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THE EXAMPLES OF AXIS - ORDER FUNCTIONAL THINKING IN THE WORKS OF ZOLTÁN KODÁLY[1]

PÉTER ORDASI[2]

SUMMARY. The functional axis-order in Bartók's works, as the final consequence of the tempered ton system was discovered by Ernő Lendvai from the fifties of the twentieth century. We can find the axis-order functional thinking in the works of Zoltán Kodály, as an important element of his personal style, but that is mostly undiscovered, especially in connection with the Hungarian folksongs. The study Heptatonia secunda by Lajos Bárdos gives new ideas and tools for the analysis of Kodály's oeuvre.

Several characteristic examples are collected in this article from songs, choral works and instrumental music by Kodály to prove that idea, and, looking for the origin of the axis-order it shows its somehow earlier appearance in the music of Vivaldi, Haendel and Mozart.

Keywords: axis-order, functional sequences, Zoltán Kodály, Ernő Lendvai, Lajos Bárdos, relative sol-fa, harmonics, *heptatonia secunda* (second seven-tone system), modal dominant, Kodály-dominant or Neapolitan-dominant, median dominant, dominant-axis, implied dominant, polar distance.

As the Latin saying goes: *"Repetitio est mater studiorum"* (Repetition is the mother of knowledge) – these are the words with which Lajos Bárdos opened his lecture on musical organics in the great hall of the Kodály Institute in Kecskemét on the 30th April, 1978. Those who had the luck to know him are aware that Bárdos could always present the most serious topics also with a charming sense of humour. Among many others, he raised the following question on the relationship of the dominant-tonic as well:

> *"By the way, if someone could explain me one thing: Why does the European ear feel that the most soothing ending is the V degree – I degree, dominant-tonic? If you find out the answer, please write me a postcard!"*[3]

I was haunted by the catchy question and a little later I wrote a letter to Professor Bárdos on my observations, according to which the possible explanation for the close relationship between the dominant and the tonic is

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[3] The written question was published in the 1980/9 issue of Parlando. It is republished by Miklós Mohai in his book entitled: *Lajos Bárdos: Analytical writings about music* I. (Page 139)

that among the first 16 harmonics of a given note we can find the triad notes of the I and the V degree. However, the important elements of the subdominant, that is the perfect fourth and the major sixth of the basic tone are missing. Namely, the closest relationship between the dominant and the tonic is not only explained by the melodic attraction of the leading note, but the same origin of the harmonics of the two triads.

I quote his answer:

"Dear Fellow Colleague,

I am glad that at least someone reacted on my question raised in Kecskemét… Your observation that in the harmonics we can only find the triads of the V degree (so-te-re = 12-15-18) and not the subdominant is witty and novel.

Very well, but how do you explain that the V attracts the I and not vice versa? We could even think it works vice versa: the leading note eventually will present its higher and higher harmonics. Therefore, in theory the I. degree attracts the V. would be reasonable… Just as our harmony hearing: ancient unison – fifth organ – three-gimel – triad – four note chord – five note chord, etc…, it aims higher and higher. If the order of harmonics would be the explanation for the V to attract I, then I degree attracts IV formula would be true as well – only we leave the harmonic set… You are right about the statement (related harmonies), but the problem of direction should be further examined. Why the derivative formula does attracts the deriver? Does the son reproduce the father?

If you feel like further exploring the problem and finding a solution – even other musical issues as well –, I would be pleased to read your findings.

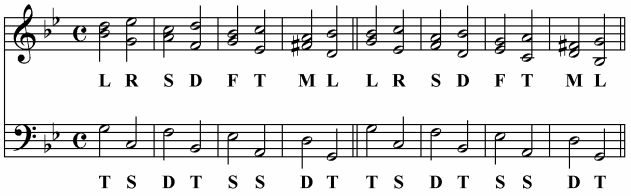
Kind regards,
Lajos Bárdos"

I try to answer his encouragement now, almost three decades later.

Let us start with repetition then.

We do not need to know anything about functions to feel the naturalness of the following two-part melody. However, if we add the authentic fifth-fourth steps of the bass, we at once feel the functional character of the melody.

Ex. 1



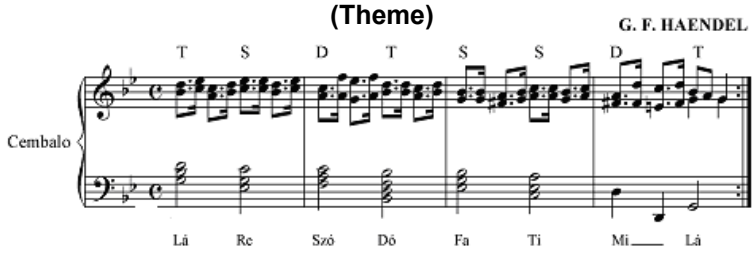
The line of perfect fifth and fourth steps is a regular functional circle (T-S-D-T), but where the characteristic interval of the diatonic system (diminished fifth) comes in the sequence, the functional circle comes to a halt, and we experience a functional repetition.[4]

[4] Bárdos, L., *Tonics or not?*, In: *Thirty writings*, Budapest, Zeneműkiadó, 1969, page 187

We quote Händel's *Passacaglia in g minor* from the numerous Baroque and Classical examples:

Ex. 2

Passacaglia in G minor
(Theme)



The keynotes of the chords: (G C F Bb Eb A D G)

Kodály in his *Fifteen Two-Part Singing Exercises* gives an exercise quoting a theme from Vivaldi's *Concerto in D Minor*:

Ex. 3

15 Two-part sings exercises
(On the theme of Antonio Vivaldi)

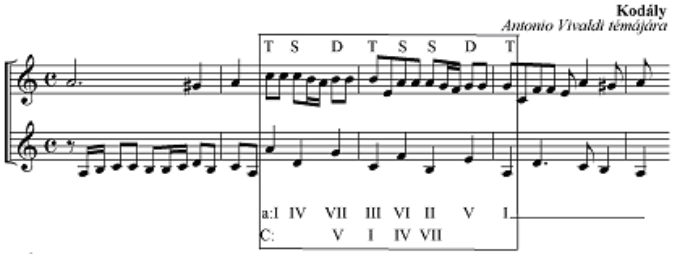
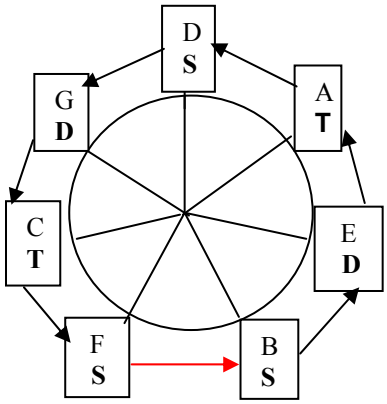


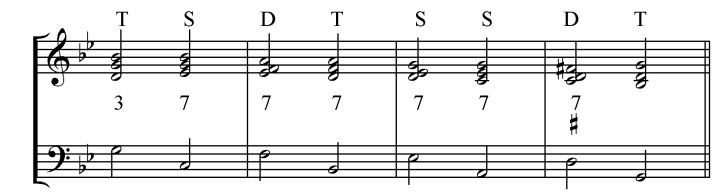
Fig. 1

Arranging the notes of the diatonic in a fifth round:



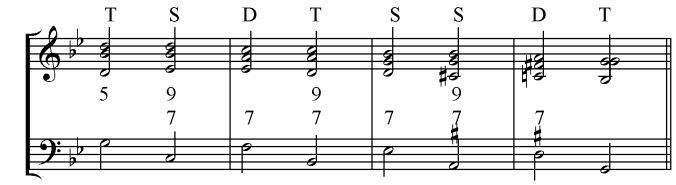
The Baroque sequence is well-known and it has the four note chords known as well:[5]

Ex. 4



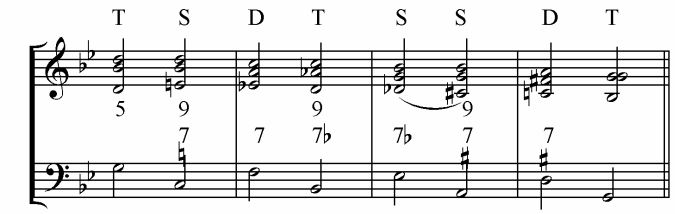
The beloved alternating dominant of the Vienna Classicists mingled in the seventh-ninth chords of Romanticism:

Ex. 5



The beloved sequence of Kodály, in which every chord has a dominant seventh or seventh-ninth touch is just a step from here:

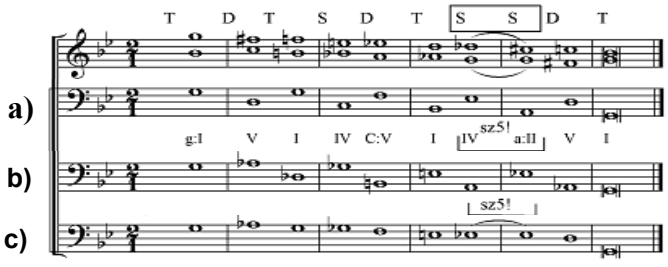
Ex. 6



If we omit its Soprano part, the coherence of the chromatic progression and the classical function order is clear: at the diminished fifth step of the Bass, the chromatic progression halts.

Ex. 7

The authentic Sequence of the Secondary Dominants

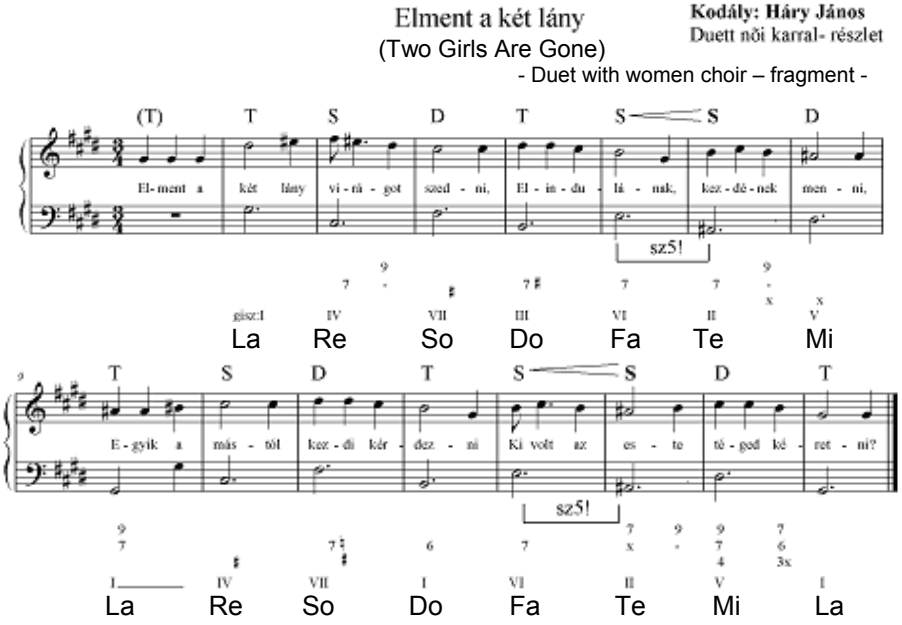


[5] Same: Page 189 13/6 note example

a) The Functional Bass in concordance with the Baroque tradition
b) With the Polar interchanges of the Bass sounds
c) The alternate succession of these two results a chromatic scale

Kodály in his folk song arrangements uses this fourth-fifth progression many times. One of the most beautiful examples is the *Elment a két lány [Two Girls Are Gone]* (duo with women's choir) in *Háry*. As we hear, the progression nicely suits the melody even twice: (Let us solmizate the Bass quietly!)

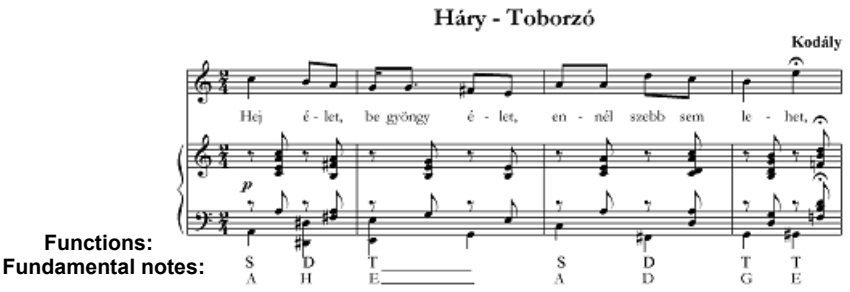
Ex. 8

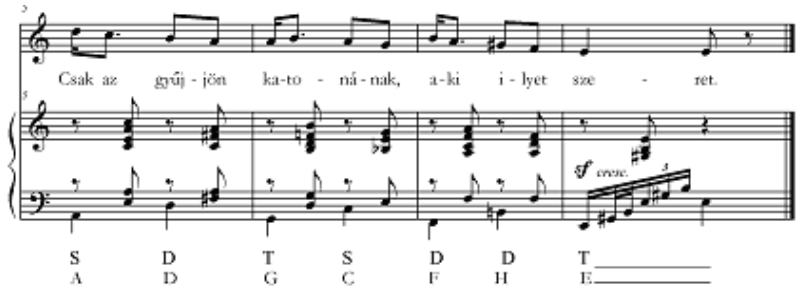


Let us sing the tune with the piano accompaniment simplified to the point!

The essence of functional repetition is that chords having an identical construction and polar distance have the same attractive effect. Nevertheless, not only the subdominant function can be subsidized by its polar counterpart, but also it occurs in the dominant as well:

Ex. 9

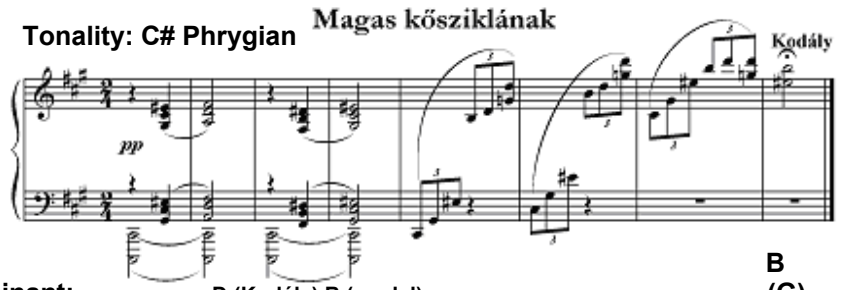




Moreover, why not in the tonic?

Ex. 10

Tonality: C# Phrygian



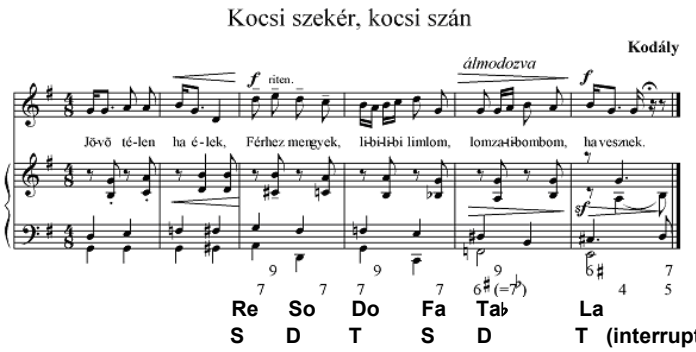
Dominant: D (Kodály) B (modal) **B (G)**

Tonic: **C# C# C# G C# G C# G E# (C#) Tonic!**

In the closing meters of the piano accompaniment of the song titled *Magas kősziklának [High Cliff],* the tonic C sharp major chord can be found between two dominant function alternating chords. Then, the D major ("Naples" dominant) and the B major (modal dominant), in the four closing meters the C sharp major – G major sixth polar distance chords alternate, closing finally on an E sharp – B diminished fifth, on the third of C sharp and B. In addition, what magic this diminished fifth is the tonic!

Of course, we very well know the tonic function substitution from Classicism as deceptive cadence. Kodály; however, prepares it with a substitution as well:

Ex. 11



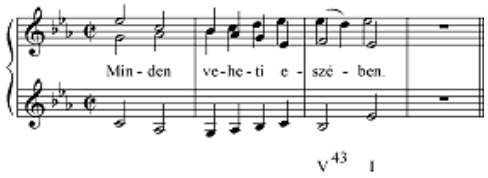
At the end of the second verse of the song *Kocsi szekér, kocsi szán [Cart from Kocs, Sleigh from Kocs] we can see* again a sequence of authentic main steps prepares the deceptive cadence, but we do not reach the VI from the classic V degree, but from the "Kodály-dominant" turn defined by a ta-la bass step. However, the axis order substitution is connected to the dominant function in the most varieties. According to Ernő Lendvai, "a dominant-tonic cadence (or a dominant-tonic principled sequence):

1) Fourth step high (e.g. G major→C major) – which corresponds to the Classical V-I resolution.
2) Major second step high (e.g. B flat major→ C major) – characteristic modal dominant
3) Minor second step low (e.g. D flat major→C major) – this is what we call Kodály- dominant.
4) Fourth possibility: major third step low (e.g. E major→C major) – occurs rarely."

Let us start with the **Classical**/**Baroque** dominant-tonic, i.e. the V-I degree relation:

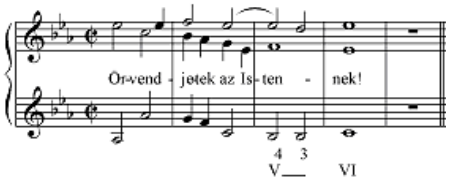
Ex. 12

The 150-th Geneva Psalm
(The Cadence of the first verse: 23-26)



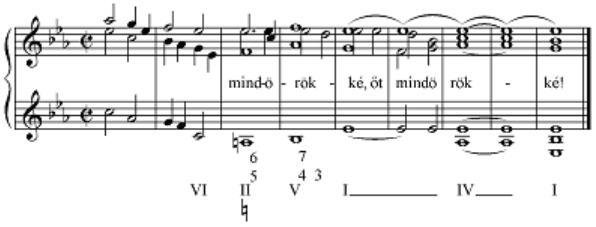
Ex. 13

The 150-th Geneva Psalm
(The Cadence of the second verse: 49-53)



Ex. 14

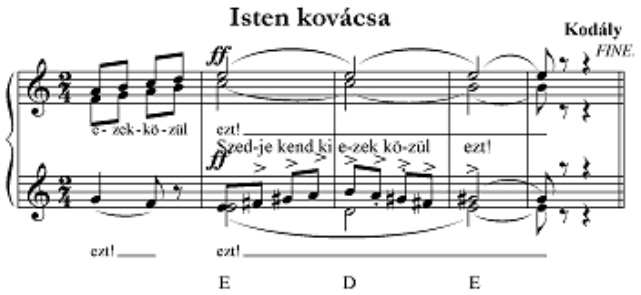
The 150-th Geneva Psalm
(The Cadence of the third verse)



The 16th century melody of the 150th Geneva Psalm attracts the most simple, traditional closings, with an ornament so characteristic of the era: with a suspension of the third. The closing of the third verse flares with more elements. The shine of the alternating dominant fifth-sixth chord is on the first syllable of the word „forever". (The association to Bach's Passion of John is plausible, not only because of the same key (E flat major), but because of the correspondence of the lyrics: the extended alternating dominant fifth-sixth chord shines on the first syllable of the word "Ewiglich" (forever) here as well. The plagal cadence signified by two meters of long IV degree is an important element that strengthens the closing. The second case, the modal dominant is fairly frequent not only in the work of Kodály, but also in the tonal music of the 20th century. A couple of characteristic Kodály-quotes:

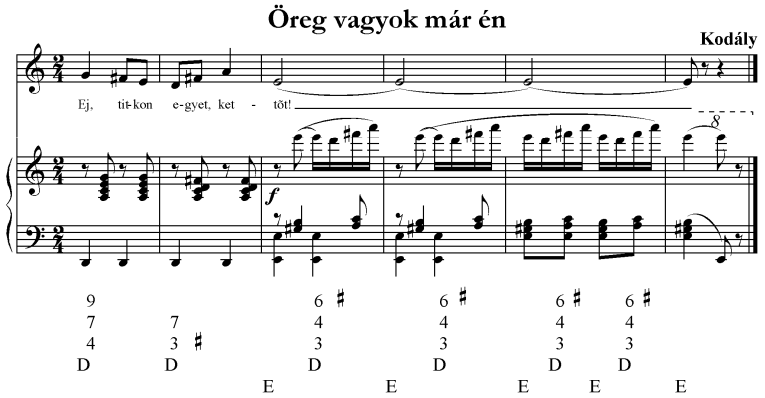
As an alternating chord to tonics:

Ex. 15



or alternating long the D-T degrees:

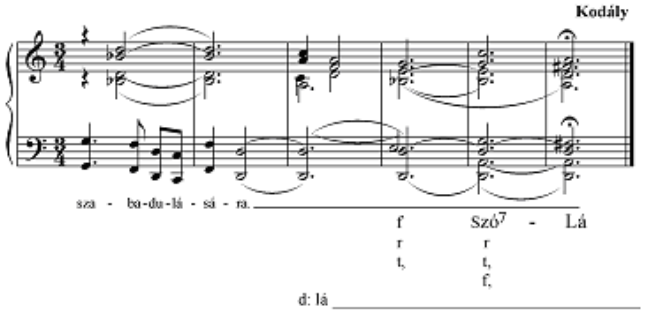
Ex. 16



If the modal dominant is present in a four note chord (so-ti-re-fa), then we get, together with the la-major chord (la-di-mi) the whole note set of the second seven degree (heptatonic second) so much characteristic of Kodály:

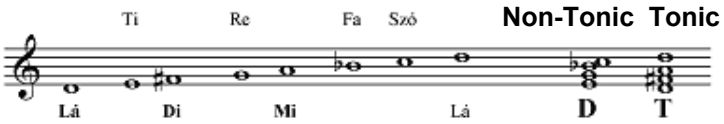
Ex. 17

The final measures: Fölszállott a páva



Ex. 18

HEPTATONIA SECUNDA



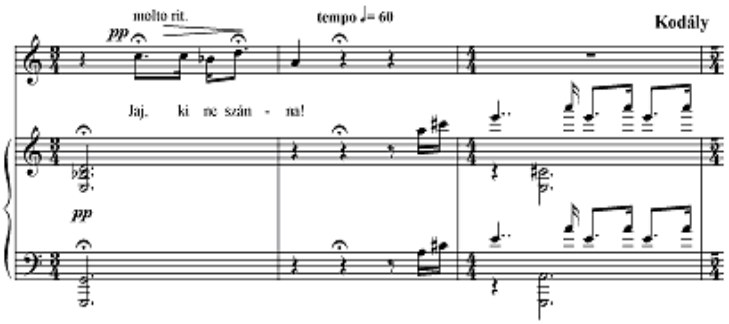
Ernő Lendvai's so-called Kodály-dominant is the third case, which approaches the basic note with a minor second step. It is especially suitable for harmonizing melodies ending on an E. (Lajos Bárdos uses the Naples-dominant expression on the same case, referring to the fact that in most seven degree keys, the minor second above the tonics can be reached by flattening the II degree. In a major-major relationship:

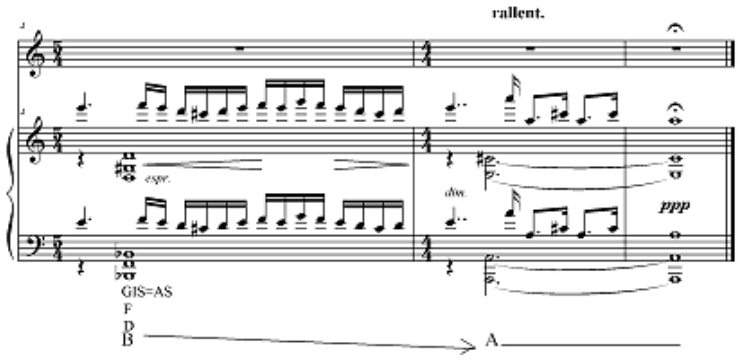
Ta♭-Re-Fa – **La**-Di#-Mi,
Ma♭-So-Ta♭ – **Re**-Fi#-La,
La♭-Do-Ma♭ – **So**-Ti-Re,
Ra♭-Fa-La♭ – **Do**-Mi-So

In the closing of our first example, the ***Rákóczi kesergője,*** the melody itself "invites" the Naples-degree with its Phrygian cadence:

Ex. 19

Rákóczi kesergője

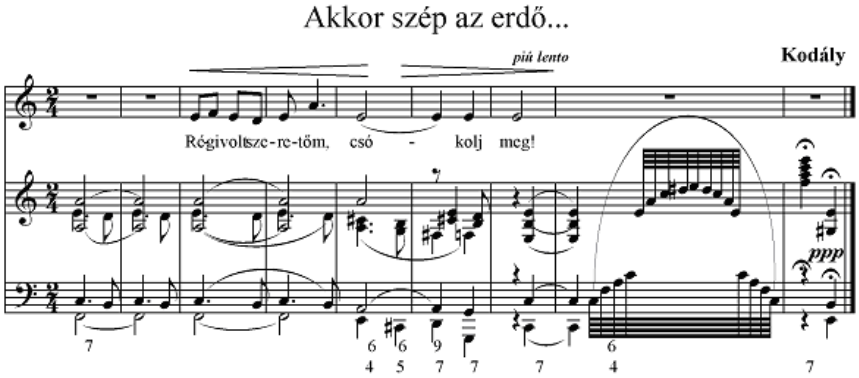




"Kodály-Dominant" or
„Naples-Dominant"

The three verses of the mi-ended melody of ***Akkor szép az erdő [The Woods Are Beautiful]*** portray the whole fate of a woman. In the closing of the Kodály accompaniment, we find one of the most characteristic example of the Kodály dominant. The F seventh chord frames the entire closing line: two meters introduction and then it prepares the tonic E major three note chord with a wide range round. However, what is inside? Under the lyrics: "kiss me", the accompaniment with introducing the functional sequence pays the debt of life, the order of nature, what fate (or the parents' will) have denied… The function order of the introduced sequence expresses most the getaway from reality: the functional circle is not from T to T, but from S to S, in a distant world.

Ex. 20



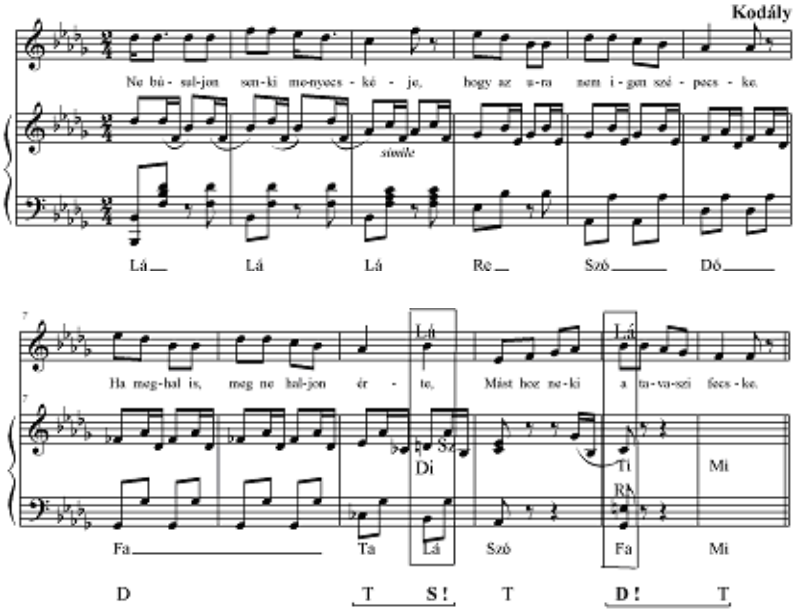
In the following example we also find a "***Kodály-subdominant***" as an analogy to classic subdominant: if the subdominant is the transfer of the V-I relation to other degree-pairs, then the Kodály-dominant is transferable

as we can see: the dominant-tonics relation of the Fa - Mi closing two meters earlier acts as an attraction between the Ta♭-La tonics-subdominant. (Think back on Professor Bárdos's supposition *"If the order of harmonics would be the explanation for the V to attract I, then one I degree attracts IV would be true as well – only we leave the harmonic set…"*)

Yes, Professor, it is true. Not only concerning the I-IV relation, but also on its axis order substitution, the Kodály-dominant as well!

Ex. 21

Ne búsuljon senki menyecskéje



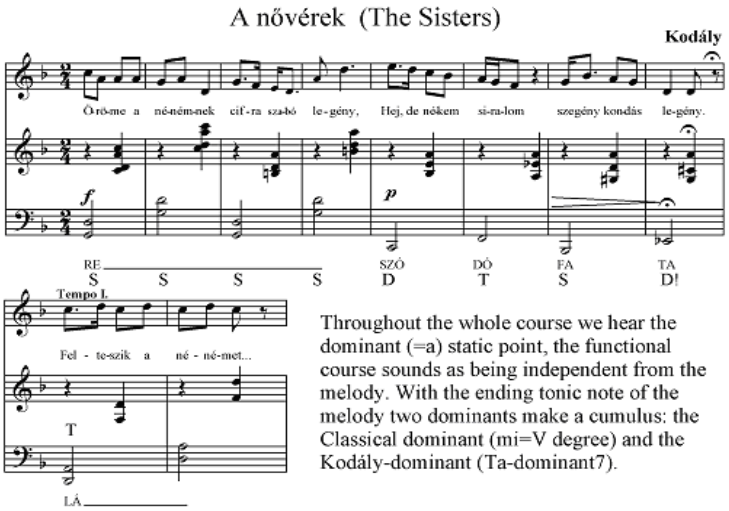
Our quote has further edifications.

The Fa-La-Te-Re# formula corresponds to the II augmented third fourth chord of classic harmony. Moreover, as such, we could consider our closing one S-D sub closing in B flat minor. In this case; however, the closing of the preceding line would have a D-T meaning.

However, in reality it is much more: As compared to a mi-tonic, the Fa-La-Te-Re# formula is heard in an axis order as a contraction of two dominant function chords. One is the Kodály-dominant in an empty seventh form: Fa-La- Re# (=Ma♭), the other is the V degree in an empty seventh form as well: Te-Re#-La. This formula shows that the axis ordered functional thinking not only allows for function repetition or substitution, but the combination of two chords having a polar distance and the same functionality may strengthen very much the functional attraction.

A witty idea of the accompaniment of ***A nővérek [Sisters]*** is that it uses the strongest, that is the Kodály/Naples-dominant complemented by the V degree for the closing note of the verse. In this way, it not only strengthens the bond between the two verses, but it refers to the fact that something is not true in the lyrics…

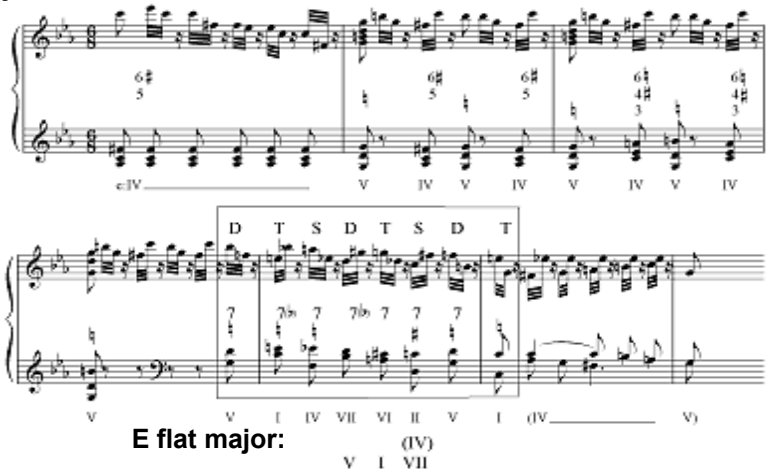
Ex. 22



Finding a Naples-dominant instead of a V degree is nothing else but changing a dominant chord with its polar counterpart. Nevertheless, is this polar change really that new? Listen to the following bassoon part by Mozart (rough piano abstract):

Ex. 23

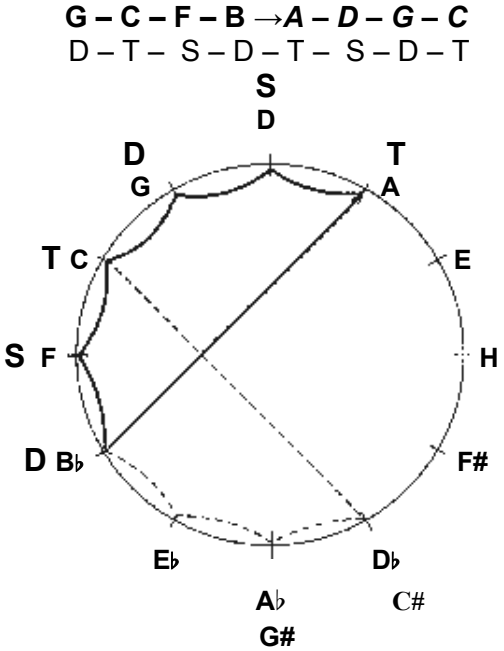
Mozart: Symphony in G-minor, K. 550, Andante
From the 63rd measure:
Main key: E flat minor
Local key: C-minor



E flat major: (IV)
V I VII

The bassoon part on a fifth circle (the Bass of the note example):

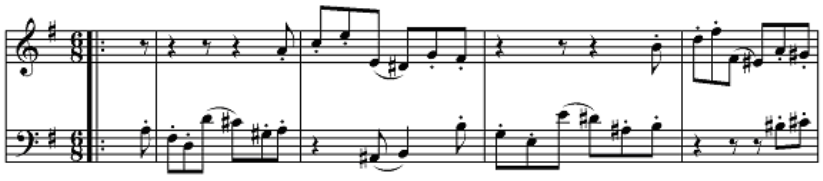
Fig. 2



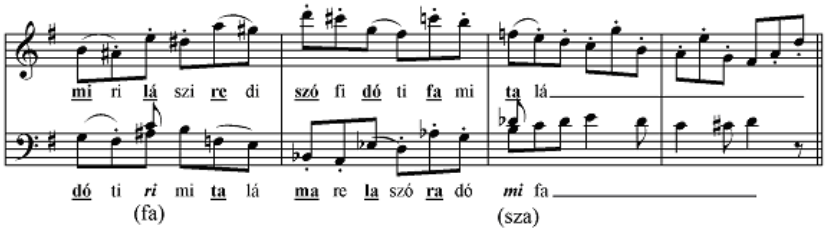
The sequence of the authentic main steps “jumps” to the other side of the circle after three steps, and continues the clause there, substituting every tone with its polar counterpart. In this way, it avoids the jolt of function repetition in the melodic process. (In the continuation of the example, return is reached by the authentic sequences of the seventh-ninth chords.) We find the whole essence of this thinking in the K. 574 G-major gigue:

Ex. 24

G major Gigue, K 574



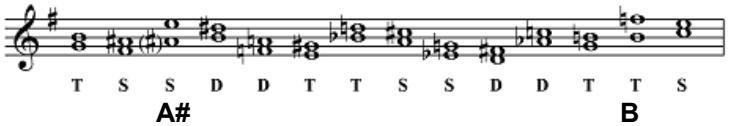
The Labyrinth: Chromatic of Authentic Head steps



The first two meters of the second line of the example is a real harmonic labyrinth, from which we can only get back to the basic key following a double logical path. One is the functional fifth-fourth course connecting every second note in the parts (underlined), the other is the chromatic course connecting every second note pairs (Read the same labelled note pairs of the upper part).

Comparing it with Example 7 it turns out that the almost atonal two meters lead us back to the dominant of the basic key complying with the strictest function order. Mozart, on the one hand, renders the recognition of the chromatics more difficult by lining same function polar distance chords after one another and putting them into different registers. On the other hand, he highlights this double coherence with a hemiole created by the articulation that overwrites the triple pulsation of the quavers. In order to facilitate functional analysis, let us simplify the notes with abandoning rhythm and register differences:

Ex. 25

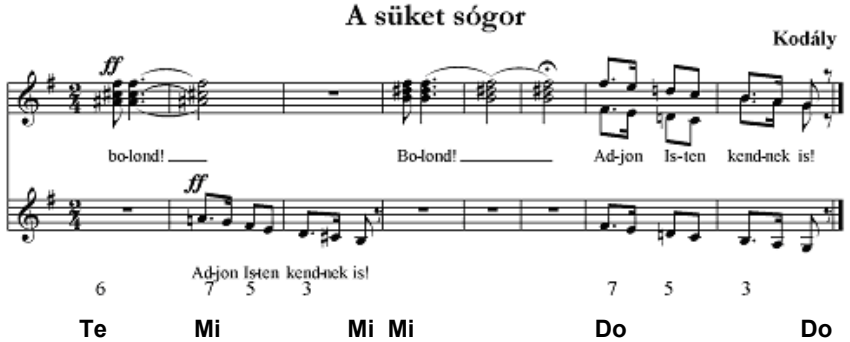


A# instead of C **B instead of D♭**

The line of major thirds is suspended twice with a diminished fifth, but this not affects the function order. The logic of the course is that every function is repeated by its polar counterpart. Function repetition, however, happens twice by the diminished fifth of the same empty dominant seventh chord, and not the polar major third.

However, let us go back to the fourth possibility, the E-C form of the dominant-tonic (major third down), which is considered to be rare by Lendvai. Indeed, it is rare, but not without example. It comes as a surprise at the end of ***A süket sógor [The deaf brother-in-law]*****:**

Ex. 26

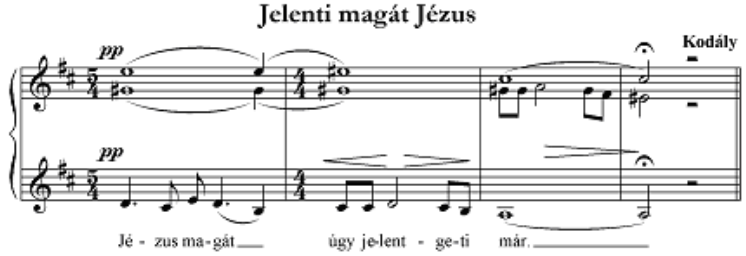


Te Mi Mi Mi Do Do

The preparation of the III degree dominant (Mi-major) chord is a VII subdominant sixth chord (Ti-major), but it is very novel and unexpected that the Mi-major chord represents dominant function in the closing as the parallel of the V degree. This is very felicitous for the lyrics, where the mockers are being ridiculed.

In the ***Jelenti magát Jézus [Jesus introduces himself],*** the light of resurrection, the magic of Eastern shines:

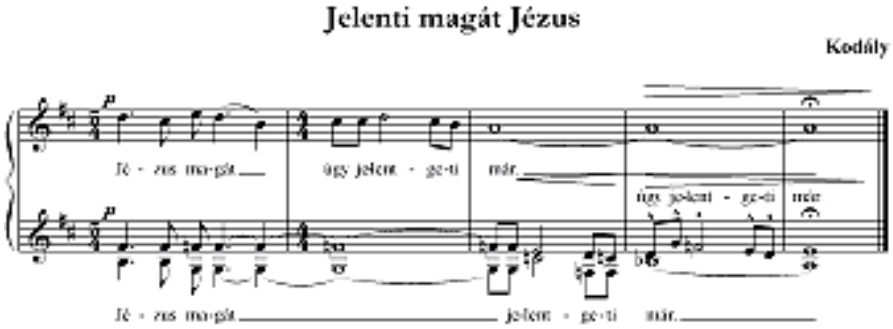
Ex. 27



Mixolydian melody: te so
III I

The closing of the last verse flashes the further two axis D-T relations:

Ex. 28



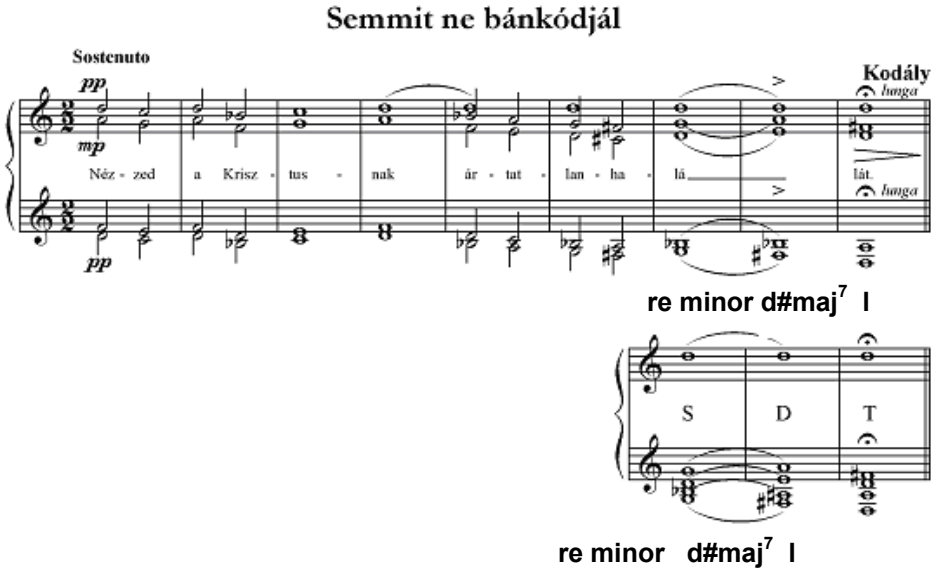
la fa^7 ta♭ ma♭ la♭ so
S D T S D T

Thy lyrics of the folksong quote the three greatest events of the Savior's mission: Christmas, Eastern and Pentecost. Here is the entirety concerning the use of „axis" dominant closings in the Mixolydian melody:

te-so = Mediant dominant
fa-so = Modal dominant
la♭-so = Naples dominant

However, my favorite major third down type closing (III-I) is to be found in *Semmit ne bánkódjál [Do Not You Worry]*:

Ex. 29



re minor d#maj^7 I

re minor d#maj^7 I

The tonic rest of the Soprano makes the interpretation obvious. It is worth considering that the III degree dominant (median dominant) is complemented with the tone of the V degree. A lethal pain resounds in this dominant.

SUMMARY:

"I am going to die, I am going to die, even though I am not ill,
I wish to rest in the cemetery in Kolony."

Kodály arranged the following folksong entitled *Meghalok, meghalok [I am going to die, I am going to die]* twice for women's' choir. Between the two arrangements, almost half a century had passed (1908 and 1957). In the meantime, it appeared in the third book of Hungarian Folk music as a song accompanied by piano. We can see: Kodály had been preoccupied with this unusually beautiful piece. The closing line of the melody „I wish to rest" do not let me rest. Solfeggiate:

D S D D D T
*t – l – **se(#)** – f – r – m*

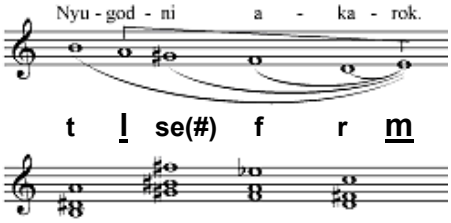
It is like summarizing the notes of a dominant axis:

t – *m* = V – I	Classical dominant
se# – *m* = III – I	median dominant
f – *m* = II – I	Naples (Kodály-) dominant
r – *m* = VII – I	modal dominant

If we incorporate the passing Ia into the closing chord, we also get characteristic folk song ending tertiary:

t – I – m
se(#) – I – m
f – I – m
r – I – m

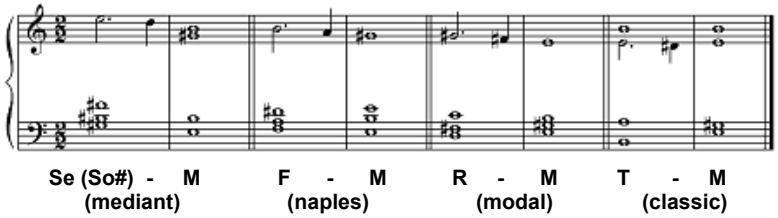
Ex. 30



We can interlace the four D-T possibilities into one single course starting from the rare to the frequent:

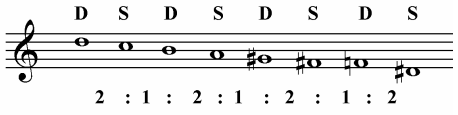
Ex. 31

Summarised Model Example of the Axial Dominants



Moreover, the tone setting of the entire axis “empty dominant seventh chords have a 1:2 model scale, in which all the tones of the subdominant axis are present; however, all tonic axis tones are missing:

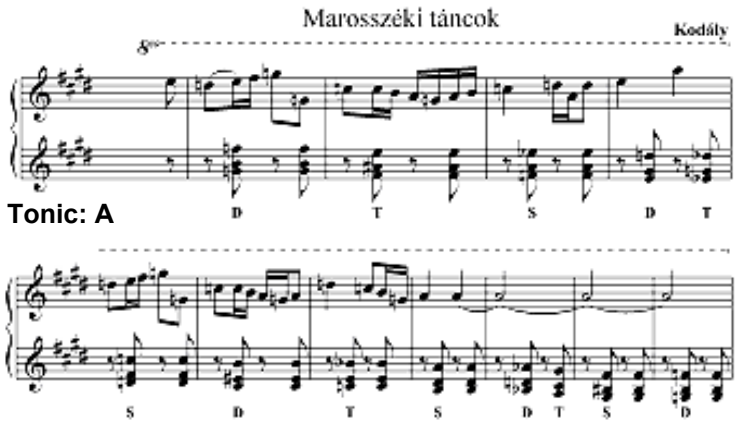
Ex. 32



Therefore, the axis dominants include the tones of the subdominant axis as well, giving new non-tonics – tonics interpretation to the functional D-T relationship.

Our last example is a fragment form *Marosszéki táncok [Marosszék dances],* in which the accompaniment of the left hand is a chromatic course containing empty dominant seventh chords. (See Note example 7 with the Bass course) The chromatics following the functional T – S – D – T circle is born as Kodály uses polar pairs instead of every fifth down or fourth up step. (See Note example 7 with the c.) Bass course)

Ex. 33



At last: what can we answer to the other question of Professor Bárdos: *"but the problem of direction should be further examined. Why the derivative formula does attracts the deriver? Does the son reproduce the father?"*

The starting point of all the examples we had is the Baroque sequence of authentic main steps that enlarged and changed across eras, conquering distant connections, but preserving its origins, its original direction of attraction in every variety. This attraction can be defined as the following: the harmonic attracts the basic note, the part strives to be a whole, and tension needs easement. The tempered tone system first allowed, then made the substitution of the dominant function with the lower and upper parallel degrees and its complement with polar distance same structure chords natural. We may send the chord swing higher and higher, but at the end: it strives to rest, as the stone falls back to the ground at last.

An even more beautiful example is the following poem excellently arranged by Professor Bárdos himself:

"And so,
the Man craves
to the stars
abandoning you"…

„But, You, Sacred Mother
await your proud
child in your womb"…

(Kölcsey: To the Earth)

Therefore, not "the son reproduces the father", but the mother awaits her child back home… Who else would have known it, if not Professor Bárdos?!

I just start to understand the motto preceding the *Thirty Writings*:

"I hope that our grand children will not only be grateful for what
I have just elaborated here, but for the questions
I left out intentionally for them to explore."

(Descartes: Geometry, 1637)

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