

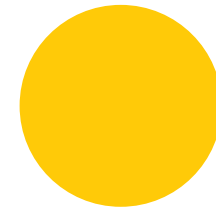
Parte 1 – Aspectos estáticos

Paulo de Tarso Salles

ECA/USP

2019

Harmonia I
CMU0230



AULA 1

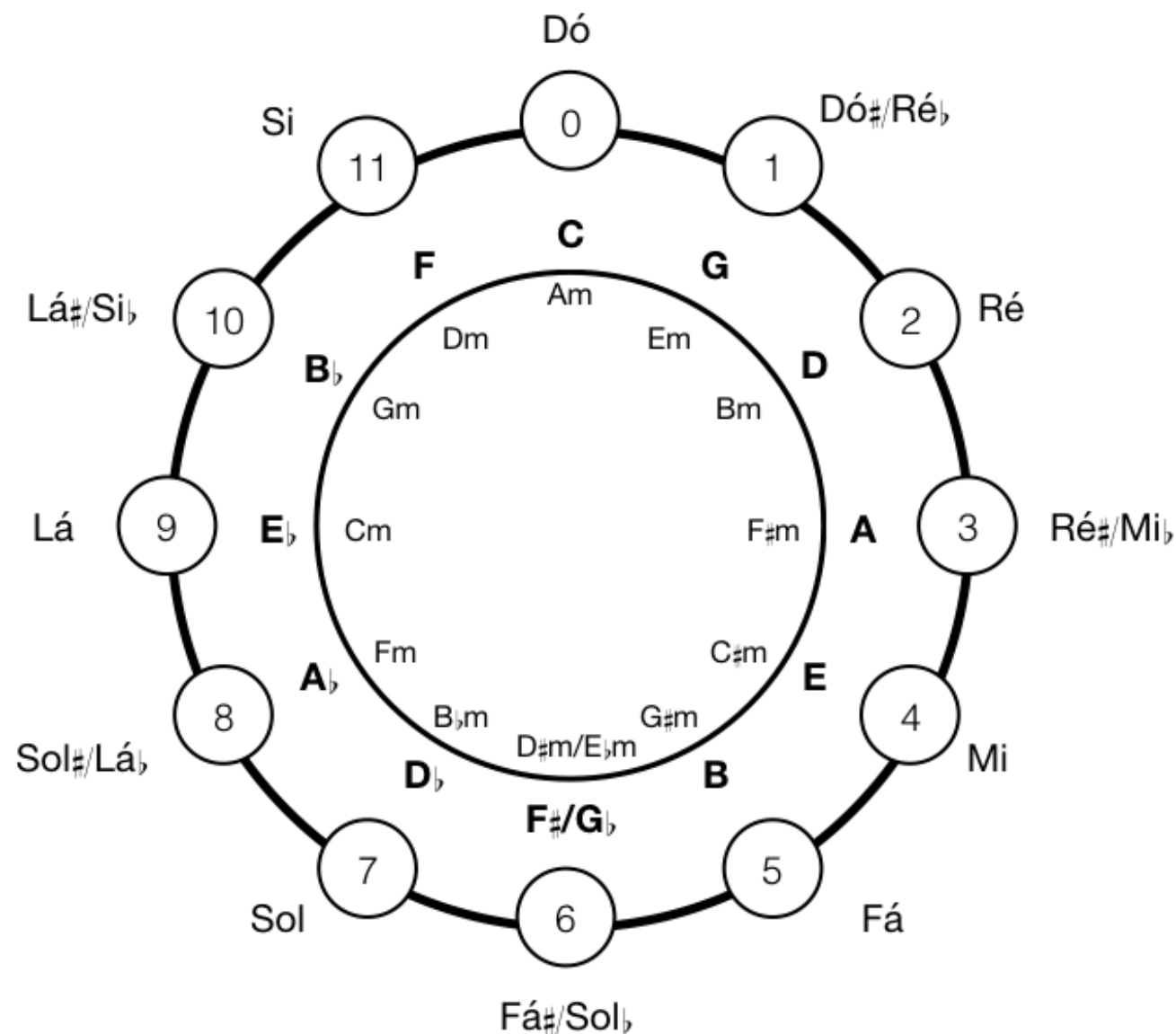
Intervalos e escala cromática

Classificação tonal	Semitons
2ª menor	1
2ª maior	2
3ª menor	3
3ª maior	4
4ª justa	5
4ª aum. / 5ª dim.	6

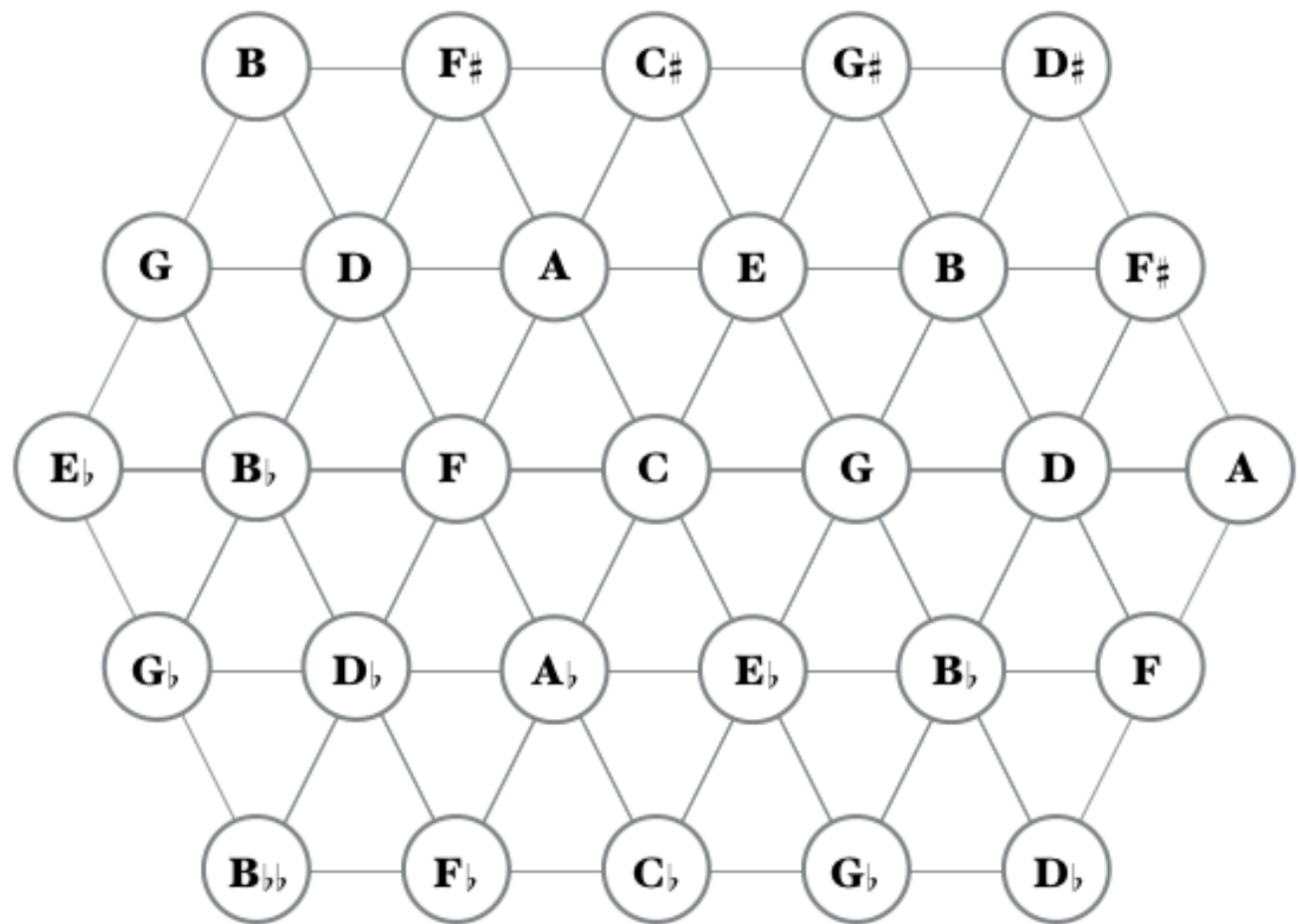
Classificação tonal	Semitons
5ª justa	7
6ª menor	8
6ª maior	9
7ª menor	10
7ª maior	11
8ª justa/uníssono	12/0

- Sistema igualmente temperado.
- Diatonismo e Cromatismo.
- Representação circular.
- *A Tonnetz.*

Representação
circular:
módulo 12
(relógio
analógico)



A tonnetz
triádica



- TRÍADE (em alemão: *Dreiklang*). Um acorde que consiste em três notas que podem ser distribuídas de modo a formar duas terças superpostas. Se a terça inferior for maior e a superior menor, diz-se que a tríade é "maior" (Dó-Mi-Sol); se a terça inferior é menor e a superior maior, a tríade é "menor" (Dó-Mib-Sol). Se ambas as terças são maiores, a tríade é "aumentada" (Dó-Mi-Sol#) e se ambas forem menores, a tríade é "diminuta" (Dó-Mib-Solb) (*GROVE ONLINE*, 2001).
- Simetria e assimetria.
- Tríade perfeita e imperfeita.

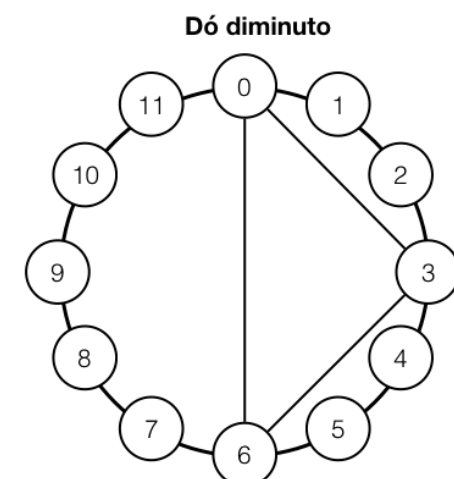
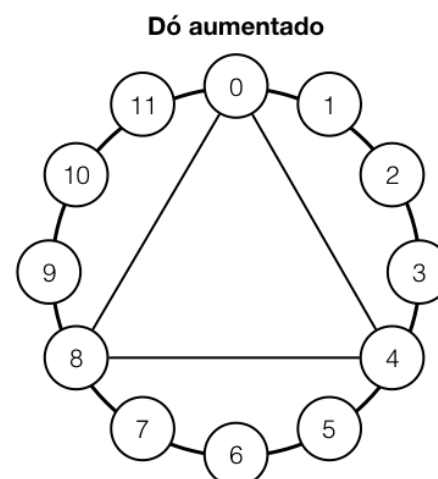
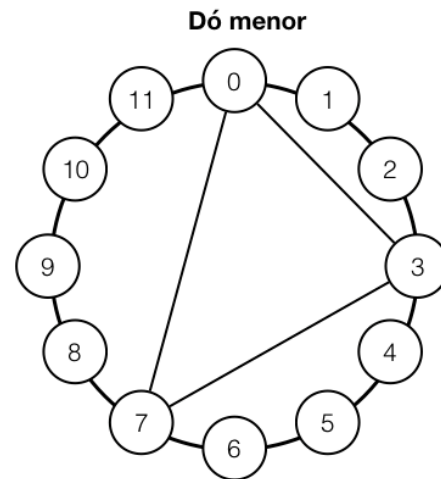
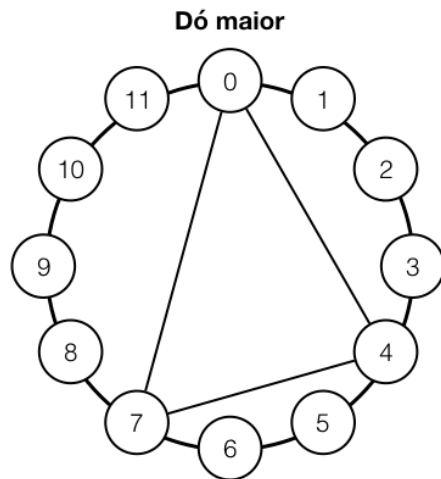
A tríade

Assimetria e simetria das tríades

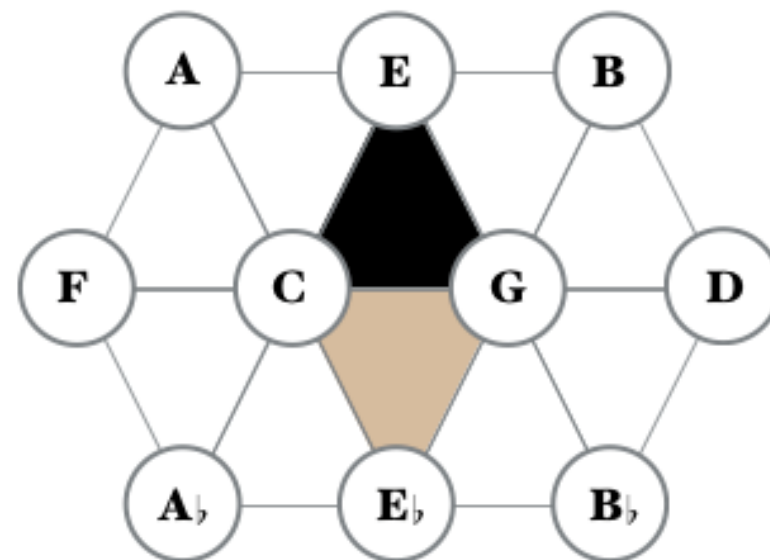
Tríades

maior	menor	aumentada	diminuta
			
F, 3M, 5J	F, 3m, 5J	F, 3M, 5A	F, 3m, 5d
semitons: 4 3	3 4	4 4	3 3

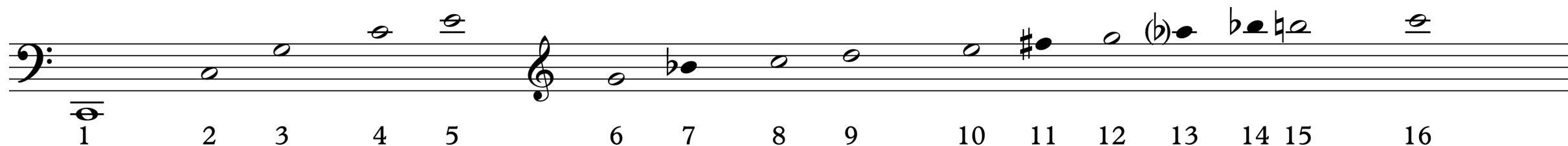
assimétricas simétricas



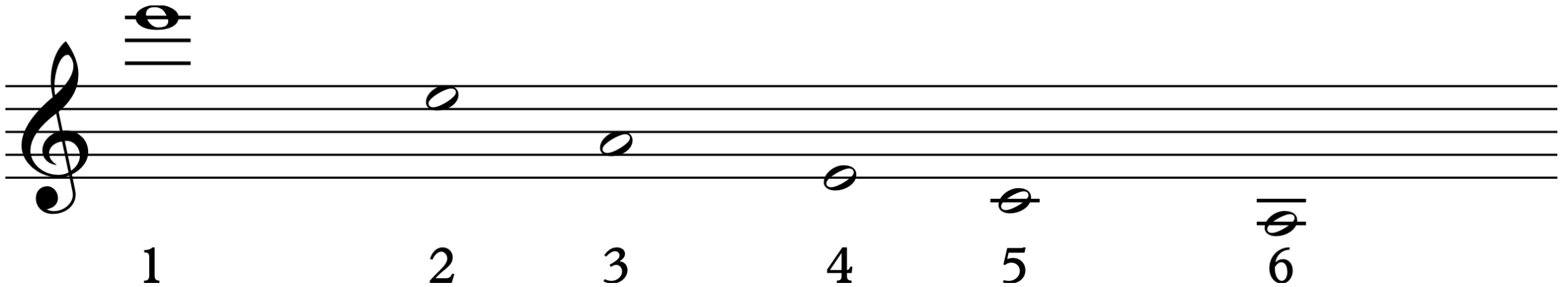
Dó maior x
Dó menor na
tonnetz



Série harmônica



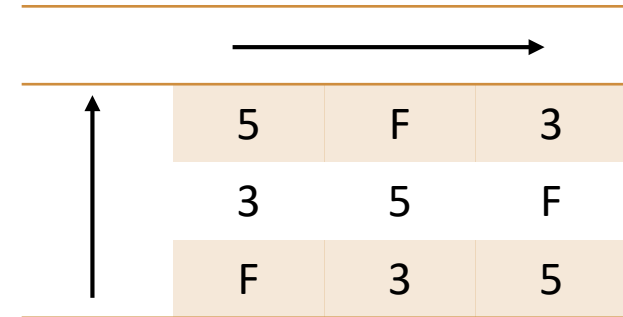
Série harmônica “dualista” (Riemann)



Obs.: a série harmônica descendente jamais foi confirmada experimentalmente.

Disposições da tríade

- Fechada: F-3-5
 - Distância máxima: 4ªJ (5 semitons)
- Aberta: F-5-3
 - Distância máxima: 6ªM (9 semitons)



Disposição fechada

Disposição fechada

Tríade maior em disposição fechada

F-3-5 3-5-F 5-F-3 F-3-5 3-5-F 5-F-3 F-3-5 3-5-F

Disposição aberta

Tríade maior em disposição aberta

The image displays six different voicings of an open major triad in F major (F4, A4, C5) across two staves (treble and bass clef). The notes are represented by black dots on the staff lines. The voicings are labeled with their intervallic structure (F-5-3, 3-F-5, 5-3-F) below the notes.

Voicing	Treble Clef Notes (F4, A4, C5)	Bass Clef Notes (F4, A4, C5)	Intervallic Structure
1	F4 (line 1), A4 (space 2), C5 (line 3)	F4 (line 1), A4 (space 2), C5 (line 3)	F-5-3
2	F4 (line 1), A4 (space 2), C5 (line 3)	F4 (line 1), A4 (space 2), C5 (line 3)	3-F-5
3	F4 (line 1), A4 (space 2), C5 (line 3)	F4 (line 1), A4 (space 2), C5 (line 3)	5-3-F
4	F4 (line 1), A4 (space 2), C5 (line 3)	F4 (line 1), A4 (space 2), C5 (line 3)	F-5-3
5	F4 (line 1), A4 (space 2), C5 (line 3)	F4 (line 1), A4 (space 2), C5 (line 3)	3-F-5
6	F4 (line 1), A4 (space 2), C5 (line 3)	F4 (line 1), A4 (space 2), C5 (line 3)	5-3-F

Espaçamento maior que a oitava - EVITAR

Tríades com distância superior a oitava entre vozes adjacentes

The image displays a musical score on a grand staff (treble and bass clefs) with seven measures. Each measure contains a triad of notes. The intervals between adjacent voices (treble and bass) are marked as greater than an octave (>8ª). The notes are as follows:

Measure	Treble Clef Notes	Bass Clef Notes	Interval Label
1	G4, A4, B4	G2, A2, B2	>8ª
2	A4, B4, C5	A2, B2, C3	>8ª
3	B4, C5, D5	B2, C3, D3	>8ª
4	C5, D5, E5	C3, D3, E3	>8ª
5	D5, E5, F5	D2, E2, F2	>8ª
6	E5, F5, G5	E2, F2, G2	>8ª
7	F5, G5, A5	F2, G2, A2	>8ª

Exercício 1 - *Escrever as tríades abaixo nas posições e disposições indicadas (a três vozes, sem dobramento).
Não se preocupe com inversões, cuide apenas da nota do soprano e da disposição aberta ou fechada.*

A

Ré menor
5ª soprano (S)
Fechada (f)

B

Ré menor Sol menor
3ª S 3ª S (f)
Aberta (a)

C

Sol menor Fá maior
fund. S (a) fund. S (f)
5ª S (f)

D

Sib maior Sib maior
3ª S (a) fund. S (a)



Ex. 1 gabarito

A

Ré menor
5ª soprano (S)
Fechada (f)

B

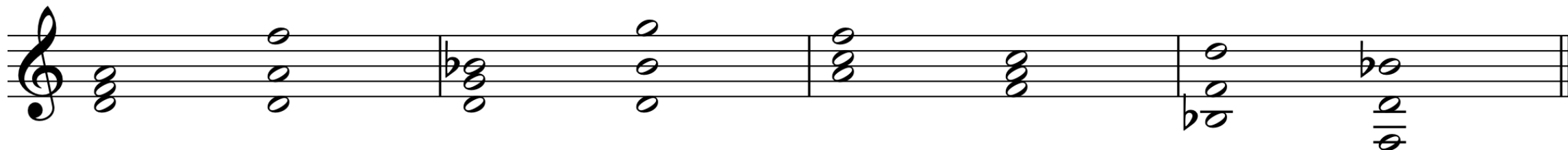
Ré menor Sol menor
3ª S 3ª S (f)
Aberta (a)

C

Sol menor Fá maior
fund. S (a) fund. S (f)
5ª S (f)

D

Sib maior Sib maior
3ª S (a) fund. S (a)



Escrita a
quatro vozes:
dobramentos
e inversões

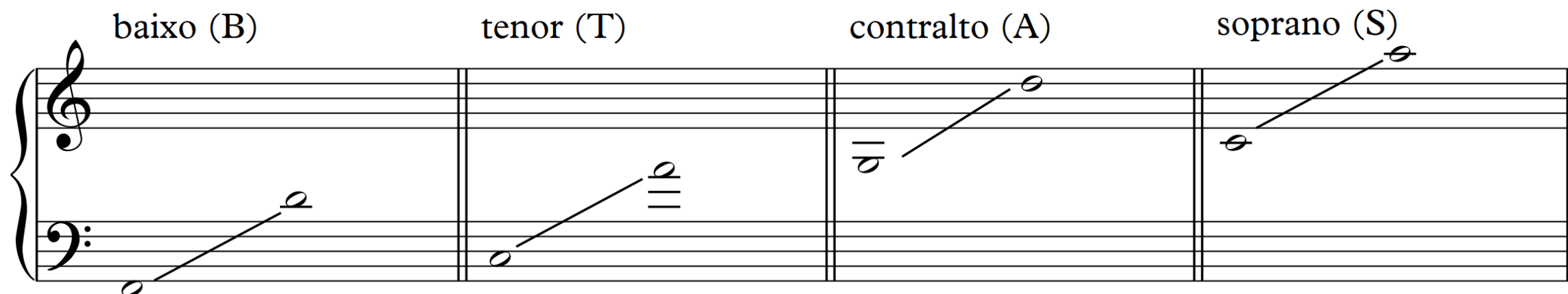
Soprano (S)

Contralto (A)

Tenor (T)

Baixo (B)

Extensão aproximada das vozes



Dobramento da fundamental

POSIÇÃO FUNDAMENTAL: FUNDAMENTAL NO BAIXO

Tríades a 4 vozes com dobramento da fundamental (no baixo)

The image displays musical notation for four-voice triads with fundamental doubling in the bass. It consists of a grand staff with a treble clef on the upper staff and a bass clef on the lower staff. The notation is divided into three sections by brackets below the staff:

- disposição fechada**: The first section, covering the first three measures, shows a closed triad arrangement. The bass clef has a single note on the first line (C4), and the treble clef has three notes: C4 (first space), E4 (second line), and G4 (third space).
- disposição aberta**: The second section, covering the next three measures, shows an open triad arrangement. The bass clef has a single note on the first line (C4), and the treble clef has three notes: C4 (first space), E4 (second line), and G4 (third space).
- fechada** and **aberta**: The third section, covering the final two measures, shows both closed and open triad arrangements. The bass clef has a single note on the first line (C4), and the treble clef has three notes: C4 (first space), E4 (second line), and G4 (third space).

The notes are represented by black dots on the staff lines. The bass clef notes are on the first line, and the treble clef notes are on the first space, second line, and third space.

O dobramento de 3ª ou 5ª em uma tríade gera disposições mistas

Disposição mista	
1	2
S-A fechada	S-A aberta
A-T aberta	A-T fechada

Deve-se evitar distância maior que a oitava (>8ª) entre vozes adjacentes!
O intervalo máximo ainda é 6ªM (9 semitons)

Dobramento de terça e de quinta na posição fundamental

Tríade maior, posição fundamental, dobramento de 3ª e 5ª

dobramento da terça

dobramento da quinta

fechada mista

mista fechada mista mista

distância maior que 8ª entre T e A (>8)

Inversão de acordes

1ª e 2ª inversões

A primeira inversão

Tríade em 1ª inversão: dobramentos e disposições

Am/C

The diagram shows a musical staff with a treble clef and a bass clef, representing the Am/C triad in first inversion. The notes are C (bass), E (treble), and A (treble). The staff is divided into eight measures, each showing a different voicing or doubling of the triad. The notes are represented by circles, and the doubling is indicated by multiple circles on the same line or space. The labels 'mista', 'fechada', and 'aberta' are placed below the staff to describe the voicing. Brackets below the staff group the measures into three categories: 'dobramento da fundamental' (doubling of the fundamental), 'dobramento da quinta' (doubling of the fifth), and 'dobramento da terça' (doubling of the third).

Measure	Notes (Bass, Treble)	Label
1	C, E, A	mista
2	C, E, A	fechada
3	C, E, A	mista
4	C, E, A	mista
5	C, E, A	mista
6	C, E, A	fechada
7	C, E, A	fechada
8	C, E, A	aberta

dobramento da fundamental

dobramento da quinta

dobramento da terça

A segunda inversão

Tríade em 2ª inversão: dobramentos e disposições

Am/E

The diagram shows a musical staff with a treble clef and a bass clef, representing the Am/E triad in second inversion. The staff is divided into nine measures, each showing a different voicing or doubling of the triad. The notes are represented by circles, and the doublings are indicated by multiple circles for the same pitch. The labels 'mista', 'fechada', and 'aberta' are placed below the staff to describe the voicings. The labels 'dobramento da fundamental', 'dobramento da quinta', and 'dobramento da terça' are placed below the staff to describe the doublings.

Measure	Voicing	Doubling
1	mista	fundamental
2	fechada	fundamental
3	mista	fundamental
4	fechada	quinta
5	fechada	quinta
6	aberta	quinta
7	fechada	terça
8	mista	terça
9	mista	terça

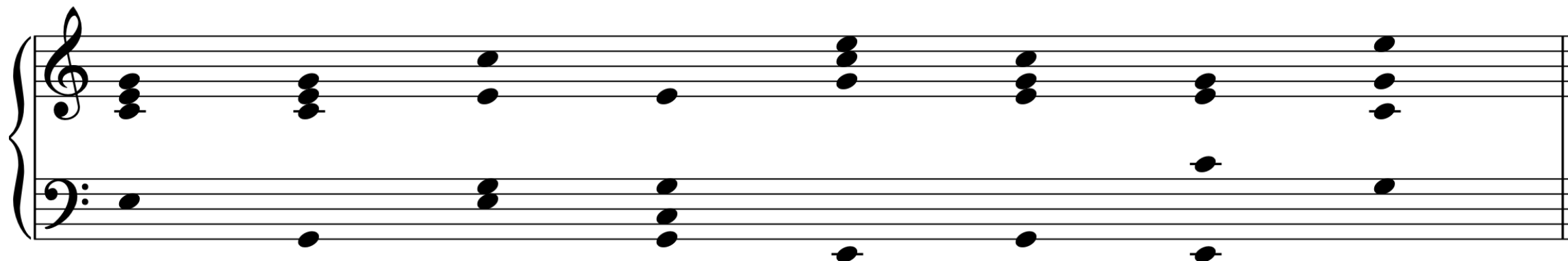
dobramento da
fundamental

dobramento da
quinta

dobramento da
terça

Exercício 2 - *Classificar as inversões, dobramentos e disposições dos acordes abaixo.*

Tríades em 1ª e 2ª inversão, com dobramento de 3ª ou 5ª



Ex. 2 gabarito

The image displays a musical score for a guitar exercise, labeled 'Ex. 2 gabarito'. It consists of a grand staff with a treble clef on the upper staff and a bass clef on the lower staff. Eight chords are shown, each with a label below it. The chords are: 1. 1ª inv. 3ª dobrada fechada (treble: G4, B4; bass: G2); 2. 2ª inv. 5ª dobrada fechada (treble: B4, D5; bass: B2); 3. 1ª inv. 3ª dobrada aberta (treble: G4, B4; bass: G2, B2); 4. 2ª inv. 5ª dobrada aberta (treble: B4, D5; bass: B2, D2); 5. 1ª inv. 3ª dobrada fechada (treble: G4, B4; bass: G2); 6. 2ª inv. 5ª dobrada fechada (treble: B4, D5; bass: B2); 7. 1ª inv. 3ª dobrada fechada (treble: G4, B4; bass: G2); 8. 2ª inv. 5ª dobrada aberta (treble: B4, D5; bass: B2, D2). The labels are: 1ª inv. 3ª dobrada fechada, 2ª inv. 5ª dobrada fechada, 1ª inv. 3ª dobrada aberta, 2ª inv. 5ª dobrada aberta, 1ª inv. 3ª dobrada fechada, 2ª inv. 5ª dobrada fechada, 1ª inv. 3ª dobrada fechada, 2ª inv. 5ª dobrada aberta.

1ª inv.
3ª dobrada
fechada

2ª inv.
5ª dobrada
fechada

1ª inv.
3ª dobrada
aberta

2ª inv.
5ª dobrada
aberta

1ª inv.
3ª dobrada
fechada

2ª inv.
5ª dobrada
fechada

1ª inv.
3ª dobrada
fechada

2ª inv.
5ª dobrada
aberta

Exercício 3 - *Escrever as 12 tríades menores em posição fundamental e com dobramento de oitava (fundamental), alternando conforme as indicações abaixo da pauta musical.*

2 3 4 5 6

7 8 9 10 11 12

acordes 1 e 7 - 5ª soprano (S), fechada (f)
acordes 2 e 8 - 5ª S, aberta (a)
acordes 3 e 9 - 3ª S, f

acordes 4 e 10 - 3ª S, a
acordes 5 e 11 - 8ª S, f
acordes 6 e 12 - 8ª S, a

Ex. 3 gabarito

Sequência tríades menores

Diagram illustrating the sequence of 12 minor triads (tríades menores) across two rows of musical notation. Each triad is shown in a grand staff (treble and bass clef).

Row 1:

- 1 Cm
- 2 C[#]m
- 3 Dm
- 4 D[#]m
- 5 Em
- 6 Fm

Row 2:

- 7 G^bm
- 8 Gm
- 9 A^bm
- 10 Am
- 11 B^bm
- 12 Bm

Exercício 4 - *Escrever as 12 tríades diminutas cromáticas em 1ª inversão, com dobramento da terça.*

The image displays two systems of musical staves for Exercise 4. Each system consists of a grand staff (treble and bass clefs) divided into six measures. The measures are numbered 2 through 12 above the staves. The first system contains measures 2, 3, 4, 5, and 6. The second system contains measures 7, 8, 9, 10, 11, and 12. The staves are empty, intended for the student to write the 12 diminished triads in first inversion with a doubled third.

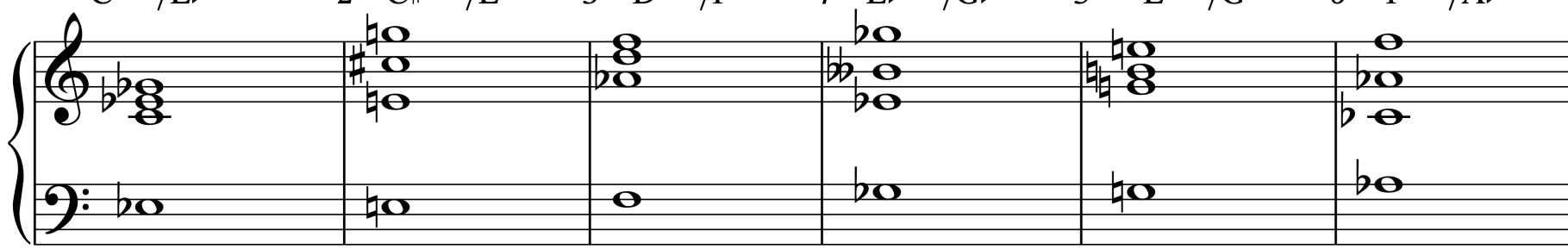
acordes 1 e 7 - 5ª soprano (S), fechada (f)
acordes 2 e 8 - 5ª S, aberta (a)
acordes 3 e 9 - 3ª S, f

acordes 4 e 10 - 3ª S, a
acordes 5 e 11 - 8ª S, f
acordes 6 e 12 - 8ª S, a

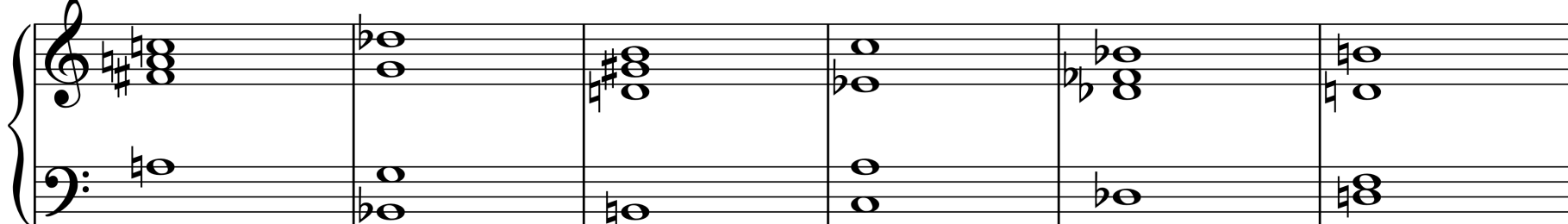
Ex. 4 gabarito

Tríades diminutas em 1ª inversão, com dobramento da terça

1 C^{dim}/E^b 2 C^{#dim}/E 3 D^{dim}/F 4 E^{bdim}/G^b 5 E^{dim}/G 6 F^{dim}/A^b



7 F^{#dim}/A 8 G^{dim}/B^b 9 G^{#dim}/B 10 A^{dim}/C 11 B^{bdim}/D^b 12 B^{dim}/D



5ª soprano 3ª soprano 8ª soprano

AULA 2

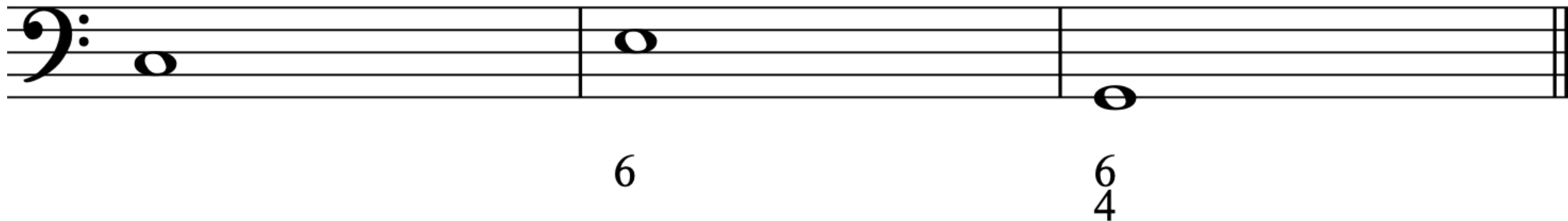
Cifrado de acordes

- Baixo cifrado
- Harmonia graduada (algarismos romanos, “tradicional”)
- Harmonia funcional
- Harmonia popular

fundamental

1ª inversão

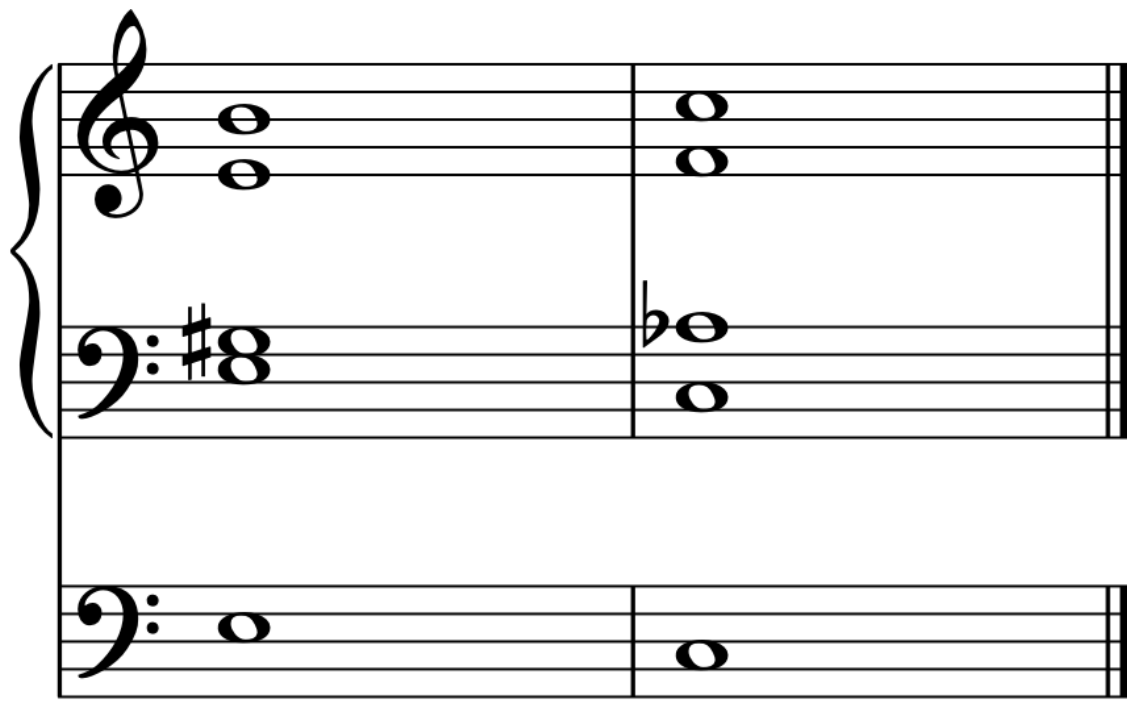
2ª inversão



Baixo cifrado

Alterações no baixo cifrado

acorde completo



baixo cifrado

#

$\flat 6$
4

The image displays musical notation for a guitar chord and its bass line. The top staff, labeled 'acorde completo', is a grand staff with a treble clef and a bass clef. It shows a C major triad in the treble (C4, E4, G4) and a C major triad in the bass (C3, E3, G3). The bottom staff, labeled 'baixo cifrado', shows a single bass line with a C major triad (C3, E3, G3). Below the bass line, there are two fret numbers: a sharp sign (#) and a flat 6 over 4 ($\flat 6$ / 4).

Exercício 5 - Escreva de forma completa (a 4 vozes) os seguintes acordes cifrados (não se preocupe em encadeá-los)

The image shows a musical exercise. At the top, a black banner contains the text: "Exercício 5 - Escreva de forma completa (a 4 vozes) os seguintes acordes cifrados (não se preocupe em encadeá-los)". Below this, there is a musical score. The score consists of two parts. The first part is a grand staff with a treble clef and a bass clef, which is empty. The second part is a single bass staff with a bass clef. It contains a sequence of five chords, each represented by a single note on a staff line, with the chord symbol written below it. The chords are: 6, #6/4, #, 6/4, and 6.

Ex. 5 gabarito

The image displays a musical score for a piano accompaniment and a bass line. The piano part is written for a grand staff (treble and bass clefs) and consists of five measures. The bass line is written on a single bass staff and also consists of five measures. The notes in the piano part are: Measure 1: C4, E4, G4; Measure 2: C4, E4, G4; Measure 3: C4, E4, G4; Measure 4: C4, E4, G4; Measure 5: C4, E4, G4. The notes in the bass line are: Measure 1: C3; Measure 2: E3; Measure 3: G3; Measure 4: C4; Measure 5: E4. The notes in the piano part are marked with a sharp sign (#) above them. The notes in the bass line are marked with a sharp sign (#) below them. The notes in the piano part are marked with a sharp sign (#) above them. The notes in the bass line are marked with a sharp sign (#) below them. The notes in the piano part are marked with a sharp sign (#) above them. The notes in the bass line are marked with a sharp sign (#) below them.

6

6
4

#

6
4

6

Harmonia graduada

Notação de G. Weber: maiúsculas e minúsculas

Ex.3 after Gottfried Weber: *Versuch einer geordneten Theorie der Tonsetzkunst zum Selbstunterricht* (3/1832), §49

(a) diatonic harmonies in major

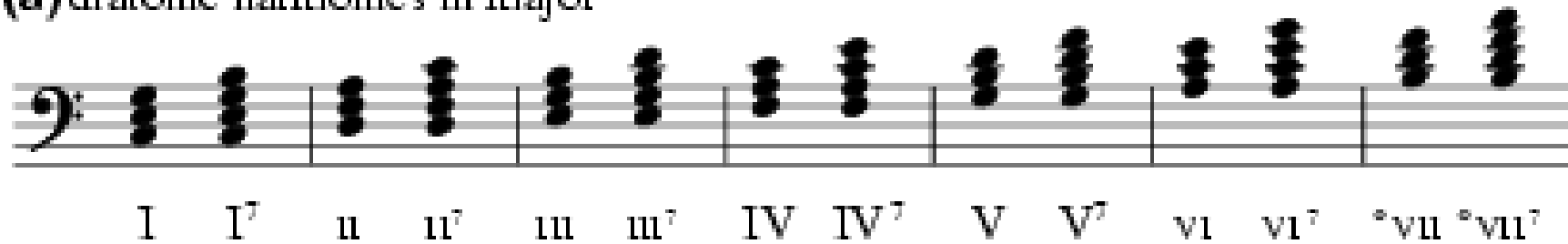


Diagram showing the diatonic harmonies in major on a bass clef staff. The harmonies are represented by vertical stacks of notes (triads and dyads) across seven measures. Below the staff, the Roman numerals for each harmony are listed: I, I⁷, II, II⁷, III, III⁷, IV, IV⁷, V, V⁷, VI, VI⁷, and [°] VII, [°] VII⁷.

I I⁷ II II⁷ III III⁷ IV IV⁷ V V⁷ VI VI⁷ [°] VII [°] VII⁷

(b) diatonic harmonies in minor

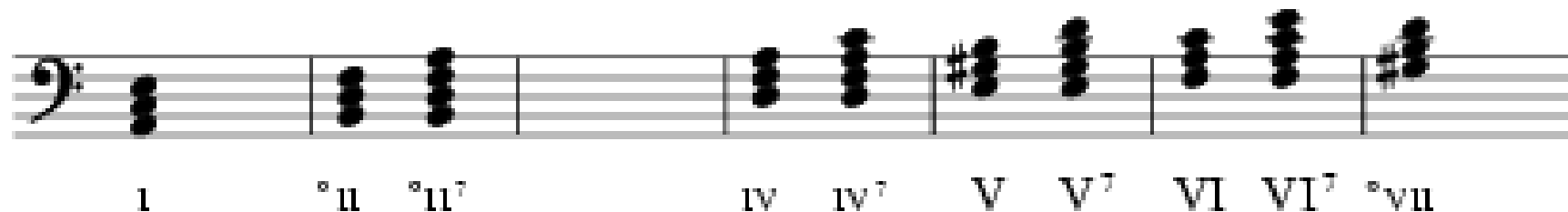


Diagram showing the diatonic harmonies in minor on a bass clef staff. The harmonies are represented by vertical stacks of notes (triads and dyads) across seven measures. Below the staff, the Roman numerals for each harmony are listed: I, [°] II, [°] II⁷, IV, IV⁷, V, V⁷, VI, VI⁷, and [°] VII.

I [°] II [°] II⁷ IV IV⁷ V V⁷ VI VI⁷ [°] VII

Tríades no modo maior: o campo harmônico

Tríades em Dó maior

Notação de G. Weber

Diagram showing the seven triads in C major (Dó maior) using G. Weber's notation. The triads are displayed on a single staff with a treble clef, showing the notes of each triad. The triads are labeled below the staff: I, ii, iii, IV, V, vi, and vii°.

Triad	Notes
I	C4, E4, G4
ii	D4, F4, A4
iii	E4, G4, B4
IV	F4, A4, C5
V	G4, B4, D5
vi	A4, C5, E5
vii°	B4, D5, F5

Graus melódicos em Dó maior

Notação de H. Schenker

Cifras romanas

Dó maior

1ª inversão 2ª inversão Acorde com 7ª (tétrade)

The image shows four musical staves in bass clef, each representing a different chord voicing for D major. The first staff shows the root position (I) with notes D, F#, A, and C. The second staff shows the first inversion (I⁶) with notes F#, A, C, and D. The third staff shows the second inversion (I₄⁶) with notes A, C, D, and F#. The fourth staff shows the dominant seventh chord (V⁷) with notes F#, A, C, and E. Each staff has a double bar line at the end.

I I⁶ I₄⁶ V⁷

Tonalidade

The diagram illustrates the relationship between major and minor scales across different tonalities. It features three horizontal staves, each representing a scale. The top staff shows major scales with their corresponding minor scales. The bottom staff shows minor scales with their corresponding major scales. A central point with four arrows pointing to the four staves indicates the relationship between the two rows.

Top Staff (Major Scales):

- Sol maior / Mi menor
- Ré maior / Si menor
- Lá maior / Fá# menor
- Mi maior / Dó# menor
- Si maior / Sol# menor
- Fá# maior / Ré# menor
- Dó# maior / Lá# menor

Left Staff (Major Scales):

- Dó maior / Lá menor

Bottom Staff (Minor Scales):

- Fá maior / Ré menor
- Si♭ maior / Sol menor
- Mi♭ maior / Dó menor
- Lá♭ maior / Fá menor
- Ré♭ maior / Si♭ menor
- Sol♭ maior / Mi♭ menor
- Dó♭ maior / Lá♭ menor

Exercício 6 - *Classificar os acordes (grau, disposição e inversão)*

Dó maior

The musical notation consists of two staves, Treble and Bass, with a brace on the left. The key signature is D major, indicated by the text 'Dó maior' in a box above the staves. The notation shows eight measures, each containing a chord. The chords are as follows:

Measure	Notes (Treble / Bass)	Chord
1	F#4, A4, C#5 / D3, F#3, A3	D4 (I)
2	A4, C#5, D5 / D3, F#3, A3	D4 (I)
3	A4, C#5, D5 / E4, G#4, B4	A4 (II)
4	A4, C#5, D5 / F#3, A3, C#4	D4 (I)
5	A4, C#5, D5 / D3, F#3, A3	D4 (I)
6	F#4, A4, C#5 / D3, F#3, A3	D4 (I)
7	A4, C#5, D5 / D3, F#3, A3	D4 (I)
8	A4, C#5, D5 / D3, F#3, A3	D4 (I)

Ex. 6 gabarito

Dó maior

The musical notation shows eight chords in D major, each with its voicing indicated below. The chords are: iii (closed), vii^{o6} (open), IV⁶ (closed), vi⁶₄ (mixed), ii⁶ (mixed), I⁶₄ (closed), V (closed), and I⁶ (mixed). The voicings are as follows: iii (treble: D4, F#4; bass: D3, F#3); vii^{o6} (treble: D4, F#4; bass: D3, F#3); IV⁶ (treble: D4, F#4, A4; bass: D3, F#3); vi⁶₄ (treble: D4, F#4, A4; bass: D3, F#3); ii⁶ (treble: D4, F#4, A4; bass: D3, F#3); I⁶₄ (treble: D4, F#4, A4; bass: D3, F#3); V (treble: D4, F#4, A4; bass: D3, F#3); I⁶ (treble: D4, F#4, A4; bass: D3, F#3).

Chord	Voicing
iii	fechada
vii ^{o6}	aberta
IV ⁶	fechada
vi ⁶ ₄	mista
ii ⁶	mista
I ⁶ ₄	fechada
V	fechada
I ⁶	mista

Exercício 7 – Classificar os acordes. Para quem não tem prática em análise, recomenda-se escrever um rascunho com as tríades da escala de Lá maior.

The musical score is written for piano in A major, 4/4 time. It consists of four measures, each containing a triad. The first measure shows the A major triad (A-C#-E) in both hands. The second measure shows the B major triad (B-D#-F#) in both hands. The third measure shows the C# major triad (C#-E-G#) in both hands. The fourth measure shows the D major triad (D-F#-A) in both hands. The score is written on a grand staff with a treble and bass clef, a key signature of three sharps (F#, C#, G#), and a 4/4 time signature.

Ex. 7 gabarito

Lá maior, campo harmônico

I ii iii IV V vi vii° I

I ii I⁶ vi IV V ⁶ I

aberta aberta mista fechada fechada mista mista fechada

Acordes com sétima

- I e IV: sétima maior (11 semitons)
- ii, iii e vi: sétima menor (10 semitons)
- vii°: sétima menor (meio-diminuto)
- V: sétima menor

Dó maior

The diagram illustrates the seven diatonic triads with their seventh notes in the key of D major (Dó maior). The chords are represented on a musical staff with a treble clef. The chords are: I⁷ (D major 7), ii⁷ (E minor 7), iii⁷ (F minor 7), IV⁷ (G major 7), V⁷ (A major 7), vi⁷ (B minor 7), and vii^{°7} (C half-diminished 7). Brackets indicate the quality of the seventh: 7^a maior for I and IV, and 7^a menor for ii, iii, V, and vi.

7^a maior

7^a menor

7^a maior

7^a menor

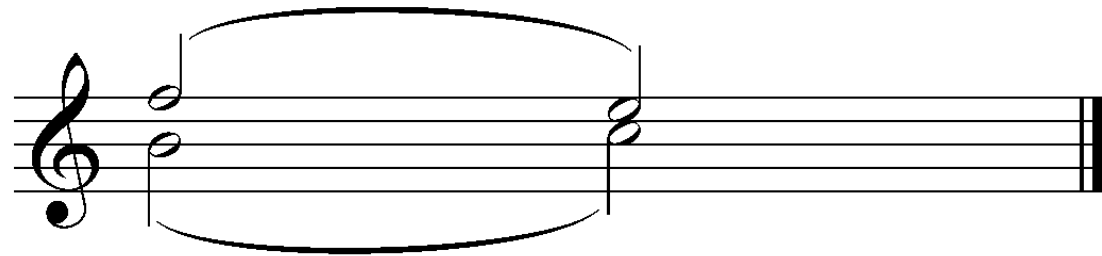
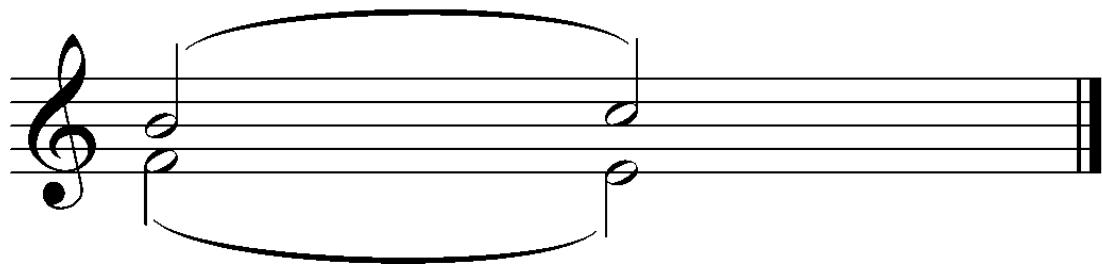
O trítono

Intervalo de 6 semitons (4ªA ou 5ªd)

Nomenclatura dos graus melódicos da escala maior

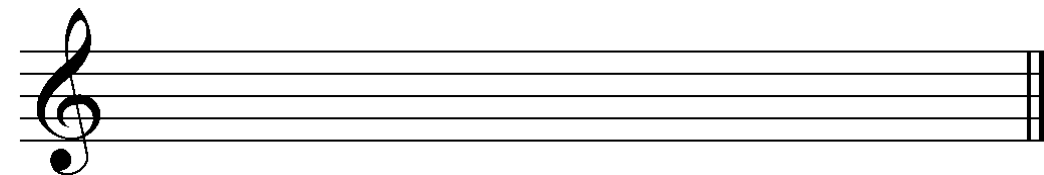
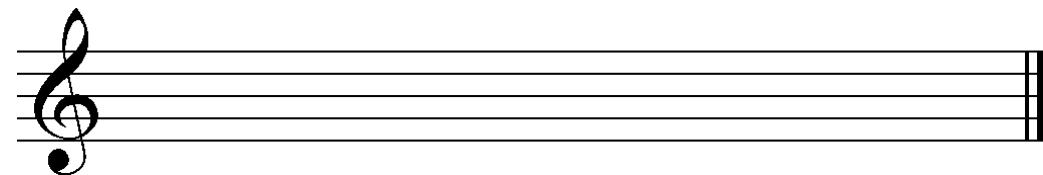
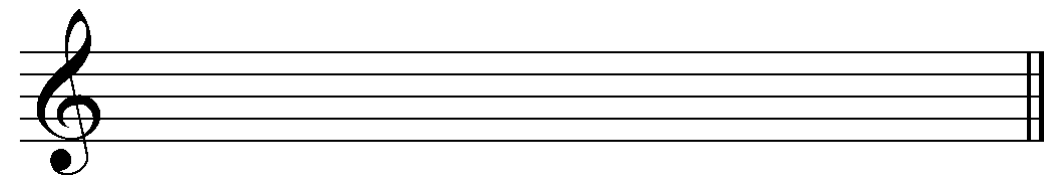
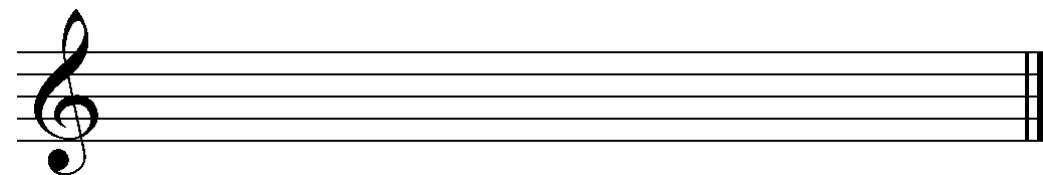
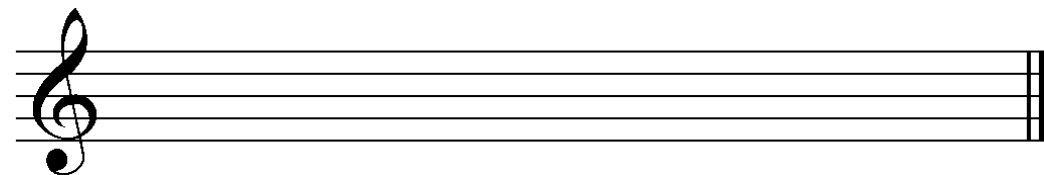
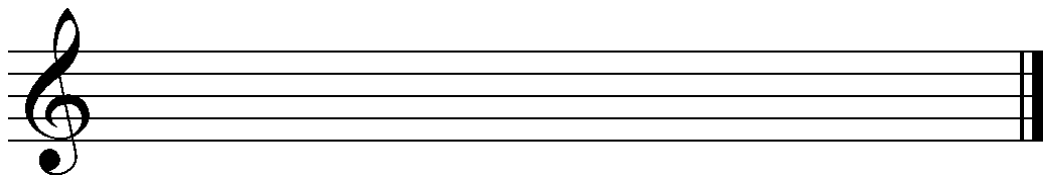
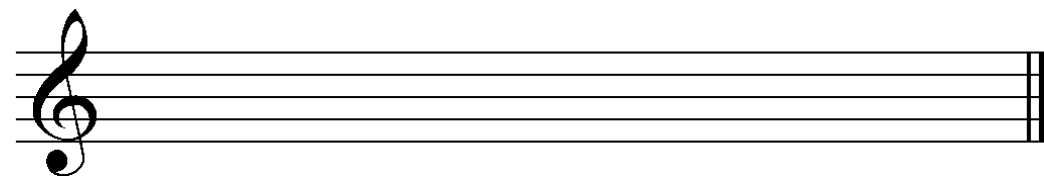
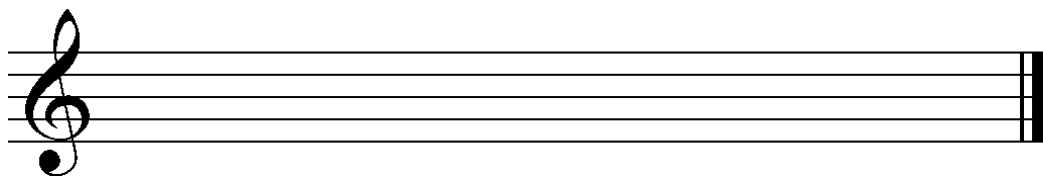
The diagram illustrates the seven degrees of a major scale on a musical staff. Above the staff, the degrees are labeled with their names and numbers: **tônica** (1), **supertônica** (2), **mediante** (3), **subdominante** (4), **dominante** (5), **submediante** (6), and **sensível** (7). The staff shows the notes: C (1), D (2), E (3), F (4), G (5), A (6), and B (7). A bracket connects the notes E (3) and G (5), labeled **sensível modal**. Another bracket connects the notes B (7) and C (1), labeled **sensível tonal**. A large curved line spans from the E (3) note to the B (7) note, with a box labeled **trítono** in the center, indicating the tritone interval.

Resoluções melódicas do trítono



resolução do trítono: $\hat{7} \rightarrow \hat{1}$ e $\hat{4} \rightarrow \hat{3}$

Exercício 8 – escreva os trítonos e resoluções nas tonalidades de: a) Sol menor; b) Mib maior; c) Lá maior; d) Fá menor. Faça nas duas versões: 4ª aumentada e 5ª diminuta.



Ex. 8 gabarito

a) Sol menor



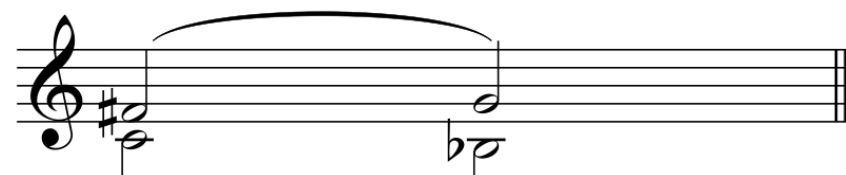
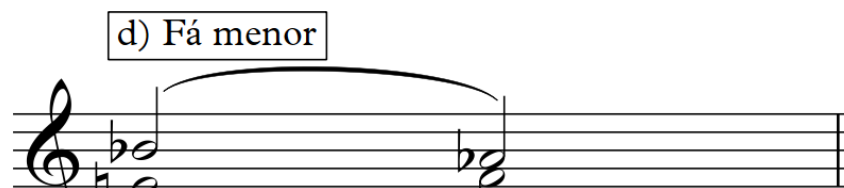
b) Mi♭ maior



c) Lá maior



d) Fá menor



Cifrado de acordes com sétima em inversão

The image displays two staves of musical notation in treble clef, illustrating the inversion of a dominant seventh chord (V7).

Staff 1 (Top): Shows the chord in its fundamental position and its first, second, and third inversions. The labels below the notes are I^7 , I^7 , I_5^6 , I_5^6 , I_3^4 , I_3^4 , I^2 , and I^2 .

Staff 2 (Bottom): Shows the same chords with labels in boxes above: "posição fundamental", "1ª inversão", "2ª inversão", and "3ª inversão". Below the staff are the figured bass notations: V^7 , V^7 , V_5^6 , V_5^6 , V_3^4 , V_3^4 , V^2 , and V^2 .

Tabela de inversão dos acordes de sétima

Posição	Fund.	1ª inv.	2ª inv.	3ª inv.
Cifra	7	6 5	4 3	2

Exercício 9 – cifra de acordes com sétima. A) Identificar a fundamental; B) o grau da escala em relação a armadura de clave; C) a inversão.

The image displays 12 chords on a single staff, numbered 1 through 12. The staff is divided into two systems of six measures each. The first system (measures 1-6) is in the key of D major (two sharps). The second system (measures 7-12) is in the key of B major (three sharps). The chords are as follows:

- 1. D major triad (D, F#, A)
- 2. D major triad (D, F#, A)
- 3. E minor triad (E, G, B)
- 4. F# minor triad (F#, A, C)
- 5. G major triad (G, B, D)
- 6. A major triad (A, C#, E)
- 7. B major triad (B, D#, F#)
- 8. B major triad (B, D#, F#)
- 9. C# minor triad (C#, E, G)
- 10. D# minor triad (D#, F, A)
- 11. E major triad (E, G#, B)
- 12. F# major triad (F#, A#, C#)

The figured bass numbers for each chord are: 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12. The numbers are placed above the corresponding measures.

Ex. 9 gabarito

The musical score for Ex. 9 gabarito consists of two staves, each with six measures. The first staff (measures 1-6) is in G major, and the second staff (measures 7-12) is in G minor. The chords are as follows:

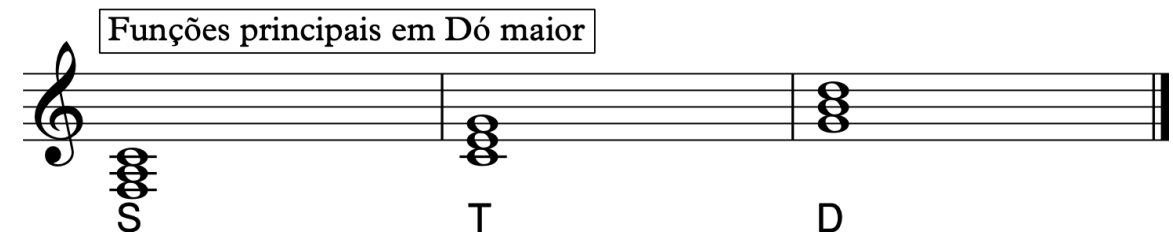
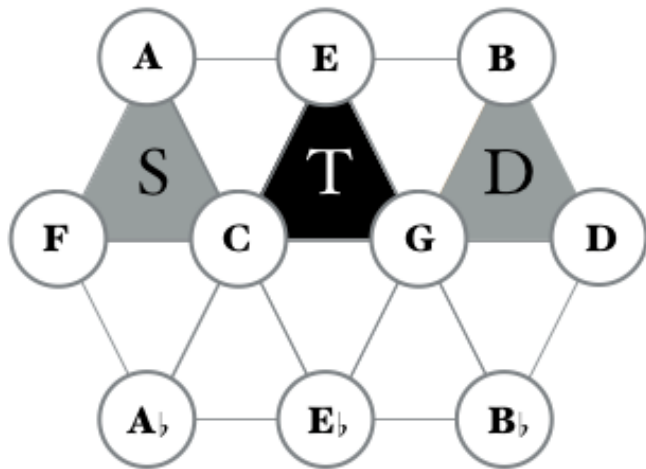
Measure	Chord
1	ii^7
2	V_3^4
3	IV^2
4	V^2
5	ii_5^6
6	iii_3^4
7	IV^7
8	$vii_5^{\circ 6}$
9	iii_5^6
10	I_3^4
11	IV_5^6
12	ii^7

AULA 3

Funções harmônicas

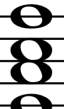
- Hugo Riemann (1893)
- Dualismo e funcionalidade harmônica
- Hermann Grabner e Wilhelm Maler
- Teoria funcional no Brasil: Hans-Joachim Koellreutter

Funções principais



Cifrado funcional: sétimas e inversões

Dó maior

A	B	C	D	E	F
					
T	T ₃	S ₇	D ⁷	S ₅	T ₅ ⁷

Detailed description: The image shows a musical staff with a treble clef and a key signature of one sharp (F#), labeled 'Dó maior'. Above the staff, six boxes contain the letters A, B, C, D, E, and F. Below the staff, corresponding chord symbols are written: T, T₃, S₇, D⁷, S₅, and T₅⁷. The chords are represented by groups of notes on the staff: A (C4, E4, G4), B (D4, F4, A4), C (E4, G4, B4), D (F4, A4, C5), E (G4, B4, D5), and F (A4, C5, E5). The symbols T, S, and D represent triads, seventh chords, and dominant seventh chords, respectively. The subscripts and superscripts indicate the inversion and the quality of the seventh.

Dominante com sétima e nona; dominante sem fundamental.

The image displays a musical staff with two systems of chords. The first system is labeled "Dó maior" (D major) and the second is labeled "Dó menor" (D minor). The chords are represented by notes on a staff, with some notes circled to highlight specific intervals. Below the staff, the chords are labeled with Roman numerals and symbols.

Dó maior (D major):

- Chord 1: V^7 (D⁷)
- Chord 2: vii° (D⁷)
- Chord 3: V^9 (D⁹)
- Chord 4: $vii^{\circ 7}$ (D⁹)

empréstimo modal (modo menor) (modal borrowing (minor mode))

Dó menor (D minor):

- Chord 5: V^{b9} (D^{9>})
- Chord 6: $vii^{\circ 7}$ (D^{9>})
- Chord 7: V^9 (D⁹)
- Chord 8: $vii^{\circ 7}$ (D⁹)

nona rebaixada (lowered ninth)

Exercício 10

Modo maior

The exercise is divided into two systems, each with two staves (treble and bass clef) and a series of chords below them.

System 1:

- Staff 1: Treble clef, key signature of one flat (Bb). Fingering 2 is indicated above the first measure.
- Staff 2: Bass clef, key signature of one flat (Bb). Fingering 3 is indicated above the first measure.
- Chords: D⁷₃, D⁷₃, D⁷₅, D⁷₅, D₇, D₇.

System 2:

- Staff 1: Treble clef, key signature of two flats (Bb, Eb). Fingering 4 is indicated above the first measure.
- Staff 2: Bass clef, key signature of two flats (Bb, Eb). Fingering 5 is indicated above the first measure.
- Chords: D⁷₃, D⁷₃, D⁹₃, D⁹₃, D⁹, D⁹₅.

Ex. 10 gabarito

Modo maior

The musical score is written for piano in D major. It consists of six measures, each containing a pair of chords (one in the right hand, one in the left hand). The chords are labeled with their root, quality, and fingerings. The measures are numbered 2 through 6 above the right-hand staves. Measure 1 is the starting point. The chords are: Measure 2: D7 (RH) and D7 (LH), both with fingerings 3. Measure 3: D7 (RH) and D7 (LH), both with fingerings 5. Measure 4: D (RH) and D (LH), both with fingerings 7. Measure 5: D7 (RH) and D7 (LH), both with fingerings 3. Measure 6: D9 (RH) and D9 (LH), both with fingerings 3. Measure 7: D9 (RH) and D9 (LH), both with fingerings 5.

2 3 4 5 6

D⁷ D⁷ D⁷ D⁷ D D⁷ D⁷ D⁹ D⁹ D⁹ D⁹

3 3 5 5 7 7 3 3 3 3 5

Exercício 11

ímpares: disposição aberta
pares: disposição fechada

Os números entre parêntesis
indicam a nota do soprano.

Lá menor (7 ^a /3 ^a)		Si menor (5 ^a /F)		Sol menor (9 ^a /5 ^a)		Láb maior (9 ^a /3 ^a)	
2	3	4	5	6	7	8	

V ⁷	vii ^{°4} ₃	V ²	vii ^{°6} ₅	V ⁹	vii ^{°2}	D ⁹ ₃	∅ ⁹ ₅
----------------	--------------------------------	----------------	--------------------------------	----------------	-------------------	-----------------------------	-----------------------------

Sol maior (7 ^a /5 ^a)		Si maior (9 ^a /9 ^a)		Fá maior (3 ^a /7 ^a)		Dó menor (9 ^a /9 ^a)	
9	10	11	12	13	14 (mista)	15	16

D ⁷ ₅	∅ _{9>}	D ⁹ ₇	∅ ⁹	D ₇	∅ ^{9>} ₃	D ⁹ ₇	∅ ⁹
-----------------------------	--------------------	-----------------------------	----------------	----------------	---------------------------------	-----------------------------	----------------

Ex. 11 gabarito

ímpares: disposição aberta
pares: disposição fechada

Lá menor ($7^a/3^a$) Si menor ($5^a/F$) Sol menor ($9^a/5^a$) Lá♭ maior ($9^a/3^a$)
 2 3 4 5 6 7 8

V⁷ vii^{o4}₃ V² vii^{o6}₅ V⁹ vii^{o2} D⁹₃ D⁹₅

Sol maior ($7^a/5^a$) Si maior ($9^a/9^a$) Fá maior ($3^a/7^a$) Dó menor ($9^a/9^a$)
 9 10 11 12 13 14 (mista) 15 16

D⁷₅ D⁹_{9>} D⁹₇ D⁹ D₇ D^{9>}₃ D⁹₇ D⁹

Funções secundárias

	POR	AL
relativo menor da Tônica maior	Tr	Tp
relativo menor da Subdominante maior	Sr	Sp
relativo menor da Dominante maior	Dr	Dp
antirrelativo menor da Tônica maior	Ta	Tg
antirrelativo menor da Subdominante maior	Sa	Sg
antirrelativo menor da Dominante maior	Da	Dg
Relativo maior da tônica menor	tR	tP
Relativo maior da subdominante menor	sR	sP
Relativo maior da dominante menor	dR	dP
Antirrelativo maior da tônica menor	tA	tG
Antirrelativo maior da subdominante menor	sA	sG
Antirrelativo maior da dominante menor	dA	dG

Funções primárias e secundárias em Dó maior

funções secundárias

Sg ou Sa Tg ou Ta Dg ou Da *

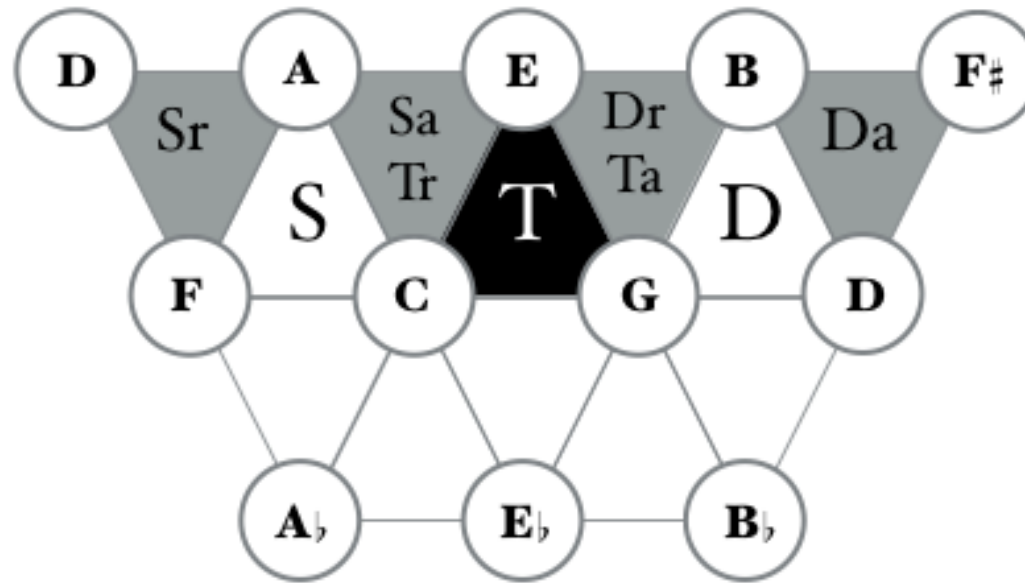
funções principais

S T D

funções secundárias

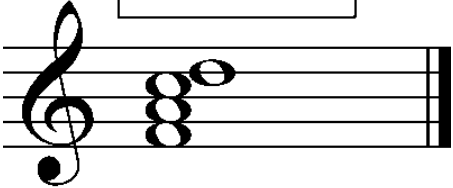
Sp ou Sr Tp ou Tr Dp ou Dr

Funções relativas e antirrelativas na *tonnetz*, modo maior



Comparação funcional e graduada

Dó maior



ii⁶₅

S⁶₅

The image shows a musical staff in treble clef with a key signature of one sharp (F#). The chord is a second inversion dyad consisting of the notes D4 (on the second line) and F#4 (on the second space). Above the staff, a box contains the text 'Dó maior'. Below the staff, the Roman numeral 'ii⁶₅' is written, followed by the figured bass notation 'S⁶₅'.

Acorde de sexta e sexta acrescentada; sexta apojatura

The image displays a musical exercise on a grand staff (treble and bass clefs) in the key of D major (one sharp). The exercise consists of four measures, each containing a triad or dyad. Below the staff, the corresponding figured bass notation is provided.

Measure 1: Triad (T) with figures 6 and 5. The notes are D4, F#4, and A4.

Measure 2: Dyad with figures 6 and 5. The notes are D4 and F#4.

Measure 3: Dyad with figures 6 and 5. The notes are D4 and A4.

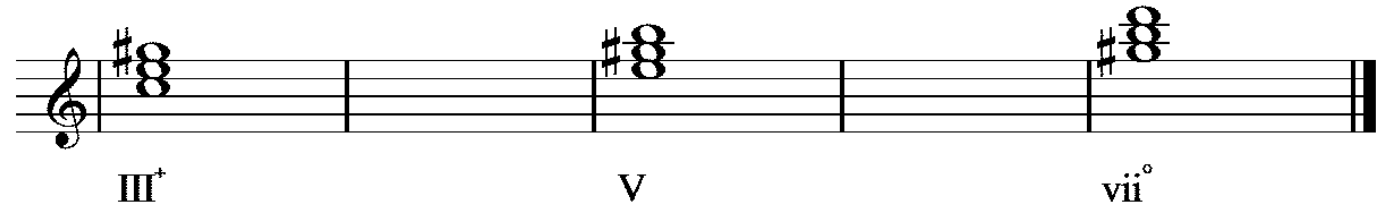
Measure 4: Triad (T) with figures 6 and 5. The notes are D4, F#4, and A4.

AULA 4

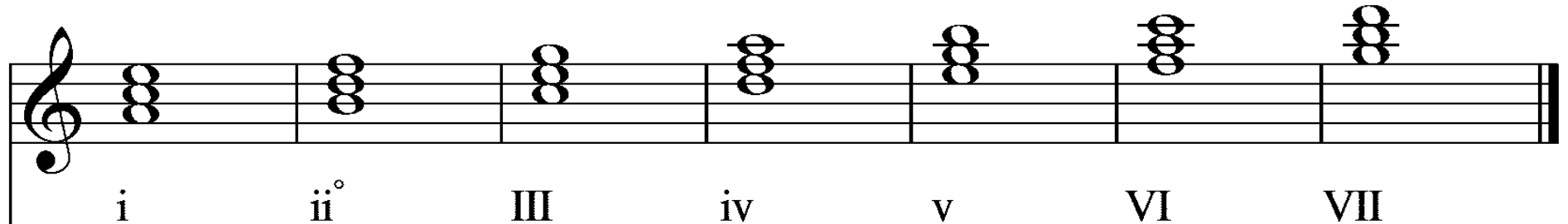
Modo menor

Tríades no modo menor

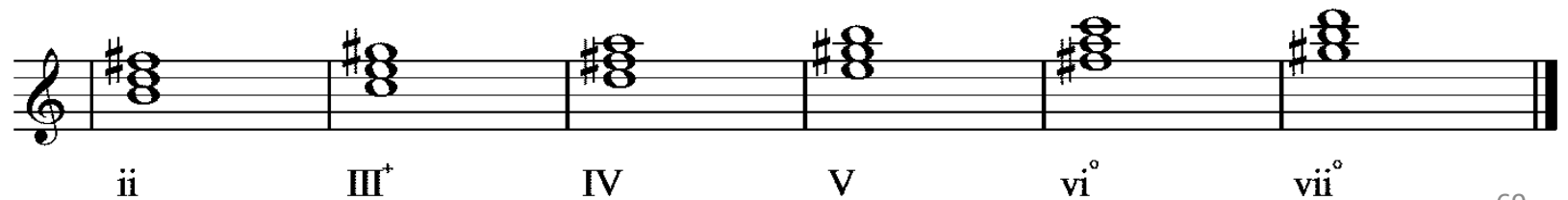
Escala harmônica



Escala antiga
(eólio)

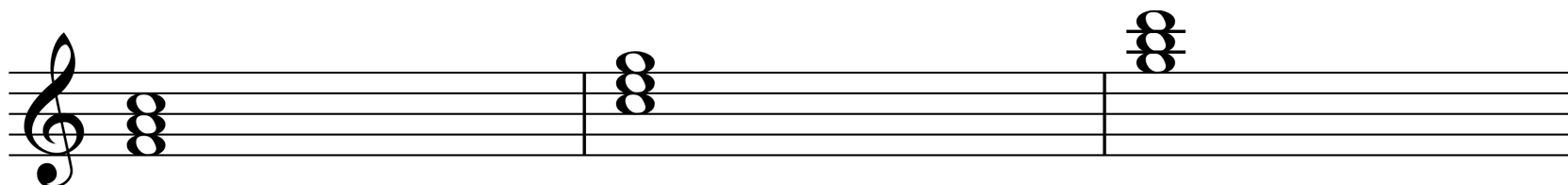


Escala melódica



Funções primárias e secundárias em Lá menor

funções secundárias

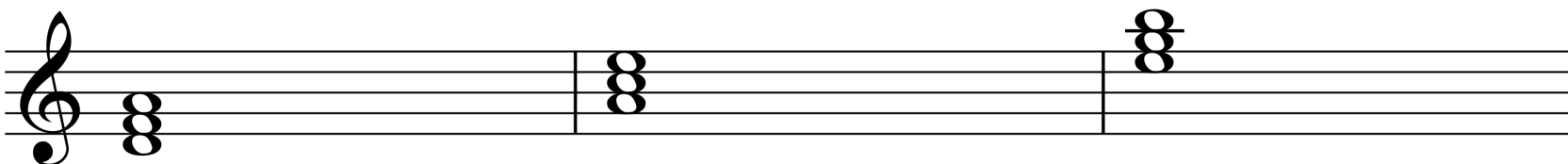


sP ou sR

tP ou tR

dP ou dR

funções principais

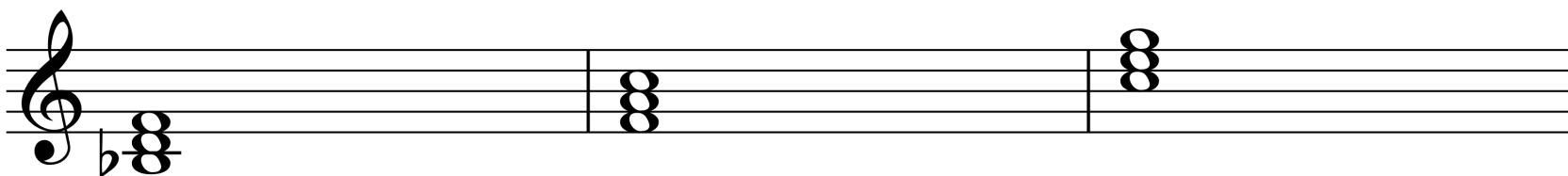


s

t

d

funções secundárias

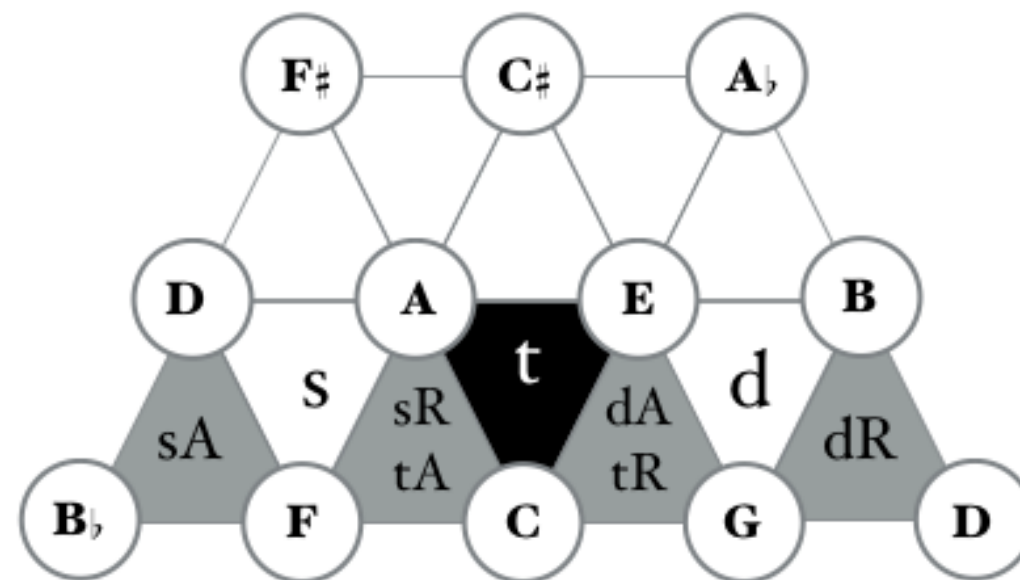


sG ou sA *

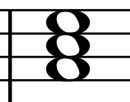
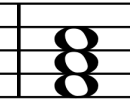
tG ou tA

dG ou dA

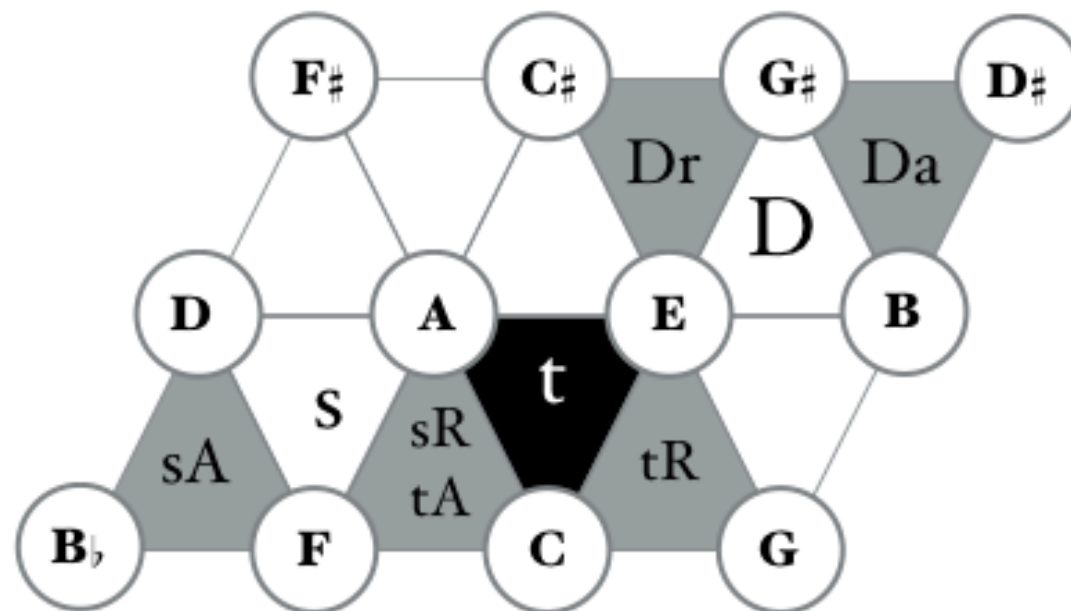
Funções
relativas e
antirrelativas
na *tonnetz*,
modo menor



Lá menor, escala harmônica

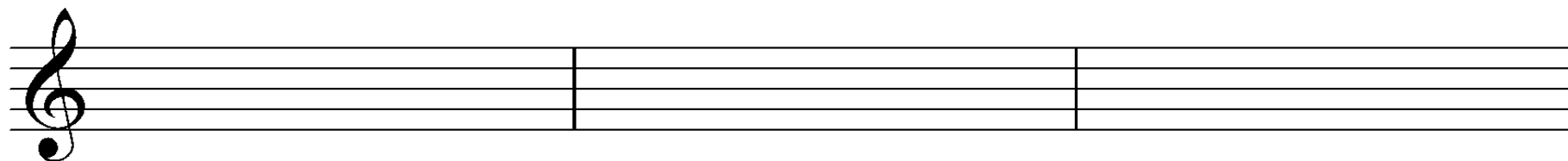
funções secundárias			
	sP ou sR	tP ou tR	Dg ou Da *
funções principais			
	s	t	D
funções secundárias			
	sG ou sA *	tG ou tA	Dp ou Dr

Escala menor
 harmônica:
 funções
 relativas e
 antirrelativas
 na *tonnetz*

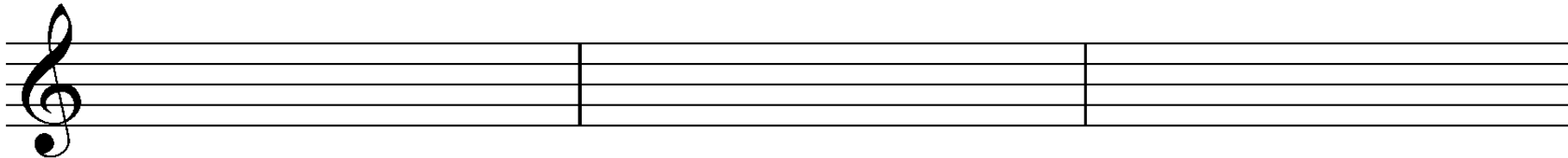


Exercício 12: escrever as funções primárias e secundárias nas tonalidades de: a) Lá maior; b) Réb maior; c) Fá menor (harmônica); d) Sol# menor (eólia)

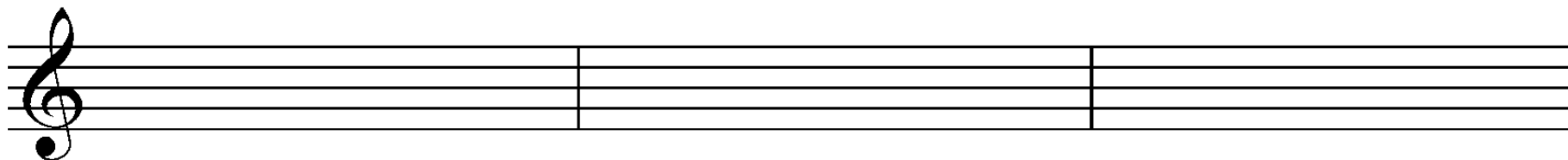
funções secundárias



funções principais



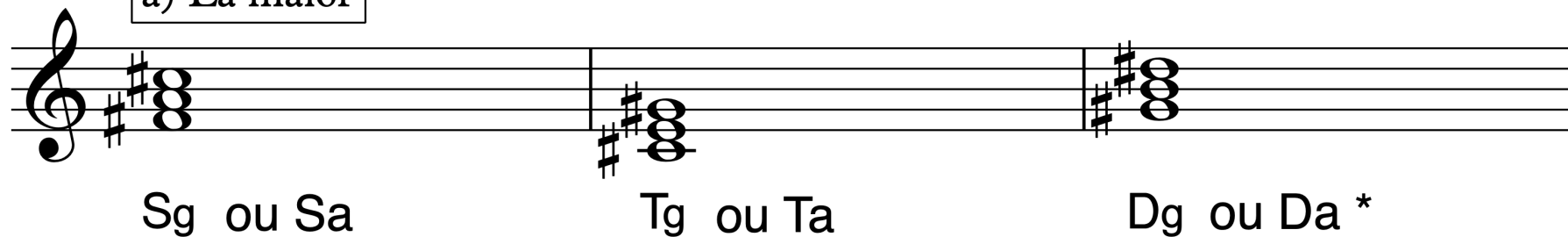
funções secundárias



Ex. 12a – gabarito

a) Lá maior

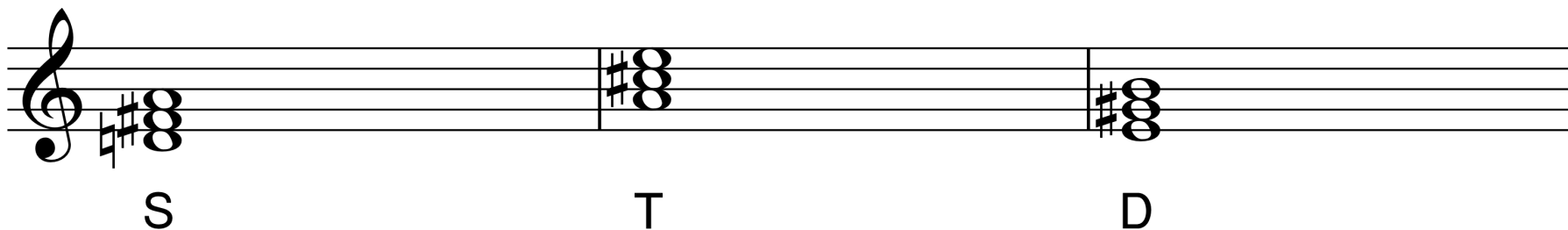
funções secundárias



Musical staff showing three measures of secondary functions in A major. The first measure contains a triad of G4, A4, and B4 (Sg ou Sa). The second measure contains a triad of F#4, G4, and A4 (Tg ou Ta). The third measure contains a triad of E4, F#4, and G4 (Dg ou Da *).

Sg ou Sa Tg ou Ta Dg ou Da *

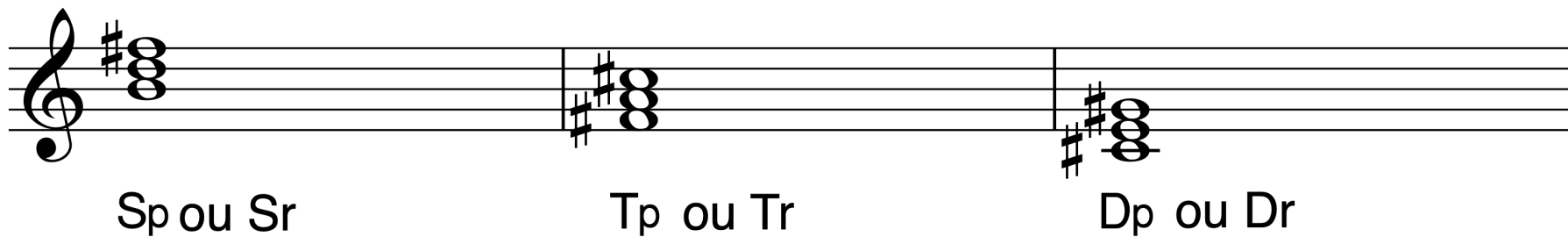
funções principais



Musical staff showing three measures of primary functions in A major. The first measure contains a triad of A4, B4, and C#4 (S). The second measure contains a triad of B4, C#4, and D5 (T). The third measure contains a triad of C#4, D5, and E5 (D).

S T D

funções secundárias



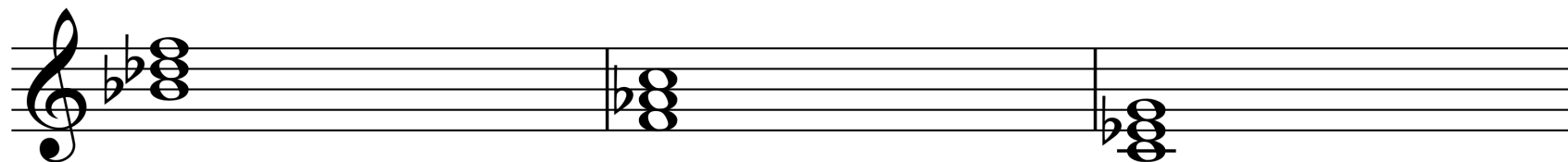
Musical staff showing three measures of secondary functions in A major. The first measure contains a triad of A4, B4, and C#4 (Sp ou Sr). The second measure contains a triad of B4, C#4, and D5 (Tp ou Tr). The third measure contains a triad of C#4, D5, and E5 (Dp ou Dr).

Sp ou Sr Tp ou Tr Dp ou Dr

Ex. 12b – gabarito

b) Ré $\flat$ maior

funções secundárias

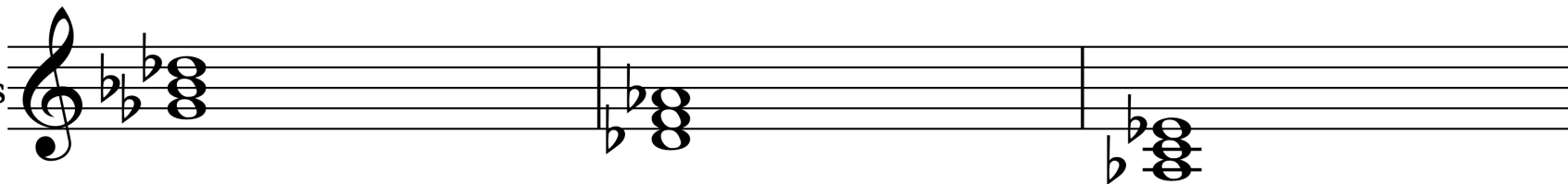


Sg ou Sa

Tg ou Ta

Dg ou Da *

funções principais

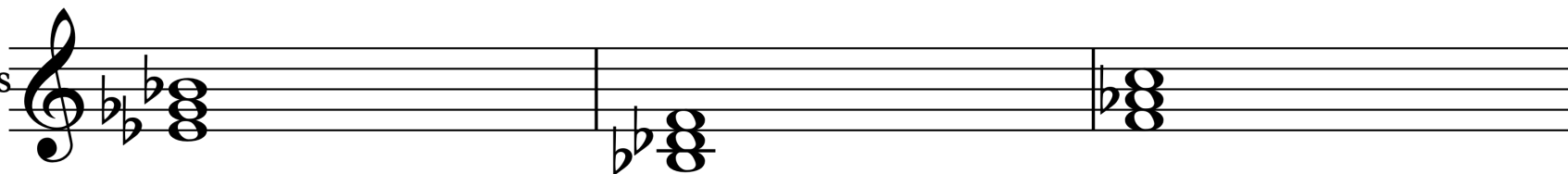


S

T

D

funções secundárias



Sp ou Sr

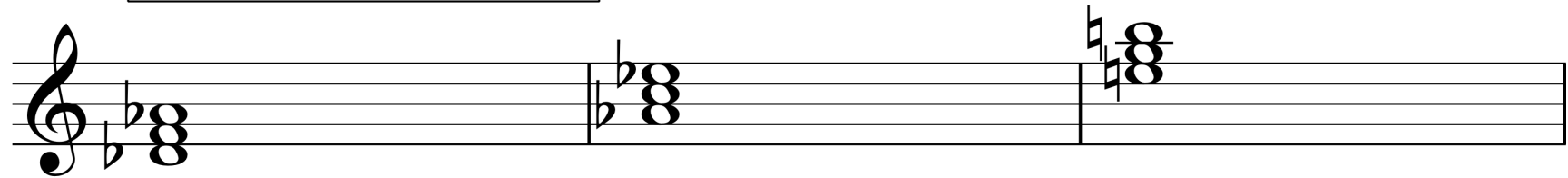
Tp ou Tr

Dp ou Dr

Ex. 12c – gabarito

c) Fá menor (harmônica)

funções secundárias

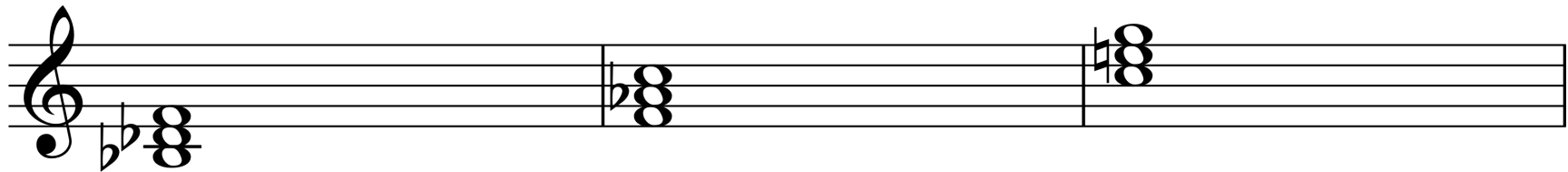


sP ou sR

tP ou tR

Dg ou Da *

funções principais

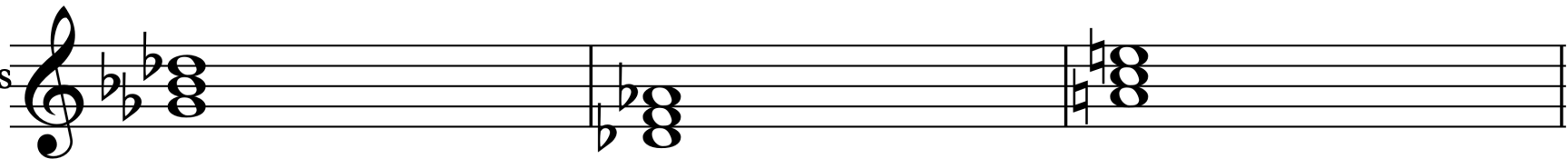


s

t

D

funções secundárias



sG ou sA *

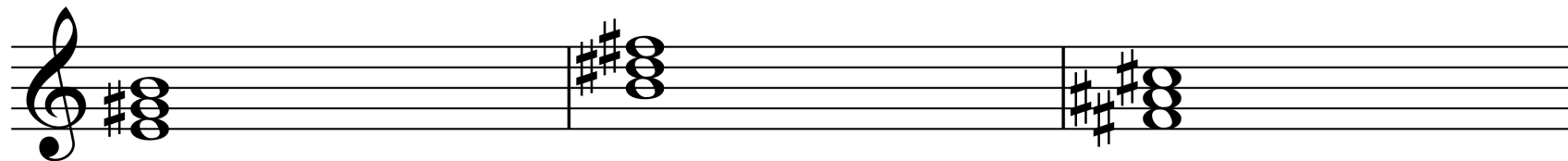
tG ou tA

Dp ou Dr

Ex. 12d – gabarito

d) Sol# menor (eólia)

funções secundárias

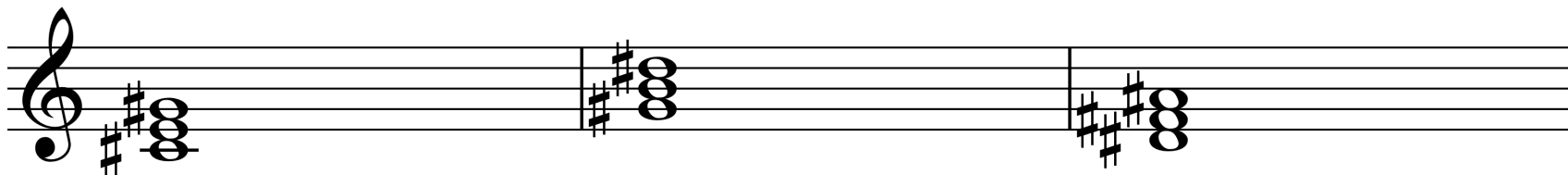


sP ou sR

tP ou tR

dP ou dR

funções principais

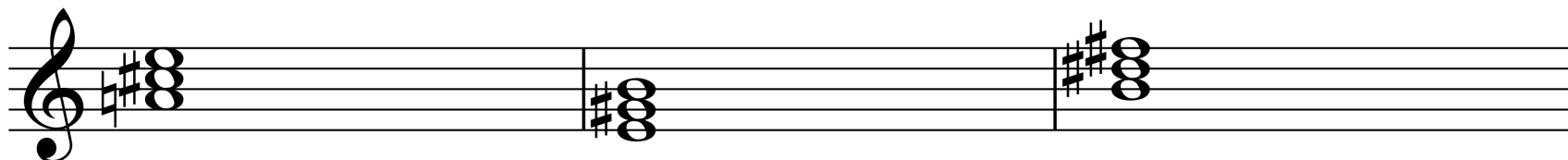


s

t

d

funções secundárias



sG ou sA *

tG ou tA

Dp ou Dr

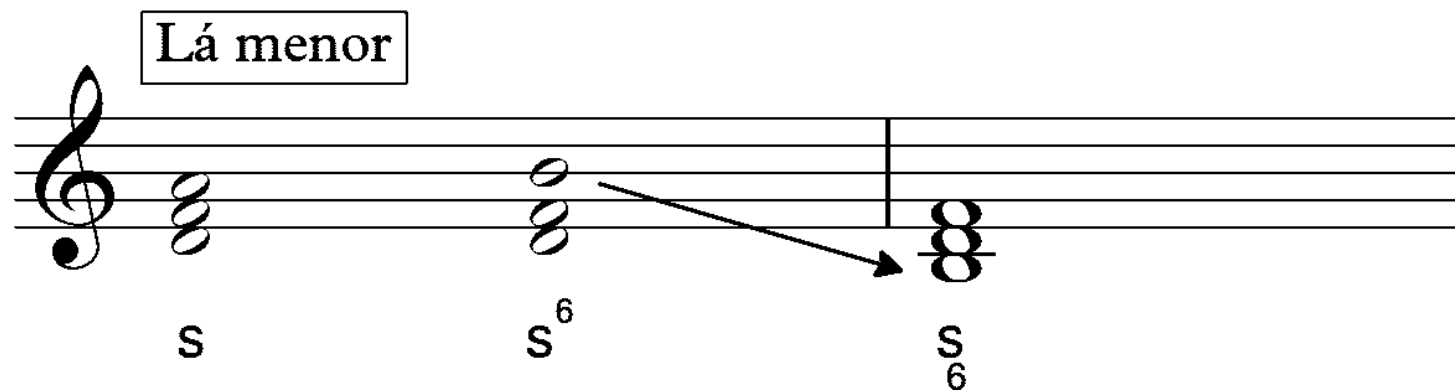
Tríade diminuta como subdominante. Exemplo 1: Bach, Coral nº 182 (apojatura)

5

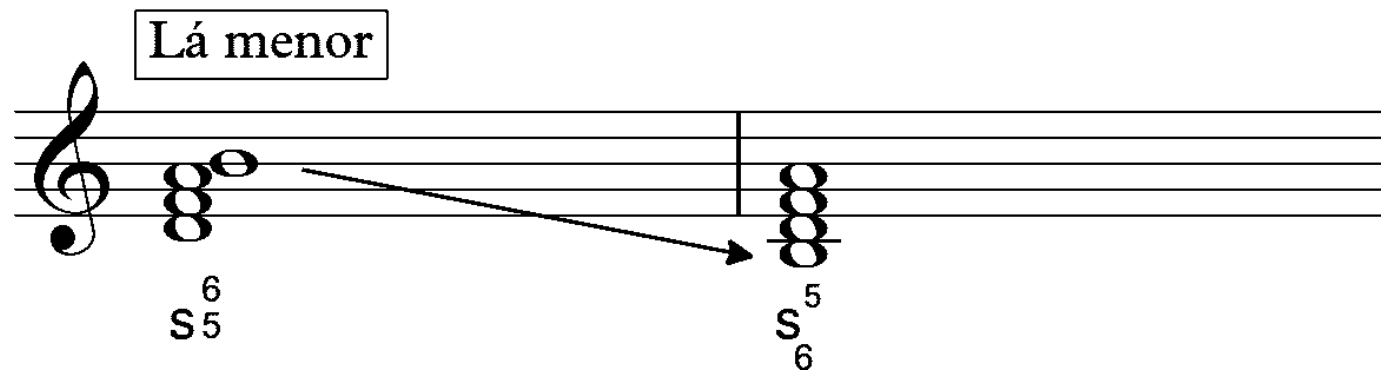
The image displays a musical score for a piano accompaniment of a chorale. It consists of two staves, treble and bass, with a grand staff bracket on the left. The key signature has two flats (B-flat and E-flat). The score is divided into two measures by a vertical bar line. The first measure contains a diminished triad (F, A-flat, C) in the bass staff, which is the subdominant of the key. The second measure contains a diminished triad (B-flat, D, F) in the bass staff, which is the dominant of the key. The notes are written in a way that suggests a harmonic progression. Below the second measure, there are labels 'S 6 - 5', 'D', and 't' indicating the harmonic structure.

S 6 - 5 D t

A tríade diminuta de ii grau no modo menor (sexta no baixo)



O acorde meio-diminuto, $ii^{\circ 7}$ no modo menor



Exemplo 2 – Ambiguidade do acorde diminuto em modo menor. Mozart:
Sonata KV. 310, I, c. 9-11.

9

?

f

t

S_5^6
ou
 $\emptyset^9$

(pedal de t)

t

Acorde diminuto sobre o vi grau no modo menor

Lá menor

Chords shown:

- vi°
- $vi^{\circ 7}$
- $vi^{\circ 6}$
- $vi^{\circ 6}_5$
- A**: $vi^{\circ 6}$ (s^6)
- V D
- B**: vii°/VII ($\emptyset^7$)₃
- VII dR

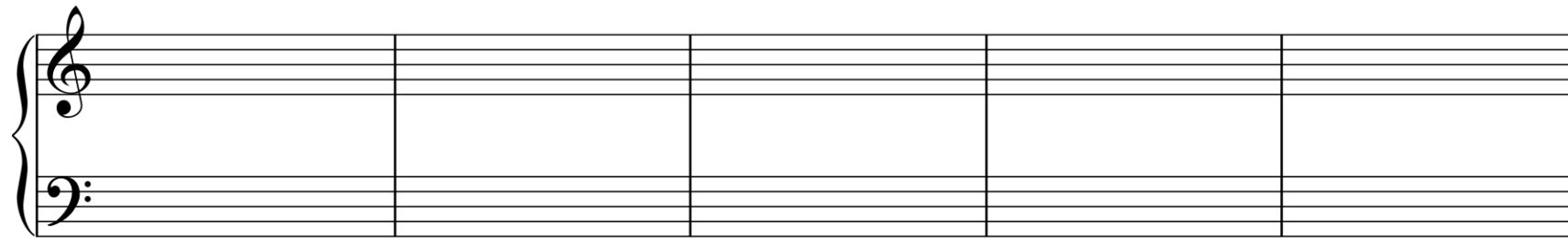
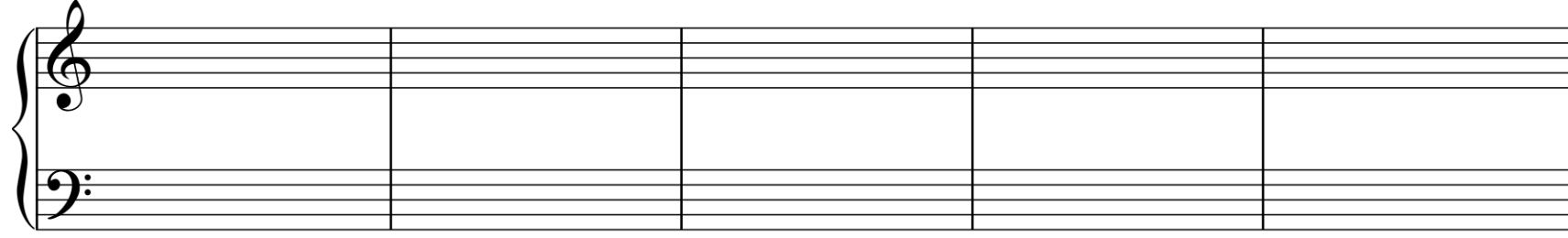
Acordes de sétima no modo menor

Lá menor

The image displays the 14 triads of the A minor mode on a single staff. Each triad is represented by three notes on a five-line staff. Below each triad are its Roman numeral and figured bass symbols. The triads are numbered 1 through 14.

Number	Triad Notes (A minor scale)	Roman Numeral	Figured Bass
1	A, C, E	i ⁷	t ⁷
2	A, C#, E	i ^{#7}	t ^{#7}
3	B, D, F	ii ^{ø7}	s ₆
4	B, D#, F	ii ⁷	S ⁷
5	C, E, G	III ⁷	tR ⁷
6	C, E#, G	III ⁺ ⁷	D ₆
7	D, F, A	iv ⁷	s ⁷
8	D, F#, A	IV ⁷	S ⁷
9	E, G, B	v ⁷	d ⁷
10	E, G#, B	V ⁷	D ⁷
11	F, A, C	VI ⁷	sR ⁷
12	F, A#, C	vi ^{ø7}	(∅ ⁹)
13	G, B, D	VII ⁷	(D ⁷)[t R]
14	G, B#, D	vii ^{ø7}	∅ ⁹

Exercício 13 – realizar as cifras nas tonalidades indicadas. Escreva os acordes sem preocupação em encadear.

	Ré maior	2	Láb maior	3	Mi maior	4	Ré menor	5	Réb maior
									
	T ₃		S ₅ ⁶		Tr ₃		Dr ⁶⁻⁵		T ₃
							∅ ⁷		D ₃
							s ₆		S ⁷
									T ₃ ⁶⁻⁵
6	Fá# menor	7	Sib menor	8	Fá menor	9	Sol menor	10	Si maior
									
	sA ₃		∅ ⁷		t ₅ ⁶		tR		t ₃ A
							D ⁷		t ₅
							∅ ⁹		Sr ₅
									D ⁷

Ex. 13 gabarito

Ré maior 2 Lá $\flat$ maior 3 Mi maior 4 Ré menor 5 Ré $\flat$ maior

 T_3 S_5^6 Tr_3 Dr^{6-5} T_3 $\emptyset^7$ D_3 s_6^5 S^7 T_3^{6-5}

6 Fá $\sharp$ menor 7 Si $\flat$ menor 8 Fá menor 9 Sol menor 10 Si maior

 sA_3 $\emptyset^7$ t_5^6 tR tA_3 D^7 t_5 $\emptyset^9$ Sr_5 D^7

OBS.: o objetivo deste exercício é escrever o acorde indicado, de acordo com os critérios estabelecidos de dobramento, disposição e inversão, apenas.
 Não há preocupação de realizar encadeamento, por enquanto.

O cifrado popular

A	Lá
B	Si
C	Dó
D	Ré
E	Mi
F	Fá
G	Sol

D	Ré maior
Am	Lá menor
C#7	Dó sustenido maior com sétima menor
Bbm7	Si bemol menor com sétima menor
F7M	Fá maior com sétima maior
Eb7(9) ou Eb7 ^(add9)	Mi bemol maior com sétima menor e nona maior
F#m/A	Fá sustenido menor com Lá no baixo
E°	Mi diminuto com sétima diminuta
G ^Ø ou Gm(b5)7	Sol meio-diminuto (diminuto com sétima menor)
F ^{dim} ou Fm ^(b5)	Fá diminuto (tríade)

6; b6	Sexta maior; sexta menor
7; 7M (ou maj7, ou 7 ⁺)	Sétima menor; sétima maior
9; #9; b9	Nona maior; nona aumentada; nona menor
#11 ou 11 ⁺	Décima-primeira aumentada
#12 ou 12 ⁺	Décima-segunda aumentada
13; b13	Décima-terceira maior; décima-terceira menor
sus; sus ⁴ ; sus ²	4ª substituindo a 3ª; 4ª substituindo a 3ª; 2ª substituindo a 3ª
add ⁹	Acréscimo de nona maior

Exercício 14: escreva as cifras populares dos acordes abaixo.

The image displays a musical staff with a treble clef, containing ten chords numbered 2 through 10. The chords are written as follows:

- 2: C major triad (C4, E4, G4)
- 3: D minor triad (D4, F4, A3)
- 4: E major triad (E4, G4, B4)
- 5: F major triad (F4, A4, C5)
- 6: G major triad (G4, B4, D5)
- 7: A major triad (A4, C5, E5)
- 8: B major triad (B4, D5, F5)
- 9: C major triad (C5, E5, G5)
- 10: D major triad (D5, F5, A5)

Ex. 14 gabarito

Chord progression for Ex. 14 gabarito:

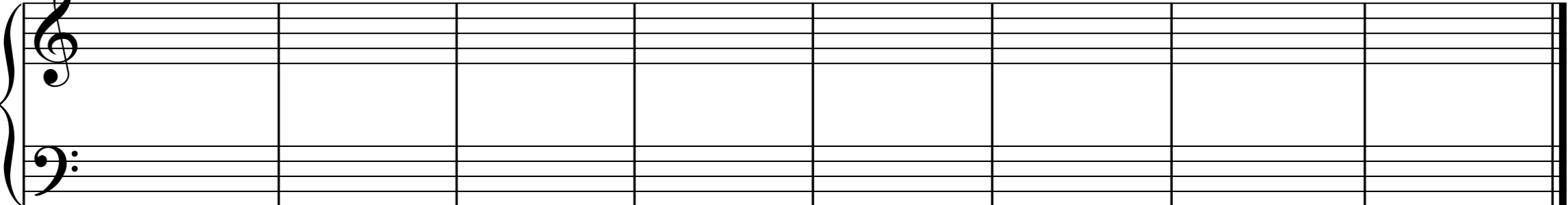
1. Dm⁷ 2. C⁷/E 3. Fm^(maj7)/A^b 4. G[#]° 5. F[#]7(b13) 6. G⁷([#]11) 7. Am/G[#] 8. D[#]° ou D[#]m⁷(b5) 9. C^{maj7} 10. B⁷(add9)

The musical notation shows the following chords on a treble clef staff:

- 1. Dm⁷: D, F, A, C
- 2. C⁷/E: E, G, B^b, F
- 3. Fm^(maj7)/A^b: A^b, B^b, D, F
- 4. G[#]°: G[#], B, D
- 5. F[#]7(b13): F[#], A, B, D
- 6. G⁷([#]11): G, A, B, D
- 7. Am/G[#]: G[#], A, B, D
- 8. D[#]° ou D[#]m⁷(b5): D[#], F[#], A, B
- 9. C^{maj7}: C, E, G, B
- 10. B⁷(add9): B, D, F, A

Exercício 15 – escreva na pauta os seguintes acordes cifrados

$G\flat\text{maj}7$ $G^7(\text{add}13)$ $C^7(\text{add}9)$ $F\text{maj}7$ $A\text{m}^6$ $D^7(\sharp 9)$ $B\flat\text{m}^7$ $A^7(\text{sus}4)$



The image shows a musical staff with a grand staff (treble and bass clefs) and eight empty measures for writing chords. The chords are listed above the staff: $G\flat\text{maj}7$, $G^7(\text{add}13)$, $C^7(\text{add}9)$, $F\text{maj}7$, $A\text{m}^6$, $D^7(\sharp 9)$, $B\flat\text{m}^7$, and $A^7(\text{sus}4)$.

Ex. 15 gabarito

Chord progression for Ex. 15 gabarito:

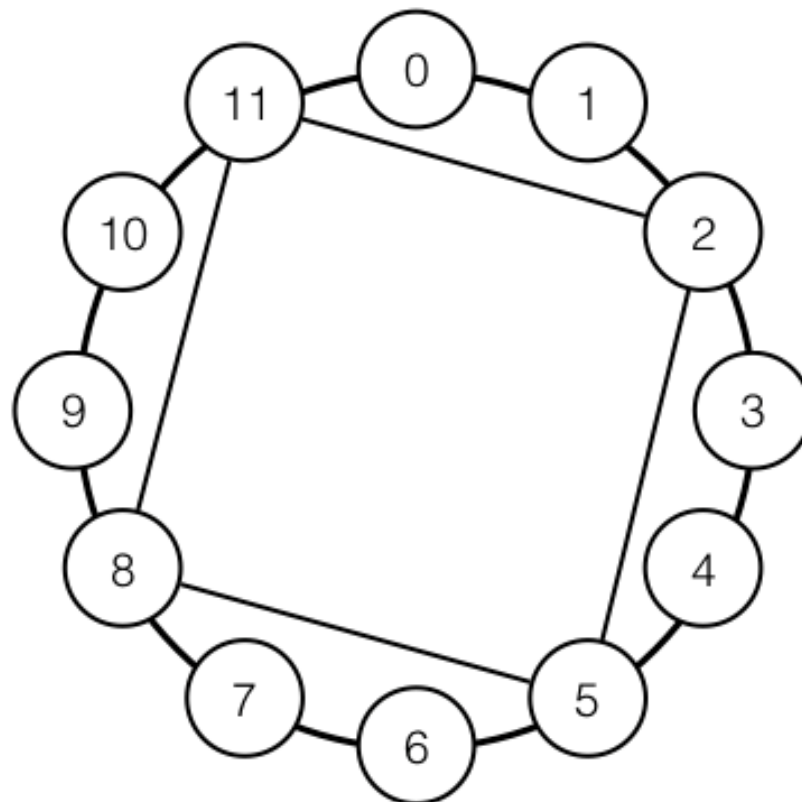
Chords: $G\flat\text{maj}7$, $G^7(\text{add}13)$, $C^7(\text{add}9)$, $F\text{maj}7$, $A\text{m}^6$, $D^7(\sharp 9)$, $B\flat\text{m}^7$, $A^7(\text{sus}4)$

The musical notation is written on a grand staff (treble and bass clefs). The key signature is two flats (B-flat major). The chords are arranged in a sequence of eight measures, each containing a single chord. The chords are: $G\flat\text{maj}7$, $G^7(\text{add}13)$, $C^7(\text{add}9)$, $F\text{maj}7$, $A\text{m}^6$, $D^7(\sharp 9)$, $B\flat\text{m}^7$, and $A^7(\text{sus}4)$.

AULA 5

Tétrade
diminuta:
simetria

B[°], D[°], F[°], G^{♯°}



Simetria da tétrade diminuta: inversões e enarmonia

The diagram illustrates the symmetry of the diminished tetrad (B[°]) through its inversions and enharmonic equivalents. It is presented on a single musical staff with a treble clef and a key signature of one flat (B-flat).

The sequence of chords and their enharmonic equivalents is as follows:

- B[°]**: The root position diminished tetrad (B[°], D[°], F[°], A[°]).
- B[°]/D**: The first inversion of B[°] (B[°], D[°], F[°], A[°]).
- D[°]**: The second inversion of B[°] (B[°], D[°], F[°], A[°]).
- D[°]/F**: The first inversion of D[°] (B[°], D[°], F[°], A[°]).
- F[°]**: The second inversion of D[°] (B[°], D[°], F[°], A[°]).
- F[°]/A^b**: The first inversion of F[°] (B[°], D[°], F[°], A[°]).
- G^{#°}**: The second inversion of F[°] (B[°], D[°], F[°], A[°]).

Enharmonic relationships are indicated by dashed arrows and the word "enarmonia" below the staff:

- A dashed arrow points from **B[°]/D** to **D[°]**, labeled "enarmonia".
- A dashed arrow points from **D[°]/F** to **F[°]**, labeled "enarmonia".
- A dashed arrow points from **F[°]/A^b** to **G^{#°}**, labeled "enarmonia".

Resoluções regulares do acorde de sétima diminuta

Diminutos	Resoluções	Resoluções
B [°]	C	Cm
D [°]	E ^b	E ^b m
F [°]	G ^b	G ^b m
G [#] [°]	A	Am
C [°]	D ^b	D ^b m
D [#] [°]	E	Em
F [#] [°]	G	Gm
A [°]	B ^b	B ^b m
C [#] [°]	D	Dm
E [°]	F	Fm
G [°]	A ^b	A ^b m
A [#] [°]	B	Bm

Diminuto por som comum, ou “auxiliar”, definições de PISTON, KOSTKA e OTTMAN

The image displays four chords on a single treble clef staff, separated by a double bar line. Each chord is represented by a vertical line with a chord symbol above and a Roman numeral below. The first chord is D#°, labeled +II⁷ below, with notes D#4, F#4, and A#4. The second chord is C/E, labeled I⁶ below, with notes C4, E4, and G4. The third chord is A#°, labeled +VI⁷ below, with notes A#4, C#5, and E5. The fourth chord is G⁷/B, labeled V₅⁶ below, with notes G4, B4, D5, and F#5. The staff ends with a double bar line.

Chord Symbol	Roman Numeral	Notes
D#°	+II ⁷	D#4, F#4, A#4
C/E	I ⁶	C4, E4, G4
A#°	+VI ⁷	A#4, C#5, E5
G⁷/B	V ₅ ⁶	G4, B4, D5, F#5

Exemplo 3 – Mozart, Sonata KV. 545, II, c. 3-4.

3 C/G A#° 4 G

IV⁶₄ ct^{°7} I

S ct^{°7} T

5

Exemplo 4 – Fanny Hensel, *Canção sem palavras*, Op. 2, nº 1, c. 5-7

Exemplo 5 – “Eu sei que vou te amar” (Jobim/Moraes)

1 C^{maj7} 2 E_b° 3 Dm^7

Eu sei que vou te a-mar por to-da mi-nha vi-da eu vou te a-mar

I $ct^\circ 7$ ii Sr

Exemplo 6 – “Wave” (Jobim)

The image displays a musical score for the song "Wave" by Jobim. It features a vocal melody and a piano accompaniment in 4/4 time, with a key signature of two sharps (F# and C#).

Vocal Part:

- Measure 1: D^{maj7} 1. Lyrics: "Vou te con - tar".
- Measure 2: Bb° 2. Lyrics: "os".
- Measure 3: Am^7 3. Lyrics: "o-lhos já não po-dem ver".

Piano Part:

- Measure 1: Treble clef has a whole rest; Bass clef has a whole note D. Chord symbol: I .
- Measure 2: Treble clef has a half-note chord (F#4, A4) and a half-note chord (Bb4, C#5); Bass clef has a half-note chord (Bb3, D4) and a half-note chord (F#3, A3). Chord symbol: $ct^{\circ 7}$.
- Measure 3: Treble clef has a half-note chord (F#4, A4) and a half-note chord (Bb4, C#5); Bass clef has a half-note chord (Bb3, D4) and a half-note chord (F#3, A3). Chord symbol: v .
- Measure 4: Treble clef has a half-note chord (F#4, A4) and a half-note chord (Bb4, C#5); Bass clef has a half-note chord (Bb3, D4) and a half-note chord (F#3, A3). Chord symbol: d .

Resoluções regulares e irregulares dos acorde diminutos

	Resoluções regulares		Resoluções irregulares		
Diminutos	vii°		ct°		
B°	C	Cm	Ab	Ab ⁷	A#m ⁷
D°	Eb	Ebm	B	B ⁷	C#m ⁷
F°	Gb	Gbm	D	D ⁷	Em ⁷
G#°	A	Am	F	F ⁷	Gm ⁷
C°	Db	Dbm	A	A ⁷	Bm ⁷
D#°	E	Em	C	C ⁷	Dm ⁷
F#°	G	Gm	Eb	Eb ⁷	Fm ⁷
A°	Bb	Bbm	F#	F# ⁷	G#m ⁷
C#°	D	Dm	Bb	Bb ⁷	Cm ⁷
E°	F	Fm	C#	C# ⁷	Ebm ⁷
G°	Ab	Abm	E	E ⁷	F#m ⁷
A#°	B	Bm	G	G ⁷	Am ⁷

Exercício 16 – identifique os acordes com cifras populares; escreva os diminutos auxiliaries (por som comum) antes de cada acorde.

The musical score consists of two systems of piano accompaniment, each with five measures. The notes are written in a grand staff (treble and bass clefs). Fingerings are indicated by numbers 2, 3, 4, and 5 above the notes in the first system, and 6, 7, 8, 9, and 10 above the notes in the second system. The chords are as follows:

Measure	Chord
1	F#m (F#2, A2, C#3)
2	Bbm (Bb2, D3, F3)
3	Cm (C2, Eb2, G2)
4	F#m (F#2, A2, C#3)
5	Bbm (Bb2, D3, F3)
6	F#m (F#2, A2, C#3)
7	Bbm (Bb2, D3, F3)
8	Cm (C2, Eb2, G2)
9	F#m (F#2, A2, C#3)
10	Bbm (Bb2, D3, F3)

Ex. 16 gabarito

Musical score for Ex. 16 gabarito, showing 10 measures of piano accompaniment. The score is written for piano (p) and features a treble and bass clef. The chords and notes are as follows:

Measure	Chord	Treble Clef Notes	Bass Clef Notes
1	F#°	F#4, A4	F#2, A2
2	E♭	E♭4, G♭4	E♭2, G♭2
3	E°	E4, G4	E2, G2
4	Cm7	C4, E♭4, G4, B♭4	C2, E♭2, G2, B♭2
5	G#°	G#4, B4	G#2, B2
6	F	F4, A4	F2, A2
7	F#°	F#4, A4	F#2, A2
8	G#m7	G#4, B4, D5, F#5	G#2, B2, D3, F#3
9	A°	A4, C5	A2, C3
10	Dm7	D4, F4, A4, B4	D2, F2, A2, B2
11	C#°	C#4, E4	C#2, E2
12	B♭7	B♭4, D5, F5, A5	B♭2, D3, F3, A3
13	G#°	G#4, B4	G#2, B2
14	C#m7	C#4, E4, G4, B4	C#2, E2, G2, B2
15	A°	A4, C5	A2, C3
16	Fm7/A♭	F4, A♭4, C5, E♭5	F2, A♭2, C3, E♭3
17	D°	D4, F4	D2, F2
18	B7/D#	B4, D5, F#5, A5	B2, D3, F#3, A3
19	E°	E4, G4	E2, G2
20	D♭7/F	D♭4, F4, A♭4, B♭4	D♭2, F2, A♭2, B♭2

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