Jazzharmonie aan de Piano* are standard works in Dutch jazz education, and many of his former students hold teaching positions at the Dutch conservatoires. His last book, *Bebop*, is dedicated to the art of improvisation.

David Reed

David Reed is the creator of the method *Improvise for Real*. The method's website claims that it is "fast on its way to becoming the definitive system for learning to improvise."[7] With 58 reviews on Amazon with an average rating of 4.3 out of 5 stars, I think it is justified to take his approach into account.[8]

[7] https://improviseforreal.com/About-David-Reed
[8] https://www.amazon.com/dp/0984686363/ref=cm_sw_r_cp_ep_dp_sTigzbQB18Z1Z

3.1 Internalising musical sounds - singing

One of the most important features of Tristano's teaching is that he would have his students sing along with recorded solos of great jazz improvisers. Through total assimilation, they would absorb all aspects of the musical expression on an intuitive level. Some students would study a solo while slowing down the recording, thus enabling them to hear all the nuances. The solos would be learned:

1. By ear singing along with the record
2. Singing the solo without the record
3. Playing the solo on the instrument

In these three steps, the student is learning the material by close listening and imitation, to the point that he can sing it unaccompanied, after which he finds the notes on his instrument, relating the sounds to the realm of absolute pitch. Warne Marsh, one of the students closest to Tristano, explains how central singing was:

> ""The more I improvise, the closer it comes to singing. I try to play as if I were singing. Lennie said he could sing every note he ever played." Marsh also stressed that he had to sing the exercises before playing them on the instrument, recalling what Tristano had told him: "'A musician who can't use his voice!' Lennie used to say. 'How can that be?'"[9]

As Warne Marsh stayed loyal to Tristano and his approach his whole life, and his own views on teaching were highly influenced by him, if not exactly the same, I think it is justified to give another quote of Marsh that illustrates the importance of singing:

> "You cannot fake anything with your voice. You can push a key on a piano and make pitch. But you must do it with your inner faculty for hearing to reproduce with the voice what's in your head. It's as simple as that. It's the perfect teaching tool. But a lot of musicians are reluctant to use their voices, curiously enough. You can say they hide behind their instruments."[10]

Tristano encouraged students to practice away from their instruments. If the student was able to express musical ideas through his voice, it meant that they had become embodied knowledge and had

[9] Shim (2007), p. 134.
[10] *Manhattan Studio 18.03.1984*, 5:34.

meaning beyond the physical reality of the instrument. It is this embodied knowledge of the learnt material that would bring the improviser to an intuitive musical expression on the level of a native speaker in a spoken language.[11]

While singing played a fundamental role in Tristano's teaching approach, it does not seem to have involved singing on relative or absolute note names, or numbers. Significantly enough, Sheila Jordan, a prominent jazz singer, has said that Tristano taught her to sight read (but not how!).[12]

Frans Elsen also sees all musicians as singers: "Zingen is geen voorrecht van zangers. Alle muzikanten zijn zangers!"[13] Similarly to Tristano, Elsen advises to learn improvisation as much as possible in the same way a child learns to speak, by listening and copying. In the ongoing process of hearing and speaking the language, a child subconsciously learns the rules of the language, and can learn the grammar consciously in a later stage.[14] Everything that the jazz player absorbs will form a musical vocabulary that he can use as he would use language in verbal conversation. Elsen states that in improvisation, as in conversation, the improviser would try to "say" something comprehensible, drawing from the known vocabulary and common grammar. If one wants to improvise fluently, one must immerse oneself in the music. The improviser must feed his musical memory constantly by focused listening:

> "To be able to improvise, the jazz player will have to feed the source of his stream of ideas (his memory) frequently. He must engage in a lot of focused listening - to others as well as to himself - and should not hesitate to take in all that pleases him. He will have to compose his own solos and store them in his memory. *He should above all sing, play what he has sung, and subsequently remember what he has played.* And, to keep the stream of ideas flowing, he will have to practice improvisation in itself."[15]

If we focus on the three steps that appear in the italicised sentence in this paragraph [italics PW], we see that singing is the starting point in this process. I have interpreted the different steps as follows:

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[11] Jago (2015); Shim (2007).
[12] *Manhattan Studio 18.03.1984* 1:12.
[13] Elsen (2015), p. 175.
[14] Elsen (2015), p. 2.
[15] Elsen (2015), p. X: "Om te kunnen improviseren, zal de jazzspeler de bron van zijn invallen (zijn geheugen) regelmatig moeten voeden. Hij moet veel en geconcentreerd luisteren - ook naar zichzelf - en niet schromen om zich alles eigen te maken wat bevalt. Hij zal zelf invallen moeten componeren en opslaan in zijn geheugen. *Vooral veel moeten zingen, spelen wat hij heeft gezongen en vervolgens onthouden wat hij heeft gespeeld.* En om de stroom van invallen in gang te leren houden, zal hij het improviseren op zich moeten oefenen."

1. Singing: producing sounds from the musical intuition
2. Playing on the instrument what was sung: bringing the intuitive to the conscious level of music making
3. Memorising what was played: committing musical concepts to the conscious memory

In *Bebop*, in the chapter dedicated to singers, Elsen states that ear training and solfège should have priority in their training. Unfortunately, he does not explain his exact understanding of the term "solfège" (in most conservatory curricula there is a subject under that name, involving no use of any particular syllables!). Elsen in any case does not use solfège syllables in his writings, but he does show that he is aware of them, in the introduction of another work, *Jazzharmonie aan de Piano*. When addressing the labelling of chords, the following can be found in his mention of musical naming systems that are used in different countries:

> "In the Romance language area the note names in common use are those coming from Guido d'Arezzo, which are also still used in our system of solfège: Ut (Do) - Re - Mi - Fa - Sol - La - Si. There these note names refer to a fixed pitch, contrary to what is the case in our system of solfège.[16]

From his words "our system of solfège"("ons solmisatiesysteem"), I conclude that in his understanding relative solfège was the use of these syllables to express the different tones in the diatonic system. However, he makes no further mention that singers should use them in learning the musical materials on offer. Singers should learn all the materials just as the instrumentalists, with the advantage that singers need only memorise the "melody" of the scales and arpeggios, since to them all the keys are the same: knowing it in C means knowing it in all keys. Although Elsen says that using note names (which are not specified) can be useful, it is not essential. He advises to, especially in the beginning, sing the exercises on "da ba da ba daa".[17]

David Reed does not place a lot of emphasis on making an effort to learn musical language through listening to other players: "Since every one of us is already blessed with a genius inner composer, the real goal of our musical study should be to learn to tap into that great treasure inside of us."[18] Reed describes how all the music we know is based on seven tones:

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[16] Elsen (2000), p. VIII: "In het Latijnse taalgebied hanteert men de van Guido d'Arezzo afstammende, en in ons solmisatiesysteem nog gebruikte notennamen: Ut (Do) - Re - Mi - Fa - Sol - La - Si. Deze notennamen hebben, in tegenstelling tot die in ons solmisatiesysteem, een gefixeerde toonhoogte."
[17] Elsen (2015), p. 178.
[18] Reed (2011), p. 82.

> "The seven notes are called very simply the "major scale," and from this scale comes every musical sound you have ever heard. It may seem very surprising that so much music can be made from such a simple little set of materials. But what's even more amazing is that you already recognize these seven notes in the music all around you. You had them memorized long before you could speak. You are not accustomed to naming them because nobody ever pointed them out to you. But your subconscious mind is already highly trained in their use."[19]

Intuitive as well as deliberate singing plays a major role in his method, and Reed stresses its importance throughout his book: "There is no more powerful exercise for your overall musical growth than singing the notes of the major scale without the help of your instrument."[20] Although Reed acknowledges that any names could be used to distinguish the seven sounds of the "major scale", for the sake of simplicity he has decided to name them 1, 2, 3, 4, 5, 6 and 7.[21]

After playing the sounds on his instrument, the player sings them on their number, 1 being the tonic of the major scale ("You will literally be singing, "one, two, three, four, five, six, seven, one").[22] Reed also encourages unconscious, free singing.

Reed emphasises that the exercises involving singing are much more powerful in order to effectively and quickly grow as a musician, than exercises performed on an instrument. He places vocal improvisation far above instrumental improvisation: "Improvisation with the voice is the highest form of musical composition that exists because you are working directly with the sounds themselves."[23]

3.2 Instrumental studies and visualisation

> "You could make your fingers reproduce exactly what you felt, if you really worked at it. I achieved it, not only spending a lot of time at the keyboard but finding ways I could make my fingers reproduce my deepest feelings. It meant, when you hit a note with a finger, you sank into that note all the way to the bottom of the keyboard until it went pow! Right?..."

> "It's not instant composing; it's not following any kind of a formula. All you do is hear music in your head and reproduce it."[24]

[19] Reed (2011), p. 51.
[20] Reed (2011), p. 70.
[21] Reed (2011), pp. 58; 61.
[22] Reed (2011), p. 71.
[23] Reed (2011), p.81.
[24] Both quotes from *Manhattan Studio 11.03.1984.*

These quotes by Lennie Tristano show the ultimate aim of his musical training: it was meant to help the student get to the point that there was no boundary between his ear and his hands, and his feelings could flow freely out of the instrument. To this end, he emphasised fundamentals and basic musicianship. This comprised the already mentioned singing with recorded solos, as well as ear training, scales, keyboard harmony, rhythm, and the manipulation of melodic fragments through different keys and scales.

Tristano's teaching approach was very melodic and mostly based on diatonicism. As a way of training the ear and becoming aware of the relations between the tones, playing material in different keys was practiced. Tristano was very focused on having his students really dig into the feeling of the notes, for example while playing their scales:

> "Significantly, Tristano also stressed playing scales very slowly and with feeling. According to Easton, "The main thing he was looking for... was to hear how deeply you were getting all your feelings into each note of the scale. Even when playing a simple scale, he was listening for how much of your feeling you could get into it. 'How into,' that was the phrase he used: 'How into it' you were.""[25]

Slow practicing was applied to all exercises as well as in learning melodies, as it helped to thoroughly internalise the musical material. Also, visualisation was an important aspect of Tristano's teaching: students would visualise how they would play their notes on their instrument, with the appropriate fingerings, while concentrating on hearing the pitches internally. Not only did this enable them to practice wherever and whenever (many of his students had day jobs and, in the urban environment of New York City, little opportunity to practice on their instruments), it also functioned to cultivate the aural imagination, enabling the student to play "'by ear' through the navigation of pitch relationships rather than the named notes".[26] Shim and Jago both describe that Tristano put great emphasis on the connection between the senses and experiencing music as an organic whole.[27]

Like Tristano, Frans Elsen states that the improviser needs to connect his inner hearing to his instrument:

[25] Shim (2007), p. 134.
[26] Jago (2013)
[27] Jago (2013)

> "The more singable an idea is, the more it is immediately performable. [...] Firstly, the player should be able to play what he hears internally, and secondly, he should know in advance the sound that his fingers will produce. [...] The improviser should not think, but know."[28]

To gain perfect control over his instrument he should study and memorise among many other things chord progressions, scales, arpeggios, rhythmic figures, and melodic fragments. Elsen stresses that the material should not be played on the instrument merely as a technical exercise, but to enable the improviser to call upon the material in his improvisation.

Although Elsen emphasises the development of inner hearing, he does not mention ways of practicing away from the instrument by visualising. This brings us to an interesting point: to which extent is the student's musical memory fed by these technical exercises, and to which extent is he simply finding on the instrument what he can already imagine? It seems musical memory and instrumental facility are very much intertwined, making the instrumental experience essential to musical development: study and memorisation of the material on the instrument leads it to be nestled in the subconscious where it can become part of the singing mind, providing material that can become part of the improvisational flow.

Reed also aims to establish an immediate connection of the musical mind to the instrument:

> "A truly musical idea is one which is born in the mind as sound. Even before knowing the name of the note, the true improviser hears the note in his mind. There is absolutely no theory involved in choosing the note. It is pure imagination."[29]

> "We need to connect our conscious mind (which moves our hands to play our instrument) with our subconscious musical mind (which enjoys and imagines musical sounds). A great way to create this connection is simply to sing while we play."[30]

Reed rejects an approach to improvisation where one runs up and down scales and considers it music. Students of his method do not have to practice scales as such. A crucial part of his learning model is visualisation of the tonal context. Unlike Tristano or Elsen, Reed gives a starting point for visualisation of music completely independent of the instrument. His "tonal map" is a visualisation of

[28] Elsen (2015), p. X: "Hoe beter zingbaar een idee is, des te beter is het terstond uitvoerbaar. [...] Ten eerste moet de speler in staat zijn om dat te spelen wat hij inwendig hoort en ten tweede moet hij van te voren weten hoe klinkt wat er voor zijn vingers komt. [...] De improvisator moet niet denken maar weten."
[29] Reed (2011), p. 82.
[30] Reed (2011), p. 75.

the relative distances between the tones. In learning the tonal map a horizontal representation of the tones is chosen, showing all the numbers of the major scale degrees and the appropriate whole or half steps between them, as seen in figure 1.

Figure 1. Reed's "tonal map". Reprinted from *Improvise for Real*, by Reed, D., 2011, p. 61.

Because in Reed's view all Western music is constructed from this "major scale", the students aim is to be able to visualise the tonal map anywhere on his instrument, and thus have access to all melodic and harmonic devices that are enclosed in it. We need to "relate sounds to the major scale and the major scale to your instrument."[31]

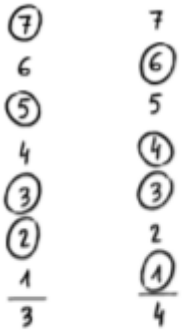

Figure 2. Vertical visualisations of the major scale in the study of harmony. Reprinted from *Improvise for Real*, by Reed, D., 2011, p. 109

In the study of harmonic progressions, Reed uses vertical "modulators" (as Curwen would name them), with the root of the chords written under a line below it. Figure 2 shows a 3-chord (tones 3, 5, 7, and 2) and a 4-chord (tones 4, 6, 1, and 3).[32]

3.3 Vocabulary of music and notation

Tristano, Elsen, and Reed all use letter names for absolute pitch. However, David Reed states that there is a problem with these absolute note names that are in common use: "They are so misleading that it is almost impossible to see even the simplest relationships between them. This is one reason why people can study music all their lives and never even notice that they are always playing the same seven notes." To understand music, we have to understand that it is relative: "The absolute pitches of the notes in any song do not matter. What makes the song sound the way it does is the relationship between the notes."[33]

While it is admirable that Reed at least offers a system of relative musical thought, his choice of label is rather unfortunate, not only because, even when singing only diatonic tones, not all names can be

[31] Reed (2011), p. 67.
[32] Reed (2011), p. 109.
[33] Reed (2011), p. 58.

pronounced using only one syllable, but also because it causes a conflict in combination with a numbered vocabulary for intervals, as well as with the hierarchy culturally given to numbers. It does not make sense to name the tonic in minor note 6, and I also suspect that his system of numbers has limited his own thoughts: naming the major tonic note 1, seems to make him see everything in light of the "major scale" instead of as part of the diatonic universe.

Though Reed does not want to replace staff notation, he wishes to break our dependence from it and does not use it in his book. Number notation is used throughout. Reed uses stick notation with numbers and vertical spacing (no octave marks) to designate pitch for "tonal sketches" of songs, as can be seen in figure 3.

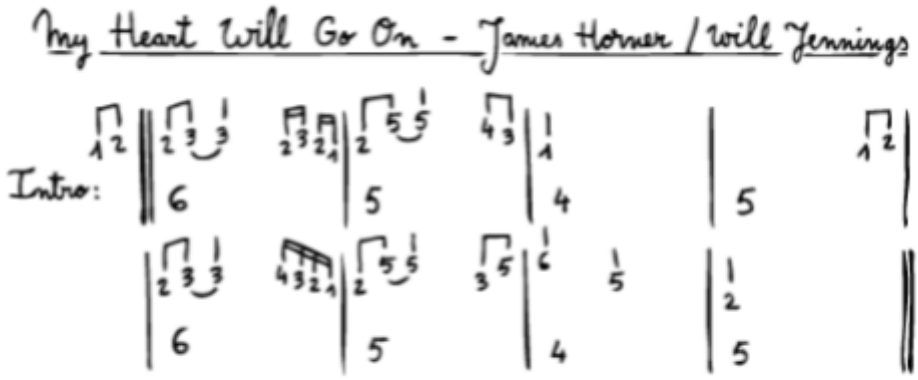

Figure 3. Example of a "tonal sketch". Reprinted from *Improvise for Real*, by Reed, D., 2011, p. 131.

It is a sketch: there is no time signature, and rests are not expressed. I would say this functions mainly as a reminder for the person who made the transcription. Reed's intention with these sketches is indeed not to replace sheet music, but to provide an insight into how the song works.

Reed builds up the use of chord symbols. In figure 3, we see the same numbers that represent the tones used as chord symbols. Later in his method, when chromatic tones become a factor in the harmonies, he uses the numbers in combination with suffixes: "-" for minor chords, "D" for dominant chords, "-b5" for half diminished chords, and "o" for diminished chords. Major chords are written with no suffix. Strangely enough, he does not make a distinction between triads and seventh chords.

As mentioned before, his simultaneous use of Arabic numerals for scale degrees, intervals, as well as for chords leads to several inconsequences. After insisting that all sounds can be found in the major scale, and

having the students build chords on each of the tones (intervals 1, 3, 5 and 7 on note 6 gives a chord with notes 6, 1, 3, and 5), when speaking of the shapes of chords, Reed shows them as in figure 4. This representation effectively denies all that Reed has built up before: connecting the sound in context to a certain name and symbol.

Frans Elsen also uses numerals, but never in the function of mnemonic syllables. When discussing the major scale, numbers are shown to label them by their degree: 1, 2, 3, 4, 5, 7. Chords built on those tones are named with their corresponding Roman numerals: I, II, III, IV, V, VI, VII.[34] The same relative chord symbols, with I standing for the tonic, are used in melodic, harmonic, and natural minor, and "moll dur" (named in this order), which all, except for moll dur, seem to be seen as tonalities in their own right. Melodic mention of tones in these minor tonalities by number seems to have been avoided.[35] But besides for the tones of the major scale, Elsen also, as is common, uses numbers for the intervals between tones. The following might illustrate some of the confusion that this use of numbers for horizontal as well as for vertical dimensions of music can cause:

> "If the fourth tone of the scale is on the dominant, that tone is the seventh (7) of the dominant seventh chord of V7 (G7 in C)."[36]

Throughout Bebop, Frans Elsen uses staff notation. Examples are given in different keys, mostly with the appropriate key signature at the clef. Significantly, when presenting the minor scales, he chooses to give them with C as the tonic, and no flats at the clef, essentially showing them as an alteration of the C major scale. Though examples are (mostly) given with a specific key signature, students are advised to play examples in different keys. Chords in absolute pitch are written with chord symbols in common use in jazz.

In Tristano's lessons, musical notation was not a factor of importance. According to Shim, assignments that required staff notation were given to students only in the earlier years of Tristano's teaching career. Later, number notation was used as a means of communicating relative pitch for melodic and harmonic structures. Shim states that the use of numbers brought out intervallic relationships, enabling students to transpose the figures into different keys.[37] Some of Tristano's

[34] Suzanne Konings informed me that the *Harmonielehre* of Ludwig Thuille and Rudolf Louis (1920) was highly influential in music theory as it was studied at the Royal Conservatoire, where Frans Elsen both studied and was a teacher, and indeed it seems this is the source of Elsen's symbols.
[35] This is also the case in the *Harmonielehre* of Thuille and Louis.
[36] Elsen (2015), p. 105: "Staat de 4e toon van de ladder op de dominant, dan is die toon de septiem (7) van het dominantseptiemakkoord van V7 (G7 in C)."
[37] Shim (2007), p. 127.

students never learned to read staff notation. However, in a practice described by Jago, students would use flashcards with "the twelve musical notes" written on them for several exercises, among which was for example the naming of chords to a certain song in a particular key.[38] Although I cannot be sure whether it is representative of how Tristano's students would make notes, the examples Shim gives of chords progressions are written with letter names, and to show their key relationship, they are written with Roman numerals.

We have seen that Tristano, Elsen and Reed all use numbers to point to the relative nature of music. While Tristano and Reed do not use staff notation in their methods, Elsen has a more traditional approach in his use of notation. Naming tones by number can indeed bring out intervallic shapes, and might at first glance seem a simple way of naming tones in context. But not even regarding the fact that labelling the tones by number creates the impression that in the imagination of tones we are dealing with something countable, there is a problem when no differentiation is made between speaking of tones in relation to a tonic on the one hand, and intervals, the distances between different tones, on the other. Using the same names and symbols for these different dimensions is ultimately a source of confusion that needs to be cleared up by verbal means (the third of the key, the fifth of the chord, etc.). I would say this makes numbers quite unsuccessful as names and symbols to refer to musical sound. To illustrate the conflicts that have gone through my mind in the past: which of the numbers in figure 5 accurately represent the sound of the melody, and how would we pronounce them in singing?

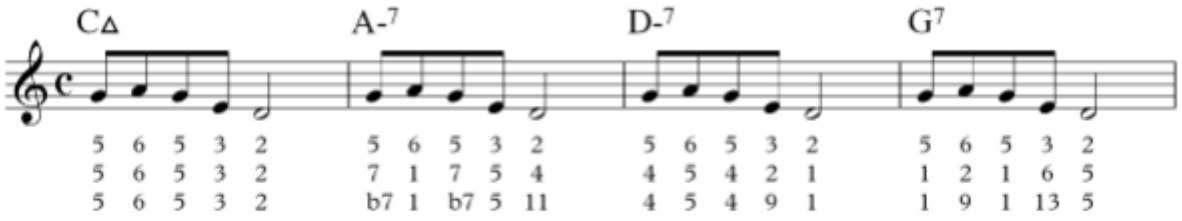

Figure 5. A diatonic melody in the key of C over different diatonic chords.

In figure 6, we see an arpeggiated dominant chord resolving to the third of the tonic chord, in C major and C minor respectively. On the dominant, we see that in the absolute pitch names of the tones, in the absolute chord symbols as well as in the Roman numeral symbols, there is no difference, while the notes that make up the chords are actually different in our experience (as shown by the key signature and solfa)!

[38] Jago (2013).

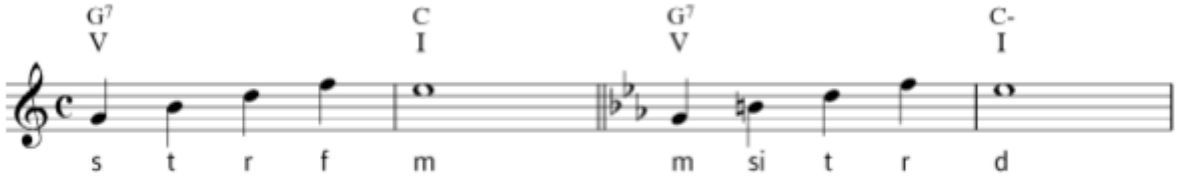

Figure 6. Arpeggiated dominant seventh chords in major and minor contexts.

Tristano and Elsen both do not give a means of relative notation that can be effectively used. If we are content with naming the minor tonic "6", Reed does give a means of notation that can be used to make these sketches within one key, but he does not give a model for the notation of key changes.

3.4 Learning songs and improvising

An essential part of learning to improvise in jazz is learning jazz standards. Tristano required his students to internalise the melodies thoroughly, by playing the melody slowly, with no accompaniment, to the metronome until Tristano thought they were ready to improvise, which could take a couple of years! Shim (2007) states: "Tristano did not allow students to attempt improvising until they went through a rigorous training of learning the melodies in combination with other basic exercises. Only after internalising those elements in an integrated way were they able to launch on the path to improvisation".[39]

In this approach, the improvisation flows naturally out of the melody. The melody carries the essence of a song, and has rhythm and harmony embedded in it. Shim emphasises that Tristano´s focus in improvisation was on the horizontal and melodical dimension, not on the vertical, harmonical dimension.

In Bebop, Frans Elsen focuses mostly on the harmonic aspect in learning jazz standards, so that the student can determine which notes to play at any given moment in the song. There are two main sources for jazz standards: the original scores in which the accompaniment to the melody is written out in the piano part, and fake books (collections of lead sheets, enabling musicians to "fake" their way through a gig), that generally have chord progressions more suitable for improvisation. If we use an original score, we should:

a. Make a concise harmonic analysis of the piano part, focussing on the movement of the bass.
b. Distinguish between main and subordinate, decorative harmonies.

[39] Shim (2007), p. 145.

c. Compose a new and simple chord progression, that fits to the melody and that is suitable for improvisation.

As this is not a simple task, he advises beginners to use fake books, as the chord progressions in those have already been adapted to the needs of the improviser. In fake books, "mysterious diminished chords", the key of which Elsen considers ambiguous, have often been replaced by "II V progressions", which give a clearer direction in which notes to play. Elsen distinguishes three main harmonic functions: tonic, dominant, and subdominant. For all three he describes which harmonic material is at the player's disposal in both major and minor contexts. Because he does not make a distinction between principal and secondary dominants, the reader is led to think that on each "II V", he should play notes of the "I" belonging to it: in a one-bar progression G-7 C7, even if the main key is C the "tonal material" is then considered to come from the key of F. On C#07 in the key of C, the tonal material supposedly comes from D minor. Unfortunately, this seems to be a very common misconception in jazz.

David Reed fortunately does not see every secondary dominant as announcing a key change, reducing songs mainly to "2- 5D 1" progressions in different keys. Short passages from other keys should be studied in relation to the original key, and unnecessary key changes should be avoided. Genuine key changes are not like these events: here our perception switches to a new key completely and forgets about the previous key.[40]

To learn a song, one should firstly make a "tonal sketch", a tonal analysis of the song, writing the melody and chords in numbers. Reed further advises to sing the melody on numbers everyday, play it in different keys, study the different chords that are part of the song, play the chords on the piano, improvise, listen to recordings, and study the chord connections (using the vertical scale representations).[41]

3.5 Summary

Tristano's and Elsen's approaches to internalising musical language on an intuitive level by aural and vocal immersion are equally valid and useful for singers and instrumentalists, and some might argue it is all a singer needs (in advertisements of vocal jazz methods it is often emphasised that no knowledge is required, probably so as not to scare off vulnerable singers and amateurs!).

[40] Reed (2011), p. 206.
[41] Reed (2011), p. 213.

While singing is an essential part of the process equally to Tristano, Reed, and Elsen, when establishing such a connection with the instrument that the improviser's ideas can flow freely, it is undeniable that the external instrument plays a large role, physically and mentally. It is through the translation to the instrument that students make their intuitive knowledge conscious, concrete and tangible. In the physical playing of the instrument, students are at the same time teaching themselves "by pattern", and thus developing their musical imagination. In practicing mentally, using the instrument as a means of visualisation, the player, through imagining the sounds that he would play, is further training his aural imagination.

While Reed's way of visualising the scale is very useful for singers, his choice of labels is not optimal and causes conflicts when studying harmony, as is the case when using numerals in Elsen's and Tristano's approach in understanding songs from a relative perspective.

4. John Curwen

John Curwen (1816-1880) was a Dissenting Christian, minister and teacher in nineteenth-century Britain. In 1841, given an assignment by the Congregational Church to find a method to improve church singing, he found Sarah Glover's *How to Render Psalmody Congregational* (1835). Curwen adapted Glover's system into his own Tonic Sol-fa system and successfully spread it to the British masses, dominating the British sight-singing movement by 1870.[42]

In *Music and Victorian Philanthropy*, Charles Edward McGuire shows how intimately related the Tonic Sol-fa movement was to various Victorian philanthropic movements. McGuire sees in John Curwen and his son John Spencer Curwen the embodiment of the missionary spirit that was characteristic of the Victorian middle class. To them, music was a tool to be used in the elevation of mankind.[43]

Even if music only served another, higher goal, John Curwen took great care to provide us with much material to help in our understanding of music and its teaching. I feel very lucky to have stumbled upon his works, and hope anyone interested in his ideas will look beyond this thesis and read them for himself. To me, what is so wonderful and unique about Curwen's way of speaking of music is that all focus is on our experience and perception of it, while, after the "thing itself" has been learnt, providing a working vocabulary that allows us to conceptualise the sounds. The following "principles of the art of teaching", gathered by John Curwen in his *Teacher's Manual*, first published in 1875, sound very fresh to me, even almost 150 years later:

1. Let the easy come before the difficult.
2. In training the mind: introduce the real and concrete before the ideal or abstract.
3. In developing physical skill: teach the elemental before the compound, and do one thing at a time.
4. Introduce, both for explanation and practice, the common before the uncommon.
5. Teach the thing before the sign (or name) and when the thing is apprehended, attach to it a distinct sign.
6. Let each step, as far as possible, rise out of that which goes before, and lead up to that which comes after.

[42] McGuire (2009), p. 20.
[43] McGuire (2009), p. 2.

7. Call in the Understanding to assist the Skill at every step.[44]

While Curwen's Tonic Sol-fa system is very complete also with regard to rhythm, form, and expression, I have here limited myself to topics I considered relevant to answering my research question. In this chapter I have used Curwen's spelling of the names of the tones. These are the questions I will answer in this chapter:

- How does John Curwen describe the "mental effects" of tones, modes, chords and key changes?
- How does Curwen address the topics regarding jazz improvisation? Which tools does he use in his vocal approach?
- How does he deal with chromaticism and change of key and/or mode in Tonic Sol-fa notation, and on which grounds does he do so?

[44] Curwen (1875) pp. 4-26.

4.1 Mental effects

Tones

In Musical Theory, John Curwen writes:

> "When the tones of the Common Scale are heard, in any key, near together, so as to dwell in the memory, the peculiar way in which they harmonize and dissonate one with another, while maintaining their relation to *doh*, gives to each of them a special effect upon the mind."[45]

John Curwen distinguishes between the physical and mental or emotional effect of tones, the physical effect arising from pitch, loudness and quality, the mental effect arising out of the perceived relations between tones. These perceived relations have nothing to do with absolute pitch: the same relations can be found anywhere in the spectrum of absolute pitch. When the tones of the scale are sung slowly, when "the ear is filled with the key, and when the effect is not modified by harmony", the seven tones of the Common Scale are characterised as follows: *Doh* is the strong or firm tone, *Ray* is rousing or hopeful, *Me* steady or calm, *Fah* is the desolate or awe-inspiring tone, *Soh* the grand or bright, *Lah* sad or weeping, and *Te* is the sensitive or piercing tone.[46]

Although Curwen does give these "proximate verbal descriptions" of the effect of the tones, he is in fact very careful in using words to describe them, as he understands that words are too "definite and realistic" to describe the effects of the scale tones perfectly.[47]

The descriptions can be used to guide the perception of the student in elementary teaching. They are not intended as fixed, absolute characterisations, and students should in fact make their own observations regarding the characteristics of these seven sounds in the scale. Curwen states that the perception of mental effect is cumulative: because the mental effect of tones depends on the perception of relations, it becomes stronger with a stronger perception of the whole tonal context.

Apart from being a matter to be conceptualised by students themselves, he emphasises that the mental effects of the tones can be "greatly modified by pitch, by harmony, by quality of tone, but chiefly by speed of movement."[48]

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[45] Curwen (1879), p.
[46] Curwen (1891), p. viii; 1879, p. 19.
[47] Curwen (1879), p.19; (1875), p. 113.
[48] Curwen (1879), pp. 2, 20.

Modes

There are many misunderstandings about Tonic Sol-fa: many think *Doh* is always the tonic, or the tonic should always, whether it is major or minor, be called *Doh*. These ideas definitely do not come from Curwen, who clearly states that any tone of the scale can function as tonic. If a tone is made to be the most prominent in a tune, the tune can be said to be in the mode of that tone: the mode partakes of "the character and mental effect of the tone on which they are founded. The *Ray*, or more properly (to make *Ray* tune with *Lah* and *Fah*) the *Rah* Mode has a "hopeful," prayerful effect. The *Lah* mode has a more markedly sad and sorrowful effect."[49] Because the *Doh* mode is best suited to modern harmony, it has become the preferred major tonic, as *Lah* has become the tonic of the modern minor mode.[50]

Chords

In harmony generally, thirds are the "source of sweetness" (major thirds more so than minor thirds), while fifths are the "source of strength." The root of the chord determines the chords mental effect. This character is enhanced when the chord appears in root position and the root is doubled by one of the other parts. The main chords are the chords D (built on *doh*), F (on *fah*), and S (on *soh*). D is the stable chord of rest, S the chord of motion, and F the chord of seriousness.[51]

Changing tonic

In changing the tonal center, Curwen distinguishes between modulation, transition, and transitional modulation. In modulation, the music does not change its key signature, but another tone of the scale becomes the tonic. When a modulation is made from major to the relative minor for example, "the effect is that of going into shadow and gloom."[52]

In transition the music moves to a different key, *Doh* moves to another pitch (as well as all the other tones): new pitches that were not part of the starting key function as distinguishing tones, guiding us to the new key and letting us perceive remaining pitches also with a new mental effect:

> "When transition is made by means of a new tone instead of *f*, the mental effect of the new tone is felt to be in contrast with that of the tone blotted out. The desolate tone is changed for

[49] Curwen (1879), p. 39.
[50] Curwen (1982), p. 84-85.
[51] Curwen (1872), p. 3.
[52] Curwen (1879), p. 52.

> a piercing tone, and the flat tone of the old key is thrown out to make room for the sharp tone of the new. We therefore call fe the sharp distinguishing tone. When transition is made by the introduction of another tone instead of *t*, it is felt that the sharp piercing tone of the old key has been exchanged for the flat desolate tone of the new key. *Taw* is therefore called the flat distinguishing tone."[53]

Curwen distinguished two general effects: transition to a sharp key has an enlivening, exciting and elevating effect, while transition to a flat key has a depressing and serious effect. These effects are cumulative with each further sharp or flat remove.[54]

There are different types of transition. When we observe a transition, we can look at the following points:

1. What is the remove?
2. What is the factor?
    a. A distinguishing tone
    b. A typical chord progression leading to a tonic
    c. Imitation, with a similar cadence in a previous passage
    d. The beginning of a new section (mostly going back to the old key)
3. What is the Transmutation Chord? On which chord does the change take place?
4. What is its Extent? Is it a cadence, passing, or extended transition?
5. What is its Relation? Is it a departing or a returning transition? Is it a principal or subordinate transition?
6. What is the Manner of Entry? Is it gradual or sudden?
7. What is its Object?[55]

In Cadence Transition, the transition, "beginning on the third-last strong (or medium) accent, or later," does not go beyond the cadence it has set out to make. It is often found in the first sharp key. In Extended Transition, the music is carried beyond the cadence. It appears often in the first sharp key, and in the third sharp or flat key. Passing Transition is not found on a cadence, but often appears in the first flat key, in the middle of a line, as a passing harmonic ornament. When sequences are made in the second flat or sharp key they are also considered passing transitions.[56]

[53] Curwen (1872), p. 50.
[54] Curwen (1872), p. 51.
[55] Curwen (1872), p. 56.
[56] Curwen (1879), pp. 310-311; (1892), p. 52.

In transitional modulation the effects of modulation and transition can be combined, for example when a move is made from major to the "first flat minor" (as from C major to D minor, or F major to G minor), from minor to the "first sharp major" (as from F minor to Eb major, or from A minor to G major), or from major to the "third flat minor" (as from C major to C minor), giving a minor tonality on the same pitch, the "tonic minor" as Curwen calls it.[57]

Chromaticism

Every diatonic tone that is altered is either transitional or chromatic. Transitional tones lead the ear to accept a new tonic, as described above, while chromatic tones "lead to a chord so well known in the old key as only to establish that key more strongly."[58] Curwen attributes his insights in this matter to Sir George Alexander McFarren.

Whether we agree with Curwen's "proximate verbal descriptions" of mental effect or not, what he brings to the fore throughout his writings, is that nothing in music is accidental: everything has a particular effect on our minds.

4.2 Internalising musical sounds - singing

Curwen states singing is best learnt through imitation. The teacher should not sing with his students, but, using real songs, teach them new sounds by pattern, singing short phrases to be imitated by the pupils immediately afterwards:

> "Thus they are at once encouraged by the teacher's example, and stimulated to a strong mental effort in endeavouring to bring the ear and the voice to do the Mind's bidding. In this effort alone consists the whole work of learning to sing."[59]

> "Only remember two things - first, that you must always listen to the pattern with all your minds; and second, that you must then be very careful to sing exactly like it. Listening is the most difficult part. He that listens best will sing best."[60]

[57] Curwen (1879), pp. 53-63.
[58] Curwen (1875), p. 133.
[59] Curwen (1875), p. 93.
[60] Curwen (1875), p. 94, originally from *Grammar of Vocal Music.*

It is important that the pattern is given with the voice, not with the piano, an instrument tuned in equal temperament: not only are the impure intervals on the piano harder to imitate than the pure intervals that can be sung by the voice, the just intonation of the tones also gives the pure mental effects.[61]

Curwen obviously places great emphasis on "solfaa-ing", but also stresses the importance of "laa-ing", singing on the open syllable "laa". Its use is threefold: it prevents an all too great dependence on the mnemonic syllables in the student, "assisting him to form a more clear abstract conception of the effect of the different tones," it enables the teacher to focus on the blending of the voices, and, Curwen states, singing on the open syllable is a powerful means in improving the quality of the voice. He immediately warns that the right balance is very important, and that the practice of "laa-ing" should not lead to the neglect of the solfa syllables. Before "laa-ing" is used much, "the Tonic Sol-fa syllables should have time to fix their association of syllable and interval in the mind."[62]

4.3 Visualisation

Since their introduction in 1870, the first visualisation of the tones the students would learn in the Tonic Sol-fa system are the Manual Signs. Each scale tone has its own sign, that in its form represents the mental effect of the tone. They thus function as a visual and physical reminder of mental effect to the student, but can also be used as a means of communication. The teacher, when using the hand signs to show the tones to be sung by the students in so-called voluntaries, not only shows the tones by their signs, but also moves his hands up and down to show the shape of the melody in a vertical manner, while being able to observe the students' singing. Hand signs are further used to teach transition, changing hand and sign on bridge tones on the same horizontal level. Also, in using both hands, two different parts can be signed.[63]

In figure 7, we see the stable major tonic triad, the tones of which are learnt in the first step of the Tonic Sol-fa method, on the left, and the tones that complete the "Common Scale" to the right of it.

[61] Curwen (1875), p. 93.
[62] Curwen (1875), p. 92.
[63] Curwen (1875) pp. 96-98.

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MENTAL EFFECTS AND MANUAL SIGNS OF TONES IN KEY.

NOTE.—*These diagrams show the hand as seen by pupils sitting on the left-hand side of the teacher. The teacher makes his signs in front of his ribs, chest, face, and head, rising a little as the tones go up, and falling as they go down.*

FIRST STEP. SECOND STEP. THIRD STEP.

SOH.

The GRAND or *bright* tone,—the Major DOMINANT, making with *Te* and *Ray* the Dominant Chord,—the Chord S, and with *Fah* also the Chord 7S.

TE.

The PIERCING or *sensitive* tone,—the Major LEADING TONE, making with *Ray* and *Fah* the weak Chord T.

LAH.

The SAD or *weeping* tone,—the Major SUBMEDIANT, making with *Doh* and *Me* the Chord L.

ME.

The STEADY or *calm* tone,—the Major MEDIANT, making with *Soh* and *Te* the rarely used Chord M.

RAY.

The ROUSING or *hopeful* tone,—the Major SUPERTONIC, making with *Fah* and *Lah* the Chord R,—in which case it is naturally sung a comma flatter, and may be distinguished as *Rah*.

DOH.

The STRONG or *firm* tone,—the Major TONIC, making with *Me* and *Soh* the Tonic Chord, the Chord D.

FAH.

The DESOLATE or *awe-inspiring* tone,—the Major SUBDOMINANT, making with *Lah* and *Doh*, the Subdominant Chord,—the Chord F.

*** For fe let the teacher point his first finger horizontally to the left. For ta ditto to the right. When seen by the class these positions will be reversed, and will correspond with the Modulator. For se let the teacher point his forefinger straight towards the class.

NOTE.—*These proximate verbal descriptions of mental effect are only true of the tones of the scale when sung slowly—when the ear is filled with the key, and when the effect is not modified by harmony.*

Figure 7. Manual signs in the Tonic Sol-fa system. Reprinted from *The Standard Course of Lessons and Exercises in the Tonic Sol-fa Method of Teaching Music*, by Curwen, J., 1892, p. viii.

Another means, and in Curwen's eyes the most important tool of visualisation is the modulator, a device Curwen imitated from Sarah Glover's "Table of Tune". The modulator comes into play with the syllables, "after the open aa and the hand-signs have shown the thing to be taught."[64] The syllables and the modulator allow the student to further familiarise himself with new tones, and see them in the context of the other tones he has already learnt. Unlike the hand signs, or the syllables, the modulator gives an exact picture of intervallic relations. According to Curwen, it is the possession of a mental picture of the scale, conveyed by the modulator, that is the secret to successful sight-reading, it is the modulator that the Tonic Sol-faist refers to when he sings from notation. Different modulators for different steps are used, adding only tones that have been learnt up to a certain point, ending in the extended modulator, an overview of the different keys in the absolute system in relation to each other.

[64] Curwen (1875), p. 98.

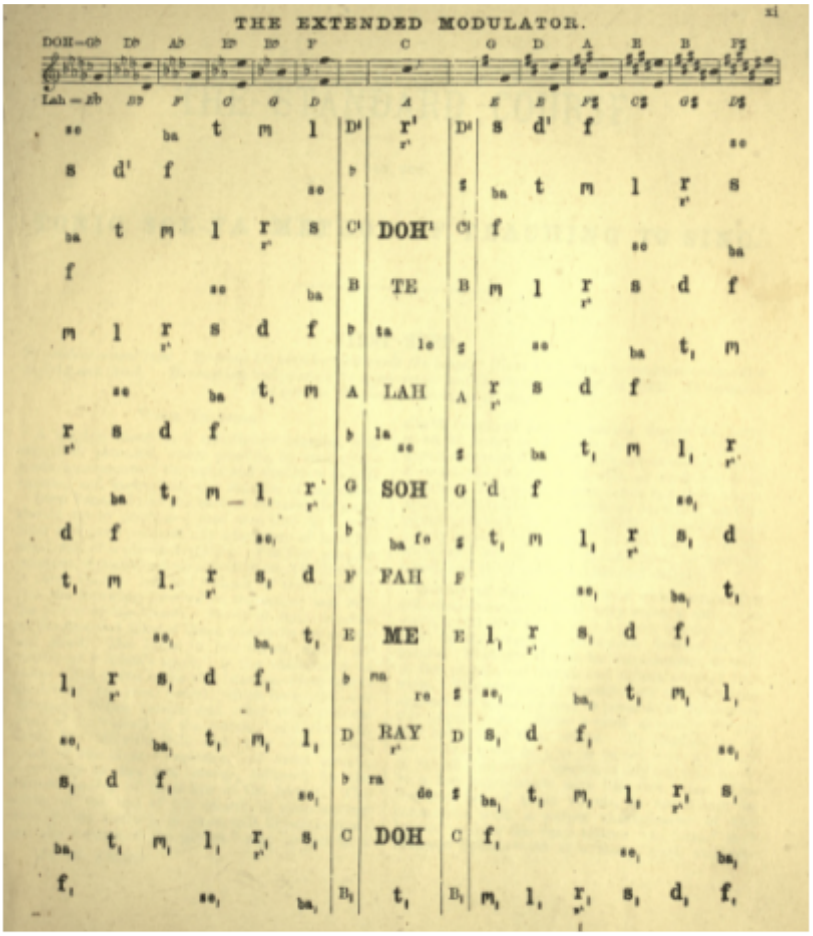


Figure 8. The Extended Modulator. Reprinted from *The Standard Course of Lessons and Exercises in the Tonic Sol-fa Method of Teaching Music*, by Curwen, J., 1892, p. xi.

The modulator has several uses. First, the teacher uses it in teaching by pattern: he sings while he points to the modulator, the students imitate what he has sung, fixing in their minds the image of tone relations that the modulator gives. Second, the modulator can be used in giving voluntaries: the teacher points to the tones to be sung by the students. The advantage of using the modulator in voluntaries is that it shows the tones in its tonal surroundings, which is not the case when using hand signs. Third, the modulator can be used for home practice. Curwen speaks of Hand Modulators, Home Modulators and Card Modulators to be used by students, themselves pointing to the tones they would sing. A student "should never reckon a tune properly learnt until he could himself point and sing it on the Modulator."[65] In The Teacher's Manual we find words of a Mr. Proudman's on having students point to the modulator themselves: "I find two kinds of folk who need extra doses of this tune-pointing, viz., the very quick ears and volatile, and the very dull ears and stolid. The first will point anywere [sic], east, west north, or south, yet sing the tune correctly. The latter will point each note correctly, and accompany it with a most unearthly "ground bass," which is ingenuously thought

[65] Curwen (1875), p. 104.

to be the tune."[66] I have a feeling that it is often this first "kind of folk" that we find in the vocal departments of the conservatories. The fourth use of the modulator, Curwen states, is of great importance: it functions as a tool of thought. It, unlike the fingerboard of the piano, not only provides a correct picture of the intervals within the scale, it also shows how different keys are related to each other and is thus important in understanding transition.[67]

Curwen chooses to let the modulator correspond to the vertical representation of tones of the staff notation. He points out that it is arbitrary, and that the scale could just as well be represented horizontally, as shown in figure 9.

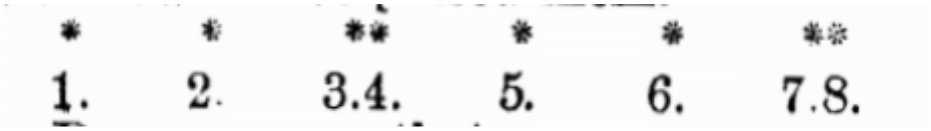


Figure 9. A horizontal visualisation of the major scale. Reprinted from *The Teacher's Manual of the Tonic Sol-fa Method*, by Curwen, J., 1875, p. 106.

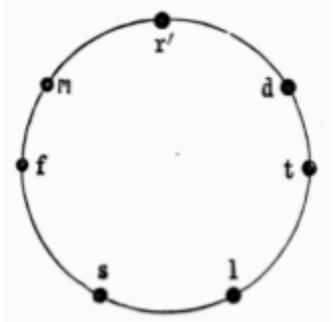


Figure 10. Circular visualisation of the scale. Reprinted from *The Teacher's Manual of the Tonic Sol-fa Method*, by Curwen, J., 1875, p. 132.

In a lesson quoted from a Mr. John Evans, we find a circular (counter-clockwise!) representation of the scale, that can be seen in figure 10.

While in *Musical Theory*, John Curwen is quite sceptical about the use of colour to represent the mental effect of each tone, in a footnote in *The Teacher's Manual*, Curwen mentions "Coloured Modulators" to help in the perception of mental effect. In *How to Read Music and Understand it*, only two specific colours are named in connection to tones: blue for *doh*, and red for *soh*.

All the tools Curwen uses stimulate the student in making his own observations about the tones. According to Curwen, we can "use every appliance of illustration or even of fancy to vivify an impression."[68]

[66] Curwen (1875), p. 105.
[67] Curwen (1875), p. 98-106.
[68] Curwen (1879), p. 19.

4.4 Vocabulary of music and notation

Distinct names

Though Curwen emphasises that the teacher should not present a name or sign until the thing is apprehended, it is of the utmost importance that once the student is ready, the thing is labelled with a distinct name.[69] Because language not only serves to communicate, but also serves as a tool of thought, our attempts at conceptualising are frustrated at a rudimentary stage if the language we use in classification is not distinct and complete. Furthermore, we can never think as fast as when our names point only to one thing:

> "When names have two meanings it takes an appreciable time to learn from the context which meaning is intended. And it takes this time as often as the name is used. Moreover, if we are not very attentive we may suppose the wrong meaning, and so be led into a train of confused thought."[70]

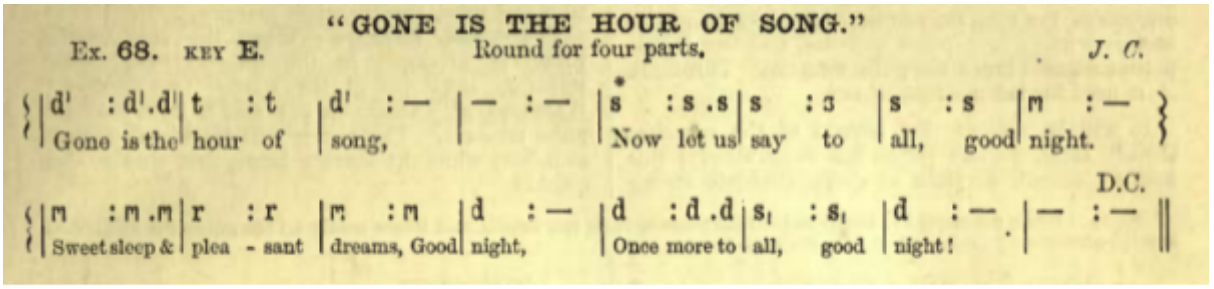
While Curwen states that the Italian syllables to name the tones are "merely arbitrary", they have, with some adjustments, been adopted in the Tonic Sol-fa system because they are considered pleasant to sing, and are universally known.[71] The syllables bring out the "enlightening fact"[72] in the science of music: they represent tones in relation to a key-tone. Because they are used exclusively for that purpose and because they are so perfectly singable, they allow us to establish an intimate connection between the sounds and their relative names.[73]

First things first

It is the principal thing that should be denoted by a name or a sign, while it may connote subordinate things. Because key-relationship is the principal thing, Curwen's Tonic Sol-fa notation denotes this, while it connotes absolute pitch in its key signature. In the staff notation, the tone to be sung has to be deducted from the note's place on the staff. In the Tonic Sol-fa notation, the sign corresponds to the name and thus immediately tells you the sound to be sung. In figure 11, we see that the key, E, is

[69] Curwen (1875), pp. 14-16.
[70] Curwen (1875), p. 17.
[71] Curwen (1875), p. 88.
[72] Curwen (1875), p. 2.
[73] Curwen (1875), p. 16.

given on the top left, while the solfa letters give the tones of the melody based on key-relationship.


"GONE IS THE HOUR OF SONG."

Ex. 68. KEY E. Round for four parts. J. C.

d' : d'.d'	t : t	d' : —	— : —	s : s .s	s : s	s : s	m : —
Gone is the	hour of	song,		Now let us	say to	all, good	night.

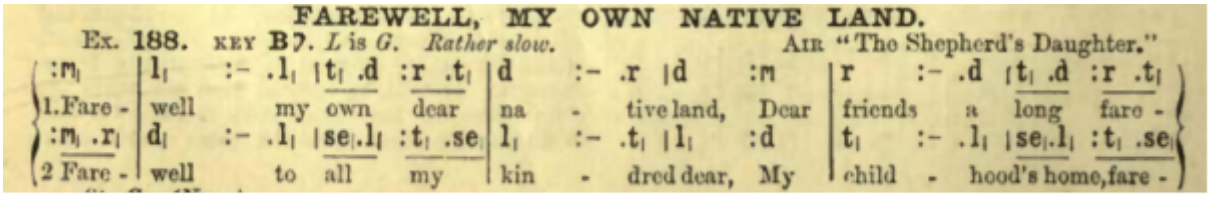
D.C.

m : m .m	r : r	m : m	d : —	d : d .d	s_1 : s_1	d : —	— : —
Sweet sleep &	plea - sant	dreams, Good	night,	Once more to	all, good	night!	

Figure 11. Song in Tonic Sol-fa notation. Reprinted from *The Standard Course of Tonic Sol-fa,* by Curwen, J., 1892, p. 17.

According to Curwen, in staff notation the opposite is the case: absolute pitch is denoted, while key-relationship is connoted through the key signature.

If a song is in the minor mode, the minor tonic pitch is given next to the key signature, as can be seen in figure 12.


FAREWELL, MY OWN NATIVE LAND.

Ex. 188. KEY B♭. *L is G. Rather slow.* AIR "The Shepherd's Daughter."

:m$_1$	l_1 :- .l_1	t_1 .d	:r .t_1	d :- .r	d :m	r :- .d	t_1 .d	:r .t_1
1. Fare -	well	my own	dear	na -	tive land, Dear	friends	a long	fare -
:m_1 .r_1	d_1 :- .l_1	se_1.l_1	:t_1 .se	l_1 :- .t_1	l_1 :d	t_1 :- .l_1	se_1.l_1	:t_1 .se
2 Fare -	well	to all	my	kin -	dred dear, My	child -	hood's home,	fare -

Figure 12. Excerpt of a song in the minor mode in Tonic Sol-fa notation. Reprinted from *The Standard Course of Tonic Sol-fa,* by Curwen, J., 1892, p. 88.

Changing key

Transition is notated using bridge tones. These tones are used to go from the old key to the new. The old tone with its mental effect is written in small, with next to it in normal size the new tone it has become, as seen in figure 13.

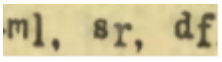


Figure 13. Bridge tones in Tonic Sol-fa notation. Reprinted from *The Standard Course of Lessons and Exercises in the Tonic Sol-fa Method of Teaching Music,* by Curwen, J., 1892, p. 51.

The new key is written above, with the new sharp tone(s) to the right of the key name, or the new flat tone(s) to the left of it, as seen in figure 14.

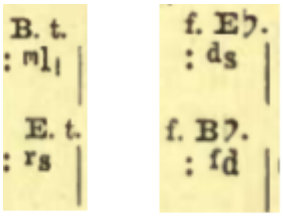


Figure 14. Transition in Tonic Sol-fa notation. Reprinted from *The Standard Course of Lessons and Exercises in the Tonic Sol-fa Method of Teaching Music*, by Curwen, J., 1892, p. 52.

This way of writing a key change not only allows us to see the new key in absolute pitch, but also allows us to see the remove by showing both the number of changes, as well as the identity of the new tones in this key, through the explicit mention of the distinguishing tones next to the key signature.

Writing a transition as the singer perceives it, Curwen calls the Perfect Method of indicating transition: "Tonic Sol-fa pupils always prefer that their notes should correspond with the mental effects of the tones they represent."[74] When the transition is very brief, for example in a cadence or passing transition, the Imperfect Method can be used: the key signature is not changed, the distinguishing tones are written as chromatic tones.

Functional names & chord symbols

As can be seen in figure 15, to describe the role the tones play in major and minor tonalities Curwen uses common names that are applicable to both, and thus can function to bring out their similarities.

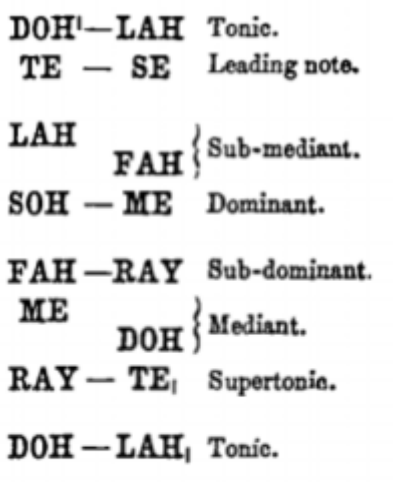


Figure 15. Functional names as used by Curwen. Reprinted from *How to Read Music and Understand it,* by Curwen, J. & Curwen, J.S., 1881, p. 31.

[74] Curwen (1892), p. 51.

In his notation of chords Curwen uses the same logic regarding denoting and connoting as mentioned before. There is the key-relation of the root of the chord on the one hand, and tones at certain intervals to the bass tone on the other. While in figured bass notation the second fact is denoted, Curwen chooses to denote the root, and connote the bass. Diatonic chords are notated with the root in capital letter and an italic lowercase letter defining its position: Da is a chord on doh in root position, Db in first inversion, Dc in second inversion.[75] Minor contexts are distinguished from major contexts by italicising the capital letters. Thus "*L"* would represent the chord on *lah* as the minor tonic, while "L" would represent the chord on *lah* in a major context.

Curwen's chord symbols were, as far as I can tell, primarily used to analyze music written in parts, giving a vocabulary and shorthand notation to distinguish all possible events in music according to our perception of them, with a quite complex result to the eye in the most extreme cases. But what is still always visible, even through all the details, is the key-relationship of the root of the chord, as we can see in figure 16.

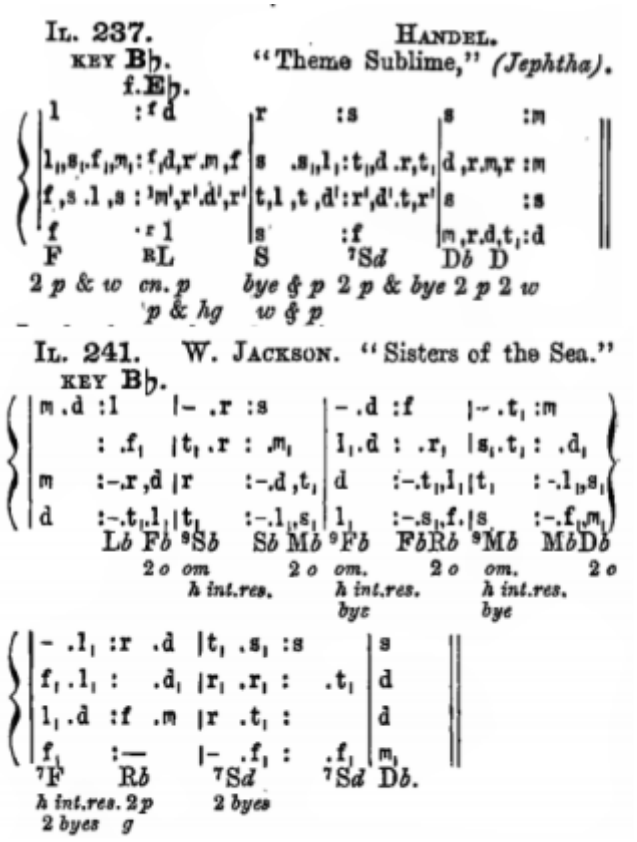


Figure 16. Examples of elaborate musical analysis. Reprinted from *How to Observe Harmony*, by Curwen, J., 1872, pp. 125-126.

In many of the publications of the Curwen Press, the publishing company of the Tonic Sol-fa movement, staff notation is used next to the Tonic Sol-fa notation, and many advanced Tonic

[75] Curwen (1875), pp. 18, 26.

Sol-faists would learn both notations. As the key signature in the staff does not always correspond with the key of the music, Curwen addressed the issues the singer could run into in reading staff notation, as when we encounter accidentals. The singer has to determine whether he is dealing with chromatic or transitional tones. Some commonly found transitional tones are described, but, knowing the order of flats and sharps, for all key changes the main strategies are:

> Find the flattest note, and call it "*fah*".
> Find the sharpest note, and call it "*te*".[76]

4.5 Summary

In his Tonic Sol-fa system, Curwen has come to a very complete approach to music, with at the center of it all the mental effect of the tones, our experience of the sounds in context. Through distinctive names, accurate and helpful visualisations and ways of notating, he provides a model that can be applied to music of any genre, including jazz.

Summarising Curwen's vocabulary used in speaking of and writing music I come to the following:

- The Tonic Sol-fa syllables are used for relative pitch
- Letter names are used for absolute pitch
- Numbers are used for intervals
- Traditional functional names are used to show similarities between major and minor tonalities
- Chords are named after their root, and italicised in a minor context
- In Tonic Sol-fa notation, transition is written with bridge tones, and the new key name with the new tones above
- To interpret staff notation: call the flattest tone *fah*, or the sharpest tone *te*

[76] Curwen & Curwen (1881), pp. 59-60.

5. An integrated vocal approach

In this last chapter I will try to find an answer to the final subquestion:

- How can Curwen's approach to music be applied to studying jazz standard repertoire and improvisation?

In applying Curwen's ideas on studying jazz, the following elements seem to be necessary:

- A distinct vocabulary for relative pitch, absolute pitch, intervals, and chords, so that we can understand all of them in an integrated way
- A means of entirely relative notation
- A way of integrating relative and absolute thinking and notation
- An advanced and accurate way of visualising tone relations that emphasises that the singer, and not any kind of instrument, is the sound producing agent and that music is a mental event
- An approach to learning material by heart in full conscience, leading to a highly developed musical intuition

I will show how I think these elements can be realised, drawing, besides from the sources I have studied in this research, also upon my experiences during the master's course in my lessons with Suzanne Konings, and incidentally László Nemes and Katalin Kiss. All the materials that I developed have been tried by myself, in my own practice, as well as in teaching others.

5.1 Internalising musical sounds - singing

Whether a deep musical knowledge is already in our subconsciousness, as Reed states, or whether we make a deliberate effort to submerge ourselves in the world of sound, as we find with Elsen and Tristano, the goal in improvisation is to be able to draw from this subconscious, deep, embodied knowledge. Once musical vocabulary is internalised to the same degree our native spoken language is, we will be able to freely express ourselves.

In agreement with Tristano's practices, I think it is very important to listen so closely to the music one wants to learn so as to absorb all the elements from it, such as sound, energy, intonation, articulation, rhythmic feel, and the tones themselves, by singing (and moving) along with the recording. While I think that any desired music is suitable for this, I will name an example of a solo to learn that many jazz singers know, on a song that will be used as an example several times in this chapter: Chet Baker's solo on "It Could Happen to You", from 1958.

5.2 Vocabulary of music and notation

As we always perceive context (whether it is suggested to or created by us), everything in music can be expressed relatively. Even if the intended effect of the composer is to confuse us, this is an effect we can acknowledge and find an approach to. It only requires us to be highly flexible in creating and perceiving tonal context.

As Curwen stated, we can only begin to conceptualise something once we have attached a distinct and exclusive name to it. When we use labels that are not distinct, on each occasion it is used, we need time to determine the context in case.[77]

In line with this, researcher Gary Lupyan has coined the term "language-augmented thought".[78] Luypan has shown that labels do not merely refer to objects, but play a role in our perception, memory, and thoughts on them, and our perception is much quicker when a category is cued by its verbal label:

> ".. [V]erbal labels do not simply point or refer to nonlinguistic concepts, but rather actively modulate object representations that are brought on-line during "nonverbal" tasks. Using

[77] Curwen (1875), p.17.
[78] Lupyan (2012).

> words to refer to concrete objects affects the learning of new categories, memory for and reasoning about familiar object categories, and even basic visual processing. Object representations activated by verbal means appear to be different, and specifically, more categorical, than ostensibly the same object representations activated by nonverbal means."[79]

As neural processes are "intrinsically interactive," and Lupyan shows that our perception of and our ability to categorise visual objects is augmented by verbal and aural cues,[80] it makes sense that our perception of and ability to categorise aural objects is in turn augmented by verbal and visual (and tactile) cues.

Solfa syllables

In line with practice at the master's course I use a current adaptation of Curwen's Tonic Sol-fa, with a minimalist spelling. The diatonic tones are *do, re, mi, fa, so, la* and *ti*. In raising a tone, the vowel is changed to "-*i*", in lowering a tone, the vowel is changed to "-*a*" (with *la* becoming *lo* when lowered). In written music, the diatonic tones are written with their initial letter in lower case. Altered tones are written in full. Thus *d* stands for *do*, and *di* represents a raised *do*.

Relative notation

It is in transcribing that I find the greatest practical use of an entirely relative notation, based on Curwen's Tonic Sol-fa notation. For practical reasons I do not use Curwen's rhythmic notation, but mainly "stick notation" with the "solfa" below. This also connects well to use of the rhythm syllables from the Takadimi system.[81] The sticks provide a clear view on the rhythms being used, and it allows me to focus on how I perceive the tones, on their mental effect, because it allows me to notate the rhythm in isolation and add pitch afterwards. I can make accurate transcriptions without music paper or any need to go to the piano, even when the key changes. If I would want to notate it on the staff to play on an instrument, I can easily transfer it to a particular key, but it is just as easy to play it from relative notation in any key. This is actually a great advantage in practicing material in all keys and developing the ability to play by ear.

In writing key changes, Curwen's ideas are the model, using bridge tones and indicating the key change above, with "+" representing a move to the right, and "-" a move to the left on the circle of fifths, or on the Extended Modulator. Thus "+1" means one added sharp, while "-1" represents a step

[79] Lupyan (2012).
[80] Lupyan (2012).
[81] Hoffman, Pelto & White (1996).

to the left: one added flat. For practical reasons the bridge tones are displayed slightly differently. As in for example Kodály's *44 Two Part Singing Exercises*, they will be written with the old tone in brackets before the new tone. A so changing to do will look like this: (s)d.[82] While it is sometimes difficult to determine where exactly a key change takes place, I carefully focus on the effect of the tones at any given place and let my experience of them decide. In ambiguous surroundings the experience might be different at other times, in different tempos etc.

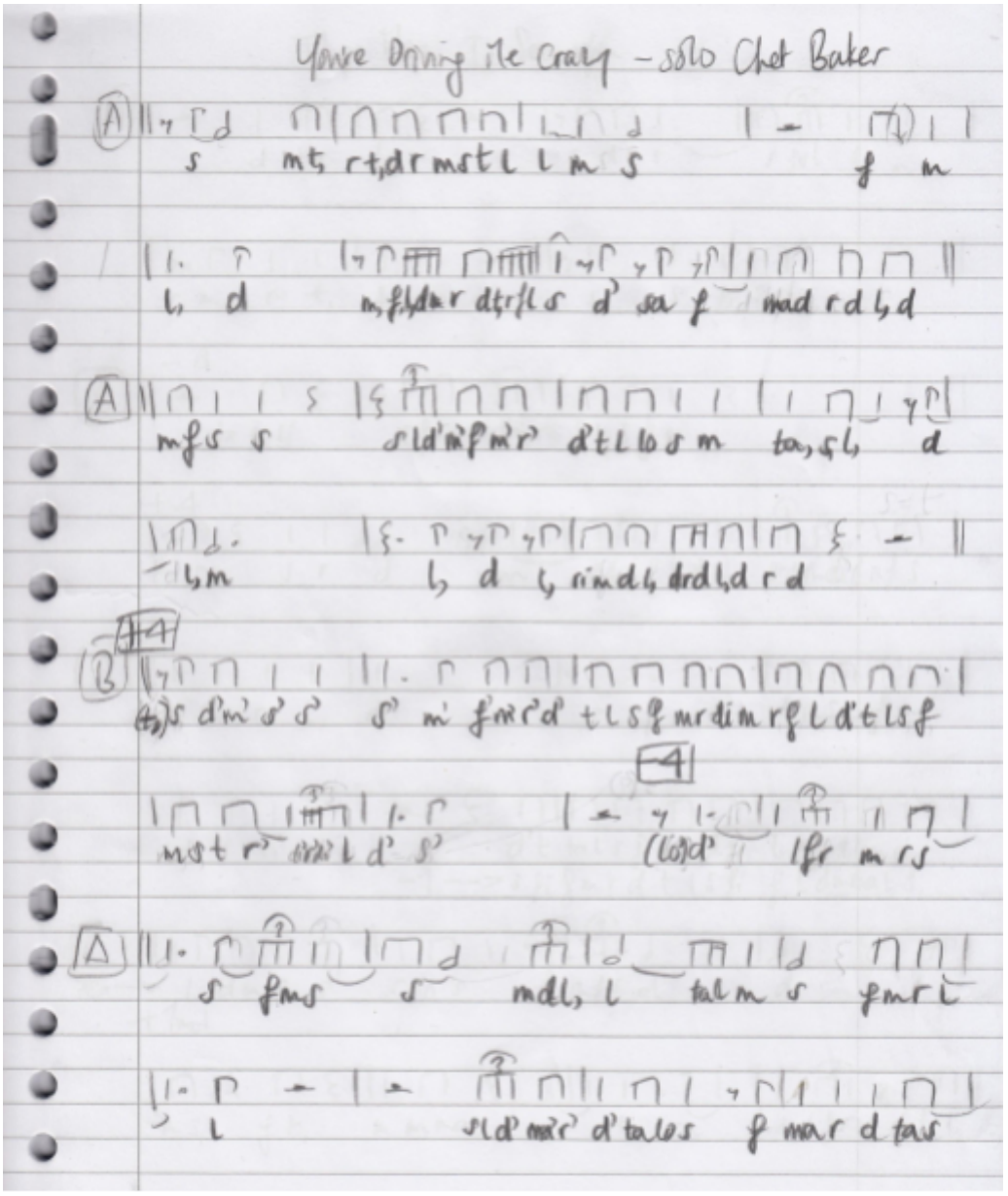


Figure 17. Transcription in stick notation of Chet Baker's solo on "You're Driving me Crazy" (1958), containing two key changes: "+4" and "-4".

[82] Kodály (1941).

In the process of transcribing, perceiving a key change is an entirely aural event. When writing in relative notation the tones can be notated just as they appear in their particular context, regardless of absolute pitch and how the song would look on the staff, as can be seen in figure 17. In figure 18 we see how the staff notation makes bar 17-22 of Chet Baker's solo look very complicated, because of the many "alterations". I am quite sure that the solfa is a much more accurate reflection of Chet Baker's choice of notes and perception of the song; the solfa actually shows how he would think the song. In the lay-out of a lead sheet used in studying a song, I have come to prefer one that shows lines of eight bars instead of four. While this might be less practical for music that should be read on the spot, and at the same time might still be rather rigid and square, for studying jazz standards I think it gives a more accurate view of the musical sentences, one that is (or should be) closer to our experience of the flow of the lyrics and the melody.

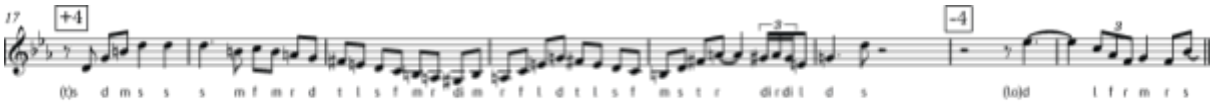


Figure 18. Bar 17-24 of the transcription of Chet Baker's solo in staff notation.

In transcribing, the mental effect of the tones can be our sole guide, but when dealing with written music, I have Curwen's checklist in mind to determine the possible key and the types of transition I might encounter. While I do need to make a decision when learning a song, the interpretation is not set in stone. Figure 19 shows the key changes in "Almost Like Being in Love", transferred from staff to stick notation.

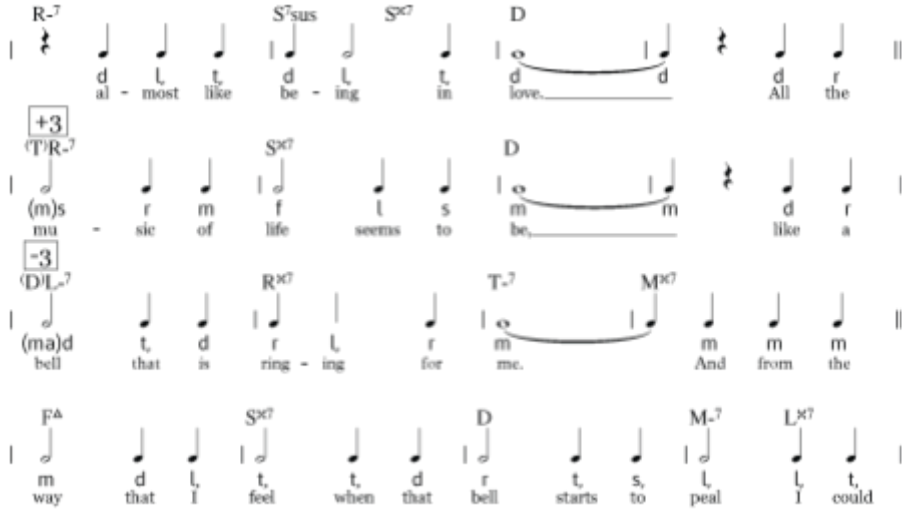


Figure 19. Bar 13-28 of "Almost Like Being in Love" in stick notation.

The staff can be used for purely relative notation: a staff with no clef clef can be used for musical shapes to be sung (and played) in any mode (of any key), such as the triads and seventh chords in figure 20.

Figure 20. Triads and seventh chords in all inversions.

A staff with a *do-clef* can be used for examples to be sung in the written mode (of any key). Though I think an advantage to stick notation is that we cannot follow the eye up and down following our musical intuition, but must imagine each specific sound, notation on a staff can bring out certain musical shapes visually clearer than stick notation, and reading with a do-clef can help us to understand how the staff really works. I will use a do-clef as found in Willem Gehrels' *Algemeen Vormend Muziekonderwijs*, as seen in figures 21 and 22, that he in turn drew from Fritz Jöde's 1932 *Elementarlehre der Musik*.[83] This clef tells us where the key tone, *do*, is, which does not necessarily mean that it is also the tonic! It merely tells us how to locate the diatonic tones on the five lines, like our key signatures with flats and sharps do.

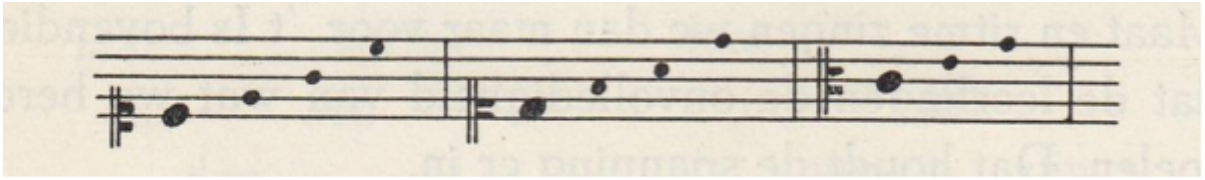


Figure 21. Gehrel's do-clef. Reprinted from *Algemeen Vormend Muziekonderwijs* (7th Rev. ed.) by Gehrels, W., p. 230.

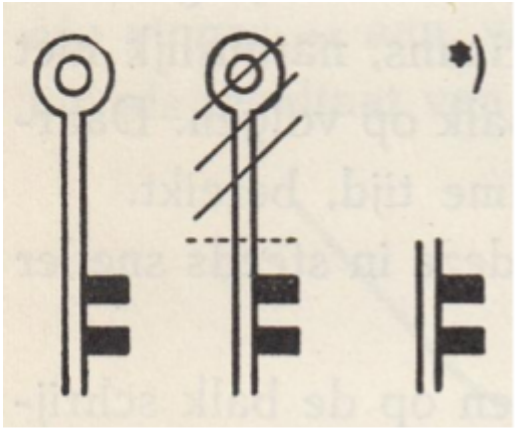


Figure 22. Visual explanation of the do-clef. Reprinted from *Algemeen Vormend Muziekonderwijs* (7th Rev. ed.) by Gehrels, W., p. 230.

[83] Gehrels (1956), p. 230.

While the do-clef in itself gives all the information we need to read a melody, I can add solfa letters under the notes, to be sure there are no misunderstandings in the process of learning a song, as can be seen in figure 23.

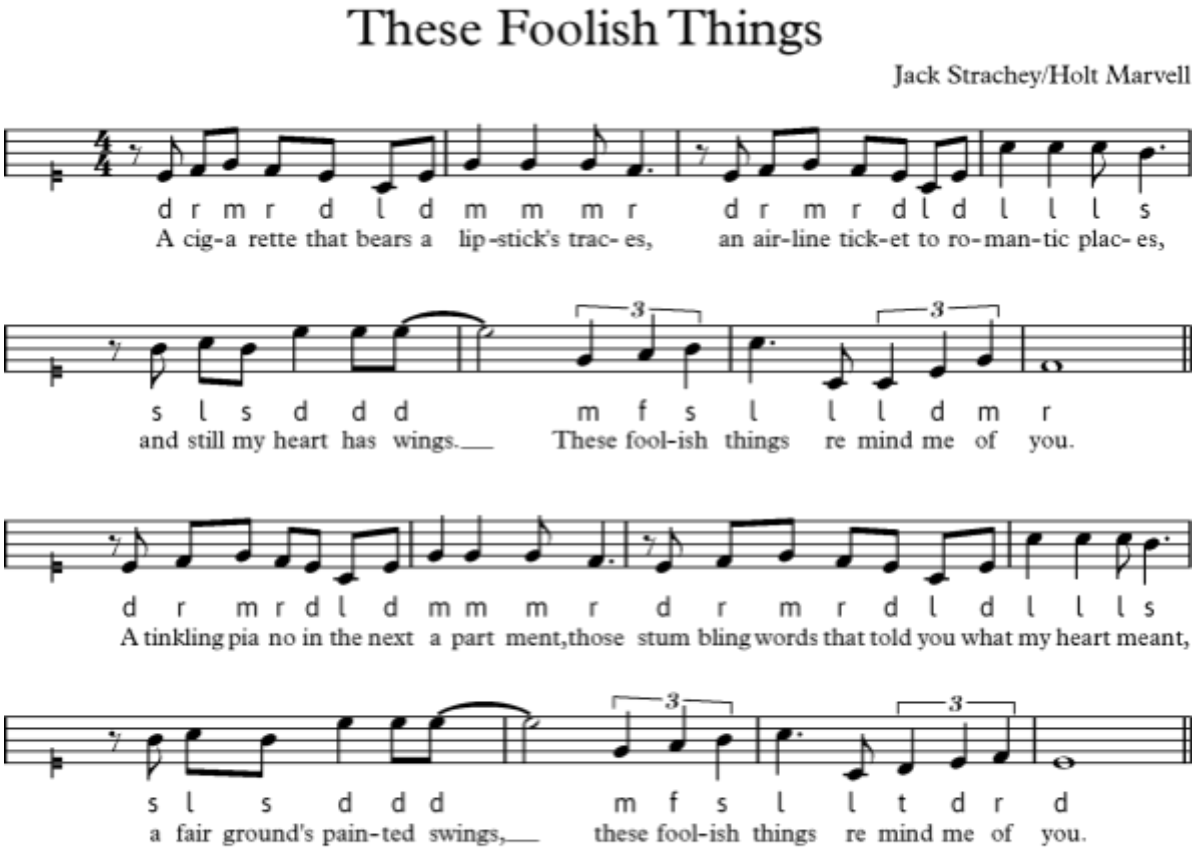


Figure 23. "These Foolish Things (Remind Me of You)" in relative staff notation with added solfa below the notes.

Absolute and relative dimensions combined

To speak of music in a particular key, I will use the absolute pitch names, staff notation and chord symbols that are in common use. As Curwen has shown, it is important that we always understand music on its primary, relative level. Because sometimes the perceived key is not the same as the key the key signature gives us, solfa here can also be written under the notes on the staff to determine the sound to be sung with certainty, as seen in figure 24. While I do agree with those who may say that writing the solfa under a staff with a given key signature should not be necessary, I have no objections to it: the goal is to understand which sounds we should imagine and to enable us to learn material by heart, and I will do whatever helps to achieve that. In the end it is imaginable that I use the do-clef combined with the key signature, also in pieces in which key changes occur, as seen in figure 24. Later on we will see that use of colour I will propose will allow an intimate integration in the visualisation and notation of absolute and relative pitch.

Figure 24. Chet Baker's solo on "You're Driving me Crazy" in staff notation with added do-clefs and solfa below the notes.

Intervals

Intervals get the exclusive right to be named by their number. This distance between tones is expressed through the number of steps between the natural tones (*d-s* is the same number of steps as *di-sa*). They can be further specified by their perfect (P), major (M), minor (m), diminished (d), or augmented (A) quality.

In figure 25 we see the same melody as given in chapter 3. We see that now, there is no conflict between the melodic and harmonic dimensions. Both distinctions are true simultaneously and do not interfere with each other.

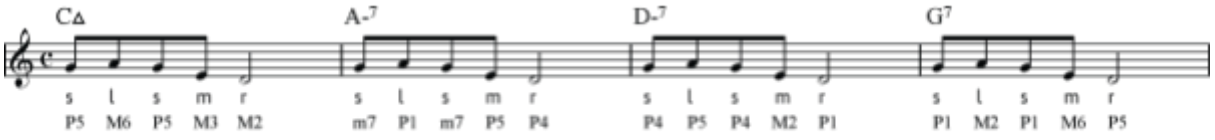


Figure 25. Example of a melody in the key of C with solfa and interval determinations below the notes.

Chords

According to Curwen, chords are named by their root: a chord built on *do* is called a "*do* chord" (and is written "D"). The name can further be elaborated by chord quality: a chord on *la*, being minor, I can call "*la* minor"; a seventh chord on *ti*, "*ti* half-diminished".
In writing chord symbols, I combine Curwen´s ideas with common practice in jazz. The tone that is the root is written with a capital (solfa) letter, while suffixes determine the chord quality, or, said otherwise, the intervals that are stacked on a root. Figure 26 shows the chord symbols for the diatonic triads and seventh chords, and the tones they are made up of.

D	dms	D△	dmst
R-	rfl	R-7	rfld
M-	mst	M-7	mstr
F	fld	F△	fldm
S×	str	S×7	strf
L-	ldm	L-7	ldms
T○	trf	Tø	trfl

Figure 26. Relative notation of diatonic triads and seventh chords with the tones they are made up of.

As can be seen, only in writing dominant chords am I deviating from common practice. As the leading tone in the third of Sx is such a determining factor, and because secondary dominants are mostly created by altering a tone to create an extra leading tone, it does not make sense to me that dominants should go with no suffix in the case of triads, or with just the suffix "7" in the case of seventh chords. For example, in altering R-7 to a dominant chord, this would mean just taking away a suffix! I think marking it makes more sense, the chord symbol in this case becoming Rx7.[84] Augmented sixth chords, that are commonly written as dominant seventh chords, and occur on *fa* in minor and on *lo* in major, will be written with the suffix #6: F#6 (f l d ri) and Lo#6 (lo d ma fi). While through the lens of absolute pitch F#6 might look as F sharp major with a major sixth, sharp (or flat) symbols are not used to write the alteration of the root in this relative context, so this to me has not turned out to be a problem. On top of that, in this approach it is not about the quickest way to the right keys on the piano, and I think this choice allows us to better understand the occurrence of augmented sixth chords and their voice leading.

If a tone other than the root is in the bass, I will write it under a slash, in lower case, emphasising its melodic function. In further chord extensions or alterations I will follow common practice in jazz.

This relative notation for chord symbols allows me to look at the bass in a principally melodic way, making it very singable, which is exactly the goal. I therefore reject the use of Roman numerals for the relative notation of chords. They become utterly unnecessary, and can only be a source of

[84] The use of this "x" I first saw in a lesson with Dr. Katalin Kiss in Kecskemét, Hungary, where she used it as a symbol for the dominant seventh chord. I have chosen to let it stand not for the entire dominant seventh chord, but for the third in the dominant chord, that creates the upward leading tone into the next chord.

confusion. Figure 27 shows the first five bars of "It Could Happen to You" in Roman numerals notation.

Figure 27. Bar 1-5 of "It Could Happen to You" in Roman numeral notation..

Try singing the bass line, either on numbers or solfa! In figure 28 we see the same progression, now written in the relative notation I propose.

Figure 28. Bar 1-5 of "It Could Happen to You" notated with the proposed relative chord symbols.

The example in Roman numeral notation that I have just given I think comes from what seems to be a very common misconception: that there are seven tones in a key, and that any chromatic tones are "borrowed" from a different key. This line of thought leads one to think that on each secondary dominant we are stepping out of the key, instead of actually reaffirming the key through chromatic effect. If I approach these "II V I" or "VII I" progressions with Curwen's ideas and the mental effect of the tones in mind, with a central role for the melody of a tune, I will see that these progressions are often really chromatic, and not transitional at all. Thus, there are seven diatonic tones and ten chromatic tones that can be distinguished, which all have their role in the key. Though there are only twelve keys in the octave on a piano, there are seventeen mentally distinguishable relative sounds with their own name in the octave.

Like Curwen, I will use the traditional terms tonic, dominant, subdominant, etc., as seen earlier in figure 15, to speak of events that are similar in major and minor tonalities. I have not adopted Curwen's practice of writing chord symbols in a minor context in italics. This practice was only applied in the analysis of chords, and not to notes in minor melodies, and therefore I do not consider it a necessary addition with regards to mental effect. Moreover, in my opinion the use of colour that I will propose will compensate the absence of this visual distinction Curwen makes between chord symbols in the major and minor mode.

5.3 Visualisation

The Movable Do Disc

In July 2016, all my thoughts on the octave in relative and absolute pitch, Curwen's ideas on mental effects and the modulator, words on colour written by Alexander Cringan in his *Teacher's Handbook of the Tonic Sol-fa System* (1889), and a visit to an exhibition of Wojciech Weiss's work in the

Gemeentemuseum in The Hague came together in a sudden idea. I could make a visualisation of music that integrated relative and absolute pitch without relying on the piano, that was equally true and insightful in all keys. I made a sketch and first prototype, shown in figure 29, of what I chose to call the Movable Do Disc (MDD).

Figure 29. Prototype of the Movable Do Disc.

Thinking tool

On the disc, the place of each diatonic scale tone is shown in a circle that represents the octave, divided into twelve semitones. The diatonic tones have each been given their own colour, suggesting the individual character of each tone in the scale, and clearly showing the shape of the scale and the position of the diatonic semitones between *mi* and *fa*, and *ti* and *do*, and of the tritone between *fa* and *ti*, the two leading tones in the scale. The names of the chromatic tones, found in the spaces between those of the diatonic tones, show us we can distinguish between one tone's raised version and the next diatonic tone's lowered version, *si* and *lo* for example.

A smaller circle on the top represents absolute pitch, the "Absolute Pitch Attachment" (APA), and shows the tones with their absolute pitch names. Placing a particular pitch on do, or on any other tone, shows how all the pitches function in their tonal context. As seen in figure 31, the APA has become transparent, emphasising that the character of a tone always comes from the perceived relative context, shown through the underlying colour. The drawing of the tuning fork on the APA allows us to easily find a melodic path to the pitch we need, in any key.

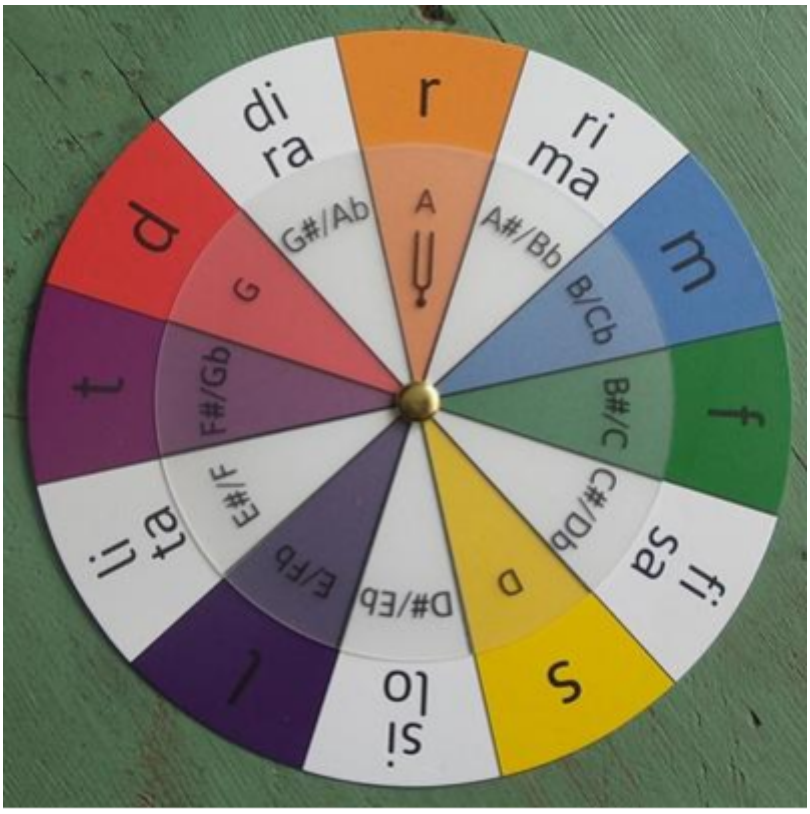


Figure 30. The Movable Do Disc.

On the final version (figure 30), the APA contains enharmonic spellings for C, B, E and F. I decided to sacrifice visual simplicity for perceptual truth: the absence of B#, Cb, Fb and E# would lead to inconsequences too soon. For example, I feel it is important to understand that in a 3-flat key signature, a lo is Cb and not B. And in any case, the perceptual relative level is visually and aurally just as simple in any key.

To focus just on tone relations, the APA can be taken off. The backside of the MDD is printed with colours, but shows no names. Newly learned tones can be written on it until all the relative tones, diatonic and chromatic, are mastered.

With the addition of the Movable Do Disc extension, referring to Curwen's extended modulator, any key change can be visualised and practiced, two keys can be displayed simultaneously (figure 31). It further functions as a tool to understand transposition (figure 32), and to visualise intervals in context, in their different spellings (figure 33). In figure 31 we see that by combining two relative layers, we can compare different keys, however distant they are on the circle of fifths. We can see which tones are common to both keys and how their character is changed by the change of key.

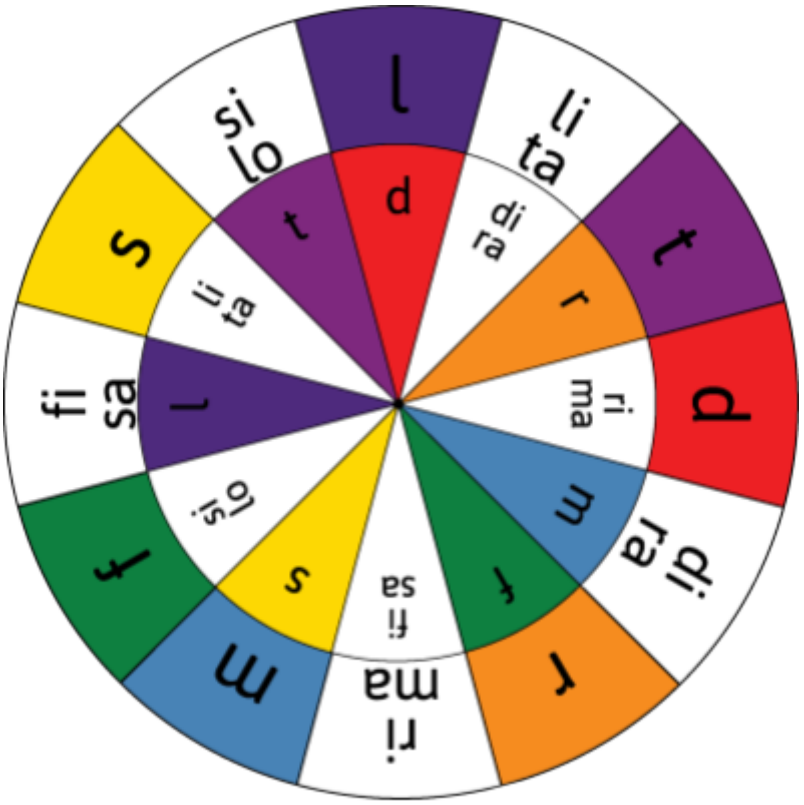


Figure 31. Two relative layers show two keys simultaneously, allowing the practice of key changes or parallel tonalities.

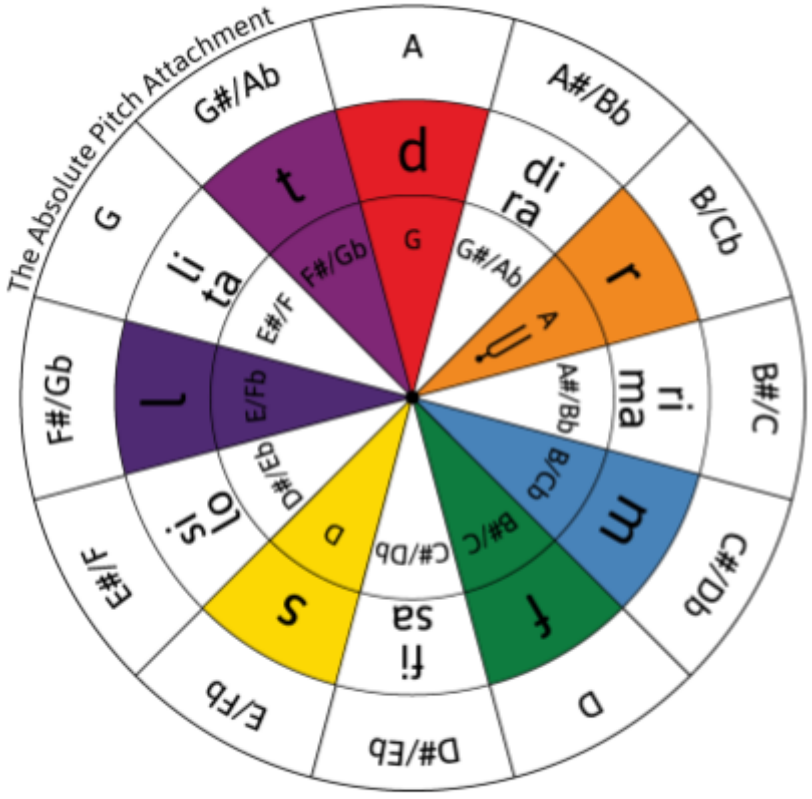


Figure 32. Two absolute layers can be used as a tool for transposition and comparison of pitches used in different keys.

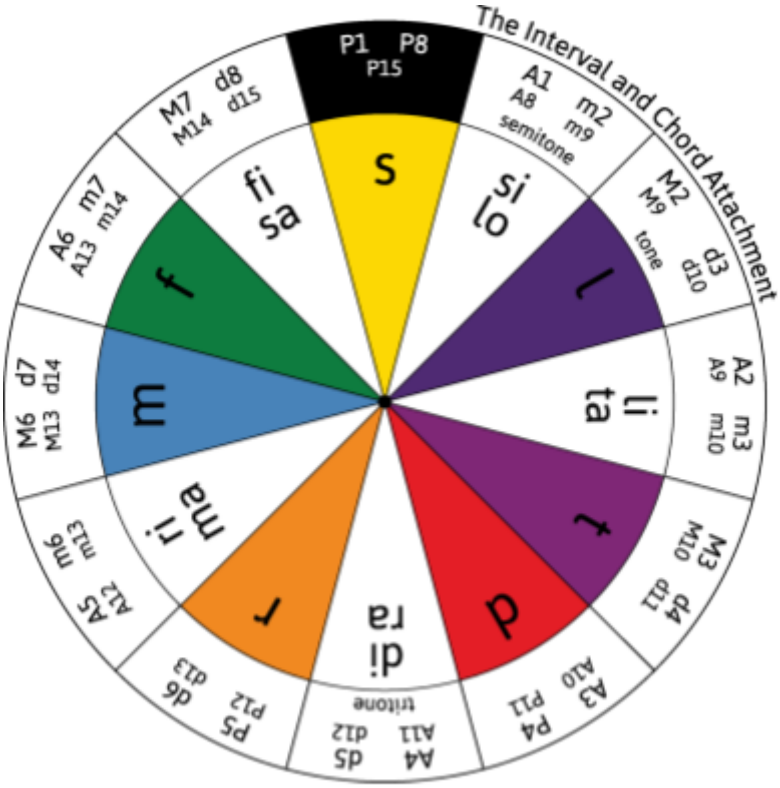
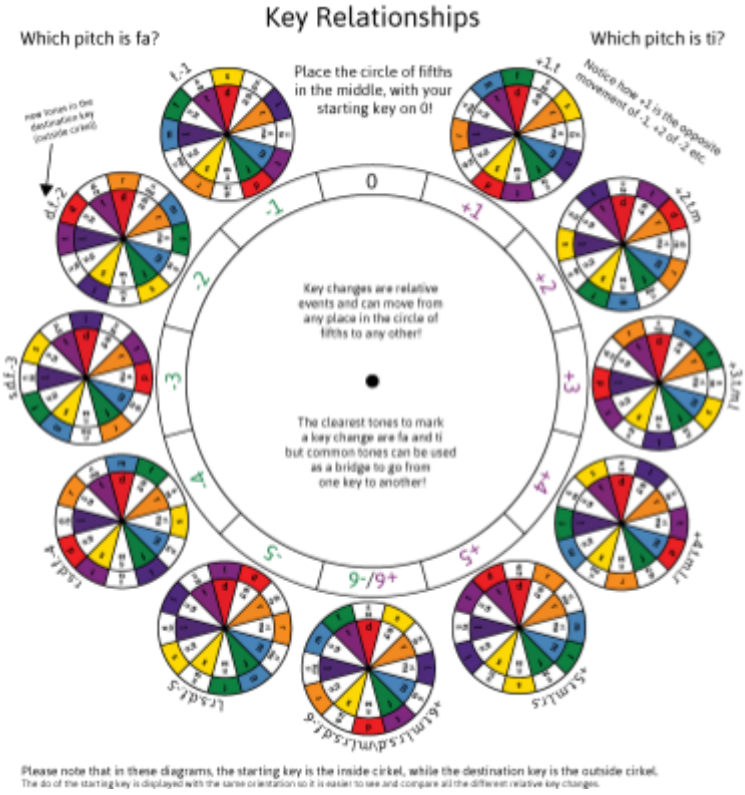


Figure 33. The Interval and Chord Attachment combined with the Movable Do Disc shows all intervals in context.



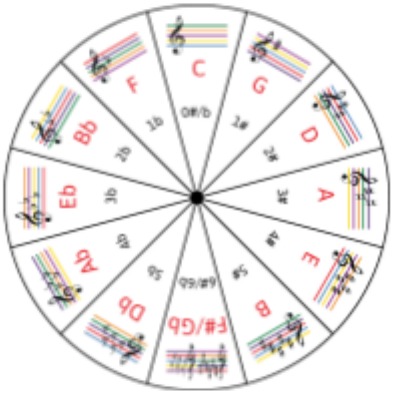


Figure 34. Overview of possible key changes and turnable circle of fifths.

In theory, the number of layers could be far greater than three, combining all these dimensions, or adding circles to apply any system of musical analysis.[85] I have also made an overview of key relationships, as seen in figure 34, showing all possible moves through the circle of fifths in a relative as well as absolute manner.

As an explanation of the colours, that, as I will show later, can play a great role in musical analysis and in integrating the relative and absolute dimensions of music, I would like to quote from Cringan's *Teacher's Handbook of the Tonic Sol-fa System*:

> "Among those who have investigated the matter, there can be no doubt regarding the advantage to be derived from the use of colors in teaching sight-singing. The object of a color-scale should be to convey, through the eye to the mind, a distinct impression of the effect of the tones represented. We have discussed the appropriateness of certain colors, with a large number of artists and teachers, and, as a result, have decided to adopt the following scale:
>
> t - Purple.
> l - Indigo.
> s - Yellow.
> f - Green.
> m - Blue.
> r - Orange.
> d - Red.
>
> It will be noticed that the prismatic colors have been selected, with a slight modification of their natural order. Some writers have advocated the retaining of the natural order, but we cannot reconcile the calm, gentle effect of me with the brightness of yellow; or the bright, bold effect of soh with the peaceful effect of blue."[86]

Singing tool

The Movable Do Disc functions like Curwen's modulator. It allows us to understand and practice any melody or harmony in any key, by visualising the relationships of the diatonic and chromatic tones, through any octave, while, if desired, always keeping absolute pitch in view. While it is my opinion that the circular representation, the emphasis it gives on the shared mental effect of duplicates of

[85] Pdf documents to do exactly this are provided.
[86] Cringan (1889), pp. 96-97.

tones, the explicit presence of the chromatic tones, and of absolute pitch are very much strengths of the Movable Do Disc, it does make sense to also make use of simpler vertical representations of the scale, for example as seen in figure 36. In these visualisations, it is important that the relative distances between the tones is observed (although they are actually "well-tempered", and not as accurate as Curwen's!). Using the same font and colour for these vertical (or horizontal, or other) visualisations sets up a connection to the circular representation of the diatonic scale. I will also use vertical scale representations in the study of chord progressions, using Reed's practice as shown in chapter 3 as a model.

Figure 35. La pentachord, vertically displayed with font and colours taken from the Movable Do Disc.

The Movable Do Disc can be used to teach by pattern, and for individual study, as I imagine Curwen's "hand modulators" were used. It empowers the student: he or she is the agent that is making the intellectual and musical effort. Mainly as a note to myself I would like to say, roughly in Curwen's words: I should never reckon a tune properly learnt until I can myself point and sing it on the Movable Do Disc.

The Movable Do Disc can also be used to improvise freely, unaccompanied, or over a drone for example. The solfa syllables can be sung, or neutral syllables can be used while pointing at the tones (Curwen's "laa-ing").

Figure 36. Practice pawns on the MDD, here showing Mx7.

Pawns can be used on the disc to "walk" a melody, to visualise harmony and voice leading, or to highlight a particular tone set. As can be seen in figure 36, I have chosen to use golden coloured pawns, to not interfere with the colours on the disc.

Another reason to use golden pawns was to emphasise that it is the singer that gives the sound "shine." Figure 38 shows the floormat version of the Movable Do Disc, on which tonal movement can be experienced in an enlarged and very physical form, through individual or group activities. Another, smaller mat can be used to visualise key changes or a parallel key.

Figure 37. Large and small floormat version of the Movable Do Disc on top of each other.

Colour as a tool for musical analysis

The colours of the Movable Do Disc are turning out to be very useful in analysing written music and other integrations of relative and absolute dimensions of music. In analysing music in staff notation, I use the appropriate colour to distinguish the notes, allowing me to immediately read them in context, in its place in the system of absolute pitch. Colour can be used to highlight difficult jumps or key changes only, or as a means of making a full analysis of the music, giving an impression of the mental effect of the music at a glance, by providing an immediate overview of the overall atmosphere of a piece of music and showing us which tones are the most prominent.

The physical and mental process of colouring each single note further is a process of high focus, that I find gives a deep intimacy with the music. While I am colouring, I am hearing the tones with their solfa names. To me, the exact key is actually of no importance in this process. If I am done colouring the melody, I have actually gone through it 7 times already!
In colouring the melody, I start with the tonic, then the dominant, then the mediant. It allows me to see their presence in different stages, each time looking over the whole and taking notice of the view. After these three colours, another tone might already have attracted my attention, and I choose the

order of the other colours according to that. In colouring the chord symbols, I start with the tonic, then the dominant, then the supertonic, and then the other tones. Figure 38 shows the result of colouring the notes of the first two A-sections of the song "Dinah".

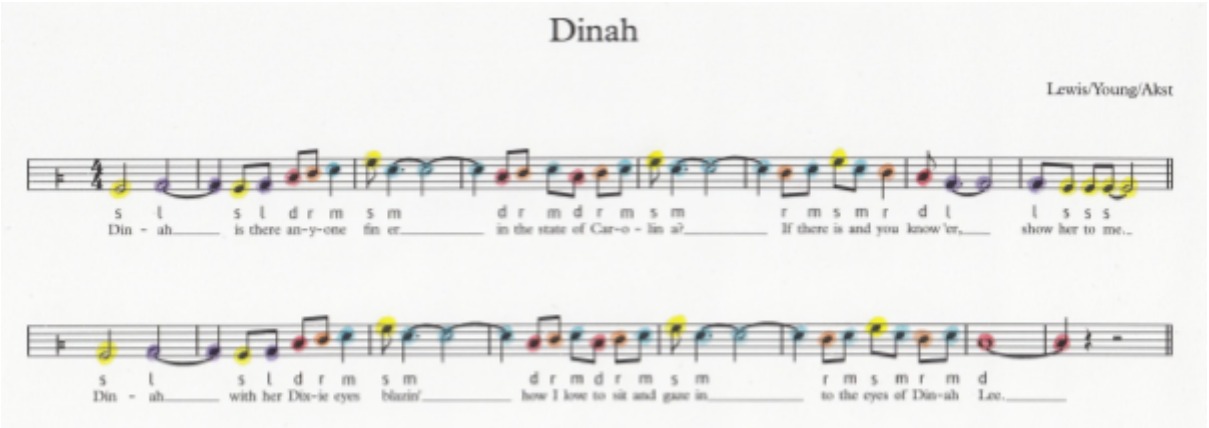


Figure 38. The colour analysis of bar 1-16 of "Dinah", in staff notation with a do-clef, shows a remarkable brightness.

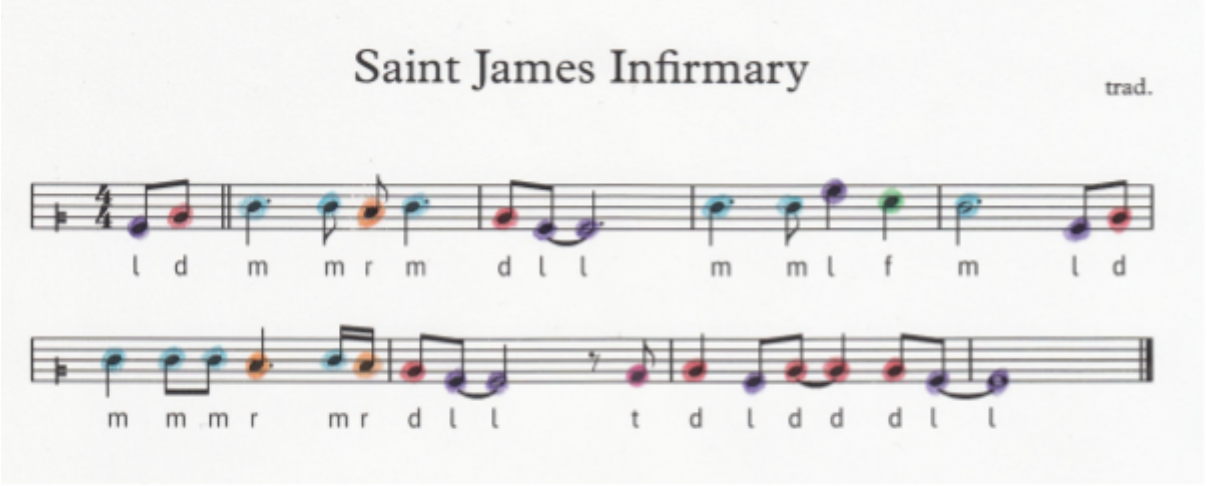


Figure 39. The colour analysis of "Saint James Infirmary" gives a much darker impression than that of "Dinah".

Through colouring in notes, I have had some enlightening moments. In comparing the A-sections of "Dinah" to "Saint James Infirmary" (figure 39), it is clear that "Dinah" gives an overall brighter impression, while "Saint James Infirmary" looks darker in character. In "Saint James Infirmary", *la* is the tonic, and one diatonic tone is missing: the "grand and bright" *so*.

When dealing with chromatic tones, it will become clear that they (paradoxically enough) will get no colour. As they are derived tones that appear on occasion, I have not experienced it as a problem (but their relative name could be written along the note or chord symbol). In figure 40 we see a coloured transcription of the Chet Baker solo on "It Could Happen to You" mentioned earlier, that has quite a few chromatic tones.

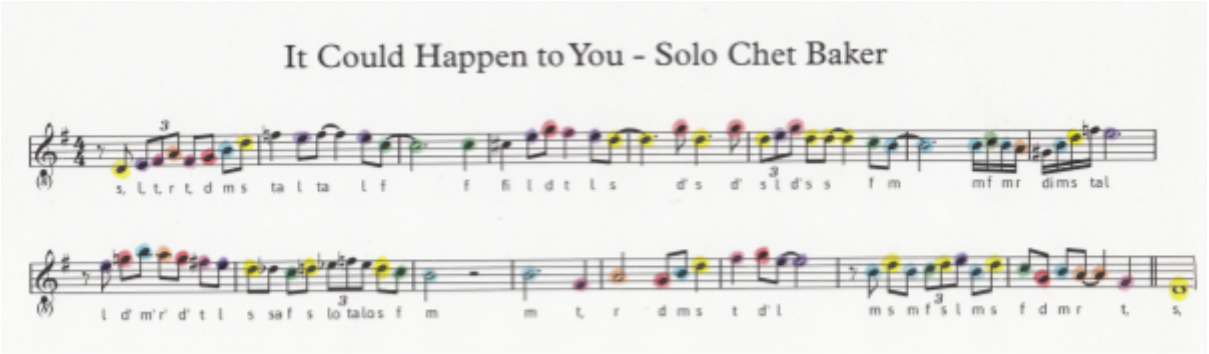


Figure 40. Colour analysis of Chet Baker's solo on "It Could Happen to You" (1958).

As we have seen earlier, the accidentals used in staff notation often become a source of confusion. In the first bar of the second line of figure 40 we see a natural sign and a sharp on an entirely diatonic melody, which are in fact the result of the sharp and natural sign in the previous bar. Colouring the tones takes away any confusion. While this example stays in one key and features quite some chromatic tones, in other examples on the other hand the colouring can show me in a glance that passages with many accidentals might in fact be diatonic in a secondary key. The colouring also shows me which tones can be centers of gravity in my perception, which makes singing lesser known tones easier.

5.4 Learning standards

Fundamentals from melodies

The great fundament from which all the other fundamentals can be easily derived is Curwen's concept of mental effect. This means intimately getting to know the diatonic tones, approached at from any other tone, in different places of the vocal range (different keys). We learn fundamentals to understand music, so it would be best if we ourselves derive those fundamentals from real music. As one of Curwen's principles of teaching says: "introduce the real and concrete before the ideal or abstract."[87] So it is the songs themselves that will naturally give us all the material we need to learn musical concepts and derive relevant exercises.

[87] Curwen (1875), pp. 4-26.

Steps in learning a jazz standard

If we learn a song, there are several things to deal with:

1. Lyrics
2. Rhythm
3. Melody
4. Bass
5. Changes

We can approach these elements in different steps, which I will show according to "It Could Happen to You".

Step 1: lyrics

First we should find out what a song is about. What is the mood of the song? Which feelings are expressed through the lyrics? Write out the text as you would say it, without bar lines etc., as seen in figure 41. Look up any unfamiliar words, notice the (internal) rhyme, choice of words, etc. Read it aloud in different ways, find out everything that is hidden in the text by emphasising different words, phrasing the text in different ways, being sensitive to different layers of meaning that can come from that. While instrumentalists might skip this step, it will prove to be very useful in interpreting and remembering the song.

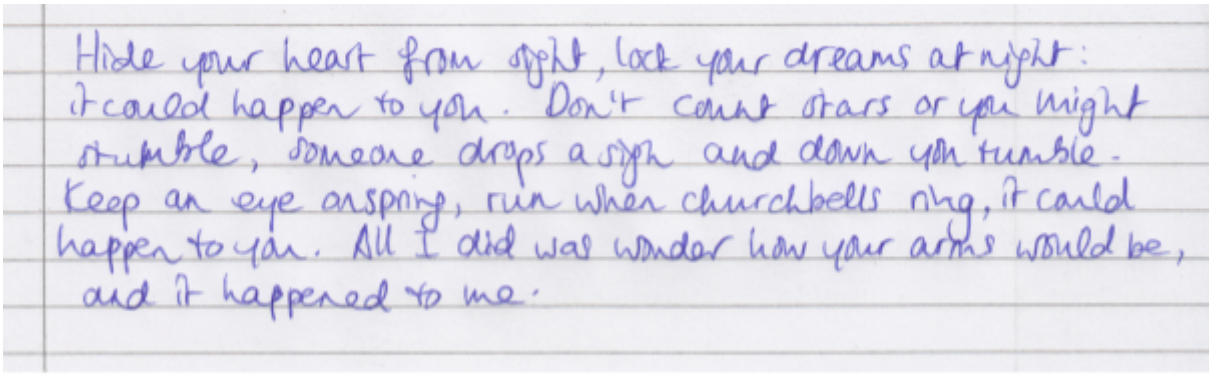

Hide your heart from sight, lock your dreams at night:
it could happen to you. Don't count stars or you might
stumble, someone drops a sigh and down you tumble.
Keep an eye on spring, run when churchbells ring, it could
happen to you. All I did was wonder how your arms would be,
and it happened to me.

Figure 41. Lyrics of "It Could Happen to You", written by hand.

Step 2: rhythm

While rhythm is not a topic in this research, obviously in learning a song, we should learn the rhythm. In first instance this is best done separated from melody, as shown in figure 42. As mentioned earlier, I use the rhythm syllables from the Takadimi system to read the rhythms.[88]

Figure 42. Rhythm and lyrics of bar 1-8 of "It Could Happen to You".

Reading the rhythms as written is not only an exercise or study in itself. It also sharpens our perception of rhythmic variations when we hear performances or recordings of the song, and our own rhythmic variations will become clearer and more intentional, for example by choosing to adjust the rhythm to how we interpret the lyrics.

Step 3: melody

According to Curwen's statement that the mental effect of tones is most clearly perceived when the tones are sung slowly, when "the ear is filled with the key, and when the effect is not modified by harmony"[89], and Tristano's practice of slowly singing or playing the unaccompanied melody, the focus should be exactly on that: slow and unaccompanied singing of the melody of a song, on solfa. While it might be useful to use a metronome to make sure we are singing at a steady slow tempo, I think there is also something to be said for first practicing without a steady tempo, singing the tones until their effect can be clearly felt.

To start studying a melody, we can colour in the diatonic tones on the score, whether it is in solfa or staff notation, with an absolute clef, or a do-clef. Figure 43 shows the first eight bars of "It Could Happen to You" in staff notation, the melody analysed using colour. A coloured solfa lead sheet (figure 44) will actually give the same impression of colour as a sheet in staff notation.

[88] Hoffman, Pelto & White (1996).
[89] Curwen (1891), p. viii.

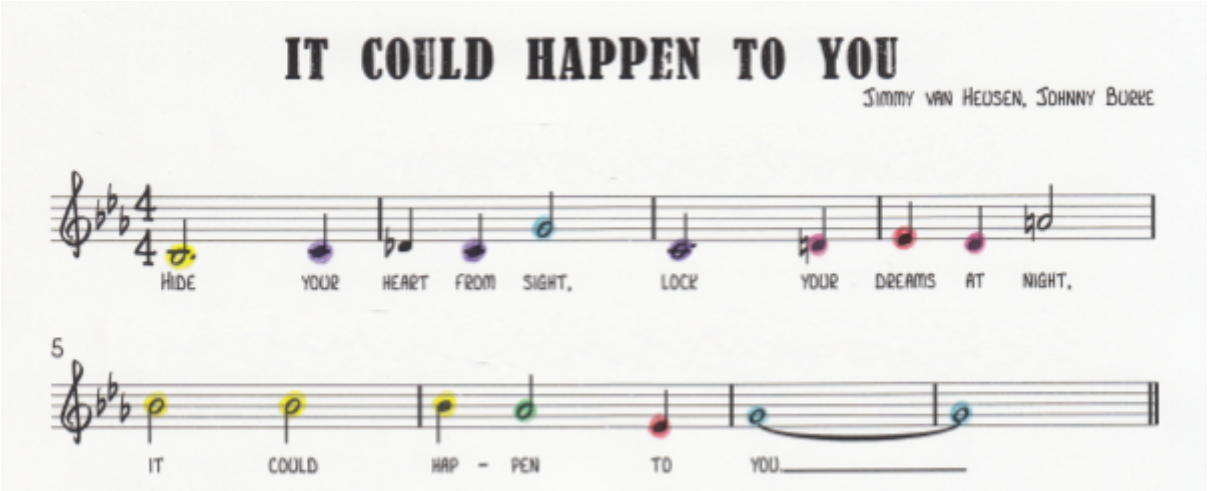


Figure 43. Bar 1-8 of "It Could Happen to You" in Eb with colour analysis of the melody.

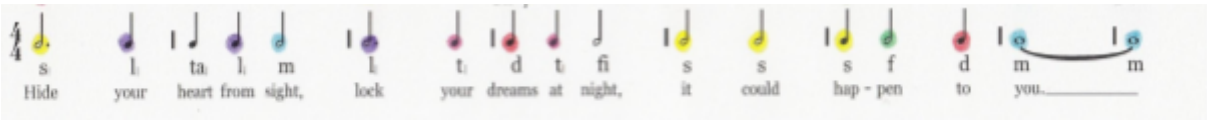


Figure 44. Bar 1-8 of "It Could Happen to You" in stick notation with colour analysis of the melody.

Singing

After making the colour analysis, I know how I will approach the melody. Once I can sing the melody by heart on solfa while pointing at the tones on the Movable Do Disc, I can add the lyrics, and also sing the song on its lyrics while pointing to the tones on the disc.

Also, once we know the melody by heart we can start singing melodic variations, adding embellishments, waving and passing tones, arpeggios etc.

Deriving exercises from the melody

As we have seen with Tristano and Elsen, the melody can be a source of exercises. From "It Could Happen to You" we could take the melodic turn *s f d m* from bar 5-8 and take it up the diatonic scale, as written out in figure 45. This would be practicing melodic fragments as found with both Tristano and Elsen. Any rhythm could be used for the figure, the pattern can be mirrored, etc.

| s f d m | l s r f | t l m s | d' t f l | r' d' s t | m' r' l d' | f' m' t r' | s' f' d' m' |

Figure 45. Exercise based on a melodic fragment taken from "It Could Happen to You".

Another, and in my opinion more abstract exercise is to do the same, but instead of going up through the scale, the same pitch changes its function and is taken as the starting tone of the transformed figure. We find this "transformed singing" for example in Erzsébet Hegyi's *Solfege according to the*

Kodály Concept.[90] In figure 46 we see the same melodic fragment, each time in a different mode through a change of function of the starting pitch. Here I have used the same "ascending" sequence as in figure 46, but it can be done in any order, for example through a diatonic circle of fifths.

| s f d m | (s)l s r f | (l)t l m s | (t)d' t f l | (d')r' d' s t | (r')m' r' l d' | (m')f' m' t r' | (f')s' f' d' m' |

Figure 46. Exercise based on a fragment from "It Could Happen to You", transformed by changing the function of the starting tone.

Step 4: bass

The bass we can derive from the chord symbols on a lead sheet or, often better, from an original score (Elsen 2015). The chord symbols are coloured according to their root, regardless of chord quality, as seen in figure 47 and 48. If key changes occur, they are to be written above the "transmutation chord". Key changes should become apparent mainly through the melody.[91] If a lead sheet is used in regular notation and someone is not yet so experienced in reading chord symbols, the Movable Do Disc can be used as a reference to translate the letter names to solfa, by placing the key tone on do and checking if necessary. With some practice, we can become quick in seeing the interval between the melody and the bass through their colours.

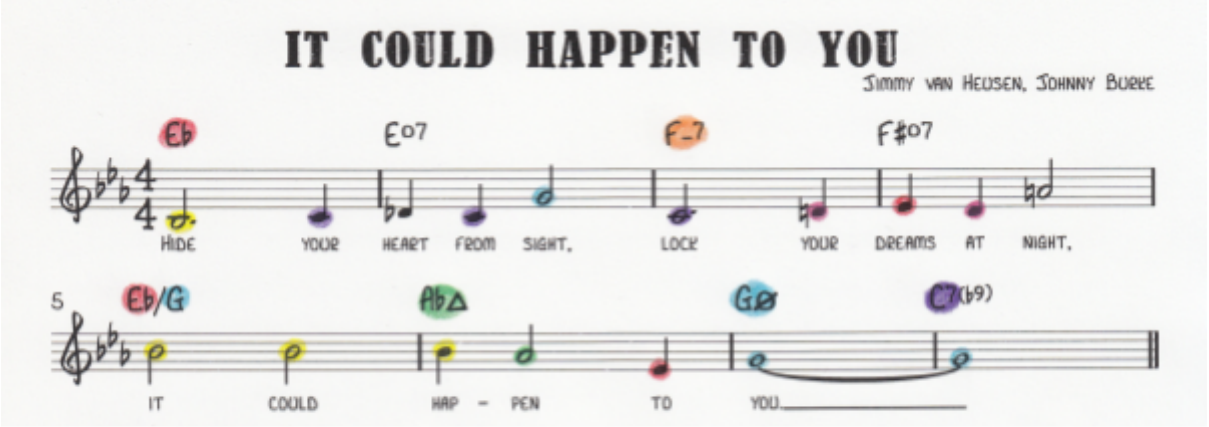


Figure 47. Bar 1-8 of "It Could Happen to You", melody and chord symbols coloured.

[90] Hegyi (1987), p. 50.

[91] While the upward leap of a fourth might suggest a progression from dominant to tonic, when dealing with real book versions of standards, this can not function as a guide in interpreting the tonality. Reducing harmony to II V I progressions might make it seem easier for instrumentalists to determine the right notes to play, this approach can thoroughly disturb our perception of the tonality as the composer had it in mind. The fourth jumps are often not part of the original bass line that we find in piano vocal scores. We can use progressions from real books to learn a song, but to truly understand the tonality, it is better to look at the melody against the composed bass line.

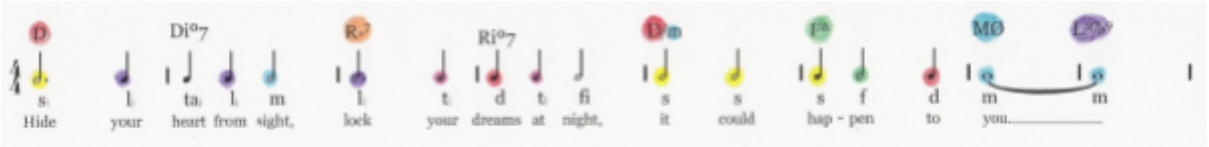


Figure 47. Bar 1-8 of "It Could Happen to You", melody and chord symbols coloured.

Singing

Once we have made a colour analysis of the chord symbols, we have an approach to singing the bass notes of a song. The goal is to sing the bass melody by heart, on solfa, while pointing at the MDD. From here we can move to polyphonic exercises: singing the melody while pointing the bass melody on the Movable Do Disc, or vice versa. Singing melody and bass can also be done on letter names.

Step 5: changes

To really understand the changes, the harmony of songs, I have made harmonic navigation sheets. These are a combination of Curwen's modulator and Reed's tonal map. In its use, we carefully and necessarily slowly zoom in on the tones of which the chords are made, and have a visual guide through the harmonies of a song.

In a 32-bar song, the navigation sheet shows a song in sections of eight bars, corresponding to the musical sentences. The long vertical lines represent barlines, and below the chord symbols, there are modulators, going from *d* to *d* in major, and *l* to *l* in minor. I have chosen to use a tonic at the bottom as well as at the top of the modulators, because, as I discovered in using the sheets, there are four possible main paths moving from and to the tonic triad. No octave marks are used here, as the tones can be sung anywhere in the range. If a song changes key, the modulators of the subordinate key are placed so the pitches that have changed function stay on the same level. This also means it is visualised if we are not in the principle key: if we are in the principle key, the tonic can be seen at the bottom and the top.

The chord symbols are written in their relative form. For tonic chords (regardless whether they are major or minor), since they are a point of stability, I use triads, not sixth or seventh chords. The other chords may be sixth or seventh chords. Because the navigation sheet will function mainly to understand the basic course of a tune, further extensions are not necessary. If the relative chord symbols are not yet given, we write them in their appropriate place.

Then we circle the diatonic tones that are in the chords. The chromatic tones are marked differently: because most alterations to diatonic tones function as upward or downward leading tones, the vowel to alter the tone is written in the direction it is guiding us to, with a line supporting the movement (see figure 48). We could also use numbers to mark the tones as intervals against the root of the chord, and thus show voice leading as it is traditionally taught. We can also use colour to mark the tones, or colour can be used to highlight tones from the melody that are a further chord extension or other desired non-chord tone.

When we are marking the tones that are in the chords, we sing them or hear them internally. I have distinguished several approaches to marking the chord tones.

Tone oriented approach

I choose a tone, for example *do*, and mark it in all the chords in which it occurs. This means that I go through all the chords, asking if the tone is a part of it (e.g. Is there a *do* in R-7?). If we do it in the same order as colouring the melody we get: first the tonic, then the dominant, then the mediant, then the rest. In this approach, the chromatic tones are the last to be marked.

Horizontal approach: either/or

In this approach the voice leading is central. As mentioned, I found that there are four main paths, which I will call "either/or paths". These are: tonic/supertonic, mediant/subdominant, dominant/submediant, tonic/leading tone. In major: *d/r, m/f, s/l, d/t*. In minor: *l/t, d/r, m/f, l/si*. In *each* chord we find (at least) one or the other. The tones might be altered, but one of these is always there. This is what we use in this approach. We choose a path, for example *do/re* and for each chord mark whether it has *do* or *re*. We will find that sometimes both tones are possible (the previously mentioned R-7 contains both *do* and *re*), and that sometimes the tones are altered. When both are possible both are marked, when a tone is altered, it is marked thus.

Vertical approach

Here we mark the tones looking at the vertical dimension, in effect marking arpeggio's of the chords. Because the modulators show a tonic in the bottom and at the top, most chords will be shown in an inversion. As we have already studied the bass, this is not a problem. Also, we will not fall in the trap of singing arpeggio's only from their roots, but we will naturally emphasise voice leading.

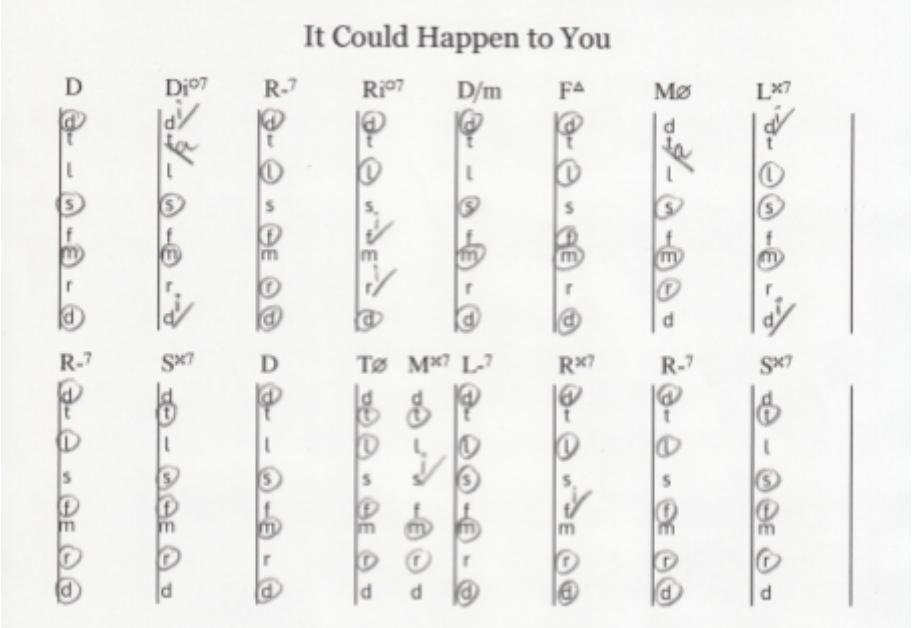


Figure 48. Harmonic navigation sheet, showing bar 1-16 of "It Could Happen to You".

In figure 48, I think it can be clearly seen how the chromatic tones lead into the next chord, with the exception of *fi* towards the end of the second line, that goes back to *f*, Sx7 being postponed by R-7.

Singing exercises

Using the harmonic navigation sheet, we can do several exercises to internalise the changes to a song, first while pointing at the tones on the sheet, then by heart while pointing at the Movable Do Disc, and finally by heart. The exercises should be "sol-faad", but later on also "laad".

1. *Either/or*: when singing through the changes, the first exercise is through the horizontal approach. We sing on of the paths, either/or. When we come across an extra leading tone, it will often lead us to another path. That is exactly what it is meant to do, so I think, especially in first instance, that we should follow the direction it leads us in, possibly continuing on another either/or path. Because we (or most of us) can only sing one tone at a time, here it is truly "either/or."
2. *Either/or + waving tones*: we add upward or downward waving tones to the either/or path.
3. *More chord tones*: we sing two tones per chord, then three, then four, the rhythm adjusted to the harmonic rhythm. The connection to the next chord can be made through an either/or path, or with more confidence, jumps can also be sung. We can set a rule for the direction: always from the bottom up, from the top down, or alternating direction.
4. *Passing tones*: within each chord, we use passing tones to get from one chord tone to the next.

All of this can be done unaccompanied, both in or out of time, or accompanied by a metronome or play-along app such as iReal Pro.

Through all of these activities, we get an intimate and vocal understanding of the tonal material a song is made up of, in the melody and bass, as well as inside the chords, all based on the same principle of mental effect.

5.5 Summary

In the last chapter, I have made several propositions based on the ideas of Tristano, Elsen, Reed, and, most importantly, Curwen. With a vocabulary that can express key relation without disturbing momentary intervallic truth, and a completely relative notation of melody as well as chord symbols and key changes, we can approach songs and solos solely based on mental effect. Through an integrated and complete visualisation of relative and absolute pitch within and between keys we can come to a true understanding of music and at the same time have a tool for practice, making us independent from the piano. With the use of colour we can transfer this same integration to music notated on the staff.

6. Conclusion and recommendations

Conclusion

Over the last two years, I have been applying Curwen's Tonic Sol-fa in studying "short musical forms such as 32-bar jazz standards", and have found that Curwen's views on mental effect have been crucial in my understanding of them. Curwen's ideas have led me to trust the mental effects of the sounds, rather than to make an analysis based only on rational logic concerning music written in absolute pitch, reducing jazz to II V I progressions. They have led me to a much deeper understanding of diatony and chromaticism. I feel that only through the understanding I have gained now, in which there is no conflict between key relation and interval, I have gained the tools needed to really interpret and learn jazz standards, which will hopefully ultimately lead me to an intuitive and at the same time sophisticated musical expression through them.

Through Curwen's approach I can sing, speak, read, write and understand music with my *experience* as the starting point. Especially in the realm of harmony this has been enlightening. Even many who use solfa still use Roman numerals when speaking of harmony, as if it is something that is somehow separated from melody. Curwen to me has made clear that harmony should not be separated from melody in this manner. We *can* speak of harmony in intimate connection to melody, just as we experience it, using the same names where the same thing, key relationship, is pointed at.

Further, the visualisation of music through the Movable Do Disc, based on Curwen's modulator, has given me an alternative to visualising music through the piano that is usable in the context of jazz. In my experience, using the Movable Do Disc stimulates playful creativity and curiosity: I can visualise and consequently form a strategy in singing any thinkable musical concept. The experience of this independence further shows that musical efforts are principally mental. The source of music is not the instrument, it is our mind!

The vocabulary of music, relative musical notation, integration of relative and absolute notation, visualisation tools, and finally the approach to jazz standards I have come to in this research allow a study of jazz that is vocal not only on the intuitive level, but also on the intellectual level. While very much grounded in the jazz tradition, with Curwen's ideas of mental effect and consistency of labelling at its core, I have come to an approach to learning and teaching jazz in which the relative and

absolute, intuitive and intellectual, melodic and harmonic, the detailed and the general can all exist together in a beautiful unity.

Recommendations for further research

While this research has been very practical and aimed at a direct application of ideas, and in my opinion finds its justification in that, it would be wonderful if a researcher like Gary Lupyan would consider a research on the role of verbal labels in aural perception, just as he has done on the role of labels in visual perception.

Again, this research was practical in nature, and I did not make it a point to prove how instrumentalists visualise music. It would of course be very interesting to do a survey among established (jazz) players on how they think musical sounds.

I am continuously working on further applications of visualisations and colour connected to the Movable Do Disc not only on learning and teaching jazz, but also on elementary and instrumental music teaching, regardless of genre or style. I believe a consistent vocabulary and system of visualisation can guide a musical development full of play, from the most basic to the most advanced level, that leads to a true understanding of music, with singing as the starting point.

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