

Occam's Razor 2: 30 Families (NPPC#6)

for variable pitched instrumentation

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NOTES:

PITCH NOTATION

Modes are expressed on two table rows apiece.

The upper line shows the modes numerically displayed as tone-rows.

0 1 2 3 4 5 6 7 8 9 t(en) e(leven)

For example, a major scale (from tonic to octave) would be notated as follows:

0 2 4 5 7 9 e 0

The lower line shows the following symbols for the distance between intervals within a mode.

“-” is a minor second higher than the prior note.

“+” is a Major second higher than the prior note.

“▼” is a minor third higher than the prior note.

“▲” is a Major third higher than the prior note.

For example, a major scale (from tonic to octave) would be notated as follows:

++ - + + + -

Therefore, the combined lines for a major scale (from tonic to octave) would be notated as follows:

0 2 4 5 7 9 e 0

+ + - + + + -

These symbols are also shown above the family names to give a quick indication of which interval sizes appear in the families below.

Modes are notated ascending left to right (i.e. *0,2,4,5,7,9,e,0*) as two distinct tetrachords, with the lower portion orange and the upper portion turquoise.

The white column is the interval falling between the two tetrachords.

Black columns separate a mode from its inverted retrograde (a few modes are symmetrical and are shown opposite themselves anyway for notational consistency).

A set of modes is labeled as a “Family”; these are related modular series that have the same sort of relationship to each other as you may know from the traditional European (Church/Greek) modes (i.e. Dorian, Phrygian, Lydian, etc.), here designated as “Family o”. The numberings of modes as well as their Families and axes (see below) are arbitrary and shown for taxonomy purposes only; they should not be considered hierarchical or sequential.

Each page of the score (except for the Axes Page) has either one or two Families, depending on whether the inverted retrograde forms fall within the same Family or another. When the inverted retrograde falls in the same Family, mode 1 is completely symmetrical, meaning its intervals are identical if played in inverted retrograde.

THE AXIS PAGE

The Axes Page includes eight columns. Below each (arbitrary) Axis number is a cell containing one or two parenthetical statements (more on this below). Below the cells containing parenthetical statements are a list of Families (left of colon) and modes (right of colon) found in that Axis. To make the list more legible, each cell lists all modes within a given Family found in that Axis. For instance, Axis 3 contains “1:3,6” (modes 3 and 6 from Family 1), “2:2,3,6,7” (modes 2,3,6 and 7 from Family 2) and so forth.

The cells of parenthetical statements describe the pitches intervals which form the axes connecting their constituent modes. For instance, in Axis 1, “(5+7)” means that all of the modes below it revolve around an axis where the final pitch of the lower portion of the mode is 5, followed by a whole step “+” up to 7, the first pitch of the upper portion of the mode. Therefore on the previous pages, 5 would be orange, “+” white, and 7 turquoise. Axis 2 combines two related axes into one; “(6-7)(5-6)” means all modes below revolve around axes where the final pitch of the lower portion of the mode is either 5 or 6, followed by a half step “-” up to 6 or 7 respectively, the first pitches of the upper portion of the mode.

PERFORMANCE

Phrasing

Any selected mode should be played in its entirety before moving to another mode. Each mode should be phrased rhythmically and dynamically to accentuate the two tetrachords it comprises. Beyond this, rhythm and dynamics should be improvised, mostly falling between *mp* and *mf*. It is acceptable to sustain one note while playing another as desired (if possible).

Rhythm and Dynamics

These facets are largely “free” but are the principal means of shaping the tetrachords shaped into distinct units as well as delineating different modes. Dynamics should be mostly *mp* to *mf*.

Pitch and Form

The beginning Family, mode, and note (*0*) are to be determined by the performer. The performer is to select at least three Family pages of their choice for any given performance, though there is no upward limitation.

A “transposition” to a different pitch center (*0*) may take place between the end of one mode and the beginning of the next.

A transition to a different register may also take place between the end of one mode and the beginning of the next, even if there is not a “transposition” of pitch centers. A different register may also be sparingly selected between any intervals, as long as the selected registers do not subvert the audible integrity of the pitch sequence (the goal should not be to create a pointalistic use of register).

Modes may be played:

ascending (left to right, i.e. *0,2,4,5,7,9,e,0*);

descending (right to left, i.e. *0,e,9,7,5,4,2,0*)' or

ascending to the center (*0,2,4,5*) then skipping upward to the octave (of *0*) and descending back to center (*0,e,9,7*) [cumulatively expressed *0,2,4,5, 0, e, 9,7*].

Transitions between modes and Families can be made in the ways described below as long *as the modes are not truncated*.

There are four ways to transition between modes:

1. Moving up or down one number within a single family (i.e. moving within the same family from mode 4 to mode 3 or mode 5). Modes 1 and 7 should be considered similarly connected. Thus Mode 1 could move within its Family to mode 7 as well as to mode 2.
2. Moving sideways within a page to a mode's inverted retrograde form (which might or might be in a different Family, depending on the page).
3. Moving at will between any modes on the same Axis column on the Axes Page.
4. Moving at will to or from a “wildcard” mode (as listed on the Axes Page).

Additionally, after playing a “wildcard” mode (as shown on the Axes Page) the performer may transition to another NPPC piece. No other modes may be used for this purpose.

Transitions to **Occam's Razor 2: 30 Families (NPPC#6)** from another NPPC piece do not alter any of the notes above and the first mode played in such a transition does not need to be a “wildcard”.

+/-																																
Family 1																																
Mode 1	0	+	2	+	4	-	5	+	7	-	8	+	t	+	0	Family 1	Mode 1	0	+	2	+	4	-	5	+	7	-	8	+	t	+	0
		+		+		-		+		-		+		+				+		+		-		+		-		+		+		
Mode 2	0		2		3		5		6		8		t		0	Mode 7	0		2		4		6		7		9		t		0	
		+		-		+		-		+		+		+				+		+		+		-		+		-		+		
Mode 3	0		1		3		4		6		8		t		0	Mode 6	0		2		4		6		8		9		e		0	
		-		+		-		+		+		+		+				+		+		+		+		-		+		-		
Mode 4	0		2		3		5		7		9		e		0	Mode 5	0		1		3		5		7		9		t		0	
		+		-		+		+		+		+		-				-		+		+		+		+		-		+		
Mode 5	0		1		3		5		7		9		t		0	Mode 4	0		2		3		5		7		9		e		0	
		-		+		+		+		+		-		+				+		-		+		+		+		+		-		
Mode 6	0		2		4		6		8		9		e		0	Mode 3	0		1		3		4		6		8		t		0	
		+		+		+		+		-		+		-				-		+		-		+		+		+		+		
Mode 7	0		2		4		6		7		9		t		0	Mode 2	0		2		3		5		6		8		t		0	
		+		+		+		-		+		-		+				+		-		+		-		+		+		+		

+/-																												
Family 2																												
Mode 1	0	1	3	5		7	9	e	0	Family 2	0	1	3	5		7	9	e	0									
	-	+	+		+		+	+	-		-	+	+		+		+	+	-									
Mode 2	0	2	4	6		8	t	e	0	Mode 7	0	1	2	4		6	8	t	0									
	+	+	+		+		+	-	-		-	-	+		+		+	+	+									
Mode 3	0	2	4	6		8	9	t	0	Mode 6	0	2	3	4		6	8	t	0									
	+	+	+		+		-	-	+		+	-	-		+		+	+	+									
Mode 4	0	2	4	6		7	8	t	0	Mode 5	0	2	4	5		6	8	t	0									
	+	+	+		-		-	+	+		+	+	-		-		+	+	+									
Mode 5	0	2	4	5		6	8	t	0	Mode 4	0	2	4	6		7	8	t	0									
	+	+	-		-		+	+	+		+	+	+		-		-	+	+									
Mode 6	0	2	3	4		6	8	t	0	Mode 3	0	2	4	6		8	9	t	0									
	+	-	-		+		+	+	+		+	+	+		+		-	-	+									
Mode 7	0	1	2	4		6	8	t	0	Mode 2	0	2	4	6		8	t	e	0									
	-	-	+		+		+	+	+		+	+	+		+		+	-	-									

+/-▼																														
Family 3																														
Mode 1	0	2	3	4		7	9	e	0	Family 4																				
	+	-	-		▼	+	+	-		Mode 1	0	1	3	5		8	9	t	0	Mode 1	0	1	3	5		8	9	t	0	
Mode 2	0	1	2	5		7	9	t	0		-	+	+		▼	-	-	+		Mode 2	0	2	3	5		7	t	e	0	
	-	-	▼		+	+	-	+			+	-	+	+	+	▼	-	-			+	-	+	+	+	▼	-	-		
Mode 3	0	1	4	6		8	9	e	0	Mode 3	0	1	3	4		6	8	e	0	Mode 3	0	1	3	4		6	8	e	0	
	-	▼	+		+	-	+	-			-	+	-	+	+	+	+	▼	-			-	+	-	+	+	+	▼	-	
Mode 4	0	3	5	7		8	t	e	0	Mode 4	0	1	2	4		5	7	9	0	Mode 4	0	1	2	4		5	7	9	0	
	▼	+	+		-	+	-	-			-	-	+		-	+	+	+	▼			-	-	+		-	+	+	▼	
Mode 5	0	2	4	5		7	8	9	0	Mode 5	0	3	4	5		7	8	t	0	Mode 5	0	3	4	5		7	8	t	0	
	+	+	-		+	-	-	▼			▼	-	-		+	-	+	+			▼	-	-		+	-	+	+		
Mode 6	0	2	3	5		6	7	t	0	Mode 6	0	2	5	6		7	9	t	0	Mode 6	0	2	5	6		7	9	t	0	
	+	-	+		-	-	▼	+			+	▼	-		-	+	-	+			+	▼	-		-	+	-	+		
Mode 7	0	1	3	4		5	8	t	0	Mode 7	0	2	4	7		8	9	e	0	Mode 7	0	2	4	7		8	9	e	0	
	-	+	-		-	▼	+	+			+	+	▼		-	-	+	-			+	+	▼		-	-	+	-		

+/-▼																												
Family 5														Family 6														
Mode 1	0	2	3	4		7	9	t	0	Mode 1	0	2	3	5	8	9	t	0										
	+	-	-		▼	+	-	+			+	-	+		▼	-	-	+										
Mode 2	0	1	2	5		7	8	t	0	Mode 2	0	2	4	5	7	t	e	0										
	-	-	▼		+	-	+	+			+	+	-		+	▼	-	-										
Mode 3	0	1	4	6		7	9	e	0	Mode 3	0	1	3	5	6	8	e	0										
	-	▼	+		-	+	+	-			-	+	+		-	+	▼	-										
Mode 4	0	3	5	6		8	t	e	0	Mode 4	0	1	2	4	6	7	9	0										
	▼	+	-		+	+	-	-			-	-	+		+	-	+	▼										
Mode 5	0	2	3	5		7	8	9	0	Mode 5	0	3	4	5	7	9	t	0										
	+	-	+		+	-	-	▼			▼	-	-		+	+	-	+										
Mode 6	0	1	3	5		6	7	t	0	Mode 6	0	2	5	6	7	9	e	0										
	-	+	+		-	-	▼	+			+	▼	-		-	+	+	-										
Mode 7	0	2	4	5		6	9	e	0	Mode 7	0	1	3	6	7	8	t	0										
	+	+	-		-	▼	+	-			-	+	▼		-	-	+	+										

+/-▼																																		
Family 11															Family 12																			
Mode 1	0	2	3	5		8	9	e	0	Mode 1	0	1	3	4		7	9	t	0															
	+	-	+	▼			-	+	-		-	+	-	▼			+	-	+															
Mode 2	0	1	3	6		7	9	t	0	Mode 2	0	2	3	5		6	9	e	0															
	-	+	▼		-		+	-	+		+	-	+	-			▼	+	-															
Mode 3	0	2	5	6		8	9	e	0	Mode 3	0	1	3	4		6	7	t	0															
	+	▼	-	+			-	+	-		-	+	-	+			-	▼	+															
Mode 4	0	3	4	6		7	9	t	0	Mode 4	0	2	3	5		6	8	9	0															
	▼	-	+		-		+	-	+		+	-	+	-			+	-	▼															
Mode 5	0	1	3	4		6	7	9	0	Mode 5	0	3	5	6		8	9	e	0															
	-	+	-	+		+	-	+	▼		▼	+	-	+			-	+	-															
Mode 6	0	2	3	5		6	8	e	0	Mode 6	0	1	4	6		7	9	t	0															
	+	-	+		-		+	▼	-		-	▼	+	-			+	-	+															
Mode 7	0	1	3	4		6	9	t	0	Mode 7	0	2	3	6		8	9	e	0															
	-	+	-	+		+	▼	-	+		+	-	▼	+			-	+	-															

+/-▼																								
Family 15																								
Mode 1	0	1	2	4		7	8	t	0	Family 16														
	-	-	+	▼		-	+	+		Mode 1	0	2	4	5		8	t	e	0					
Mode 2	0	2	3	4		6	9	t	0	Mode 2	0	2	3	6		8	9	t	0					
	+	-	-	+		▼	-	+			+	-	▼	+		-	-	+						
Mode 3	0	2	4	5		6	8	e	0	Mode 3	0	1	4	6		7	8	t	0					
	+	+	-	-		+	▼	-			-	▼	+	-		-	-	+	+					
Mode 4	0	1	3	5		6	7	9	0	Mode 4	0	3	5	6		7	9	e	0					
	-	+	+	-		-	-	+	▼		▼	+	-	-		-	+	+	-					
Mode 5	0	3	4	6		8	9	t	0	Mode 5	0	2	3	4		6	8	9	0					
	▼	-	+	+		+	-	-	+		+	-	-	+		+	+	-	▼					
Mode 6	0	2	5	6		8	t	e	0	Mode 6	0	1	2	4		6	7	t	0					
	+	▼	-	+		+	+	-	-		-	-	+	+		+	-	▼	+					
Mode 7	0	1	3	6		7	9	e	0	Mode 7	0	1	3	5		6	9	e	0					
	-	+	▼	-		-	+	+	-		-	+	+	-		-	▼	+	-					

+/-▼																													
Family 19															Family 20														
Mode 1	0	1	2	4		7	9	e	0	Mode 1	0	1	3	5		8	t	e	0										
	-	-	+		▼		+	+	-		-	+	+		▼		+	-	-										
Mode 2	0	1	2	3		5	8	t	0	Mode 2	0	2	4	7		9	t	e	0										
	-	-	-		+		▼	+	+		+	+	▼		+		-	-	-										
Mode 3	0	2	3	4		5	7	t	0	Mode 3	0	2	5	7		8	9	t	0										
	+	-	-		-		+	▼	+		+	▼	+		-		-	-	+										
Mode 4	0	2	4	5		6	7	9	0	Mode 4	0	3	5	6		7	8	t	0										
	+	+	-		-		-	+	▼		▼	+	-		-		-	+	+										
Mode 5	0	3	5	7		8	9	t	0	Mode 5	0	2	3	4		5	7	9	0										
	▼	+	+		-		-	-	+		+	-	-		-		+	+	▼										
Mode 6	0	2	5	7		9	t	e	0	Mode 6	0	1	2	3		5	7	t	0										
	+	▼	+		+		-	-	-		-	-	-		+		+	▼	+										
Mode 7	0	1	3	6		8	t	e	0	Mode 7	0	1	2	4		6	9	e	0										
	-	+	▼		+		+	-	-		-	-	+		+		▼	+	-										

+/-▲																									
Family 21																									
Mode 1	0	2	3	4		8	9	t	0	Family 21	0	2	3	4		8	9	t	0						
	+	-	-		▲	-	-	-	+		+	-	-	-		▲	-	-	-	+					
Mode 2	0	1	2	6		7	8	t	0	Mode 7	0	2	4	5		6	t	e	0						
	-	-	▲		-	-	-	+	+		+	+	-		-	▲	-	-							
Mode 3	0	1	5	6		7	9	e	0	Mode 6	0	1	3	5		6	7	e	0						
	-	▲	-		-	+	+	-			-	+	+		-	-	▲	-							
Mode 4	0	4	5	6		8	t	e	0	Mode 5	0	1	2	4		6	7	8	0						
	▲	-	-		+	+	-	-			-	-	+		+	-	-	▲							
Mode 5	0	1	2	4		6	7	8	0	Mode 4	0	4	5	6		8	t	e	0						
	-	-	+		+	-	-	▲			▲	-	-		+	+	-	-							
Mode 6	0	1	3	5		6	7	e	0	Mode 3	0	1	5	6		7	9	e	0						
	-	+	+		-	-	▲	-			-	▲	-		-	+	+	-							
Mode 7	0	2	4	5		6	t	e	0	Mode 2	0	1	2	6		7	8	t	0						
	+	+	-		-	▲	-	-			-	-	▲		-	-	+	+							

+/-▲																													
Family 24															Family 24														
Mode 1	0	1	3	4			8	9	e	0	Mode 1	0	1	3	4			8	9	e	0								
	-	+	-		▲		-	+	-			-	+	-		▲		-	+	-									
Mode 2	0	2	3	7			8	t	e	0	Mode 7	0	1	2	4			5	9	t	0								
	+	-	▲		-		+	-	-			-	-	+		-		▲	-	+									
Mode 3	0	1	5	6			8	9	t	0	Mode 6	0	2	3	4			6	7	e	0								
	-	▲	-		+		-	-	+			+	-	-		+		-	▲	-									
Mode 4	0	4	5	7			8	9	e	0	Mode 5	0	1	3	4			5	7	8	0								
	▲	-	+		-		-	-	+	-		-	+	-		-		+	-	▲									
Mode 5	0	1	3	4			5	7	8	0	Mode 4	0	4	5	7			8	9	e	0								
	-	+	-		-		+	-		▲		▲	-	+		-		-	+	-									
Mode 6	0	2	3	4			6	7	e	0	Mode 3	0	1	5	6			8	9	t	0								
	+	-	-		+		-	-	▲	-		-	▲	-		+		-	-	+									
Mode 7	0	1	2	4			5	9	t	0	Mode 2	0	2	3	7			8	t	e	0								
	-	-	+		-		▲	-	+			+	-	▲		-		+	-	-									

+/-▲																																					
Family 25															Family 26																						
Mode 1	0	1	2	4		8	9	t	0																		Mode 1	0	2	3	4		8	t	e	0	
	-	-	+		▲		-	-	+																				+	-	-		▲		+	-	-
Mode 2	0	2	3	4		6	t	e	0																			Mode 2	0	1	2	6		8	9	t	0
	+	-	-		+		▲	-	-																				-	-		▲		+	-	-	+
Mode 3	0	1	3	4		5	7	e	0																			Mode 3	0	1	5	7		8	9	e	0
	-	+	-		-		+	▲	-																				-		▲	+	-	-	-	+	-
Mode 4	0	1	2	4		5	6	8	0																			Mode 4	0	4	6	7		8	t	e	0
	-	-	+		-		-	+	▲																				▲	+	-		-	-	+	-	-
Mode 5	0	4	5	6		8	9	t	0																			Mode 5	0	2	3	4		6	7	8	0
	▲	-	-		+		-	-	+																				+	-	-		+	-	-		▲
Mode 6	0	2	6	7		8	t	e	0																			Mode 6	0	1	2	4		5	6	t	0
	+		▲	-	-		+	-	-																				-	-		+	-	-	▲		+
Mode 7	0	1	3	7		8	9	e	0																			Mode 7	0	1	3	4		5	9	e	0
	-	+		▲	-		-	+	-																				-		+	-	-	▲		+	-

+/-▲																													
Family 27															Family 28														
Mode 1	0	1	3	4		8	t	e	0						Mode 1	0	1	2	4		8	9	e	0					
	-	+	-		▲		+	-	-							-	-	-	+		▲		-	+	-				
Mode 2	0	2	3	7		9	t	e	0						Mode 2	0	1	2	3		5	9	t	0					
	+	-		▲		+		-	-							-	-	-		+		▲		-	+				
Mode 3	0	1	5	7		8	9	t	0						Mode 3	0	2	3	4		5	7	e	0					
	-		▲	+		-	-	-	+							+	-	-		-		+	▲		-				
Mode 4	0	4	6	7		8	9	e	0						Mode 4	0	1	3	4		5	6	8	0					
	▲		+	-		-	-	+	-							-		+	-		-		-	+		▲			
Mode 5	0	2	3	4		5	7	8	0						Mode 5	0	4	5	7		8	9	t	0					
	+	-	-			-	+	-	▲							▲		-	+		-		-	-	+				
Mode 6	0	1	2	3		5	6	t	0						Mode 6	0	2	6	7		9	t	e	0					
	-	-	-			+		-	▲							+		▲	-		+		-	-	-				
Mode 7	0	1	2	4		5	9	e	0						Mode 7	0	1	3	7		8	t	e	0					
	-	-		+		-	▲		+							-		+		▲		-		+		-	-		

+/-▲																																			
Family 29															Family 29																				
Mode 1	0	1	2	4		8	t	e	0	Mode 1	0	1	2	4		8	t	e	0																
	-	-	+		▲		+	-	-		-	-	+		▲		+	-	-																
Mode 2	0	1	3	7		9	t	e	0	Mode 7	0	1	2	3		5	9	e	0																
	-	+	▲		+		-	-	-		-	-	-		+	▲		+	-																
Mode 3	0	2	6	8		9	t	e	0	Mode 6	0	1	2	3		4	6	t	0																
	+	▲	+		-		-	-	-		-	-	-		-	+	▲		+																
Mode 4	0	4	6	7		8	9	t	0	Mode 5	0	2	3	4		5	6	8	0																
	▲	+	-		-		-	-	+		+	-	-		-	-	+	▲																	
Mode 5	0	2	3	4		5	6	8	0	Mode 4	0	4	6	7		8	9	t	0																
	+	-	-		-		-	+	▲		▲	+	-		-	-	-	+																	
Mode 6	0	1	2	3		4	6	t	0	Mode 3	0	2	6	8		9	t	e	0																
	-	-	-		-		+	▲	+		+	▲	+		-	-	-	-																	
Mode 7	0	1	2	3		5	9	e	0	Mode 2	0	1	3	7		9	t	e	0																
	-	-	-		+		▲	+	-		-	+	▲		+	-	-	-																	

Axes Page

AXIS 1	AXIS 2	AXIS 3	AXIS 4	AXIS 5	AXIS 6	AXIS 7	WILDCARD
(5+7)	(6-7) (5-6)	(4+6) (6+8)	(4▼7) (5▼8)	(7-8) (4-5)	(3+5) (7+9)	(4▲8)	(3-4) (8-9)
0:1,2,4,5,7	0:3,6	1:3,6	3:1	3:4,7	19:2,6	21:1	29:3,6
1:1,4,5	1:2,7	2:2,3,6,7	4:1	4:4,7	20:2,6	22:1	
2:1	2:4,5	3:3	5:1	13:2,5	27:2,6	23:1	
3:2,5	3:6	4:3	6:1	14:2,5	28:2,6	24:1	
4:2,5	4:6	5:4	7:1	17:3,6	29:2,7	25:1	
5:2,5	5:3,6,7	6:4	8:1	18:3,6		26:1	
6:2,5	6:3,6,7	7:4	9:1	19:3,5		27:1	
7:3,5	7:2,6,7	8:4	10:1	20:3,5		28:1	
8:3,5	8:2,6,7	9:5	11:1	22:4,7		29:1	
9:3,6	9:2,4,7	10:5	12:1	23:4,7			
10:3,6	10:2,4,7	11:3,5,7	13:1	24:2,4,5,7			
	11:2,4,6	12:3,5,7	14:1	25:3,4,6,7			
	12:2,4,6	13:3,6,7	15:1	26:3,4,6,7			
	13:4	14:3,6,7	16:1	27:3,4,5,7			
	14:4	15:2,5,6	17:1	28:3,4,5,7			
	15:3,4,7	16:2,5,6	18:1	29:4,5			
	16:3,4,7	17:2,5,7	19:1				
	17:4	18:2,5,7	20:1				
	18:4	19:7					
	19:4	20:7					
	20:4	21:4,5					
	21:2,3,6,7	22:3,5					
	22:2,6	23:3,5					
	23:2,6	24:3,6					
		25:2,5					
		26:2,5					