

PHILIPP REHM

# BASS MATRIX

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**BASS MATRIX** is also present on the internet:  
[www.bassmatrix.org](http://www.bassmatrix.org)  
 Here you can find additional material, exciting information, videos, playbacks and links, as well as a blog dedicated to the topic of the book. Feel free to explore!  
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# Intro | Basslines and Groupings

As bass players, we have a bunch of ways to add flavor to the music, since basslines are a magical blend of *rhythm, harmony and melody*.

**Rhythm:** Teaming up with the drummer, we're the rhythmic backbone of the band – or in other words, the groove foundation that everyone else builds on and plays to.

**Harmony:** Alongside with guitarists and keyboardists, we lay down the **harmonic foundation** that melodies and solos refer to.

**Melody:** Every bassline has its own melodic game going on. From solid root notes to swift runs in major or minor pentatonic scales, whether it's straightforward or bouncy, maintaining clarity and simplicity or bursting with notes, whether it's regular octaves or fifths... there's an array of ingredients ready for you to shape the vibe of a bassline.

In this book, **BASS MATRIX**, we're diving into all these fascinating stylistic elements. With a hands-on approach and hundreds of groove examples inspired by well-known original songs, we keep coming back to these questions: *What's the secret behind this bassline? Why does this riff stick in your mind? Why does the bass play this line to that drum beat? And how can you take away something from it for your own bass adventures, to craft your own bass parts?*

Whether you're a seasoned pro or a newcomer to reading sheet music, you can make the most out of this book. Because the examples are laid out in a **clear grid format**, inspired by **sequencer and drum machine programs**. Just like there, you can see precisely where each note is placed and how long it's meant to sound. Additional markings below indicate the pulse that you can follow with your foot. The notes are represented as letters, which are summarized in the pitch guide on *page 10*.

An important goal of my book is to make your playing more stable and clear. Plus, I want to give your creativity a boost. To achieve this, we take a closer look at the **rhythmic foundation**. And there is an exciting approach hidden within: every rhythm is divided into groups (e.g., groups of 2, 3, or 4). Depending on the musical style, this sequence of groups ('grouping') is then filled with tones in various ways. Whether it's basslines, beats, or anything else – all over the world and in every time signature, this principle applies: *a division into groups as the foundation, and various tonal materials with which these groups are filled*.

Drummers are familiar with this **grouping concept**. However, I've discovered through my bass workshops, teaching, and even my own performance that it works brilliantly on the bass too. In the blink of an eye, students were suddenly able to play things they couldn't handle before. This grouping approach is the core of the **Bass Matrix** and it really steps up your game in these areas:

- 1. Inner clock & microtime:** *Your timing becomes more precise, your groove gets tighter. You develop a better sense of exactly where each note belongs within the grid.*
- 2. Musical-rhythmic understanding:** *Groupings provide structure to the bassline, allowing you to grasp the essence of the groove. You can feel the rhythmic building blocks and then shape and embellish them with notes.*
- 3. Creativity:** *the ability to spontaneously and independently develop your own basslines.*
- 4. Musical expression:** *Playing more independently means you intuitively grasp what the song requires and what stylistic elements your bassline needs. Just like in language, it's not only about singing memorized lyrics but also comprehending them. This is how you find your own 'words.'*
- 5. More versatility in your playing:** *What kinds of groupings exist? How can you spice up your repertoire with them? How do you craft your own groupings and unlock their potential? For example, you can expand or vary a bassline along the grouping by making it 'busier' or thinning it out. Or you can transfer the flavor of your bassline to a different groove scenario by modifying the grouping.*
- 6. Easier access to the so-called 'odd meters'** *Explore odd time signatures with greater ease.*

## Bass Matrix | Every rhythm is based on a grid

Every bassline and rhythm is underpinned by an even pulse, which is divided into smaller units called *subdivisions*. Think of them as the building blocks of the rhythm foundation. These can be quarter notes (4 units), eighth notes (8 units), or sixteenth notes (16 units). These subdivisions can be represented in a grid format, much like in sequencer programs. For instance:

Grid of 8	Grid of 16																								
<table border="1"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td> </tr> </table> <p><b>8 = eight steps in each section</b> which means eight eighths.</p>	1	2	3	4	5	6	7	8	<table border="1"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td> </tr> </table> <p><b>16 = sixteen steps in each section</b> which means sixteen sixteenths – so the grid is twice as dense.</p>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	2	3	4	5	6	7	8																		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16										

The same applies to all other time signatures such as a  $\frac{3}{4}$ ,  $\frac{6}{8}$  or  $\frac{12}{8}$  time:

Grid of 12												
<table border="1"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td> </tr> </table> <p><b>12 = twelve steps in each section:</b> which means twelve eighths.</p>	1	2	3	4	5	6	7	8	9	10	11	12
1	2	3	4	5	6	7	8	9	10	11	12	

This kind of presentation can also be found in sequencer software, drum computers – in fact, in any digital audio workstation (DAW) and even in drum apps on your smartphone. There, too, the rhythm is shown as a grid and divided into its individual units called *steps*. It is hard to imagine a more concrete, precise, and clear presentation of rhythm.

Depending on its duration, a note spans one or more steps in the grid:



The note durations are graphically notated in their true proportion. You can see note lengths and the rhythmic spacing at a glance and later easily recognize patterns. For this reason, I've chosen this representation for this book. Using this **Bass Matrix notation**, you can easily spot the groove, no matter how skilled you are at reading music.

Rhythm notation	Pitch notation		
<p>Individual notes are delineated with <i>thin lines</i>.</p>	<p>Letters indicate the notes. The tone pitch is differentiated by upper and lower case:</p>		
<p>Longer notes are shown with a <i>dashed line</i>.</p>	<table border="1"> <tr> <td>G E E</td> <td>upper case = lower notes</td> </tr> </table>	G E E	upper case = lower notes
G E E	upper case = lower notes		
<p>Rests are displayed as <i>white spaces</i>.</p>	<table border="1"> <tr> <td>e g#</td> <td>lower case = higher notes</td> </tr> </table>	e g#	lower case = higher notes
e g#	lower case = higher notes		

This kind of notation enables you to see where exactly the notes are located in the grid. Once you've internalized this rhythm grid and play *in sync* with it, your basslines sound *tight* and *straight*, sitting on the groove like a well-grounded sports car on the road. That's why I decided to use the **Bass Matrix presentation** in this book. Plus, you can easily recreate the riffs – and later the beats – in a sequencer if needed: Many folks make music with drum sequencers, but not everyone is into reading sheet music. With the **bass matrix notation** in grid form, it's a piece of cake!

8: 3 3 2



Slow R'n'B in the style of *Tyrone* (Erykah Badu)

The musical notation shows a bass line with a treble clef and a 4/4 time signature. The melody consists of eighth and quarter notes. Below the staff is a fretboard diagram with fingerings (2, 2, 3, 0, 3, 7, 7, 3, 7, 7, 2, 4, 4, 6, 2, 7, 7, 2, 7, 7). Below the fretboard is a Bass Matrix grid with the following notes: e, B, G, E, C, C, B, f#, b, c#, B, B.

Always listen to the respective audio example first before you venture to play it on the bass yourself!

### Bass Matrix: Tone pitch

In the Bass Matrix, the notes are represented in octaves starting from the low E string:

- **Bass octave 1 = Capital letters:**  
From low E (open E string) up to D# resp. Eb (1st fret on D string resp. 6th fret on A string)
- **Bass octave 2 = Lower case letters:**  
From middle e (2nd fret on D string resp. 7th fret on A string) up to middle d# resp. eb (8th fret on G string)
- **Bass octave 3 = Lower case letters with superscript dot:**  
From high e (9th fret on G string) up to high d# resp. eb (20th fret on G string)

Here is the overview of the note names over the three octaves (see also TONE NAVIGATOR on page 291):

Overview: Note names

Bass octave 1	E	F	F# Gb	G	G# Ab	A	A# Bb	B	C	C# Db	D	D# Eb
Bass octave 2	e	f	f# gb	g	g# ab	a	a# bb	b	c	c# db	d	d# eb
Bass Octave 3	é	f	f# gb	g	g# ab	à	a# bb	b	ç	c# db	d	d# eb

Double Stops, where two notes are played simultaneously, are layered in the Bass Matrix too:

8: 3 3 2



Melodic Post Punk in the style of *Love Will Tear Us Apart* (Joy Division)

The musical notation shows a bass line with a treble clef and a 4/4 time signature. The melody consists of eighth and quarter notes. Below the staff is a fretboard diagram with fingerings (7, 5, 7, 5, 7, 5, 11, 0, 9, 0, 11, 0, 12, 0, 11, 0, 0, 9, 9, 9, 11, 9, 9, 9, 7, 6, 7, 7, 9, 7, 7, 6). Below the fretboard is a Bass Matrix grid with the following notes: d, g, d, g, d, g, f#, D, e, D, f#, D, g, D, f#, D, b, b, b, f#, b, b, d, b, c#, a, a, é, a, a, c#.

# Toolbox 1 | Grooves using 16-groupings

Now, let's groove through some of the most commonly used 16th subdivisions with **Toolbox 1**, so you'll have them equally locked in. You'll encounter some familiar bassline examples here as well. Follow the same approach as with the 8th groupings: Start each new grouping by counting and clapping. Then, go through the individual Toolbox presets. Besides grooving through each preset, also focus on developing your own ideas and jotting them down immediately!

## 16-groupings

16: 4 2 4 2 4

025

Getting into the groove

1 2 3 4 1 2 1 2 3 4 1 2 1 2 3 4  
 ta ka di mi ta ka ta ka di mi ta ka ta ka di mi

1. F# F# F# E F# E F# F# F# E F# E F# F# F# E

2. F# E E F# F# E E F# F# E E

3. E E E E E E E E E E E E

4. E E E E E E

5. E E E E E E

6. E G A B D

Your basslines

... ..

... ..

Pre-exercise for Roving

E G A A D

Roving

in the style of *Ramble On* (Led Zeppelin)

026

E G A A B D A B D

Pre-exercise for Motown-Bassline

A G A A E

Motown-Bassline

A G A A E G A G

With **Toolbox 2**, our bass vocabulary has expanded, enriched with some delightful groove details. And so, our journey through the world of bass riffs continues! With these presets, we'll groove our way through some familiar groupings again.

**8: 3 3 2**  **073**

**Getting into the Groove**

1	2	3	1	2	3	1	2
ta	ki	ta	ta	ki	ta	ta	ka

1. 

2. 

3. 

4. 

5. 

6. 

**Jigging on Dane's Crown**  
in the style of *Diggin' On James Brown* (Tower of Power)





**16: 3 3 2 4 4**  **074**

**Getting into the Groove**

1	2	3	1	2	3	1	2	1	2	3	4	1	2	3	4
ta	ki	ta	ta	ki	ta	ta	ka	ta	ka	di	mi	ta	ka	di	mi

1. 

2. 

3. 

4. 

5. 

6. 

**Soul Bassline**  
in the style of *Street Life* (The Crusaders)





**12/8 time**

Apart from shuffle and walking bass, there's a lot more to explore in this ternary rhythm. To discover what else you can create from **3 3 3 3**, let's go through the presets of **Toolbox 1** and **2**. If you're practicing with a metronome, switch to three subdivision clicks (*refer to page 23*).

**12: 3 3 3 3** 🔊 087

1 2 3	1 2 3	1 2 3	1 2 3
ta ki ta	ta ki ta	ta ki ta	ta ki ta

**Toolbox 1**

F#	F#	E																					
E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E				
E	E	E	E	E	E	E	E	E	E	E	E	E	G	A	B	E	E	E	E				
E	e	D	e	E	e	B	D	e	E	e	B	D	e	E	e	B	D	e	E	e	B	D	e

**Toolbox 2** 🔊 088

E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
E	E	E	E	E	E	E	E	E	E	E	E	E	E	A	B	D	D	B	D	e	E

**Pop Shuffle**

\*)

E	E	A	B	D	D	B	D	e	A	A	A	B	D	D	B	D	e
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

\*) This rhythm is quite intriguing. In shuffle patterns, you typically shuffle on the 1st and 3rd steps, unlike here, where it's on the 1st and 2nd steps. Such 12-grooves are often found in African music. They offer more variety, with additional pauses and intermediate tones. That's why the  $\frac{12}{8}$  notation comes in handy here.

# The Foundation | The kick/snare pattern

For us bassists, the starting point is always the **kick/snare pattern**, which is the sequence of kicks (bass drum) and snare drum strokes. Every drum beat is based on such a sequence of kick and snare strokes arranged across the individual groups, e.g.:

## Clear and Simple | 8: 2 2 2 2

Kick/snare pattern								
	↓		↓		↓		↓	
Grouping: 2 2 2 2								

Additional beat elements such as hi-hat or ride cymbals are added to these anchor points. They hold the beat together, provide flow and character, and mark the subdivisions. In doing so, either all steps are played through...

Kick/snare pattern								
Hi-hat	X	X	X	X	X	X	X	X

...or they are only suggested by individual strokes:

Kick/snare pattern								
Hi-hat		X		X		X		X

Kick/snare pattern								
Hi-hat	X		X	X	X	X	X	

This also establishes the feel. We've mentioned this before (→ p. 85):

There's the straight feel, where all steps are the same length, and there's the shuffle feel, where one step is always twice as long as the following one. There are also feels in between (kind of 'half-shuffled').

Straight interpretation								
	X	X	X	X	X	X	X	X

Half-shuffled								
	X	X	X	X	X	X	X	X

Completely shuffled								
	X	X	X	X	X	X	X	X

Shuffle factor ↓

**4 4 4 4** is THE foundation for any kind of dance music, from 1970s disco to EDM genres and modern disco styles. And here, too, the bass has a wide range of possibilities:

**Slick & Super Straight: 'Dance 120+' 221**

Continuous eighth notes:  
Disco in the style of 'I Feel Love' (Donna Summer)

A	A	g	a	A	A	g	a
---	---	---	---	---	---	---	---

4x

Fairly straight and with sustained and long tones:  
Electronic Dance in the style of 'This Girl' (Kungs vs Cookin' on 3 Burners)

A				D	e	g	e	G
(G)				x	E	F#	G	E

4x

Different grouping and little bass action:  
House in the style of 'Music Sounds Better With You' (Stardust)

E		E		F				
---	--	---	--	---	--	--	--	--

4x

Various groupings, intermediate tones, and octaves in the bass:  
French House in the style of 'Intro' (Alan Braxe & Fred Falke)

F			F		F			f	f
		F		F		F			E
G		g		E	G	g	G#	g#	
A		a		A	D	D#	e	E	

2x

Energetic octave bassline with single and double octaves:  
Nu Disco: 'Canned Heat' (Jamiroquai)

A		a		F	G	g	g		E
F		f	f	x	F	C	c	D	d

4x

Okay, let's leave the dancefloor and slow things down a few BPM – but still keep it slick and super straight in **4 4 4 4** kick/snare/kick/snare.

**Slick & Super Straight: 'Slow' 222**

Some intermediate tones and plenty of air:  
R'n'B in the style of 'Inner City Blues' (Marvin Gaye) featuring Bob Babbitt on bass who is - besides James Jamerson - one of THE Motown bass players.

E	E	d	e		g				E	
A	G	A	B		E		E	A	B	D

4x

A lot of movement in each group:  
Rap Metal in the style of 'Killing in the Name of' (Rage Against the Machine)

E		E	B	D	e	g	e	E	G	A	G
---	--	---	---	---	---	---	---	---	---	---	---

4x

Bass action using dead notes:  
Rap Rock in the style of 'Demagogue' (Urban Dance Squad)

E		x	x	G	E		x	E		E		x	G
---	--	---	---	---	---	--	---	---	--	---	--	---	---

4x

Alright, after these brisk tempos, let's cool things down to 80 bpm and get funkier again with the following grouping:

## The Cliffhanger | 16: 4 3 2 3 4

### Kick/snare check

--	--	--	--	--	--	--	--	--

### Kick/snare initial pattern 1



#### 1. Bass initial pattern

2x	C#			e	e	B	e		
	B			F#	F#	E	F#		

#### 2. Varying note durations: Funk Rock in the style of 'Harder to Breathe' (Maroon 5)

2x	C#			e	e	B	e		
	B			F#	F#	E	F#		

#### 3a. Add more bass tones

2x	C#			e	e	B	e		
	B			F#	F#	E	F#	E	F#

#### 3b. Even more bass tones: Afro Funk in the style of 'Telephone Girl' (Assagai)

2x	C#			g#	b	b	g#	b	c#
	C#	x	e	f#	F#	F#	E	F#	E

#### 4a. Bring in the calm: Rests

2x	C#			e	e				
	B			F#	F#				

#### 4b. Sustained notes: R'n'B in the style of 'I Can Change' (John Legend feat. Snoop Dog)

2x	G#	G#	A						
	G#	G#	C#		C#	f#	g#	f#	e

#### 5. Create clarity: straighter grouping

2x	E	E	E	E	E	E	E	E	E
	F#								

#### 6. Amp up the motion: R'n'B in the style of 'Used to Love' (John Legend) | Different grouping 4 3 3 2 4 - 3 2 3 3 2 3

4x	E	E	E	E	B	D	B	e		D	B
	G	G	D	D	E	A	A	e	e		

**3 3 2 patterns in Afro-Cuban / Salsa**  **251**

Mambo, Tumbao with an intermediate tone

										
C		g		c				g	C	
(C)		G		Bb			F	F	C	

4x

Songo (modern Salsa groove), bass tumbao is often expanded and embellished. Variation 4 4

												
C		g		bb	c		bb	c		C		
(C)		G		Bb	c		bb	f		C		

4x

Conga de Comparsa: Here with a straight, modern Tumbao over a half-bar chord progression:

x		x		x	x		x		x	x		x		x	
(C)			f			g					G				C

8x

Guaguanco: Here, the melody of the Tumbaos runs along the toms

x		x		x	x	FT	x	x	T1	x	T1	x	x	FT	x
(C)			g			bb			c		c			Bb	
(Bb)			Bb			f			g		g			C	

4x

Bomba (Puerto Rico): Tumbao with variations

													
(C)			f			g			G				C
(C)	c		f			g			g		D	G	C

4x

x = hi-hat FT = floor tom (rack tom) T1 = high tom 1 T2 = high tom 2

**3 3 2** also appears in a different context. For example, in the snare on top of a regular 4-beat kick drum:

**Four-on-the-floor Kick | 3 3 2 on top** Music by Philipp Rehm  **252**

						
---	--	---	--	---	--	---

Soca (an evolution of Calypso, originating from Trinidad & Tobago): bass plays here: 4 3 2 3 4 and 4 3 3 2 4.

									
D	D		f#		f#		f#	D	a
G	G		A		x	A	B	A	A

2x

Zouk (French Antilles) / Makossa (Afrobeats)

										
	D	D	A	B		D	D	e	A	G
	G			G	A	A		e	a	

2x

Mozambique (Cuba): Steve Gadd's drum set adaptation: bass first half always straight, second half also 3 3 2 Tumbao influence

FT		T1		T2		T1		T2		T1
D		A		B		D		f#		D
G		G		B		A		B		D

2x

# Bass & Drum Grooves using 10-groupings

On our **Toolbox 3 groove cruise**, we're once again entering the odd-meter zone where the groove gravitations become increasingly diverse. We'll kick things off with *10-groupings* – or in the classic categorizaion  $\frac{5}{4}$  or  $\frac{5}{8}$ . The most common 10-grouping is **10: 3 3 4**.

## 10: 3 3 4

**Kick/snare check**

--	--	--	--	--	--	--	--

**10: 3 3 4** **300**

1. Initial pattern

E		E				E	E		

2x

2. Varying note durations

E		E				E		E	

2x

3a. Add more bass tones

E		E				A		A		B	D	e

2x

3b. More bass tones, all groups, with a wide feel: in the style of 'Geometric Headdress' (Deftones)

e		e		e	B	e		e		D	e	B

2x

4a. Bring in the calm: Rests

a	a	e	A			G	E	G	A				e

2x

4b. Sustained notes:

G		A								G		E

2x

5. Create clarity: Straighten: 2 2 2 2 2

e	e	e	e	e	D	e	e	e	e	D	B

2x

6. Amping up the motion: Different grouping in the 2nd bar: 3 2 2 3

A		A				e	g		g		a	x

2x

**7. Different kick/snare intermediate strokes / 8. Other kick/snare sequences** **301**

In the style of 'Take 5' (shuffled)

C		g	G	

4x

In the style of 'Beyond This Life' (Dream Theater)

C	C	g	G

4x

In the style of 'Seven Days' (Sting)

C		g	

4x

In the style of 'Four Sticks' (Led Zeppelin)

HT* LT*	HT	LT	HT LT
G			D f
g	g D G		F

4x

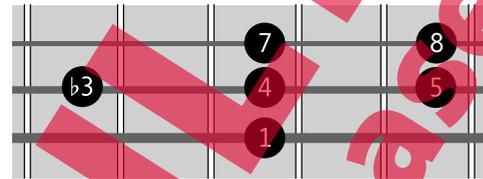
\* HT: high tom; LT: low tom

## Sound 5: Minor pentatonic scale over one octave

The **Box 3** fingering starts from the root like **Box 2** and then continues upwards to cover all the notes of the minor pentatonic scale, spanning one full octave.

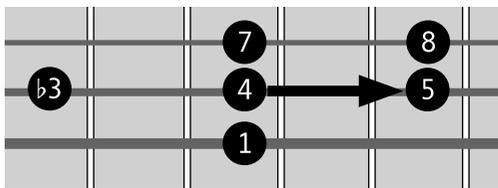
### Box 3

suitable for minor chords (e.g. Cm)  
dominant<sup>7</sup> blues chords (e.g. C<sup>7</sup>)



① = root (pinky finger)

### Fingering suggestion (position change):

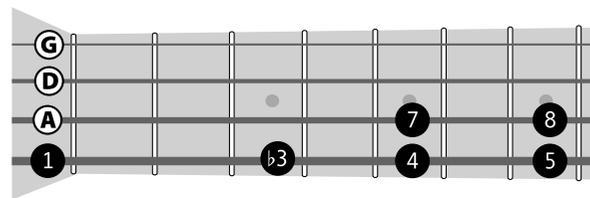


Identify the notes of the following bassline within the fretboard chart and then play it over the chord progression. Note the different fingering for E.

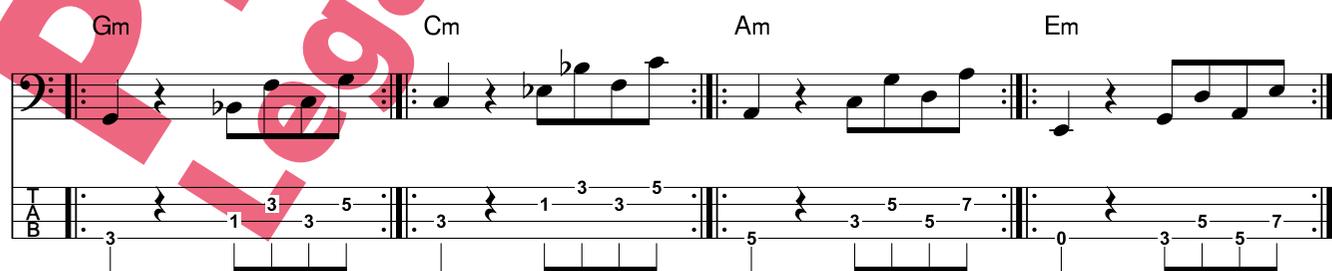
### Blues Funk | 8: 4 2 2



### Em: Different fingering



In standard notation, the result looks like this:





In the audio examples, you'll hear bassline and bassline with fill alternating. If necessary, work the fills through from the last step forward. Once you've got the hang of them, gradually increase the amount of repetitions: include the fills every fourth, eighth, and eventually, every sixteenth time through.

### 10-groupings

**10: 3 3 4**  **417**  
**5/8 bassline (16th basis)**  
 in the style of 'Seven Days' (Sting)

1		1		5	5	5	5
<b>Fill 1</b>							
1		1		4	5	7	8
<b>Fill 2</b>							
1		1	b5	4	b3	8	7 5
<b>Fill 3</b>							
1		7	8	7	4	b5	5
<b>Fill 4</b>							
1		x	b3		4	b5	5 7 8

**10: 5 5**  **418**  
**Quintuplets (see Toolbox 3, page 176 'Traveler' by PLUQ)**

1		1		.7	1		1		.7	1		1		5	.7	1		.7
<b>Fill 1</b>																		
1		1		.7	1		1		.7	1		1		.7	1		4	5 7 8
<b>Fill 2</b>																		
1		1		.7	1		1		.7	1		1		b5	4	b3	8	7 5
<b>Fill 3</b>																		
1		1		.7	1		1		.7	1		7		8	7	4	b5	5
<b>Fill 4</b>																		
1		1		.7	1		x	b3		4		x	b5		x	5	7 8	

### 14-groupings

**14: 4 4 3 3**  **419**

1		1				x	1		x	b3		x	
<b>Fill 1</b>													
1		1				x	1		4	5	7	8	
<b>Fill 2</b>													
1		1				x	b5	4	b3	8	7	5	
<b>Fill 3</b>													
1		1				x	7	8	7	4	b5	5	
<b>Fill 4</b>													
1		x	b3		x	4		x	b5		5	7	8

**Septuplets 7: 3 4**  **420**  
 (see Toolbox 2, page 95 'Funk Essential in septuplets')

1						1		5	1	.5				.5
<b>Fill 1</b>														
1						1		5	1	.5	4	5	7	8
<b>Fill 2</b>														
1						1		b5	4	b3	8	7	5	
<b>Fill 3</b>														
1						1		7	8	7	4	5	5	
<b>Fill 4</b>														
1		x	b3		x	x		4		b5	5	7	8	

Let's kick things off with one of my funk favorites, the **FUNK ESSENTIAL** (see pages 46/47). Below the matrix, we examine the riff and break it down to its fundamental elements. Beneath that, you'll find the transfer to other groupings, allowing you to observe how these components are placed in **7, 9, 10**, and so on. This involves trimming rests and occasionally omitting, shifting, or adding intermediate tones. In the audio track 430, we'll go through all the groupings one by one. With each, you'll hear the matching click twice followed by two rounds of the bassline.

**Funk Essential | 16: 4 4 4 4: Transformation**



The image shows the musical notation for the Funk Essential riff. The top staff is a treble clef with a key signature of one flat (Bb) and a 4/4 time signature. The riff consists of two measures of eighth notes: G4 (quarter), A4 (quarter), Bb4 (quarter), A4 (quarter), G4 (quarter), F4 (quarter), E4 (quarter), D4 (quarter). The bottom staff is a bass clef with a 4/4 time signature, showing the bassline with fret numbers: 5, 7, 5, 7, 5, 0, 7, 5, 0, 5, 5, 7, 7, 5, 7, 5, 0, 7, 5, 0.

**Bassline breakdown:**

Long 1 to start	pick-up note 1	'Funk Essential' 5 1 .5	pick-up note .5	Ascending over 1, 5, and 8, with intermediate tones	pick-up note 1	'Funk Essential' 5 1 .5	pick-up note .5
-----------------	----------------	-------------------------	-----------------	---	----------------	-------------------------	-----------------

**Transfer to different groupings:**

<b>7:3 4</b>	1	5 1 .5	1 1 5 8	5 1 .5
<b>9:3 2 4</b>	1	5 1 .5	1 1 5 8	5 1 .5
<b>10:5 2 3</b>	1	5 1 .5	1 1 5 8	5 1 .5
<b>11:3 2 2 4</b>	1	5 1 .5	1 1 5 8	5 1 .5
<b>12:3 3 2 4</b>	1	5 1 .5	1 1 5 8	5 1 .5
<b>13:3 2 3 2 3</b>	1	5 1 .5	1 1 5 8	5 1 .5
<b>14:2 3 3 2 4</b>	1	5 1 .5	1 1 5 8	5 1 .5

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