CHAPTER 2
DIGITAL PATTERNS AND SCALAR PATTERNS

Definitions

Digital Patterns (term originated with David Baker) are cells of notes, usually numbering 4-8 notes per cell, that are structured according to the numerical value of each note to the root of a chord or scale. That is, 1 would be the root, 2 is the second degree of the scale (or 9th of the chord), 3 is the third, and so on. Hence a digital pattern of 1-2-3-5 for a C major chord (or scale) would be C-D-E-G. Some of the most commonly used digital patterns are:

4-note cells	8-note cells
1-2-3-1	1-2-3-4-5-3-2-1
1-2-3-5	1-2-3-4-5-7-6-5
1-3-5-3	1-5-3-2-1-2-3-5

Of course there are many other possibilities, and improvisers often invent their own digital patterns. A beginning improviser, for example, might wish to use an even simpler 4-note cell, such as 1-2-1-2. All of the above examples can also be used in their retrograde (backward) form to good effect (i.e., 1-3-2-1 instead of 1-2-3-1, or 5-6-7-5-4-3-2-1 instead of 1-2-3-4-5-7-6-5). Many of the above examples also sound well when placed on another note of the chord, especially the fifth, as in 5-6-7-9, which is the same as 1-2-3-5 but placed on the fifth of the chord. All digital patterns may be altered to accommodate any needed scale/chord-type. For example, a 1-3-5-3 pattern can be adjusted to 1-b3-5-b3 to accommodate a minor chord. Generally speaking, digital patterns usually occur at one rhythmic level for the entire cell (as opposed to a mixture of rhythmic values), and that level is most often the eighth-note level. However, they will also appear, though less frequently, in mixed rhythmic values and at, say, the sixteenth-note level (double-time) or the quarter-note level (as in the walking bass line). In their most common usage, then, at the steady eighth-note level, a 4-note digital pattern would accommodate a chord duration of two beats, and an 8-note cell will accommodate a chord duration of four beats. Though digital patterns have been in use since the early days of jazz (probably at a relatively unconscious, instinctive level),the device was brought suddenly and sharply into notice by John Coltrane, whose brilliant solos on "Giant Steps" and "Countdown" made use of a number of digital patterns, each pattern occurring literally dozens of times. Although the solos are improvised, the nature of the tune progressions and tempos, both tunes being made up of quickly-modulating chords of short duration (mostly two-beat durations) at a very fast tempo, encouraged a more mechanistic approach, to say the least. Transcriptions of the solos quickly revealed the stunning number of digital patterns contained in them. Perhaps the greatest lesson we learned from examining Trane's efforts on those solos was not that a mechanistic approach was sensible, needed, or used, but that it revealed a portion of a master's practice habits. In other words, Coltrane practiced digital patterns apart from, preceding, and in preparation for tunes like "Giant Steps" and "Countdown"!

Scalar Patterns are simply patterns which are based on a single scale. They are usually longer than digital patterns, accommodating chords of long duration (two or more measures) or chord progressions that are made up of closely-related chords (i.e., II-V-I in major, in which the major scale of I is used to accommodate all 3 chords). Often such patterns are, or can be, continuous in nature. This author refers to continuous scalar patterns as non-terminal patterns in his other books. David Baker calls them perpetual motion patterns. Scalar patterns have been in existence for centuries, often appearing in classical compositions and in instrumental method books (scales in thirds, broken scales, etc.). Scalar patterns make use of all scale tones, on a more or less equal basis, as opposed to favoring fundamental chord tones in the fashion so prevalent in digital patterns.

Illustrations

4-NOTE DIGITAL PATTERNS
1-3-5-3 applied to the bebop turnaround progression

Alternating 5-3-2-1 and 1-2-3-5 over the first 4 measures
of "Countdown"

8-NOTE DIGITAL PATTERNS
1-2-3-4-5-7-6-5 applied to the first 4 measures of "All The Things You Are"

Alternating 1-5-3-2-1-2-3-5 and 1-2-3-4-5-3-2-1 over the first 4 measures of
"Moments Notice"

SCALAR PATTERNS

36. G⁺⁵⁷⁹ (whole-tone scale) etc.

37.⁴ C∆ (see footnote) etc.

Examples From Recorded Solos

DIGITAL PATTERNS
Paul Chambers, bass ("This Can't Be Love")

38. Eb∆

Chick Corea, piano ("What Was")

39. A∆   G#-7   A∆

Freddie Hubbard, trumpet ("Clarence's Place")

40. Eb⁷   (Ab)   (Db)

⁴ - Pattern 37 is a 3/4 over 4/4 pattern, based on the C major scale, but also utilizing chromatic, non-harmonic notes (indicated by "+"). This pattern starts as a descending one, but changes to an ascending direction in the 4th bar. The change of direction could have taken place earlier or later than the 4th bar. #37 is merely an illustration of the possibilities.

Hank Mobley, tenor saxophone ("This I Dig Of You")

41.

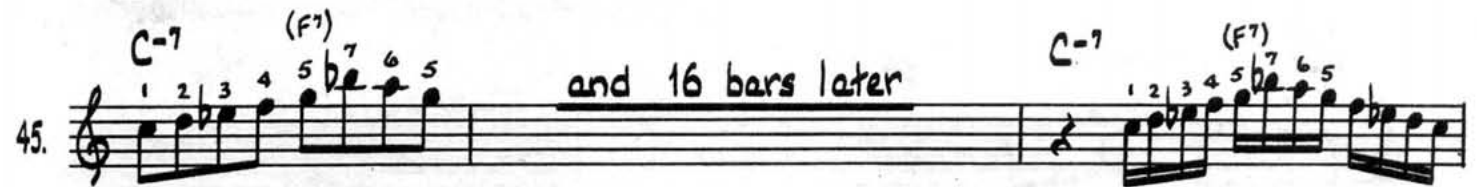Sonny Rollins, tenor saxophone ("Eternal Triangle")

42.

Fats Navarro, trumpet ("Ladybird II")

43.

Slide Hampton, trombone ("Moontrane")

44.

Fats Navarro, trumpet ("Ladybird I")

45.

and 16 bars later

Slide Hampton, trombone ("Confirmation")

46.

Lee Morgan, trumpet ("Ceora")

The author was extremely selective in regard to presenting examples of digital patterns, looking for variety and representation in personalities and instruments. Very often an example cited was merely one of many occurrences in the same solo, as well as only one solo by an individual who was/is prone to using the device in other, perhaps even all, of his solos. Since it is of vital importance that the reader comprehend the extent of the use of digital patterns by the jazz greats, so that he/she will simultaneously realize the importance of the study and acquisition of such patterns, let's examine the numbers and percentages on one significant solo by a highly-regarded performer:John Coltrane on "Giant Steps". Coltrane plays 13 solo choruses in all, each chorus being 16 measures in length. However, the figures presented here are based on the first 4 choruses only, which is sufficient for gleaning percentages. The digital pattern 'read-out' is as follows:

pattern	no. of occurrences
1-2-3-5	15
5-6-7-9 (same as 1-2-3-5, but built on 5th)	2
5-3-2-1	3
9-7-6-5 (same as 5-3-2-1, but starts on 9th)	3
5-6-7-5 (same as 1-2-3-1, but begins on 5th)	2
7-9-8(1)-7 (same as 1-3-2-1, but begins on 7th)	1
3-1-2-3	1
1-2-3-4-5-6-7-9	3
	sub-total 30 (16 1/2 measures)

Though a little awkward to show digitally, the following 8-note pattern occurs 2 times, adding 2 more measures to the above total:

The following 2-measure pattern occurs twice:

This brings the total number of measures that are taken up with digital patterns to 22 ½, which, when divided by 64 total measures (4 X 16), yields 35%! If we subtract the 5 ½ measures worth of rests (to take breaths) from the total number of measures, the figure becomes nearly 40%. Either figure should be enough to convince the reader. It is also interesting to note that much of the remaining 60-65% is taken up with change-running substance (chord arpeggiation and scale fragments) and material closely-resembling digital patterns.

SCALAR PATTERNS

McCoy Tyner, piano ("I'm So Excited By You")

Julian "Cannonball" Adderley, alto saxophone ("The Way You Look Tonight")

(earlier in same solo)

Jimmy Blanton, bass ("Sophisticated Lady")

Miles Davis, trumpet ("So What")

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George Benson, guitar ("Billie's Bounce")

53.

J.J. Johnson, trombone ("Out Of Nowhere")

54.

Art Farmer, trumpet ("Blue Bossa")

55.

Jim Hall, guitar ("You'd Be So Nice To Come Home To")

56.

J.J. Johnson, trombone ("I'll Remember April")

57.

John Coltrane, tenor saxophone ("Milestones")

56.

J.J. Johnson, trombone ("I'll Remember April")

Julian "Cannonball" Adderley, alto saxophone ("Milestones")

59.

J.J. Johnson, trombone ("Aquarius")

60.

Chick Corea, piano ("Windows")

61.

Clifford Brown, trumpet ("The Blues Walk")

62.

Michael Brecker, tenor saxophone ("What Is This Thing Called Love")

63.

Chick Corea, piano ("What Was")

64.

Michael Brecker, tenor saxophone ("Spidit")

Ways To Practice/Ingrain

Study and practice the illustrations (30-37) in all keys. Search for and/or invent more possibilities. Study, analyze and learn the examples from recorded solos (38-65), noticing the various ways the patterns are used (rhythmic variations, placing patterns on different notes of the scale or chord, metric shifts, polymetric variations, chromatic enhancement, series of same or similar patterns, different patterns woven together, accommodation of several successive chords with a single pattern, 'outside' or chromatic uses, etc.). As is the case with all items taken up in this book, practice the patterns in all keys, learn to alter them to fit different types of chords, play them with exercise tracks, and apply them to tunes.

Exercises
Digital Patterns

continue Track A

continue Track B

continue Tracks C and I⁵ (footnote)

continue Tracks D and J⁵ (footnote)

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5 - Play-along Tracks I and J use chord durations of 4 beats, so in order to use those tracks with Exercises 68, 69, 72 and 73, which are all 2-beat examples, the player will have to leave the 3rd and 4th beats of each measure vacant, counting two beats of rest.

70. $C^\triangle$ $Db^\triangle$ continue Track A

71. $C^\triangle$ $F^\triangle$ continue Track B

72. $C^{-\triangle}$ or C^{-7} $Db^{-\triangle}$ or Db^{-7} continue Tracks C and I [5] (footnote).

73. $C^{-\triangle}$ or C^{-7} $F^{-\triangle}$ or F^{-7} continue Tracks D and J [5] (footnote).

74. $C^\triangle$ Tracks E (chromatic) and F (cycle).

75. $C^{-\triangle}$ or C^{-7} Tracks G and I (chromatic), and H and J (cycle).

76. C^{-7} Tracks I (chromatic) and J (cycle).

77. C^7 C^7 Tracks U (chromatic) and V (cycle).