

REFUTATION OF THE LYDIAN THEORY BY BRETT CLEMENT

Written by Kasper Sloots.

Copyright: Kasper Sloots, Spring 2015.
Downloadable via www.zappa-analysis.com.
Deposited at the I-depot, The Hague.

Contents:

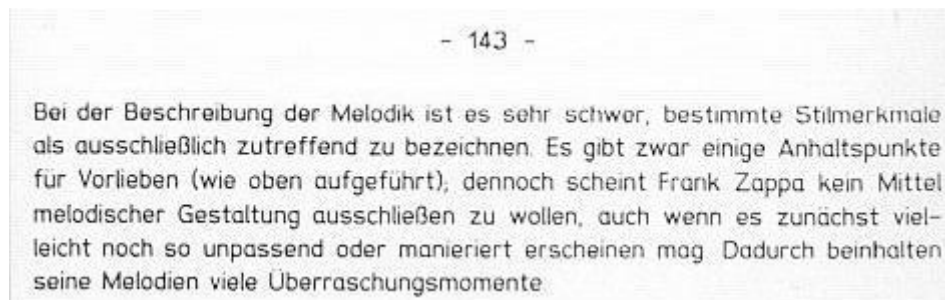
Synopsis.	Page 2
Introduction.	4
Chapter 1: The following order of the scales in Zappa's music.	6
Chapter 2: The deployment of chords.	32
Chapter 3: The position of the Mixolydian scale.	66
Chapter 4: Things you don't do.	79
Chapter 5: The chord bible.	99
Chapter 6: My argument as previously published in the 2012 4th pdf version of my study.	113

Most of the following pages are printscreens and tables. This is done to guarantee that this is what Clement is saying, so that there has to be no discussion if I am misciting him. To make my text recognizable between all this, it's in the color blue.

SYNOPSIS

In 2009 Brett Clement first published his Lydian System theory about the diatonic instrumental music of Frank Zappa. This theory got re-published as an article in Music Theory spectrum, Spring 2014, now addressing itself to Zappa's "modal style", still being referred to as being most of his diatonic instrumental music.

The yet existing studies in 2009 by Wolfgang Ludwig and me lead to the conclusion that Zappa follows no systems, his diatonic instrumental music not excluded. Wolfgang Ludwig, Research into the musical output of Frank Zappa, 1992, page 143:



In English: "In describing melodies it's very hard to indicate certain characteristics as specifically characteristic. Though some preferences can be discerned, described above, Zappa does not seem to want to exclude any method to compose a melody, to the point that it can even sound as inappropriate or a form of mannerism. For this reason his melodies contain many surprising moments."

If this theory by Clement is correct, it not only means that Ludwig and I have missed the point, but also that everybody up to Clement failed to recognize the patterns in Zappa's diatonic instrumental music, Zappa himself included. Such as (Clement, A study of the instrumental music of Frank Zappa, 2009 p. 123):

1. Mode I: Lydian.

As mentioned previously, the Lydian mode is by far the most commonly encountered mode in Zappa's diatonic works. For this contextual reason, as well as its various structural attributes, it is viewed as the foremost "tonic" of the modal system. Of the many examples in which Lydian was contextualized as tonic, consider the introductory guitar solos to Zappa's concerts from 1978–79. Texturally, this improvised event consisted merely of a sustained pedal on E, over which Zappa would embark on a lengthy E-Lydian solo. Besides being given such a

Some other characteristics, as noted by Clement:

- Prohibition of the dominant 7th.
- Upon the Mixolydian tonic Zappa doesn't use chords larger than the triad.
- Zappa rarely uses major and minor. For the avoidance of minor Clement offers a theoretical explanation. The avoidance of major just gets noticed.
- The sus2 chord upon the Dorian tonic is not to be used.
- A preference for the I, II and V chords upon the Lydian tonic.
- The avoidance of the Lydian tonic in melodies using the Lydian scale.

The combination of his findings makes it possible to predict how Zappa composes and improvises:

Clement 2014, Music Theory Spectrum, spring 2014, p. 150 (LS stands for Lydian System):

What is the theoretical and analytical utility of the LS concept? Most generally, it will allow us to describe Zappa's modal preferences, with the goal of understanding the possibilities and limitations pertaining to each mode. The contents of the LS will also have predictive power, permitting us to forecast with high certainty how Zappa will respond melodically to certain accompanying chords (as both a composer "on the page" and as an improvising guitarist). In a more concrete capacity, the LS will be conceptualized as a set of options Zappa may use for composing "modally" within a single diatonic scale, while achieving tonal variety. Finally, the LS may act akin to the familiar notion of "key," with other modes implied in the form of functional chords within the Lydian scale. The discussion below will explain all of these possibilities in turn.

Chapter I of my refutation shows that the starting point of the Clement theory is incorrect: Lydian has no preferred status in Zappa's diatonic instrumental music. I'm also reacting to attempts by Clement from 2014 to suggest that his theory should be seen as written for "modal style" music. Clement got his degree in 2009 with a thesis about diatonic instrumental music. The term "modal style" gets mentioned first in Music Theory Spectrum, apparently with the intention to exclude instrumental examples in conflict with his theory. The more he wants to exclude, the more he gets at refuting his own theory.

Chapter II shows that the chords, which Clement explains as cyclic Lydian chords, are supported the least upon the Lydian tonic. This is a simple fact that Clement tries to camouflage in his chord tables, instead of pointing at it himself. This is the weakest point of the Clement theory, its inner inconsistency: his explanations for the scales and the chords should lead to opposite conclusions.

Chapter III contains printscreens from the Lydian Chromatic Concept (LCC) by George Russell. This chapter shows that the Lydian theory by Clement is too much in conflict with the LCC to consider it an adapted or extended version of the LCC, as he suggests himself.

Chapters IV-V are not directly related to the Lydian theory. Chapter IV addresses itself to copyright. Chapter V deals with attempts by Clement to interpret Zappa's chord bible for orchestral works in the context of a Lydian theory. Chapter VI contains my argument in words as included in the 4th pdf edition of my study.

INTRODUCTION

Around 2011 I got into conflict with Brett Clement from the University of Cincinnati, who published a dissertation about Zappa's instrumental music in 2009. The discussion deals with copyright, an alleged preference for the Lydian scale and the validity of a Lydian theory, based upon this preference (see below). If true, this would lead to an awkward situation:

- Zappa himself never said that he followed a system. We're here not talking about a person who played music by intuition, but someone who wrote orchestra scores in various styles and who very well knew what musical terms stand for.
- Zappa never suggested that he composed his instrumental music differently from his songs with lyrics.
- The yet existing studies about Zappa in general by Wolfgang Ludwig and me lead to the conclusion that Zappa follows no systems, instrumental music not excepted. This then would mean that these studies are superficial, if not false.

For this reason I included an argument against this theory in the 2012 4th pdf version of my study, downloadable via this site. When I informed Clement about this argument, I received an e-mail from him that included an article re-stating his Lydian theory that had been approved for publication in Music Theory Spectrum. When I didn't see this article included in this journal the next year, I wrote the editors if this might be caused by Clement re-writing his article, as well as for informing them about the existence of my argument. I received a reaction that the Clement article was to be published in 2014 and that, in a situation like this, Clement had been obliged to include a reference to my argument. This was done by Clement and the article appeared in the spring issue of Music Theory Spectrum from 2014. While this reference could have normalized my relationship with Clement, it was regrettably done in such a way that it created a problem again: it's a deliberate misrepresentation of the argument I'm having with Clement. It goes against the following logical and academic principle:

A relative number from a random selection cannot be proved correct or false by a comparison with an absolute number.

The Lydian thesis by Clement (Clement 2009, p. 174):

practices of repertoires that privilege harmonic stasis and textural stratification. That said, though Zappa's music is certainly influenced by many trends in twentieth-century music, Zappa was keen on developing his own original approaches to composition. Thus, the Lydian-based approach described here, which treats Lydian as tonic while allowing for a highly codified, limited treatment of additional diatonic modes, represents Zappa's original solution to composing with the diatonic scale.

The reference in Music Theory Spectrum (Clement 2014, p. 149):

- 23 Indeed, it is quite likely that Zappa's use of the Lydian scale surpasses that of any composer in music history. To date, I have found the Lydian scale in over sixty titles by Zappa. Kasper Sloots, who maintains a website of analyses and short transcriptions of Zappa's music (zappa-analysis.com), disputes the importance of the Lydian scale in Zappa's music. In the fourth edition of his study, Sloots attempts a rejoinder to my Lydian theory, claiming that only twenty-eight pieces use this scale. Clearly, I disagree with his findings. See Sloots (2012, 554-63).

The study and the article by Clement the page numbers are referring to are:

- Brett Clement. A study of the instrumental music of Frank Zappa. Cincinnati, 2009.
- Brett Clement. A new Lydian Theory for Frank Zappa's Modal Music. *Music Theory Spectrum*, spring 2014, pages 146-166.

This reference says that I think that there are only 28 pieces by Zappa featuring the Lydian scale, while there are actually at least 60 pieces using this scale. So all Clement would have to do is list a number of compositions substantially bigger than 28 and it would be proved I'm wrong.

The number of 28 is the number of instrumental examples in my study with the Lydian scale (status in 2012). A random selection that I consider representative, next to many pieces that I identify as multi-scale. These pieces can also include the Lydian scale. The discussion with Clement, via e-mail and in my argument, is about the following order of scales in Zappa's music, thus their relative use. This is something completely different from a discussion about the absolute number of occurrences of the Lydian scale. Besides, it would be weird to think that the examples in my study represent all of Zappa's music.

I can appreciate a reference, even an incorrect one. What complicated things is the ensuing e-mail exchange I had with Clement and the editors of Music Theory Spectrum. First the editors were not willing to acknowledge that there might be something wrong with the content of this reference. In other words I should in effect accept my argument against Clement is false. One of the editors defended Clement by saying that the number of 28 stems from me and that people can look up the pages from my study referred to, to read what I'm saying. Both remarks are by themselves true, but cannot serve as an excuse for what Clement tries to do here. The mail I received from Clement is private and not fit for comment. It did convince me that re-stating my argument as a larger pdf offers me the best perspective.

Chapter I shows that I can list more than 60 pieces using the Lydian scale myself, when I'm looking at all instrumental compositions (thus not limited to the examples in my study). It doesn't affect the following order of scales. It only shows on a larger scale that Lydian has no preferred status in Zappa's music.

CHAPTER I: THE FOLLOWING ORDER OF THE SCALES.

THE FOLLOWING ORDER OF SCALES, ACCORDING TO CLEMENT

The Lydian theory by Clement starts with drawing parallels between Zappa's diatonic instrumental music and the Lydian Chromatic Concept by George Russell (LCC). This theory by Russell gets dealt with in chapter III. For Clement Zappa's alleged preference for the Lydian scale is the main reason for associating Zappa with the LCC, as well as that it serves as the starting point for his own Lydian theory.

This chapter deals with the following order of scales. It's rather dull statistic data, but it will show that about all Clements statements about the occurrences of scales in Zappa's music are incorrect.

According to Clement, in descending following order, this order is:

Lydian-Dorian-Mixolydian, with the role of Ionian and Aeolian being marginal.

Lydian

Clement 2009, pp. 116-7, using the words "characteristic sound":

harmonic rhythm and improvisatory melody, seem tailor-made to Russell's theories.⁴⁸ More significantly, Zappa's approach to modality—particularly his preference for the Lydian mode—offers the potential for parallels. In fact, the Lydian mode can easily be considered the characteristic sound of Zappa's diatonic music. As will be seen, several additional points of

Clement 2009 p. 123, continuing with the words "by far the most":

1. Mode I: Lydian.

As mentioned previously, the Lydian mode is by far the most commonly encountered mode in Zappa's diatonic works. For this contextual reason, as well as its various structural attributes, it is viewed as the foremost "tonic" of the modal system. Of the many examples in which Lydian was contextualized as tonic, consider the introductory guitar solos to Zappa's concerts from 1978–79. Texturally, this improvised event consisted merely of a sustained pedal on E, over which Zappa would embark on a lengthy E-Lydian solo. Besides being given such a

Clement 2014 p. 146, using the word "preference":

being modern—which I think is a waste of time.”²² As evidence of a forward-looking approach to diatonicism, the theory presented here holds that Zappa’s modal music is best understood in reference to the Lydian scale. I will aim to demonstrate that Zappa’s preference for the Lydian scale, and its special structural properties, had overarching repercussions for melodic and harmonic organization in his music. In contrast to the familiar major/minor system of tonality, I will propose an alternative Lydian system, which relies on the Lydian scale for the establishment of its functional relationships.

Clement 2014 pp. 148-149, using the word "ubiquity":

tonality by means of an associated scale. Also, the ubiquity of the Lydian scale in Zappa’s music would suggest another, more

obvious relevance for the LCC.²³ That is, context alone advises that a theory of Zappa’s diatonicism should strongly feature the Lydian scale. But what of Russell’s attempt to place other dia-

Note 23 is reference to my argument as already shown in the introduction, where it is said that Zappa's use of Lydian "quite likely surpasses that of any other composer in music history". This reiterated preference for Lydian, using different words, is the first thing that caught my attention. There are over 300 examples in my study, half of them being instrumental. How come I didn't notice this, or nobody else before Clement?

Dorian

Clement 2009, p. 134, ranks Dorian as second:

4. Mode IV: Dorian.

Mode IV (Dorian) is by far the most significant non-Lydian mode within the Lydian system, appearing only less often than Lydian in Zappa’s music. While Lydian represents the

Mixolydian

Mixolydian is ranked as third (Clement 2009, p. 130):

3. Mode III: Mixolydian.

The Mixolydian mode (Mode III) occurs along with a pedal on pitch #3 of the Lydian fifth-stack. After Lydian, Mixolydian is the most commonly used of the “major” modes of the Lydian system. Contrary to Russell’s strict association of the Lydian scale with the major triad,

Major/Ionian

According to Clement the role of Ionian should be seen as marginal compared to Lydian (Clement 2009, pp. 128 and 152):

distinguished with “major-key” functional tonality. However, examples of the Ionian mode in Zappa’s music are rare. This fact alone provides strong evidence that Zappa considered Lydian to be the best scalar representative of major tonality. Nevertheless, Ionian has the greatest

And:

tonic in melodies above Lydian pedals. These two Lydian substitutions can also be viewed as a kind of retrospective “correction,” as the overwhelming evidence suggests that Zappa judged the Ionian mode as offering a less definitive “major” tonality than the Lydian.⁸⁸

Clement 2014, p. 150:

modes: Lydian, Mixolydian, and Dorian. The Ionian and Aeolian modes—for which Russell found little use—have a tenuous status in Zappa’s modal music. For this reason, question marks are applied to them in Example 5.

MUSIC THEORY SPECTRUM 36 (2014)

Fifth-stack #	Center	Mode	Chord
7	B	N/A	
6	E	N/A	vii
5	A	Aeolian (?)	iii
4	D	Dorian	vi
3	G	Mixolydian	II
2	C	Ionian (?)	V
1	F	Lydian	I

The two N/A lines, corresponding with Phrygian and Locrian, can be seen as incorrect as well. Phrygian appears relatively little in Zappa's music, but it's not an abnormal or non-existing scale in his works. Even Locrian can occur once in a while, but that obscure scale is also in Zappa's output rare.

Minor/Aeolian

Clement 2009 p. 140:

5. Mode V: Aeolian.

In Example 4.6, a question mark was attached to Aeolian, the final mode of the Lydian system. In part, this question mark reflects the fact that Aeolian is seldom found in Zappa's diatonic music. However, the tenuous role of the Aeolian mode within the Lydian system can be

THE FOLLOWING ORDER OF SCALES, STATISTICALLY

Below follows a table with the main scales from all Zappa's instrumental compositions, as well as songs containing larger instrumental section. The conclusion from it, as a pure statistical fact, is, that in descending following order, this order in instrumental music is:

Dorian-Mixolydian-Lydian, with the role of Ionian and Aeolian not at all being marginal. Phrygian can occur as well.

Thus pretty different from what Clement claims. The most important part is that it shows that Lydian is not the central scale in Zappa's instrumental music. Following upon this table I'll deal with attempts by Clement to make a distinction between modal music and "modal style".

Remarks about this table:

- Most of this table is derived from listening through this music straight from CD, thus not by transcribing samples from all these tracks. Because of that, there are undoubtedly a number of errors in this list. The titles in bold are titles with examples taken from them in my main study (www.zappa-analysis.com).
- It deals with the main scales only. Thus things are kept within proportions. A bar or two in Mixolydian in a composition that's otherwise in Dorian is listed as Dorian only. So Sinister Footwear III is listed as Lydian, though there are some bars where Zappa evades to Ionian. Clement is inclined to call a whole composition Lydian, when he finds a few bars in Lydian. Or even a group of notes in an otherwise atonal composition. If Clement wants to encircle a chord from Mo'N Herb's vacation as Lydian, I can encircle another one not in Lydian (see chapter V). I'm not doing that here, but if you want to augment the number of occurrences in Lydian in this manner, the same can be done with the other scales. It won't affect their relative importance.
- Many Zappa compositions switch between scales all the time, or use fragments of diatonic scales that can't even be positively identified as one specific scale. The mingling of closely related scales occurs frequently as well. These are listed as multi-scale below. Uncle Meat may serve as an example. This

composition has its first two themes stable in one scale, while its third theme uses a different scale every bar. This is again done to keep things in proportions. Reasonably when might expect bars or fragments in the Lydian scale frequently in such examples, as well as the other scales, but in the same relative importance.

- An X stands for multiple occurrences of a scale. In case of the multi-scale column it stands for applicable.

The numbers of occurrences, related to the **main scales** from instrumental compositions/blocks, thus is:

Ionian: 50
Dorian: 174
Phrygian: 10
Lydian: 80
Mixolydian: 122
Aeolian: 33
Locrian: 3
Multi-scale: 75

This is still not an attempt to estimate the absolute number of occurrences of Lydian. By detailing the multi-scale pieces, including minor instances and fragments the number of any occurrence of Lydian can probably be brought up towards two hundred, but this can be done with the other scales as well, only extra-polating the difference. The 2012 version of my study dealt with the following order of scales in the examples in my study. The purpose of the table below is to show that, also on a much wider scale, the conclusion remains the same: Lydian stays behind Dorian and Mixolydian, while Ionian and Aeolian are not rarely used.

MAIN DIATONIC SCALES IN INSTRUMENTAL PIECES								
Title	Ionian	Dorian	Phrygian	Lydian	Mixolydian	Aeolian	Varying rapidly	Comment
1 FREAK OUT								
Hungry freaks, solo		A/B						
2 ABSOLUTELY FREE								
Invocation & ritual dance		C#/E						
3 WE'RE ONLY IN IT FOR THE MONEY								
Absolutely free, intro								See Lumpy Money
4 LUMPY GRAVY								
Duodenum		G	G					
Oh no								
theme 1		E						
theme 2							X	
It's from Kansas				F			X	
King Kong (Lumpy gravy)					A			
Take your clothes off		E						
5 CRUISING WITH RUBEN AND THE JETS								
Stuff up the cracks, solo					C			
6 MOTHERMANIA								See the original CDs
7 UNCLE MEAT								
Uncle Meat								
themes 1/2	D/Eb							
theme 3							X	
Nine types of industrial pollution		Bb						
Dog breath				G	A			
Legend of the golden arches					B			
Dog breath variations		E						
Uncle Meat variations								
exercise #4								See Road tapes, venue #2
theme 1					C			C pedal
theme 2								C pedal not part of the scale used
theme 3							X	
Prelude to King Kong		F#						
Pound for a brown								See Legend of ...
Ian Underwood whips it out		Eb						
Project X	Bb							
King Kong (1969)		Eb			Ab			Also pentatonic
8 HOT RATS								
Peaches en regalia	X	X		A	X	B		
Willy the pimp, riff and solo		A						
Son of Mr. Green Genes	C	D/Bb			Bb/D			
Little umbrellas		D					X	
The Gumbo variations		G			G			
It must be a camel							X	
9 BURNT WEENY SANDWICH								
Theme from Burnt weeny sandwich					D			
Holiday in Berlin								See idem, full blown
Holiday in Berlin, full blown								
theme 1 (200 Motels overture)							X	
theme 2 (Would you like a snack)								See 200 Motels
theme 3	D							
theme 4 and solo				D				
Aybe see		Db		C/Eb	E/A			
Little house								
10 WEASELS RIPPED MY FLESH								
Didja get any onya			F#	C				
Toad of the short forest	A						X	
Get a little		E			E			
Dwarf Nebula	A							
My guitar wants ..., interlude		G			G	B		
The orange county lumber truck		F#/G#		G		C#		

MAIN DIATONIC SCALES IN INSTRUMENTAL PIECES

Title	Ionian	Dorian	Phrygian	Lydian	Mixolydian	Aeolian	Varying rapidly	Comment
11 CHUNGA'S REVENGE								
Transylvania boogie (1970)		E			A			Also gypsy scale
Road ladies, solo		D						
Twenty small cigars		E					X	
The Nancy and Mary music		Eb/D						
Chunga's revenge		D						
Rudy wants to buy yez a drink, interlude	C							
12 FILLMORE EAST								
Little house (1971), intro		A						
Willy the pimp								See Hot rats
Lonesome electric turkey		D						
Peaches en regalia								See Hot rats
13 200 MOTELS								
Overture, intro								See Holiday in Berlin, full blown
Dance of the just plain folks							X	
Would you like a snack?, intro	C			Eb/Ab/D		C#		
Magic fingers, solo		A						
14 JUST ANOTHER BAND FROM LA								
Call any vegetable, solo		A						
Dog breath, solo		F#						
15 WAKA/JAWAKA								
Big swifty								
themes/outro		E						
solos, block 1			E					
solos, block 2					E			
It might just be a one shot deal, solo	G							
Waka/Jawaka	F/D/E	F#/A		A/F/G	A/G			Also Locrian
16 THE GRAND WAZOO								
For Calvin							X	
The grand Wazoo		D					X	
Cletus							X	Modulation scheme
Eat that question		E						
Blessed relief	F/E	A/G/F#		Bb				
17 OVERNITE SENSATION								
I'm the slime, intro		F#						
Dirty love, intro and solo					D			
Fifty-fifty, instrumental sections	Db	D/C	C	Db/E	X			
Montana, intro and solo		F#			A			
18 APOSTROPHE (')								
St. Alfonso, opening and end							X	Scale fragments or atonal
Cosmic debris, solo		C						
Excentrifugal forz, intro and solo					A			
Apostrophe	C	E/B			D	B		
Uncle Remus, interlude							X	
Stink-foot, solo					C			
19 ROXY AND ELSEWHERE								
Penguin in bondage, solo		D						
Pygmy twylyte								See YCDTOSA II
Echidna's arf	E	B		E	A	B/C#	X	Many; examples from my study
Don't you ever wash that thing								
theme	C							Also atonal/chromatic
trombone and keyboard solos		X		X	X			Modulation scheme
guitar solo		F#						
Orange County				E				
More trouble, solo		F#						
Be-bop tango								
theme							X	Scale fragments towards atonal
guitar solo					B			

MAIN DIATONIC SCALES IN INSTRUMENTAL PIECES								
Title	Ionian	Dorian	Phrygian	Lydian	Mixolydian	Aeolian	Varying rapidly	Comment
20 ONE SIZE FITS ALL								
Inca roads		X		X				
Can't afford no shoes, solo		E			E			
Sofa I	C				G			
Pojama people, solo		D						
Florentine Pogen , intro						E		
San 'Berdino , solo		A						
Andy , instrumental sections		F#		A/D				
21 BONGO FURY								
Carolina hard-core ecstasy, intro and solo				C/F				
200 years old , intro		G						
Cucamonga , intro					A			
Advance romance, solo		G						
Muffin man , solo		F#						
22 ZOOT ALLURES								
Wind up working in a gas station, interlude		D						
Black napkins		C#		D		C#		
The torture ... , instrumental sections		G						
Miss Pinky, interlude					A			
Friendly little finger							X	
Wonderful wino, outro		A						
Zoot allures								
intro							X	Chords from various scales
theme	X							
solo		C#						
23 ZAPPA IN NEW YORK								
Cruising for burgers					D			
I promise not to come in your mouth								
theme						C		
solos		X		X	X			
Punky's whips								
instrumental sections							X	
solo		C#						
The Illinois enema bandit, solo		D						
The black page #1				X				
Big leg Emma, interlude					E			
The black page #2				X				
The purple lagoon/Approximate , solos					F			
24 STUDIO TAN								
Greggery Peccary , instrumental sections								See Wazoo
Music for low budget orchestra								
guitar solo					D			
brass section				G				
intro and other sections							X	Also atonal
Lemme take you to the beach, interlude		A						
RDNZL								
composed parts	X	X		X	X	X		
guitar solo	A			A				
keyboard solo					F			
25 SLEEP DIRT								
Filthy habits			F/C			F/C		
Regyptian strut		B/G#					X	
Sleep dirt							X	
The ocean is the ultimate solution		X			X			
26 SHEIK YERBOUTI								
I have been in you, interlude					A			
Flakes , interlude	E							
Rat tomago		Bb						
Rubber shirt					Eb			
Sheik Yerbouti tango						F		Also whole-tone scale
Wild love, instrumental section				X	X			
Yo' mama , instrumental section					E			
27 ORCHESTRAL FAVORITES								
Strictly genteel	D			D				
Duke of prunes , 1963-1975	E	A/E	G#			G#/F	X	Many; examples from my study
Bogus pump							X	

MAIN DIATONIC SCALES IN INSTRUMENTAL PIECES								
Title	Ionian	Dorian	Phrygian	Lydian	Mixolydian	Aeolian	Varying rapidly	Comment
28-29 JOE'S GARAGE								
Central scrutinizer, interlude					D			
Catholic girls, interlude					F#			
Crew slut, solo		D			D			
On the bus		A						
Why does it hurt, interlude		A						
Sy borg, solo				C				
Keep it greasy, solo		G						
Outside now, solo				Bb				
He used to cut the grass, solo				E				
Packard goose, solo					F#			
Watermelon in easter hay	E							
30 TINSEL TOWN REBELLION								
Easy meat, instrumental sections				E	F#/G			
Now you see it, now you don't				Eb				
The blue light, intro					A			
Pick me, I'm clean, intro and solo				C	D			
Bamboozled by love, solo		A						
Peaches III								See Hot rats
31-33 SHUT UP 'N PLAY YER GUITAR								
Five-five-FIVE							X	
Hog Heaven				E				
Shut up 'n play yer guitar		A		C				
While you were out		D			D			
Treacherous cretins	A					D		
Heavy duty Judy					E			
Soup 'n old clothes		D						
Variations on the Carlos Santana ...		G						
Gee, I like your pants (Canarsie)				C				Chromatic
Ship ahoy		D			D			
The deathless horsie		C#		A	B	C#		
Shut up 'n play your guitar some more				C				
Pink napkins		C#		D				
Beat it with your fist		A						
Return of the son ...				C				
Pinocchio's furniture					G			
Why Johnny can't read					E			
Stucco homes		D			D			
Canard du jour								No clear pedal notes
34 YOU ARE WHAT YOU IS								
Sinister footwear III				F				
35 DROWNING WITCH								
I come from nowhere, intro and solo		B			F#	B		
Drowning witch								
composed parts							X	
solo 1								See the example in my study
solo 2		B						
36 THE MAN FROM UTOPIA								
Tink walks amok		X		X	X			
We're not alone		F#/G/E				F#/G		
Moggio						E	X	Also atonal
37 BABY SNAKES								See the first releases
38 THE LSO, VOL. I								
Sad Jane							X	Scale fragments
39 THE PERFECT STRANGER								
Outside now, again								Pedal note floats
Dupree's paradise								See YCDTOSA II

MAIN DIATONIC SCALES IN INSTRUMENTAL PIECES								
Title	Ionian	Dorian	Phrygian	Lydian	Mixolydian	Aeolian	Varying rapidly	Comment
40 THEM OR US								
Ya Hozna, solo		C						
Sharleena, solo								See The lost episodes
Sinister footwear II								
opening block				Ab		X		
guitar solo			G					
second block						B	X	
Truck driver's divorce, solo					A			
Stevie's spanking, solo					A/B			
Marque son's chicken								
theme							X	
solo		E						
Them or us				Bb				
Frogs with ..., outro	A							
41 THING-FISH								
Clowns on velvet							X	
42 FRANCESCO ZAPPA								No compositions by FZ
43 THE OLD MASTERS, VOL. I								See the original CDs
44 THE MOTHERS OF PREVENTION								
One man - one vote					B		X	
Little beige sambo							X	
Aerobics in bondage							X	
Alien orifice		G/C		Eb/C	A	E/G	X	Many; examples from my study
What's new in Baltimore	E	E					X	
45 DOES HUMOR BELONG IN MUSIC?								See the first releases
Hot plate heaven at the Green hotel, solo		E			A			
Let's move to Cleveland	C	E		C/Ab	D	E		
46 THE OLD MASTERS, VOL. II								See the original CDs
47 JAZZ FROM HELL								
Night school		C#/E		C/Ab	C#			
The beltway bandits							X	
While you were art III							X	
G-spot tornado		B						
St. Etienne		B						
Massagio Galore						B		
48 THE LSO, VOL. II								
Strictly genteel								See Orchestral favorites
49 THE OLD MASTERS, VOL. III								See the original CDs
50 GUITAR								
Sexual harassment in the workplace						C#		
Which one is it				Bb				
Republicans								Minor variant
Do not pass go		B						
Chalk pie					A			
In-A-Gadda-Stravinsky	D	D		D	D			
That's not really reggae		A						
When no one was no one					A			
Once again, without the net				D				
Outside now								See Joe's garage
Jim and Tammy's upper room		G						
Were we ever really safe ...		B						
That of G minor thing again		G						
Hotel Atlanta incidentals		E						
That's not really a shuffle		Eb						
Move it or park it				Bb				
Sunrise redeemer					E			
Variations on Sinister #3				E				
Orrin hatch on skis		D			D			
But who was Fulcanelli					E			
For Duane		A						

MAIN DIATONIC SCALES IN INSTRUMENTAL PIECES								
Title	Ionian	Dorian	Phrygian	Lydian	Mixolydian	Aeolian	Varying rapidly	Comment
GOA					D			
Winos do not march				F				
Swans, what swans?				Bb				
Too ugly for show business					D			
Systems of edges				C				
Do not try this at home				Bb				
Things that look like meat		G						
Watermelon in easter hay								See Joe's garage
Canadian customs								Irregular
Is that all there is				C				
51 YCDTOSA, VOL. I								See the first releases
The mammy anthem		Bb/Ab						
52 YCDTOSA, VOL. II								See the first releases
Pygmy twlylte , instrumental sections		D/G		Bb		B		
Village of ... (YCDTOSA II) , intro and solo					G			
Room service , instrumental sections		B			E	E		
Dupree's paradise	B	B/A		E			X	
T' Mershi Duween								See Everything is ...
Uncle Meat (1973)	Eb			G			X	
53 BROADWAY THE HARD WAY								
Any kind of pain , solo				F				
54 YCDTOSA, VOL. III								
Ride my face to Chicago , intro and solo		D			D			
Chana in the bushwop, solo					C			
Dickie's such an asshole, solo		B						
Nig biz, solo					G			
King Kong (1971/82)	Bb	Eb			A			
55 THE BEST BAND YOU NEVER HEARD								
Heavy duty Judy (1988)					E		X	
56 MAKE A JAZZ NOISE HERE								
When yuppies go to hell							X	
Fire and chains					D			
Let's make the water turn black	C							
Harry, you're a beast						A		Also C# Locrian
Star wars don't work		D						
The black page (1988)								
theme				X				
solo	F							
T'Mershi Duween (1988)		A		C				
City of tiny lights, solo		G						
57 YCDTOSA IV								See the first releases
Cleveland solos							X	Mingling of scales on C
Pound for a brown solos		D		C	D			
58 YCDTOSA V								See the first releases
Charles Ives								See Didya get any onya?
Run home slow , theme								See The mistery disc
The little march							X	
Return of the hunch-back duke								See Little house
Baked-bean boogie		Eb						
No waiting for the peanuts to dissolve		E						
The black page #2, solo				Bb				
Pound for a brown, solo		G						
59 YCDTOSA VI								See the first releases
Thirteen				C				
60 PLAYGROUND PSYCHOTICS								See the first releases
Sleeping in a jar		Eb			D			
Brixtol still life					D			
Billy the mountain, solo								See Carnegie hall

MAIN DIATONIC SCALES IN INSTRUMENTAL PIECES							
Title	Ionian	Dorian	Phrygian	Lydian	Mixolydian	Aeolian	Varying rapidly
61 AHEAD OF THEIR TIME							
Epilogue	Ab					X	See the first releases
Transylvania boogie (1968)	E				A		
62 THE YELLOW SHARK							
Dog breath							See Uncle Meat
Uncle Meat							See YCDTOSA II
Outrage at Valdez					Eb	F/F#	
Be-bop tango							See Roxy and elsewhere
Pound for a brown							See Uncle Meat
Exercise #4					G		
G-spot tornado							See Jazz from hell
63 CIVILIZATION PHAZE III							
Put a motor in yourself	E					X	
Reagan at Bitburg						X	
Amnerika						X	
64 THE LOST EPISODES							
Lost in a whirlpool	E						
Take your clothes off ...							See Lumpy gravy
Run home slow, theme							See The mistery disc
Run home cues #2	G						
Alley cat, intro	E						
RDNZL							See Studio tan
Basement music #1						X	
Inca roads							See One size fits all
Lil' Canton shuffle					C		
Sharleena (1969), solos	G						
65 LÄTHER							See the original CDs
Duck duck goose	D				E		
Down in the dew							
theme						X	
solo					D		
Flambay						X	
Läther							See I promise not ...
Spider of destiny						X	
Leather goods					D		
Time is money						X	
66 FZ PLAYS THE MUSIC OF FZ							See the first releases
67 HAVE I OFFENDED SOMEONE							See the original CDs
68 THE MISTERY DISC							
Run home slow, theme					C		Also pentatonic
Original duke of prunes							See Orchestral favorites
I was a teenage maltshop	C	D			D		
Metal man has won his wings		E					
Power trio		A					
Bossa Nova			G				
Speed-freak boogie		E					
Original Mothers at ...		G					
Mondo Hollywood		E					
Agency man, intro	C/G						
Black beauty		Eb					
Harmonica fun	Bb/F#						
69 EVERYTHING IS HEALING NICELY							
This is a test						X	
Roland's big event/Strat Vindaloo							Eastern type of scales
T'Mersh Duween (1991)		D			D/E	B	
9/8 Objects			C				
70 FZ:OZ							See the first releases
71 HALLOWEEN							
Ancient armaments	A						

MAIN DIATONIC SCALES IN INSTRUMENTAL PIECES								
Title	Ionian	Dorian	Phrygian	Lydian	Mixolydian	Aeolian	Varying rapidly	Comment
72 QUAUDIOPHILIAC								
Rollo	X	E		X	X			
Chunga's basement		D						
Venusian time bandits		F						
Basement music #2	D							
73 JOE'S CORSAGE								See the first releases
74 JOE'S DAMAGE								
Another whole melodic section							X	
Think it over		D				D		
75 JOE'S XMESSAGE								
GTR trio								See Power trio
76 IMAGINARY DISEASES								
Rollo								See Quaudiophilic
Been to Kansas		A						
Farther O'blivion								
opening	E	X		X	X			
tango								See Roxy and elsewhere
Cucamonga		Eb		G				
DC Boogie		E			D			
Imaginary diseases		B			A			
Montreal					D			
77-78 MOFO								See the original CD
79 TRANCE-FUSION								
Chunga's revenge		D						
Bowling on Charen					B			
Good Lobna		F#						
A cold dark matter				C				
(Butter or cannons)							X	Also chromatic
Ask dr. Stupid		F#						
Scratch & sniff		G						
Trance-fusion		D						
Gorgo		A						
Diplodocus		D#						
Soul polka		C#						
For Giuseppe Franco					A			
After dinner smoker		A						
(Light is all that matters)							X	Also chromatic
Finding Higgs' Bosson					A			
Bavarian sunset	E				E			
80 BUFFALO								
The torture never stops (1980)		A						
81 THE DUB ROOM SPECIAL								See the first releases
82 WAZOO								See the first releases
Greggery Peccary								
mvt 1 composed part							X	Also atonal
mvt 1 interlude	D							
mvt 2 composed part							X	Also atonal
mvt 2 solos								Eastern type of scales
mvt 3 composed part							X	Also atonal
mvt 3 solos, section over pedal note						E		
mvt 4							X	Also atonal
83 ONE SHOT DEAL								
Heidelberg					E			
Occam's razor				C				
84 JOE'S MENAGE								See the first releases
Chunga's revenge (1975), rhythm guitar solo		D					X	

MAIN DIATONIC SCALES IN INSTRUMENTAL PIECES								
Title	Ionian	Dorian	Phrygian	Lydian	Mixolydian	Aeolian	Varying rapidly	Comment
85 LUMPY MONEY								See the original CDs
Foamy soak							X	
How did that get in here themes								See Unit3a and Oh no
solos over pedal notes		D/A						
other solos							X	Also atonal
Unit 3a							X	
Unit 2		C#						
Section 8								See King Kong (Lumpy gravy)
Lonely little girl							X	
Absolutely free					D/E		X	
Harry, you're a beast								See Make a jazz noise here
What's the ugliest part of your body	G							
The idiot bastard son							X	
Mom & dad		E/D		F	Bb	E		
Who needs the peace corps				C	A	F#		
86 PHILLY '76								See the first releases
87 GREASY LOVE SONGS								See the original CD
88 CONGRESS SHALL MAKE NO LAW								
89 HAMMERSMITH ODEON								See the first releases
Flakes (1978), instrumental section	E				E			
King Kong (1978), solo		Eb		D				
90 FEEDING THE MONKEYS AT MA MAISON								Scale fragments towards atonal
91 CARNEGIE HALL								See the first releases
Billy the mountain solos				C				
Mudd shark, solo		E			E			
92 ROAD TAPES, VENUE #1								See the first releases
93 UNDERSTANDING AMERICA								See the original CDs
94 FINER MOMENTS								
Sleazette		E						
The old curiosity shoppe				C				
You never know ... (Harmonica fun)								See The mistery disc
Uncle rhebus	Eb	Eb/C		Db		C		
The subcutaneous peril		D						
95 BABY SNAKES COMPLETE SOUNDTRACK								See the first releases
Conehead vamp					Bb			
96 ROAD TAPES, VENUE #2								See the first releases
Your teeth ...		Eb						
All skate	A	A			C/A			
Village of the sun (1973), intro							X	
97 A TOKEN OF HIS EXTREME								See the first releases
98 JOE'S CAMOUFLAGE								See the first releases
Phyniox	Ab		C	Ab	Ab			
Reeny ra					G			Also Locrian
99 ROXY BY PROXY								See the first releases
Cheepnis-percussion, main theme					D			
OTHER OFFICIAL MATERIAL								
The world's greatest ... movie sample #1	D			D				
The world's greatest ... movie sample #2							X	
The world's greatest ... movie sample #3							X	
Run home, slow movie sample #1		E						
Run home, slow movie sample #2							X	
Run home, slow movie sample #4							X	
Walkin' out					D/A/E			
Waltz (Pal records)		D			D			
Breaktime		C						
Grunion run		C						

Twinkle tits		E			E			
Conehead (1978), solo		F/E						
Mo' mama					E			
No more Mr. nice girl	E			A				
Improvisation in A					A			
Budapest solo					D			
What will Rumi do?					E			

Notes:

- During the Uncle Meat variations the whole piece is played over a C pedal. Theme 1 becomes C Mixolydian, for theme 2 the C doesn't belong to the diatonic scale of the melody and theme 3 remains multi-scale.
- Rollo interior/St. Alphonso (interlude at the end). By Clement two bars get presented as G Dorian and Bb Lydian as "essentially the only" diatonic material in this part (Clement 2009, p. 154). Bar 5 of this interlude contains the same motif and can be interpreted as C Ionian, Lydian or Dorian (the notes that make the distinction, are not used). The remainder of the interlude is largely atonal with occasionally some scale fragments being used. Multi-scale/atonal is therefore a more accurate description.
- Montana. The opening gets presented as Lydian in the Clement study. Inclusion of the harmony notes shows that Mixolydian is the better fitting scale. The couple of bars from the interlude get dealt with in chapter IV.
- Ship arriving too late: this piece contains a large number of smaller sections using diatonic scales and atonal material. I'm presenting examples with Aeolian and Dorian, Clement with Lydian and Dorian. Above it's listed as multi-scale.

The pentatonic scale and the "minor Lydian" scale get dealt with in chapters III and V. Clement likes to present these as derived from the Lydian or Dorian scale, but that's a choice at best. The above follows the standard definitions only.

MODAL MUSIC VERSUS "MODAL STYLE"

By its title the 2009 study by Clement addresses itself to instrumental music and the Lydian thesis is about composing diatonic instrumental music without any reservations: CLEMENT GOT HIS DEGREE WITH A LYDIAN THESIS ABOUT DIATONIC INSTRUMENTAL MUSIC. On various occasions Clements mitigates his choice of words in his 2014 article, but it remains basically the same. One attempt to change the scope a little is done by saying his theory focuses on something he himself calls a "modal style". When you search for this term in his 2009 study, you'll find no results. It's obviously an attempt to adjust his theory, but the term initially remains hardly defined by itself. Only parody songs get specifically mentioned, a debatable term itself (see the Broadway the hard way section in my main study (www.zappa-analysis.com)). Atonal music is by definition not modal. That addition might just as well have been skipped. Clement 2014, p. 146:

This article examines the modal music of the composer/guitarist Frank Zappa (1940–93). In particular, I will focus on what I term Zappa's "modal style," a style found throughout his career, though perhaps most representative of his diatonic instrumental music from the late 1960s through the early 1980s.¹ Though Zappa is well known for his admiration of

1 As this sentence suggests, not all of Zappa's output is directly relevant to this inquiry. Though space does not allow for a full explanation of the works not included, the largest number are among his parodistic songs, which borrow from preexisting harmonic norms, and his "freely atonal" music. The theory presented here is applicable to most of Zappa's diatonic instrumental music, as well as to certain songs that employ the modal style.

Clement has a right to redefine the scope of his theory, but it will create a dilemma for him. Since his original thesis knows no exclusions, THE MORE HE WANTS TO EXCLUDE NOW OR IN THE FUTURE, THE MORE HE GETS AT REFUTING HIS OWN THESIS. He seems to realize this himself, because in note 1 he continues maintaining that his theory is applicable to most instrumental music. Thus still any example can be used in favor or against it.

After publication of his article Clement wrote me to inform me of the reference and that he found many of my examples in Mixolydian and Lydian should be discounted, because they follow pop standards (thus not being "modal style"). My 2012 argument addresses itself to his 2009 thesis, that has diatonic instrumental music as subject. With Clement still maintaining that his theory applies to most instrumental music, little changes. Unless it means the same as modal music, or something like sounding as modal music, "modal style" is not a regular musical term. Not without a reason Clement does not use the term in the title of his article. There's no such thing as a diatonic style, different from diatonic music. There's no such thing as an atonal style, different from atonal music. On page 149 of his article however, Clement equals "modal style" with his Lydian systems (see chapter II for what Clement means by Lydian systems). In this form it becomes a vicious circle: his theory applies to what it's applicable to. **If many of my diatonic instrumental examples aren't "modal style" for whatever reason (or Zappa's diatonic instrumental music in general), it can only mean that his 2009 thesis is false. The same goes for his claim that his 2014 article applies to most of Zappa's diatonic instrumental music.**

Clement 2014, p. 149:

The central hypothesis of this theory is that the simple structures of Example 4 define both Zappa's Lydian music and (more controversially) his modal uses of non-Lydian scales. That is, Zappa's modal style is based on a certain view of diatonicism, one founded on acoustic consonance, fifth generation, and the contextual instability of the Lydian leading tones. This view privileges the Lydian scale as a generative point of reference, given its ideal realization of all such structures. Other diatonic modes are consequently put into a consistent relation with the referential Lydian scale. These relations determine the importance and usage of any given mode in Zappa's music, as well as the types of chords and melodic configurations associated with the modes. I also contend that they influence the manner in which modes interact in Zappa's music. To differentiate this system of interrelated modes from the familiar major/minor system, I use the term Lydian system (hereafter LS).

As already shown in the introduction, below again the Lydian thesis by Clement (Clement 2009, p. 174):

practices of repertoires that privilege harmonic stasis and textural stratification. That said, though Zappa's music is certainly influenced by many trends in twentieth-century music, Zappa was keen on developing his own original approaches to composition. Thus, the Lydian-based approach described here, which treats Lydian as tonic while allowing for a highly codified, limited treatment of additional diatonic modes, represents Zappa's original solution to composing with the diatonic scale.

Zappa combines standards with non-standards all the time, and the definition of what's a standard is to a degree arbitrary. Such distinctions lead to an endless bickering I don't see the point of. See chapter III for the various musicological explanations of the I-II alternation in Lydian. Clement himself wrote another article, called *Modal tonicization in rock: the special case of the Lydian scale* (Gamut 6 (1), 2013, pp. 95–142). Here he's arguing that Lydian is a scale underestimated by pop music scholars:

Most analysts of popular music have identified modality as one among several important tonal resources in rock harmony.¹ While these authors have acknowledged to varying degrees the use of Ionian, Aeolian, Mixolydian, and Dorian modes, they have largely balked at embracing the idea of Lydian centrality.² For example, Walter Everett has demonstrated that

"Dreams" by Stevie Nicks gets correctly referred to as based upon I-II in Lydian, also a common progression in Zappa's music. Zappa is also passing by with "Village of the sun" and "Strictly genteel". Again, when you're looking for "modal style" in this article, you'll find no results. "Dreams", and the corresponding "Rumours" album by Fleetwood Mac, became big hits. Now, was Stevie Nicks writing "modal style" music or mainstream pop? Such discussions are fruitless.

Clement will have to do a lot of exclusions to get the number of examples in Dorian and Mixolydian below or even comparable to those in Lydian. It's virtually impossible to do so without affecting his statement that his theory applies to most instrumental music. And a "modal style" applicable to some songs (with lyrics) that use that style, that's not workable. The academic norm for a theory to be relevant is not absolute, but it is understood that it should apply at least for 85%. Every theory has exceptions, but they have to remain a minority. For that matter I'm citing Martin Herraiz here and in chapter VI, where he's saying that the number of examples to the contrary of the Clement theory might be just as vast as those in favor of it (Martin Herraiz, *The perfect stranger, a study of Zappa's orchestral works*, 2010, page 108). People are female persons is not a valid theory because it applies to half of the population.

Podemos concluir dizendo que, apesar de a teoria Lúcia de Clement fornecer, como o próximo capítulo deve evidenciar, uma importante base metodológica para o estudo de qualquer obra diatônica de Zappa, especialmente no que diz respeito à hierarquia entre os diversos modos e ao tratamento do ciclo de quintas e dos acordes “sus”, um estudo aprofundado das exceções às “regras” postuladas por Clement pode acabar por se mostrar tão vasto e extenso quanto o do próprio autor. Visto que este está longe de ser o objetivo do presente trabalho, um breve estudo de caso deverá bastar para ilustrar este ponto. O exemplo 2.13 contém uma redução de três excertos da peça “Rollo”, transcritos a partir da gravação ao vivo de 1972 editada no CD *Imaginary Diseases* (lançado em 2005)¹²⁹; uma versão de 1975,

127 Ver seção 3.1.

128 Ver seção 3.2.

129 Não é possível calcular a numeração precisa de compassos neste caso, já que esta gravação é editada a partir de uma performance muito mais longa; ao invés disso, o exemplo reproduz apenas a minutagem referente a cada excerto na faixa 2 do referido CD.

In English: "We can conclude by saying that, although the Lydian theory of Clement provides, as the next chapter should highlight, an important methodological basis for the study of any of Zappa's diatonic works, especially regarding the hierarchy between the various modes and processing cycle of fifths and two "sus" chords, a detailed study of the exceptions to the 'rules' postulated by Clement may ultimately prove to be as vast and extensive as his own work."

It's up to this author to use terms by Clement to identify something as a Lydian system. Scientifically this situation is a bit awkward. If one truly believes that examples to the contrary may be just as many as examples in favor of something, one should find this theory refutable and better refrain from re-using it. Of course one doesn't need a Lydian theory to identify modes as pedal substitutions for each other or to position sus chords. In case Gsus4 happens in G Mixolydian, I, and everybody before Clement, call it Gsus4 in G Mixolydian (just like that) and not Lydian system F.

I will continue below with the guitar solos. This is actually the area in Zappa's music where Lydian occurs relatively the most. And it's the area where major and minor occur relatively the least. If you would like to exclude, say, blues as a pop standard, then what remains is a large body of work, forming a stylistic unity. Also here Lydian doesn't come out as the preferred scale. Dorian remains way ahead, though Mixolydian and Lydian get closer. It stresses the impossibility to make style reservations, while maintaining that Zappa has a preference for Lydian at the same time. It should be noted that Clement calls the I-II alternation in Lydian a Lydian-Mixolydian pedal substitution (see chapter III). Of the Lydian solos below, 16 are of that type. So by Clement's own terms, you've got 16 more occurrences of Mixolydian than I'm presenting here.

Even if Clement re-wrote his theory as for a certain selection from Zappa's diatonic music (“modal style” music or whatever he wants to call it), it will not solve his problems as I will depict in chapters II-III.

TABLE WITH THE MAIN SCALES IN GUITAR SOLOS

Summary:

Types and scales	Ionian	Dorian	Phrygian	Lydian	Mixolydian	Aeolian
- Solos over pedal notes	3	63	1	20	41	5
- Solos over vamps	7	28	4	5	12	3
- Solos over alternating chords	1	4		19	3	1
- Blues	1	10			3	1
- Others	3	7		1	4	

The list:

MAIN DIATONIC SCALES IN GUITAR SOLOS							
Title	Ionian	Dorian	Phrygian	Lydian	Mixolydian	Aeolian	Type
1 FREAK OUT Hungry freaks, solo		A/B					Follows song
2 ABSOLUTELY FREE Invocation & ritual dance		C#/E					Pedal note
3 WE'RE ONLY IN IT FOR THE MONEY							
4 LUMPY GRAVY							
5 CRUISING WITH RUBEN AND THE JETS Stuff up the cracks, solo					C		Vamp
6 MOTHERMANIA							See the original CDs
7 UNCLE MEAT Nine types of industrial pollution		Bb					Pedal note
8 HOT RATS Willy the pimp, solo Son of Mr. Green Genes	C	A D/Bb			Bb		Pedal note Alternating chords
9 BURNT WEENY SANDWICH Theme from Burnt weeny sandwich Holiday in Berlin, full blown, solo				D	D		Pedal note Alternating chords
10 WEASELS RIPPED MY FLESH Get a little The orange county lumber truck, solo		E F#			E		Pedal note Pedal note
11 CHUNGA'S REVENGE Transylvania boogie (1970) Road ladies, solo The Nancy and Mary music, solos		E D Eb/D			A		Also gypsy scale Blues Pedal note
12 FILLMORE EAST Willy the pimp							See Hot rats
13 200 MOTELS Magic fingers, solo		A					Pedal note
14 JUST ANOTHER BAND FROM LA Call any vegetable, solo Dog breath, solo		A F#					Pedal note Pedal note
15 WAKA/JAWAKA Big swift solo, block 1 solo, block 2 It might just be a one shot deal, solo Waka/Jawaka, solo	G		E		E		Pedal note Pedal note Vamp Pedal note
16 THE GRAND WAZOO The grand Wazoo, solo Blessed relief, solo	E	D A/G/F#					Vamp Modulation scheme
17 OVERNITE SENSATION Dirty love, solo Fifty-fifty, solo Montana, solo	Db	C F#		Db	D X		Pedal note Modulation scheme Pedal note
18 APOSTROPHE (') Cosmic debris, solo Apostrophe, solo Stink-foot, solo		C B			C	B	Blues Pedal note Vamp

MAIN DIATONIC SCALES IN GUITAR SOLOS

Title	Ionian	Dorian	Phrygian	Lydian	Mixolydian	Aeolian	Comment	Type
19 ROXY AND ELSEWHERE								
Penguin in bondage, solo		D						Blues
Don't you ever wash that thing, solo		F#						Blues
Orange County, solo				E				Alternating chords
More trouble, solo		F#						Pedal note
Be-bop tango, solo					B			Blues
20 ONE SIZE FITS ALL								
Inca roads, solo				C				Alternating chords
Can't afford no shoes, solo		E			E			Pedal note
Pojama people, solo		D						Pedal note
Andy, solos		F#		A				Pedal note
21 BONGO FURY								
Carolina hard-core ecstasy, solo				F				Vamp
Advance romance, solo		G						Pedal note
Muffin man, solo		F#						Vamp
22 ZOOT ALLURES								
Black napkins		C#		D		C#		Alternating chords
The torture never stops, solo		G						Pedal note
Friendly little finger								See the example in my study
Wonderful wino, outro		A						Pedal note
Zoot allures								
intro								Chords from various scales
theme	X							Chord progression
solo		C#						Pedal note
23 ZAPPA IN NEW YORK								
Cruising for burgers, solo					D			Vamp
I promise not to come ..., solo		F#		X				Pedal note
The Illinois enema bandit, solo		D						Vamp
Punky's whips, solo		C#						Pedal note
The purple lagoon/Approximate, solo					F			Pedal note
24 STUDIO TAN								
Music for low budget orchestra, solo					D			Pedal note
RDNZL, solo	A			A				Pedal note
25 SLEEP DIRT								
Filthy habits, solo			F/C			F/C		Vamp
Sleep dirt								Chord progression
The ocean is the ultimate solution		X			X			Pedal note
26 SHEIK YERBOUTI								
Rat tomago		Bb						Pedal note
Sheik Yerbouti tango						F		Pedal note
Yo' mama, solo					E			Pedal note/Alternating chords
27 ORCHESTRAL FAVORITES								
Duke of prunes, solo							Various	Follows song
28-29 JOE'S GARAGE								
On the bus		A						Pedal note
Keep it greasy, solo		G						Vamp
Outside now, solo				Bb				Vamp
He used to cut the grass, solo				E				Pedal note
Packard goose, solo					F#			Vamp
Watermelon in easter hay	E							Vamp
30 TINSEL TOWN REBELLION								
Easy meat, solo				E	F#			Pedal note/alternating chords
Now you see it, now you don't				Eb				Pedal note
Pick me, I'm clean, solo				C				Alternating chords
Bamboozled by love, solo		A						Blues

MAIN DIATONIC SCALES IN GUITAR SOLOS							
Title	Ionian	Dorian	Phrygian	Lydian	Mixolydian	Aeolian	Type
31-33 SHUT UP 'N PLAY YER GUITAR							
Five-five-FIVE							Chord progression
Hog Heaven				E			Pedal note
Shut up 'n play yer guitar		A		C			Alternating chords
While you were out		D			D		Pedal note
Treacherous cretins	A					D	Vamp
Heavy duty Judy					E		Vamp
Soup 'n old clothes		D					Pedal note
Variations on the Carlos Santana ...		G					Vamp
Gee, I like your pants				C			Alternating chords
(Canarsie)							Chromatic
Ship ahoy		D			D		Pedal note
The deathless horsie		C#		A	B	C#	Vamp
Shut up 'n play your guitar some more				C			Alternating chords
Pink napkins		C#		D			Alternating chords
Beat it with your fist		A					Pedal note
Return of the son of ...				C			Alternating chords
Pinocchio's furniture					G		Pedal note
Why Johnny can't read					E		Pedal note
Stucco homes		D			D		Pedal note
Canard du jour							No clear pedal notes
34 YOU ARE WHAT YOU IS							
Sinister footwear III				F			Pedal note
35 DROWNING WITCH							
I come from nowhere, solo		B					Pedal note
Drowning witch							
solo 1						Irregular	Vamp
solo 2		B					Pedal note
36 THE MAN FROM UTOPIA							
37 BABY SNAKES							See the first releases
38 THE LSO, VOL. I							
39 THE PERFECT STRANGER							
40 THEM OR US							
Ya Hozna, solo		C					Vamp
Sharleena, solo							See The lost episodes
Sinister footwear II, solo			G				Vamp
Truck driver's divorce, solo					A		Pedal note
Stevie's spanking, solo					A/B		Vamp
Marque son's chicken, solo		E					Vamp
Them or us				Bb			Pedal note
41 THING-FISH							
42 FRANCESCO ZAPPA							No compositions by FZ
43 THE OLD MASTERS, VOL. I							See the original CDs
44 THE MOTHERS OF PREVENTION							
Alien orifice		E/G		Eb/C			Pedal notes
What's new in Baltimore	E						Alternating chords
45 DOES HUMOR BELONG IN MUSIC?							See the first releases
Hot plate heaven at the Green hotel, solo		E			A		Pedal note
Let's move to Cleveland, solo				C/Ab	D		Pedal note
46 THE OLD MASTERS, VOL. II							See the original CDs
47 JAZZ FROM HELL							
St. Etienne		B					Pedal note
48 THE LSO, VOL. II							

MAIN DIATONIC SCALES IN GUITAR SOLOS							
Title	Ionian	Dorian	Phrygian	Lydian	Mixolydian	Aeolian	Type
49 THE OLD MASTERS, VOL. III							See the original CDs
50 GUITAR							
Sexual harassment in the workplace						C#	Blues
Which one is it				Bb			Pedal note
Republicans							Pedal note
Do not pass go		B					Pedal note
Chalk pie					A		Pedal note
In-A-Gadda-Stravinsky	D	D		D	D		Vamp/pedal note
That's not really reggae		A					Pedal note
When no one was no one					A		Pedal note
Once again, without the net				D			Pedal note
Outside now							See Joe's garage
Jim and Tammy's upper room		G					Pedal note
Were we ever really safe ...		B					Pedal note
That ol' G minor thing again		G					Pedal note
Hotel Atlanta incidentals		E					Pedal note
That's not really a shuffle		Eb					Pedal note
Move it or park it				Bb			Pedal note
Sunrise redeemer					E		Vamp
Variations on Sinister #3				E			Pedal note
Orrin hatch on skis		D			D		Vamp
But who was Fulcanelli					E		Pedal note
For Duane		A					Pedal note
GOA					D		Pedal note
Winos do not march				F			Alternating chords
Swans, what swans?				Bb			Pedal note
Too ugly for show business					D		Pedal note
Systems of edges				C			Alternating chords
Do not try this at home				Bb			Pedal note
Things that look like meat		G					Vamp
Watermelon in easter hay							See Joe's garage
Canadian customs						Irregular	Vamp
Is that all there is				C			Pedal note
51 YCDTOSA, VOL. I							See the first releases
The mammy anthem		Ab					Pedal note
52 YCDTOSA, VOL. II							See the first releases
Pygmy twilyte, solo						B	Pedal note
53 BROADWAY THE HARD WAY							
Any kind of pain, solo				F			Alternating chords
54 YCDTOSA, VOL. III							
Ride my face to Chicago, solo		D			D		Pedal note
Dickie's such an asshole, solo		B					Blues
Nig biz, solo					G		Blues
King Kong (1971/82), solos		Eb			A		Chords/vamp
55 THE BEST BAND YOU NEVER HEARD							
Heavy duty Judy (1988)					E		Vamp
56 MAKE A JAZZ NOISE HERE							
Fire and chains					D		Pedal note
Star wars don't work		D					Pedal note
The black page (1988), solo	F						Vamp
City of tiny lights, solo		G					Vamp
57 YCDTOSA IV							See the first releases
58 YCDTOSA V							See the first releases
Baked-bean boogie		Eb					Vamp
No waiting for the peanuts to dissolve		E					Vamp
The black page #2, solo				Bb			Pedal note
Pound for a brown, solo		G					Vamp

MAIN DIATONIC SCALES IN GUITAR SOLOS							
Title	Ionian	Dorian	Phrygian	Lydian	Mixolydian	Aeolian	Comment Type
59 YCDTOSA VI							See the first releases
60 PLAYGROUND PSHYCHOTICS							See the first releases
Brixtol still life					D		Pedal note
61 AHEAD OF THEIR TIME							See the first releases
62 THE YELLOW SHARK							
63 CIVILIZATION PHAZE III							
64 THE LOST EPISODES							
Lost in a whirlpool		E					Blues
Sharleena (1969), solo		G					Pedal note
65 LÄTHER							See the original CDs
Duck duck goose, solo		D					Vamp
Down in the dew, solo					D		Pedal note
Läther							See I promise not ...
Leather goods					D		Pedal note
66 FZ PLAYS THE MUSIC OF FZ							See the first releases
67 HAVE I OFFENDED SOMEONE							See the original CDs
68 THE MISTERY DISC							
Metal man has won his wings		E					Blues
Power trio		A					Blues
Bossa Nova			G				Vamp (Latin style)
Speed-freak boogie		E					Vamp
Mondo Hollywood		E					Vamp
Black beauty, solo		Eb					Pedal note
69 EVERYTHING IS HEALING NICELY							
Roland's big event/Strat Vindaloo							Eastern type of scales
70 FZ:OZ							See the first releases
71 HALLOWEEN							
Ancient armaments		A					Pedal note
72 QUAUDIOPHILIAC							
Rollo, solo		E					Pedal note
Chunga's basement		D					Vamp
Venusian time bandits		F					Pedal note
73 JOE'S CORSAGE							See the first releases
74 JOE'S DAMAGE							
Another whole melodic section							Chord progression
Think it over		D				D	Pedal note
75 JOE'S XMESSAGE							
GTR trio							See Power trio
76 IMAGINARY DISEASES							
Been to Kansas		A					Blues
DC Boogie		E			D		Pedal note/vamp
Imaginary diseases		B					Vamp
Montreal					D		Pedal note
77-78 MOFO							See the original CD

MAIN DIATONIC SCALES IN GUITAR SOLOS								
Title	Ionian	Dorian	Phrygian	Lydian	Mixolydian	Aeolian	Comment	Type
79 TRANCE-FUSION								
Chunga's revenge		D						Vamp
Bowling on Charen					B			Pedal note/alternating chords
Good Lobna		F#						Pedal note
A cold dark matter				C				Alternating chords
Butter or cannons							Irregular	Irregular
Ask dr. Stupid		F#						Vamp
Scratch & sniff		G						Vamp
Trance-fusion		D						Vamp
Gorgo		A						Pedal note
Diplodocus		D#						Vamp
Soul polka		C#						Vamp
For Giuseppe Franco					A			Pedal note
After dinner smoker		A						Pedal note
Light is all that matters							Irregular	
Finding Higgs' Bosson					A			Pedal note
Bavarian sunset	E				E			Pedal note
80 BUFFALO								
The torture never stops (1980), solos		A						Pedal note
81 THE DUB ROOM SPECIAL								See the first releases
82 WAZOO								See the first releases
Greggery Peccary								
mvt 3 solos, guitar solo						E		Pedal note from 9:00 onwards
83 ONE SHOT DEAL								
Heidelberg					E			Pedal note
Occam's razor				C				Alternating chords
84 JOE'S MENAGE								See the first releases
Chunga's revenge (1975), solo		D						Pedal note
85 LUMPY MONEY								See the original CDs
86 PHILLY '76								See the first releases
87 GREASY LOVE SONGS								See the original CD
88 CONGRESS SHALL MAKE NO LAW								
89 HAMMERSMITH ODEON								See the first releases
Flakes (1978), solo	E							Solo over a chord progression
King Kong (1978), solo		Eb		D				Alternating chords
90 FEEDING THE MONKEYS AT MA MAISON								
91 CARNEGIE HALL								See the first releases
Billy the mountain solos, guitar solo				C				Alternating chords
Mudd shark, solo		E			E			Pedal note
92 ROAD TAPES, VENUE #1								See the first releases
93 UNDERSTANDING AMERICA								See the original CDs
94 FINER MOMENTS								
Sleazette		E						Pedal note
The old curiosity shoppe				C				Alternating chords
Uncle rebus								See Baked-bean boogie
The subcutaneous peril		D						Pedal note
95 BABY SNAKES COMPLETE SOUNDTRACK								See the first releases
96 ROAD TAPES, VENUE #2								See the first releases
All skate	A	A			C/A			Blues

97 A TOKEN OF HIS EXTREME							See the first releases
98 JOE'S CAMOUFLAGE							See the first releases
Phyniox	Ab		C	Ab	Ab		Vamp
Reeny ra						Locrian	Vamp
99 ROXY BY PROXY							See the first releases
OTHER OFFICIAL MATERIAL							
Walkin' out					D/A/E		Solo over a chord progression
Waltz (Pal records)		D			D		Jazz
Breaktime		C					Jazz
Grunion run		C					Blues
Twinkle tits, guitar solos		E					Pedal note
Conehead (1978), solo		F/E					Vamp
Mo' mama					E		Pedal note/alternating chords
Improvisation in A					A		Pedal note
Budapest solo					D		Pedal note

CHAPTER II: THE DEPLOYMENT OF CHORDS.

A term that stands central in the Clement theory is a Lydian system. It gets defined as follows (Clement 2009, pp. 118 and 302):

F=1, C=2, etc). This T7 cycle also provides a means by which to derive a modal system. Example 4.6 offers a *Lydian system*, a term I will use to describe a collection of diatonic modes within the overriding Lydian mode (here shown in F Lydian). The Lydian system includes five potential modes, which are created when any of the first five pitches of the Lydian fifth-stack are asserted as local tonic. All five modes within a given Lydian system contain the same pitch content; therefore, in the example given, C Ionian, G Mixolydian, D Dorian, and A Aeolian are all considered members of the F-Lydian system. Besides viewing the Lydian mode as the overall tonic of the system, Example 4.6 corresponds with Russell's modal system (Example 4.4) in

The table:

Example 4.6. The Lydian modal system (shown in F Lydian).

#	tonic	mode
7	B	N/A
6	E	N/A
5	A	Aeolian (?)
4	D	Dorian
3	G	Mixolydian
2	C	Ionian (?)
1	F	Lydian

The term Lydian system is new by Clement. The notification that scales can be seen as pedal substitutions for one another of course isn't, neither is the notification that the stacking of fifths produces the Lydian scale. I doubt if there's anyone who can be credited for coming up with this first. Strictly by its definition this would simply mean that all diatonic music can be interpreted as part of a Lydian system. Mozart writing in C would then be Lydian system F. But that's not what Clement means. What he does mean remains a bit cloudy and only becomes better understandable by the different manners he explains examples as part of a Lydian system:

1) A piece has a central melody in a certain Lydian key and in other parts section turn up that can be

seen as a pedal substitution for this key. This is the case when for instance the central melody is in F Lydian and somewhere else a part is in D Dorian. Combined with the definition from above, I agree with Clement that it can be called a Lydian system. Following the definition of a pedal substitution it's normal to do so.

2) Clement also calls something a Lydian system when the central melody is not in a Lydian key, but a section somewhere else in Lydian can be interpreted as a pedal substitution for the central melody.

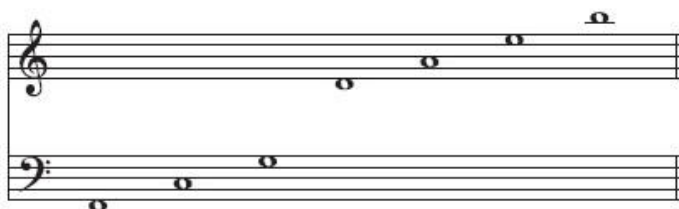
This is the inversion of 1) and therefore, along the standard definition, an abnormal way of identifying a pedal substitution. When the central melody is in D Dorian and somewhere else appears a section in F Lydian, then Lydian is a substitution for Dorian and not the other way round.

3) Clement is also inclined to call something Lydian or a Lydian system if the Lydian scale turns up somewhere in a composition. He even does this with subsets of notes from otherwise atonal compositions. This is taking things out of proportion. Zappa is modal composer, who, in his written compositions, modulates frequently. The Lydian scale turning up frequently is something one might expect to happen automatically with a modal composer. It only would have a specific meaning if a composer had a clear preference for Lydian. In chapter I enough has been said that this is not the case for Zappa. The massive amount of examples in Dorian, Lydian and Mixolydian only points at the correctness of the conclusion from my study and the one by Ludwig:

FRANK ZAPPA IS A MODAL COMPOSER, JUST LIKE THAT.

4) The manner chords are deployed, the “cyclic Lydian” chords as I’ll explain below. In case of minor chords Clement goes for Dorian, like the LCC, but in a different manner. Aeolian might be possible on step five of his Lydian system as well, but below you'll find his argument why Aeolian is not suited for minor chords.

At the end of this chapter I'll show that the combination of items 1)-3) leads to situations where the term Lydian system loses all its meaning. First I continue with item 4), the chords. When a piece of music is not in Lydian, items 1)-3) don't apply. Here the connection with the Lydian scale is made via identifying chords as derived from the Lydian scale. The Lydian scale can be produced by stacking fifths and the notes of its scale can then be numbered as follows (Clement 2014, pp. 148-9):



EXAMPLE 2. *Generation of the Lydian scale through a cycle of perfect fifths.*

(b) Lydian fifth stack and order of pitch stability

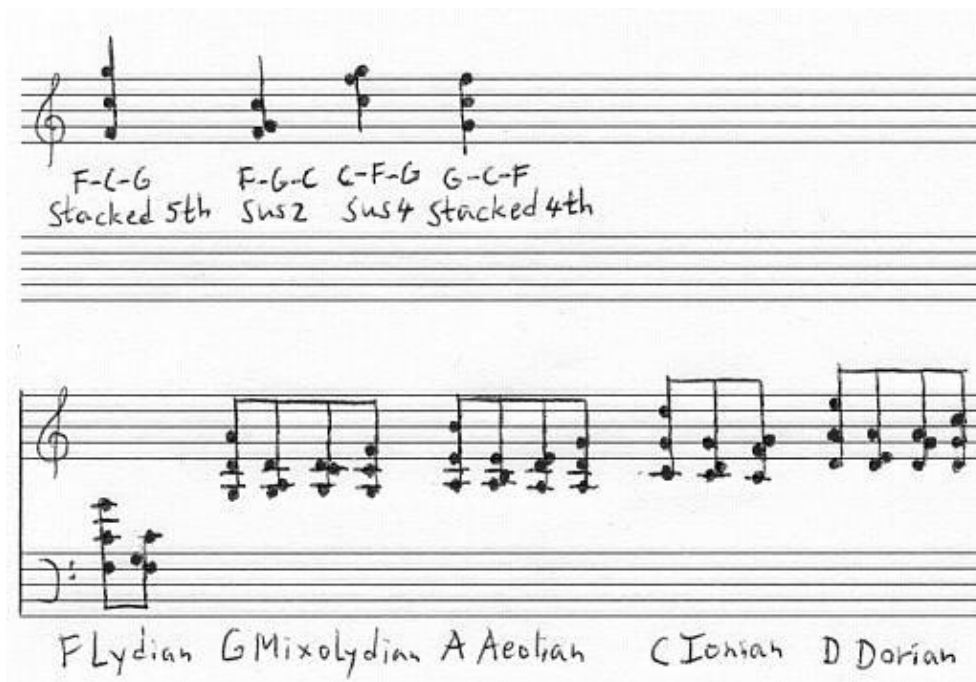
	F	C	G	D	A	E	B
#	1	2	3	4	5	6	7

Next are two examples of explaining chords as derived from the cycle of fifths of the Lydian scale. Clement 2009, p. 124:

mode.⁶⁰ By far the most characteristic chords in the Lydian mode are the quintal (i.e., stacked fifths) and sus-2 chords, both of which consist of pitches #1–#3 in the fifth-stack representation of the Lydian scale (here F-C-G). The sus-2 chord is thereby conceptualized as a modified version of the quintal chord, in which the top note of the quintal realization (G) is flipped below the middle pitch (C). That is, the sus-2 chord herein is not viewed as merely an altered version of the major triad, but as a sonority that directly engages with the T7-cycle generation of the tonic Lydian scale. The prime example of the sus-2/Lydian correlation is the piece “The Black
[Clement 2009, p. 137:](#)

Various T7-cyclic chords are available in the Mixolydian mode (shown in Example 4.17). The Mixolydian sus-2 chord is built from pitches #3–#5 of the stack. As will be discussed below, Mixolydian is the last mode of the Lydian system from which a sus-2 chord may be formed above the pedal. The main theme of “Little House I Used to Live In/The Return of the

[This explanation of a couple of chords as derived from the Lydian scale is something specific for Clement. The thing Clement calls a cyclic or T7 "Lydian" chord, is chord made up of three subsequent notes from the Lydian scale. That is a stacked fifth, and its inversions: the sus2 chord, the sus4 chord and the stacked fourth. Every author has a right to define his own terms and in this case I can go along with Clement. It's possible to explain sus2 and sus4 chords in this manner. I also agree that Zappa liked these chords and that they happen frequently in his music, though not to the point of becoming typical in a statistical sense. Of course one doesn't need a Lydian theory to become aware of the occurrences of these chords in Zappa's music or music in general. Both for the LCC and the Lydian theory by Clement only the chords upon the tonic are taken as relevant \(see the final tables by Clement below and chapter III\). If one looks at how these chords are supported in a neutral manner you're getting the following picture:](#)



This is the most direct way to show the weakness of the Clement theory: its inner inconsistency. THE CHORDS CLEMENT DEFINES AS CYCLIC LYDIAN CHORDS ARE SUPPORTED THE LEAST UPON THE LYDIAN TONIC.

Since this is pretty obvious one might ask why Clement didn't notice this himself. Well, to a degree he did, but he constructed his chord tables in such a manner that this effect gets camouflaged. To the defense of Clement one of the editors from Music Theory Spectrum wrote me that Clement nowhere states that it's the purpose of his theory that it would maximize the use of cyclic chords and that it would be a stretch even to call it an implication. Taken literally the first is true and the second is questionable. The first two printscreens below are two of many where Clement is making a direct relation between the usefulness of scales and their ability to produce cyclic chords. But this remains a toying with words. More relevant are the following facts:

- Cyclic chord are supported the least upon the Lydian tonic. Clement does not point at this himself.
- Theoretically it may very well be that a Lydian theory leads to the conclusion that the Lydian scale itself offers the least possibilities. Instead of noticing this, Clement tries to conceal this as I will show below.
- Following his own theory, Clement has no reason to call the Ionian and Mixolydian scales less fit than the Lydian scale. This is too much in conflict with his statements as cited in chapter I. To be maintained the Clement theory would need such a thorough revision that he would lose his credibility.

Clement 2014, p. 154, relating the relevance of a scale to its ability to produce cyclic chords:

tonic pitch. Various cyclic chords are available in the Mixolydian mode—including a sus2 and a sus4 chord—but most characteristic is the “quartal” chord. This sonority continues the pattern—established by the Lydian sus2 and Ionian sus4—of forming [027] chords from stable fifth-stack pitches 1–3. Quartal chords are often used by Zappa as harmonic accompaniments to his Mixolydian guitar solos, with examples

Clement 2009, p. 312, presenting the occurrence of cyclic chords as evidence for a Lydian system (One man - one vote):

Lydian system: A Lydian
Pedal: B Mixolydian

Step by step I will show how the simple table with cyclic chords from above gets modified by Clement to get at the tables he presents himself. Each step is questionable.

Step 1: don't present the stacked 5th in the tables, other than the one for Lydian.

Hardly a comment needed, that's unjustified.

Step 2: include two chords not on the tonic, but only for Lydian.

Hardly a comment needed neither, that's getting arbitrary. The added chords are the triad on II and V. Zappa does indeed use these chords frequently, but he uses other chords in a Lydian context just as well (see chapter VI). And if you do that for Lydian, you might just as well do that for the other scales: for a proper comparison such chords should be included for all five standard modal scales or not at all. Even so, if Zappa had a preference for the three indicated triads in Lydian, as Clement claims, it would only mean that Lydian would be more limited in its usefulness than the other scales.

Step 3: include the stacked third series, but not in full.

This is traditional harmony: all chords are explained via stacking thirds (two of them form the 5th, three the 7th etc.). One can do that for all the diatonic scales: you get the entire scale by stacking up thirds to the 13th. In my opinion this series already means any chord. In traditional harmony a stacked fifth gets identified as a 9th chord, with the 3rd and 7th being absent. If you want to include this series, than you do it for all the scales or not at all. However, in the Clement tables the series of thirds in Mixolydian gets cut off beyond the 5th, dealt with below as steps 4-5. The series is not presented for Aeolian as useful at all (a question mark is already put behind the triad).

Step 4: exclude the dominant 7th for Mixolydian.

According to Clement, the dominant 7th is prohibited in his theory. Clement 2009, p. 131:

chords are present. However, Mixolydian's tertian sonorities are limited to the major triad, as Mixolydian has no seventh-chord representative. This fact is quite significant, as a seventh chord built from a Mixolydian pedal would provide a chord type as yet unaccounted for: the dominant-seventh chord. As discussed above, George Russell had located the "seventh-chord family" on scale-degree two (Mode II) of the Lydian mode. While our Mode III is essentially the same mode as Russell's Mode II (both being located on the pitch two perfect fifths away from the Lydian tonic), the dominant-seventh sonority is prohibited in this theory. Stated plainly, dominant-seventh chords do not occur within the Lydian system—or, for that matter, Zappa's diatonic music, wherein the presence of the dominant-seventh chord should be taken as

[Clement 2014, p. 153, discussing the Mixolydian scale:](#)

Hence, contrary to Russell's pairing of this mode with the (dominant) seventh chord, Mixolydian has no seventh-chord representative. Again, this constraint is a result of tritone restrictions in the LS, which bar the use of the dominant-seventh

The remarks about George Russell and the tritone restriction get dealt with in chapter III. As a plain fact: the alleged absence of the dominant 7th in Zappa's instrumental diatonic music is false. First an example in Zappa's own handwriting with Eb7 (see the "Think it over" example in my main study for where it stems from):



Indicated guitar chord examples from score collections to show that other people treat the dominant 7th as normal to Zappa's instrumental music:

Hot Rats guitar book: page 8 (E7) and 32 (Bb7), pages 45 and following (G7 as the basic chord for

most of the song; the F# in the presets is a convention in the Hal Leonard series to notate in major or minor; the actual F is natural and the scale G Mixolydian). See also the "Gumbo variations" example in my study.

Overnite sensation guitar book: pages 43 and 47-51.

Apostrophe (') guitar book: pages 44, 83-84 and 88; pages 71, 74, 76-77 (G7); pages 83-84 and 88 (C7).

One size fits all guitar book: pages 30-35, 46, 49, 63-65, 73-81, 118 and 122.

The FZ Songbook vol. I: pages 22-23 (a larger number, though with lyrics), 70 and 98 (with Zappa modulating, half diatonic, half chromatic).

I've checked two of these examples in Mixolydian in detail. They are correct. They are not harmonizations by the transcriber, but chords you can hear on the albums themselves.

The Gumbo Variations

By Frank Zappa

A Intro
Moderately ♩ = 104
N.C.(G7)

* Gtr. 1
mf

* Bass arr. for gtr.

B Theme
N.C.(G7)
Gtr. 2 (dist.)
f

Opening of The Gumbo variations. Hot Rats guitar book, Hal Leonard series, page 45. Transcriber: Andy Aledort. This example in G Mixolydian features G7. Andy indicates that you can play it with no chord (N.C.), with G7 between brackets as the central chord if you do choose one. G7 is indeed the central chord on CD.

Note: it's a convention in the Hal Leonard series to always notate music as in major or minor.



Opening of The Gumbo variations on the Hot Rats CD (transcr. Andy Aledort with details added by me).

The image displays four staves of guitar music, each consisting of a melodic line in treble clef and a fretboard diagram in bass clef. The first staff is labeled with C7 and Db7, the second with Ab7, the third with Cb7, and the fourth with Ab7 and Cb7. The fretboard diagrams use numbers 0-11 to indicate fret positions and include slurs and ties to show phrasing.

Section of the solos from Fifty-fifty. Overnite sensation guitar book, Hal Leonard series, page 48.

Transcriber: Paul Pappas. Throughout pages 43-51 you can see the dominant 7th recurring frequently.

My analysis of it as a modulation scheme with Mixolydian as basis (www.zappa-analysis.com):

"During the song you have a large instrumental middle block for three sequent solos. All three follow the same modulation pattern, with as its basis:

- 8 bars alternating C Mixolydian and Db Mixolydian.
- 8 bars alternating Ab Mixolydian and Cb Mixolydian. In all bars the bass is playing the tonic as pedal note and the accompanying chords are mostly larger chords (7th to 11th) with the tonic as root. Only in the final 16th bar the bass moves over to Eb.
- 8 bars again alternating C Mixolydian and Db Mixolydian.
- 8 bars again alternating Ab Mixolydian and Cb Mixolydian.

The three solo out-takes below are bars 5-10 plus the beginning of bar 11 from this scheme, that lasts 32 bars in total. Thus these corresponding blocks present the same section as played by the three solo players. The scales are followed by the soloists with a lot of freedom. The first organ solo example

below begins with George Duke playing as fast as he can over a C Mixolydian accompaniment, using the chromatic scale. Notes over the Db bars can also get altered. Especially Zappa alters notes consistently during his solo. Over the C pedal bars he changes the E to Eb, thus mingling C Mixolydian with C Dorian. Over the Db pedal bars he always uses a C natural instead of a Cb and half of the time the Gb also gets altered to G natural. So here Db Mixolydian gets mixed with Db major and Db Lydian."

Step 5: also exclude the larger chords following upon the dominant 7th for Mixolydian.

In the Clement table below the stacking of thirds in the Mixolydian scale stops as soon as you get to the dominant 7th, so the whole dominant 7th family from the LCC gets rejected as not belonging to a Lydian theory. If you agree with that, then the following examples should sound as things unlike Zappa:

EXCERPT FROM MUSIC FOR ELECTRIC VIOLIN
AND LOW-BUDGET SYMPHONY ORCHESTRA
(piano with concert pitch melody line)

69

Andante
Bb 13

By
FRANK ZAPPA
Bb Clarinet (in concert key)

B11 (~13)

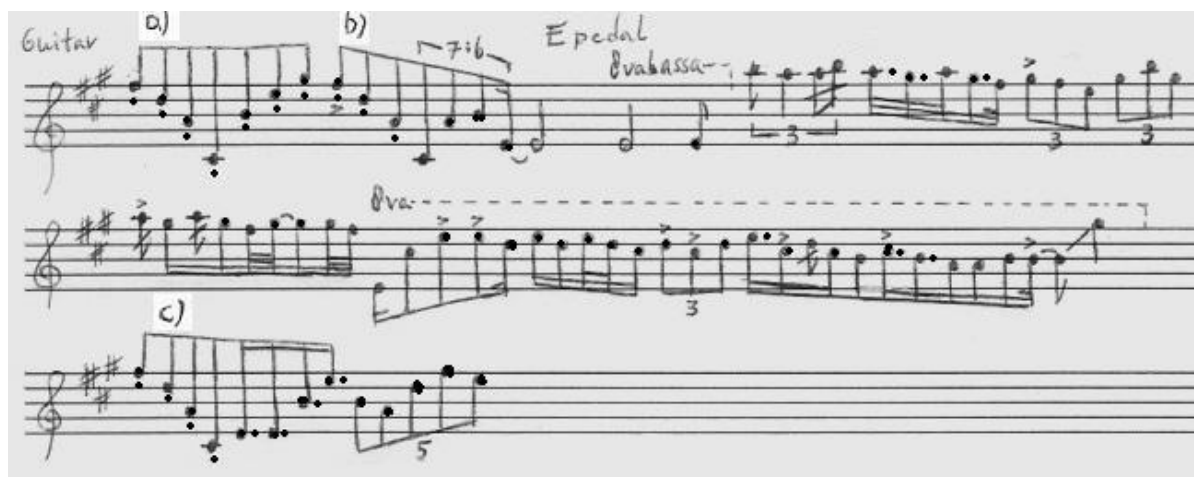
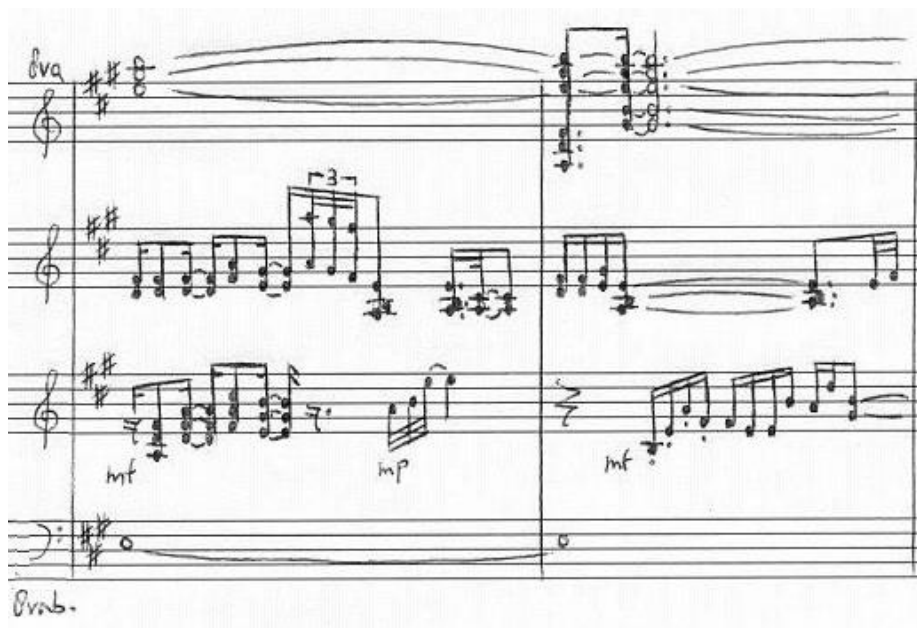
C13 3 fr.

C#m7

D+7 (b9) 4 fr.

Cm7 (1412)

Tacet



The chords in the first example:

- bars 1-6: Bb Mixolydian with Bb13.
- bars 7-8: B minor with B11(-13).
- bar 9: C Mixolydian with C13.
- bar 10-11: C# minor with C#m7add6.
- bars 12-14: D Phrygian with D+7(b9).

The above is the piano extract from the Songbook; in the 4th pdf version of my study you can find the orchestral score. It not only contains examples of Zappa stacking thirds upon the Mixolydian tonic up to the 13th, but also the use of the minor/Aeolian scale, as well as Phrygian.

The second example from Yo' mama is Zappa putting chords in layers over the E Mixolydian tonic, right away beginning with E11.

The third example is Zappa playing the E13 chord in a broken form at the beginning of Why Johnny can't read, a solo in E Mixolydian.

In my opinion Zappa's music is not about prohibitions and exclusions. His desire for harmonic freedom is total and examples as above scream for it. They are not untypical of Zappa, it's what Zappa is about.

Next is Zappa himself talking about this. It deals with the Heavy duty Judy guitar solo from Shut up 'n play yer guitar, a solo in E Mixolydian. Zappa refers to the vamp as E7, thus Zappa himself apparently

was in my imagination at the time that it was happening. I didn't have a strict part worked out at all. I don't practice solos or anything like that. I just go for it (see Ex. 5 and Ex. 6).

"Heavy Duty Judy" sounds as if it's based on more than one tonality.

I do that all the time. For instance, that's just an E7 vamp, and I like to play in the key of A.

It's just like playing in the tonality of the eleventh.

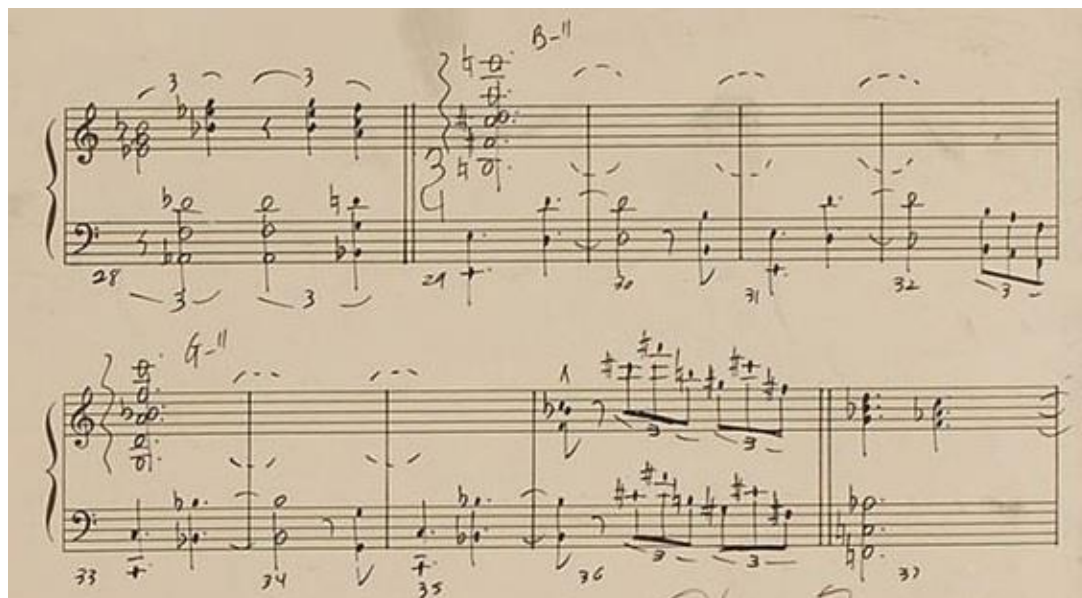
That can be pretty hairy for someone used to playing only major and minor chords and 7ths.

They're missing out! The fun doesn't start until you get to the eleventh.

Further complicating the piece are the many different rhythms.

Well, basically, in that tune you've got the band—bass, keyboards, and rhythm guitar—playing the same shuffle rhythm, and the guitar and drums are going apeshit on top of that, but always knowing where the downbeat is going to come back. That doesn't mean that you have

11th and 13th chords in Zappa's music normally don't turn up as all six or seven notes played at once by one player. In that case such a large chord would sound as a rather plump mass. The chords get broken in an arpeggio-like manner or led over a number of parts (Clement also identifies chords in this manner; see the One man - one vote example above). In the following example Zappa prescribes a descant Bm11 arpeggio chord over an E pedal and a descant Gm11 chord over a C pedal. The total sounding combinations are 11th chords upon E and C, Mixolydian in this case (see both examples below). There is quite a number of such examples, like the What will Rumi do? example in my study or King Kong as played on Lumpy Gravy.



43

The corresponding Farther O'Blivion section, as played on Imaginary diseases (transcription by me, based upon the piano part).

Step 6: exclude the sus2 chord for Dorian, as well as the triad, sus2 and the sus4 chords for Aeolian.

Both in his 2009 study and his 2014 article Clement explains why cyclic chords should better not include lead tones from the corresponding Lydian scale. In case of D Dorian or A Aeolian, both overlapping with F Lydian for their notes, the sus2 chord would include an E. Specifically this E would be in relative dissonance with the corresponding Lydian tonic F. Clement even does this to the point of saying the triad on the Aeolian tonic shouldn't be used. On the Aeolian tonic the triad, as well as the sus2 and sus4 chords, would also create a dissonance with the corresponding Lydian tonic.

Clement 2009, p. 137:

cycle sonorities are somewhat constrained. Significantly, Dorian is the first mode yet encountered in which sus-2 chords constructed from the pedal are absent. This constraint accrues because a potential Dorian sus-2 chord would feature one of the “leading tones” of the Lydian system. For example, in the F-Lydian system, a Dorian sus-2 would include the pitches (D-A-E), thereby incorporating E, the first leading tone of the F-Lydian system. As detailed above, T7-cycles in the accompaniment (pedal/chordal zones or ostinati) tend to be reserved for pitches #1–#5 of the Lydian fifth-stack, thereby barring the relatively unstable leading tones from providing harmonic support.

[Clement 2009, p. 140 and 317:](#)

diatonic music. However, the tenuous role of the Aeolian mode within the Lydian system can be explained by purely structural factors. Let us consider, in reference to the Lydian system, the triadic and T7-cyclic structures that might occur above the Aeolian pedal. Example 4.28 provides both a triad and sus-2 chord in Aeolian. As shown, both chords prominently feature the “leading tones” of the Lydian fifth-stack. As for the sus-2 chord, which contains both leading tones, we have already stated the preference to bar these relatively unstable pitches from T7-cyclic sonorities. On a more fundamental level, the Aeolian pedal is unable to receive consonant support from a fifth that is stable within the Lydian system. Therefore, the Aeolian triad, which is supported by pitch #6 of the Lydian fifth-stack, is heard as relatively dissonant within the Lydian system. This represents a marked divergence from the view of the Aeolian triad within

Example 4.28. Potential triad and sus-2 chord of Aeolian (Mode V).



Re-stated as a rule in his article, Clement 2014, p. 152:

Although I will comment upon the significance of some of the chords in Example 6, the contents shown are quite predictable when we proceed from the hypothesis that Zappa's chord types should uphold Lydian properties of consonance and dissonance. Two general rules may be formulated, the first regarding cyclic chords and the second pertaining to tertian chords: (1) cyclic chords should generally restrict their pitch content to adjacent segments of the lower pentachord of the Lydian fifth-stack (pitches 1–5);³¹ and (2) tertian chords are subject to a tritone restriction, whereby the interval can only appear with Lydian $\hat{1}$ sounding below $\hat{4}$. Adherence to the first rule, which essentially involves avoidance of the leading tones, allows one to experience cyclic chords as generally stable and therefore not in need of resolution. The second rule is necessary to maintain the melodic trajectories associated with the most stable ($\hat{1}$) and the least stable ($\hat{4}$) Lydian pitches. That is, $\hat{1}$ should remain melodically inactive, as its stability implies no motion in itself, whereas $\hat{4}$ is strongly suggestive of ascending melodic resolution. Reversing the registral configuration of the tritone, with $\hat{1}$ above $\hat{4}$, would activate $\hat{1}$ as a dissonant pitch in need of downward resolution.

Combined with the rejection of the dominant 7th family, the consequences of the restrictions caused by the rules by Clement are severe. If true that would be weird for someone who himself claimed that he did whatever sounded good to him. It sort of rules out Zappa's free use of Aeolian. In chapter I enough examples have been given that Zappa himself considered Aeolian a viable scale. Though I can understand what Clement says, I find it difficult to take this serious. First, was Zappa the type to avoid lead tones and dissonants? Secondly, we're here not talking about audible Lydian lead tones or a dissonance, but an imaginary one: the Lydian scale or tonic is not actually played. Nobody before Clement has ever suggested that the Lydian scale is leading in Zappa's music. Then should everybody in some way subconsciously have realized that one shouldn't play a sus2 chord on the Dorian tonic, because one of its notes would create a dissonance with a corresponding Lydian tonic? That's highly unlikely. I only hear dissonances when they are actually played. And I only experience notes as lead tones in the scale that's being played. Over a Dsus2 chord in Dorian one has to play an F to hear an E-F dissonance and, when this happens, one would call it a dissonance within the Dorian scale itself. And in case of Dsus2 in F Lydian, I would call E-F a dissonance within the Lydian scale. Music isn't a form of higher mathematics with, in the case of Zappa, only people like Clement being able to discover how it works. You've got millions of people who listen to it, who are able to play it and able to identify scales and chords.

Anyway, you can test yourself by trying to detect if you can hear that there's something wrong with the following examples:

Handwritten musical score for Zappa's "The Torture Never Stops". The score is written for keyboards and guitar. The key signature is G Dorian (one flat, 4/4 time). The tempo is marked "Allegro". The score is divided into two systems. The first system shows the keyboards playing a Gsus2 chord (G-B-A) in the right hand, which is circled in red. The guitar plays a Gsus2 chord in the left hand, also circled in red. The second system shows the keyboards playing a Gsus2 chord in the right hand, which is circled in red. The guitar plays a Gsus2 chord in the left hand, also circled in red. The score is marked with dynamics: mf (mezzo-forte) and pp (pianissimo).

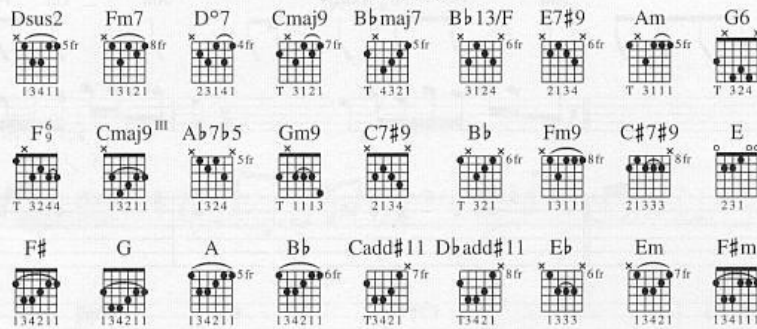
The torture never stops: Zappa playing keyboard including Gsus2 in G Dorian.

Handwritten musical score for Zappa's "The Torture Never Stops". The score is written for keyboards and guitar. The key signature is G Dorian (one flat, 4/4 time). The tempo is marked "Allegro". The score is divided into two systems. The first system shows the keyboards playing a Gsus2 chord (G-B-A) in the right hand, which is circled in red. The guitar plays a Gsus2 chord in the left hand, also circled in red. The second system shows the keyboards playing a Gsus2 chord in the right hand, which is circled in red. The guitar plays a Gsus2 chord in the left hand, also circled in red. The score is marked with dynamics: mf (mezzo-forte) and pp (pianissimo). An annotation in blue text reads: "Imaginary dissonance with the corresponding Lydian tonic Bb (not actually being played)".

The torture never stops: idem with imaginary Lydian tonic.

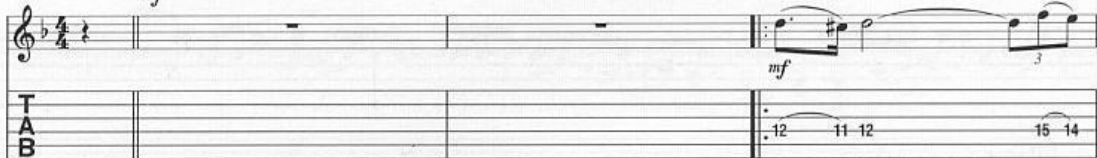
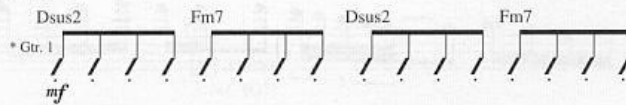
Little Umbrellas

By Frank Zappa



A Intro

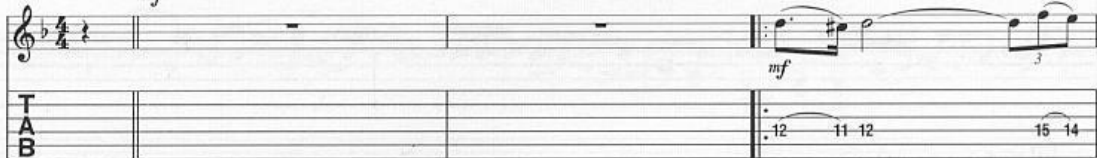
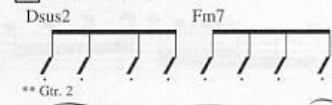
Slow ♩ = 68



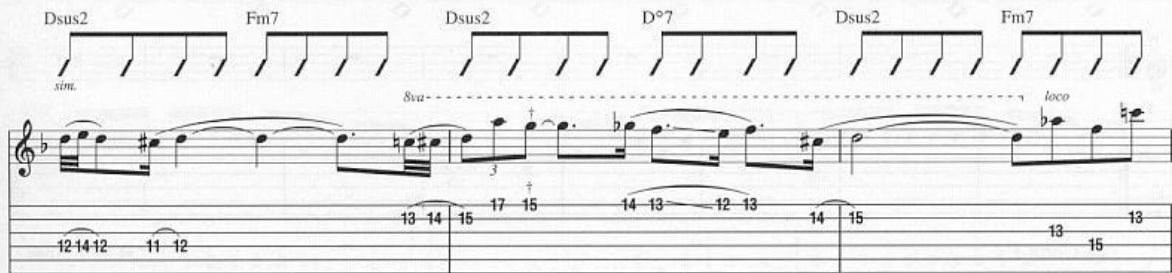
* Piano arr. for gtr.

B Main Theme

Slow ♩ = 68



** Horns & synth. arr. for gtr.



† 3rd time, play G#

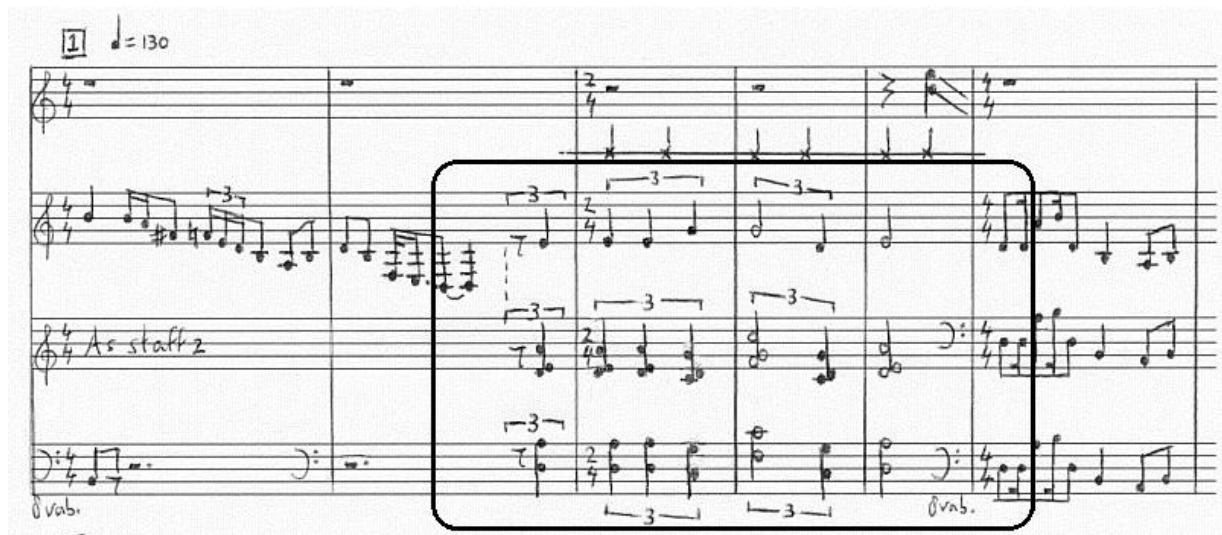
Little umbrellas with the Dsus2 chord in D Dorian (notated as minor), as indicated by Andy Aledort (in the 4th pdf version of my study I made a mistake by notating a D chord here; there's no F# present). Printscreen taken from the Hot Rats guitar book, Hal Leonard series, page 43.

Handwritten musical score for "The Little House I Used to Live In" by Frank Zappa. The score is in F# minor and 4/4 time. It consists of two systems of staves. The first system (measures 24-27) shows a melody in the treble clef, a bass line in the bass clef, and a drum solo ending. The second system (measures 28-31) shows a continuous melody in the treble clef and a repeating bass line in the bass clef. Handwritten annotations include "mp", "mf", "Drum solo ends", "As bar 25", "vab.", and "Keeps repeating".

The little house I used to live in, section (transcr. W. Ludwig). In F# minor the notes of melody consistently form the F#sus2 chord. Also note the presence of the A and a G natural, next to G sharp: Zappa's music isn't about avoiding dissonances.

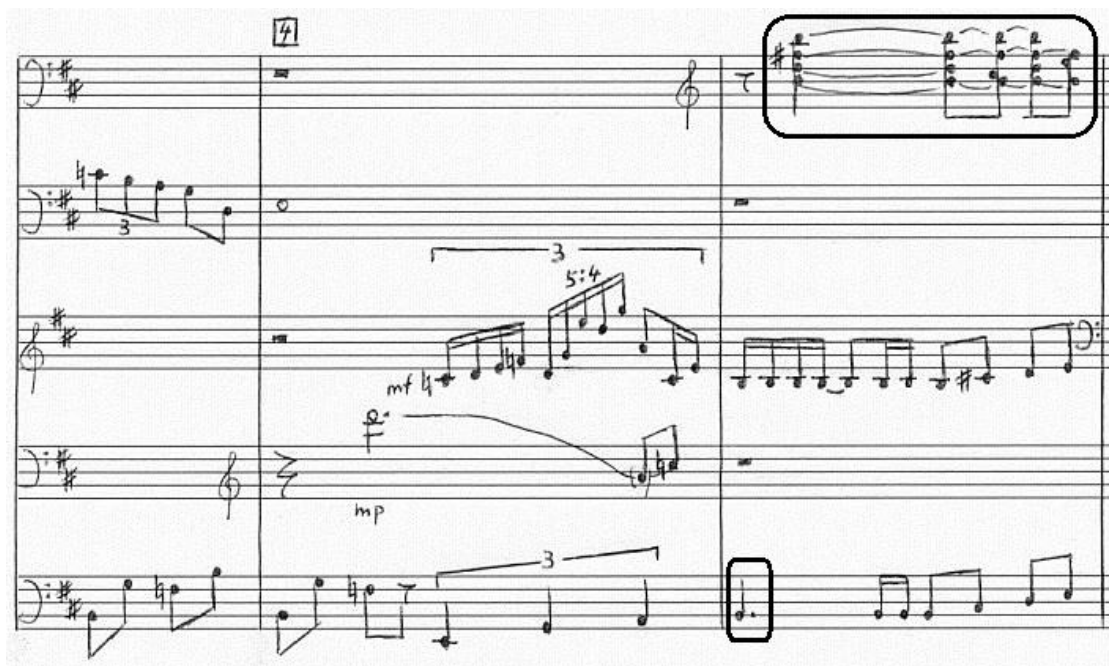
Handwritten musical score for "Pygmy Twylite solo (A token of my extreme)" by George Duke. The score is in B major (one sharp) and 4/4 time. It consists of three systems of staves. System I (measures 1-4) is marked "Legate" and features a melodic line with triplets and a piano accompaniment with a circled triad on B. System II (measures 5-8) is marked "Normal" and features a melodic line with a triplet and a piano accompaniment with a circled triad on B. System III (measures 9-12) features a melodic line with triplets and a piano accompaniment with a circled triad on B. The score includes dynamic markings such as p, mp, and pp, and articulation markings like accents and slurs.

Pygmy Twylite solo (A token of my extreme): George Duke improvising, using the triad on B and Bsus4 in B Aeolian.



The idiot bastard son (1974), with a citation from "Pygmy twylite" with Dsus2. At this specific point this block can be seen as in D Dorian. In the context of "The idiot bastard son" itself, there are also different possibilities to look at it (see the YCDTOSA II section in my main study).

Sheik Yerbouti tango. Triad on F in F Aeolian.



Peaches III, section. Triad on B, Bsus2 and Bsus4 passing by in B Aeolian.

Handwritten musical score for King Kong opening (1982). The score is in Eb Dorian mode, featuring Ebsus2. The notation includes a key signature of three flats (Bb, Eb, and Ab), a 4/4 time signature, and various musical notations such as triplets, a 5:4 ratio, and dynamic markings like mf and mp. A circled section of the score highlights a specific musical phrase.

King Kong opening (1982): Tommy Mars improvising, using Ebsus2 in Eb Dorian.

Outrage at Valdez (F Aeolian). The notes from the Fsus2 chord in the shape of a stacked fourth.

So these examples show a sus2 chord on the Dorian tonic in a couple of environments, as well as the use of the triad, sus2 and sus4 chord over the Aeolian tonic. There's nothing wrong with the above examples, nor do they sound as unlike Zappa. All four cyclic chords from the beginning of this chapter sound usable in Dorian and Aeolian.

Step 7: include the "So what" chord.

The so-called So what chord, as intervals 5-5-5-4, is given a specific meaning in jazz circles. Clement found one song with Zappa using this chord, which is too meager to include it in a table with characteristic chords. The chord can be played on both the Dorian and Aeolian tonic by the way.

Step 8: exclude the 11th in the Ionian stacked thirds series.

On C that would be the F, the fourth. In the overlapping F Lydian scale this F would be the tonic itself. For both the Lydian scale and the Ionian scale Clement states that this note should be avoided in the melodic line over the tonic (Clement 2009, pp. 127-8, for Lydian and Clement 2009, p. 129, for Ionian). I'm dealing with this in chapter VI: Clement's statement that there's a strong tendency in Zappa's music to do so is incorrect.

So by following these exact 8 steps we're getting at the chord tables from the Clement study. In his 2009 study you see them as examples 4.10, 4.15, 4.17 and 4.25 (the G clef in staff 3 in example 4.15 is a writing error for the F clef). Clement 2014, p. 151, has these tables combined (the accolade in (a) is a writing error, it should be for only the quintal and sus2 chord; the first sus2 in (b) is a writing error for sus4):

(a) Mode I: Lydian

Melodic zone

Chordal zone

Pedal zone

I V II quintal sus2

pitches #1-#3

(b) Mode II: Ionian

(c) Mode III: Mixolydian

sus2 #1-#3 sus2 #2-#4

quartal #1-#3 sus2 #2-#4 sus2 #3-#5

(d) Mode IV: Dorian

(e) Mode V: Aeolian

"So What" #1-#5 quartal #2-#4 sus4 #3-#5

? ?

#5-#7

EXAMPLE 6. *Modal pitch structures within the Lydian system.*

By adding extra chords to the Lydian table and skipping chords from the others, it now looks as if modes I-IV offer comparable possibilities. The inner inconsistency of his theory, to a point, also gets noticed by Clement himself. The encircled part is sort of the same as I'm saying in a nutshell, though by far not covering the amount of defects as I described above. When you don't accept the rules by Clement, this goes for all scales even more so.

Clement 2009, p. 129:

Example 4.15 provides the basic pitch structures of Zappa's Ionian-mode music (shown in C Ionian). As can be seen, chordal-zone materials in the Ionian mode are very similar to those of the Lydian mode, including both triadic and T7-cycle sonorities. As for tertian chords, the only notable divergence in Ionian is the lack of the 11th (i.e., the Ionian fourth) in the third stack. Of T7-cycle chords, particularly those of set class (027), the Ionian mode includes both sus-2 and sus-4 chords. The sus-4 chord, new to Ionian, is of particular interest, as its pitch content is identical to that of the Lydian sus-2 chord, consisting of pitches #1–#3 of the Lydian fifth-stack. Therefore, recalling Russell's notion that the Ionian scale suggests a tonic of its fourth scale degree (the Lydian tonic), this sus-4 chord can be conceptualized as a "first inversion" of the Lydian sus-2, removing the true tonic (here F) from its expected position at the bottom of the chord. The sus-2 chord in Ionian, however, features pitches #2–#4 of the Lydian fifth-stack. Given its sonic equivalence to the Lydian sus-2 chord, its inclusion in Ionian introduces a degree of ambiguity—and flexibility, as described by Zappa—into the chordal structures of the mode.

[Clement 2009, p. 128-9:](#)

of the Lydian fifth-stack. Contrary to Russell's theory, which relegated Ionian to "horizontal" situations, Ionian is viewed here as a viable mode and, further, one potential "vertical" pairing with an accompanying major triad. Therefore, Ionian "mode" in this context can be distinguished with "major-key" functional tonality.

However, examples of the Ionian mode in Zappa's music are rare. This fact alone provides strong evidence that Zappa considered Lydian to be the best scalar representative of major tonality. Nevertheless, Ionian has the greatest potential to challenge the primacy of Lydian, as it is the most similar to Lydian in its scalar

structure. Most importantly, Ionian features Russell's mistrusted "Ionian fourth," the pitch most

Then why, for theoretical reasons, why should Zappa avoid the Ionian scale? Other than Lydian, Ionian does support the sus4 chord. Even Clement and his rules can't hide that Ionian suits his theory better than Lydian. Noting that Csus4 and Fsus2 contain the same notes I hardly find of interest. Diatonic scales always overlap for 100%. Dsus4 overlaps with Gsus2. Gsus4 overlaps with Csus2. Asus4 overlaps with Dsus2. It's useless to interpret chords as inversions of chords from another scale.

Just stick to the standard definitions or the identification of chords becomes a mess. Should Dsus4 in Dorian be seen as an inversion of Gsus2 in Mixolydian, and therefore Dorian as an inversion of Mixolydian? No. Clement is only doing this in this particular case because it suits his theory.

PEDAL SUBSTITUTIONS: WHAT'S A SUBSTITUTION FOR WHAT?

As mentioned at the beginning of this chapter I would return to the topic of pedal substitutions. Clement is much inclined to call something a pedal substitution for Lydian instead the other way around. Also when a compositions changes over time he does this. It's always a retrospective correction (Uncle Meat; Clement 2009, page 152), a reversed retrospective correction (Inca roads, also page 152) or whatever correction to Lydian. In the following two examples this is getting out of proportions. Clement 2009, pp. 168-9 and 341, are his explanations for The deathless horsie:

Example 4.58. “The Deathless Horsie”:
summary of pitch materials (timings: *Shut Up ‘n Play Yer Guitar Some More*).

The vamp of “The Deathless Horsie” features a melodic ostinato accompanied by a pedal. Example 4.58 provides a summary of the performance as heard on *Shut Up ‘N Play Yer Guitar Some More*. For over three minutes of this performance, the A-Lydian system is employed. The six-pitch ostinato is first set to the Mixolydian pedal of that system (B), followed by a lengthy stretch of the Lydian pedal A. Only with the pedal on A does the full seven-note diatonic collection exist in the accompaniment; over the previous B pedal, the improvisation was responsible for providing the remaining pitch (A). The missing A of the ostinato plays an important function in relation to the modes of the solo. Over the Lydian pedal A, its absence

conforms to Zappa's practice of avoiding the Lydian tonic in the melodic zone. When the pedal shifts to C# at 3:21, however, the missing A is even more central. This C# pedal, along with the ostinato, implies a C#-Dorian mode, and thereby a shift to the E-Lydian system. As this system is merely one fifth away from A Lydian, six pitches are held in common between the modes. Significantly, these six pitches are the same notes that comprise the melodic ostinato. Similarly, Zappa's improvisation over the C# pedal utilizes only the six common tones between the systems, thereby avoiding the pitches that differentiate the modes: A/A#. Confirming that the modal implication of the C# pedal is Dorian, Zappa quotes the theme of "Black Napkins" at 4:10 of the performance (refer again to Example 4.57).¹¹⁰ As noted above, this theme incorporates the E-Lydian system above a C#-minor seventh chord; its quotation above a C# pedal in "The Deathless Horsie" thereby implies the conceptual presence of the missing A# of C#-Dorian.

The following things are questionable or wrong with this explanation:

- This solo has a central theme. It opens with this theme in B Mixolydian and it returns to it towards the end. The entire solo thus has four blocks, with two blocks in B Mixolydian, containing soloing as well as the central theme. Normally one should thus see Mixolydian as the main scale. Clement correctly notes the presence of two blocks in A Lydian and C# Dorian (partly, see below). B Mixolydian and A Lydian are pedal substitutions for one another. Since B Mixolydian is the central scale, it would be logical to see A Lydian as a substitution for B Mixolydian and not the other way round as "Lydian system A", as Clement does.
 - The C# Dorian part is not really C# Dorian but a mingling of C# Dorian and C# Aeolian (see the transcriptions by Steve Vai in the FZ Guitar book and the example in my main study, www.zappa-analysis.com: both the Aeolian A and the Dorian A# turn up). Clement calls C# Dorian Lydian system E. C# Dorian would be a pedal substitution for E Lydian, but without E Lydian even being played, that makes all modal music a Lydian system. As mentioned at the beginning, diatonic scales are always pedal substitutions for each other.
 - The remarks about the A and A# therefore don't hold.
 - Even if this did happen, the alleged avoidance of the Lydian tonic in melodies over this tonic is not strong enough for drawing conclusions like this. See chapters IV and VI.
 - Exactly the same applies to the C# pedal part from Black napkins. Also here you can check the transcription by Steve Vai in the FZ Guitar book, as well as my remarks below the Pink napkins example in my main study. It's not just C# Dorian, but a mingling of C# Dorian and C# Aeolian. About the various Black napkins type C#/D appearances I'm saying in my main study: "There's an ongoing indecision to play an A or A# over the C# pedal for the various occasions the C#/D scale is used. In the examples in this study it goes as:
 - Black napkins (1975): the A is avoided.
 - Black napkins (1976): an A.
 - Pink napkins: the A in bar 5 becomes A# in bar 7.
 - Panty rap: the A is avoided again.
- This continues in the 1988 version: A# for the chord at 0:39, A for the sax at 1:12-1:15 and 1:28-1:30, A# for the trumpet at 2:02-2:05 and an A again at 2:24-2:25."

GUITAR (fuzz, wa-wa) *mf* *vibr.*

SYNTH. ALL INSTRUMENTS VAMPING

CR. *feedback*

CR. RI.

Main theme from The deathless horsie (The Frank Zappa Guitar book, transcription Steve Vai).
 Note: for some reason Steve Vai notates an A# in the presets, but it's always A natural during the B Mixolydian blocks.

Sometimes it looks like it hardly matters what Zappa does, there's always an excuse to call it a Lydian system. This is getting pretty unbalanced in Outrage at Valdez. This composition indeed ends in what you might call Db Lydian. But we're talking about 6 seconds in a composition that lasts 3 minutes. Is this then a Houdini trick: look people, Zappa may have written Outrage at Valdez largely in minor scales, but guess what, by the final two bars the whole composition should retrospectively be seen as Lydian system Db?

Example 4.31. "Outrage at Valdez" mm. 57–end.

Clarinet

Piano Celesta *audible*

Guitar *Tuba/Tbn.*

Bsn. *Pedal: Db Lydian! ...*

Lydian system: Db
 Pedal: F Aeolian

Normally one would see that as an evasive chord, a deceptive cadence at most, not a reason to re-interpret the whole composition. But Clement marks it with an exclamation mark for proving his Lydian theory. In his 2009 study, page 142, Clement identifies the scales from this piece as:

While the general use of Aeolian in “Outrage at Valdez” is fitting to the depiction of its extra-musical subject matter, the piece also manifests the tenuous nature of the Aeolian mode in relation to the Lydian system. The form of the piece is a quasi-rondo, similar to that seen in “Night School.” While no rondo “theme” as such exists, an (A-B-A'-C-A") structure is articulated by the periodic return of an ostinato pattern in F Aeolian that accompanies the improvisatory melody. This rondo “theme area,” occurring at mm. 2–15, 22–27, and 36–end, is interrupted by Aeolian “episodes” in Eb and Gb, respectively. Example 4.30 provides a

This F-Eb-F-Gb-F pedal notes sequence is correct. It's the same sequence as I'm hearing on CD. For his 2014 article, page 155, however Clement, puts the accents quite differently:

on a sustained Bb. Both of these elements suggest a rival Bb-Dorian mode at play. Indeed, the Aeolian pedal is often interrupted throughout this piece by other pedals of the LS, particularly the stable Dorian and Lydian pedals (Bb and Db, respectively). In the final measures of the piece, the Aeolian pedal is overtaken by these two pedals in turn, ending conclusively with a pedal on the Lydian tonic Db.

The Bb and Db appear more as harmony notes along the basic F pedal. If they were clear pedal substitutions, Clement would also have noticed that in 2009 (and I for the 2012 pdf version of my study).

The following examples show that when you start reasoning like Clement, it becomes easy to find compositions suggesting a Lydian system with any composer.

Preludio I.

Andante sostenuto. (♩ = 108.) J. S. BACH.

p sempre legato

C Ionian

cresc.

F Lydian (!)

dimin.

D Dorian

p

Bach playing over pedal notes, forming the series of pedal substitutions C Ionian, F Lydian and D Dorian. F Lydian (!)? Lydian system F?

The applied key identification method is the "vertical" one, that is the pedal note or root of the chord someone is playing over determines the key (see also chapter III). You don't have to tell me that traditional harmony explains this "horizontally", as a progression of pedal notes/chords in the same key. In this case I-IV-II in major. By no means am I suggesting that the composers mentioned in this section have anything to do with a Lydian theory (Zappa included). I'm just making a point. By using terms from the LCC and the Clement theory the above is possible.

Example 4.30. "Outrage at Valdez" mm. 2-4.

Clarinet

Celesta

Harp

Tuba
Trb.
etc.

in score

Bb m11 (Dorian)

Dorian (Bb) hint

Lydian system: Db

Pedal: F Aeolian



Clement 2009, p. 318: suggestions of Bb Dorian in an F Aeolian environment. Followed by Beethoven, sonata opus 111 bars 98-99: use of a T7 cyclic chord suggests a latent Lydian tonic F?

Clement 2009, pp. 142-3, with another hint at *Outrage at Valdez* not being as Aeolian as it looks:

C-Eb), with the thirteenth (G) being provided by the clarinet melody. Significantly, the first three eighth notes of the celesta ostinato, the arpeggiated Bb-minor triad, are not actually audible in the released recording of the piece (on *The Yellow Shark* album). (Whether Zappa decided to excise these pitches from the performance or whether they were merely mixed low is unknown. The remainder of the celesta ostinato is clearly heard, so it is more likely that the former scenario is the case.) Without the first three pitches, the celesta ostinato can be said to support the F pedal; instead of arpeggiating a Bb-minor extended tertian chord, the celesta part merely presents a broken F-minor-seventh chord. Significantly, however, the withholding of the opening three celesta pitches also calls into question the Aeolian interpretation, as the pitch Db (the flat sixth) is no longer present in the accompaniment. This leaves the melody with the task of confirming or contradicting the Aeolian mode. The flat sixth Db does in fact appear in the melody, but rarely; it occurs only once in the A section, twice in the A' section, and zero times in the entire 23-measure A" section.⁸¹

Here Clement is suggesting that Zappa on the spot became to regret that he wrote *Outrage at Valdez* in Aeolian by skipping the Db from the accompanying figure. Without it the Db turns up only in bar 7 of the example from my main study (this example was transcribed by me from record because I don't have access to the original score and the Clement study was not yet published at that moment). If you insist you can say that the CD version is indecisive about being Aeolian or Dorian for bars 1-6, but saying that Zappa did this to weaken the Aeolian interpretation... Come on. Aeolian is a normal scale in Zappa's music (see chapter I).



Brahms, Intermezzo op. 118 nr. 2, bars 1-9.



Brahms, Intermezzo op. 118 nr. 2, bars 28-32.

Brahms "weakening" the A major interpretation of his Intermezzo op. 188 nr. 2. The Em chord in Bar 5, beat 3, suggests an E Dorian reading with the G becoming natural. This can be seen as still continuing in bar 6 because of the absence of a G/G#. The B7 chord in bar 7 points at a B Mixolydian reading during bars 7-9, with the D turned sharp. Bars 30-32: the D pedal during the climax of the melody, played forte, indicates an "overthrow" of the A major tonality by a D Lydian one. Again I'm only making a point; I'm not suggesting this is a normal form of analyzing Brahms.

Chords Together and Opposed
 Accords joints et opposés
 Akkorde, gleichzeitig und gegeneinander

BÉLA BARTÓK

Molto vivace, ♩ = 180

122

f, strepitoso

meno f

Bartok, Mikrosmos, nr. 122, bars 1-15. C Lydian, Lydian system C? Notice the use of the Csus2 chord and the extensive use of one of its inversions, Gsus4 (see below).

A section: Part 1

A section: Part 2

Melody

Chord

Pedal

D Lydian (vi) C Lydian E Mixolydian (vi) D Mixolydian

Dsus2 Csus2 Esus2 Dsus2

Notice that Clement indicates the Asus4 chord as Dsus2 (Clement 2014, p. 164). These contain the same notes and in traditional harmony chords and their inversions are always given the same name. But in pop terms you have sus2 and sus4 as distinct terms. It's not really wrong what Clement is doing here, but normally one would pick Asus4 as name.

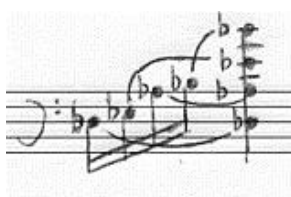
13

Divided Arpeggios Arpèges divisés Gebrochene Klänge, sich ablösend

Andante, ♩ = ca 84

143

p *un poco stentato* *mf*



Bartok, Mikrosmos, nr. 143, bars 1-4. Lydian system Db? Notice the use of a repeated T7 cyclic chord (Db-Ab-Eb-Bb).

doux mais en dehors

pp

F Mixolydian

F Dorian

mf *f*

Bb → F Lydian



Debussy, *Dances de Delphes*, bars 11-18. Debussy using Mixolydian, Dorian, and Lydian. Lydian systems Eb, Ab and F?

CHAPTER III: THE POSITION OF THE MIXOLYDIAN SCALE.

In traditional harmony it's all about the major and minor scale. The other three standard diatonic scales - Dorian, Lydian and Mixolydian - get mentioned for completeness as scales used in medieval and renaissance times. But all note examples, chord sequences and resolving chords, are derived from the major and minor scale. About all works by Bach are in these two scales and this remained so for a very long time. In modern music, jazz and rock music, the modal scales made a comeback. The Lydian chromatic concept (LCC) by George Russell is a theory completely different from traditional harmony. Instead of taking major and minor as central scales, Lydian and Dorian are the starting point. The theory was intended for jazz players to point at what's the most natural scale to improvise along over a certain chord. George Russell considers Lydian the most natural way of creating major harmonies. The central argument is that, by stacking fifths, the most consonant interval, you're getting at the seven notes of the Lydian scale: C-G-D-A-E-B-F# (when you're starting with C). In diatonic order it's C-D-E-F#-G-A-B, thus C Lydian and not the C major scale. Another argument is that the lead tones in the C Lydian scale lead to C and G, thus the triad. In major you have an E as lead tone going to F, going to the fourth instead of the fifth. For minor harmonies Russell took Dorian. Mixolydian first gets into the picture when the dominant 7th is played, a chord only the Mixolydian scale supplies on its tonic. Major and minor have no independent role in the LCC. When they occur, they are interpreted as incidental inversions of the triad on the Lydian tonic. In case of the C Lydian triad (C-E-G), you're getting at E minor when you're putting the E in the bass and at G when you're doing this with the G.

From the 4th edition of the LCC, page 53:

The Lydian Chromatic Scale and the Lydian Chromatic Concept are based fundamentally upon the law of tonal gravity which exists within a ladder of intervals of fifths. The interval of a fifth yields tonical authority to its lower tone. Likewise, a ladder of fifths confers ultimate tonical authority upon its lowermost tone. The result is the creation of a TONAL GRAVITY FIELD.¹

Note 1 refers to page 2 from the LCC, with the Lydian scale as formed by stacking fifths:

Example 1:2 shows the Primary Order of the Lydian Scale—a ladder of six intervals of a fifth—compacted into tertian and stepwise arrangements.

The C Lydian Scale

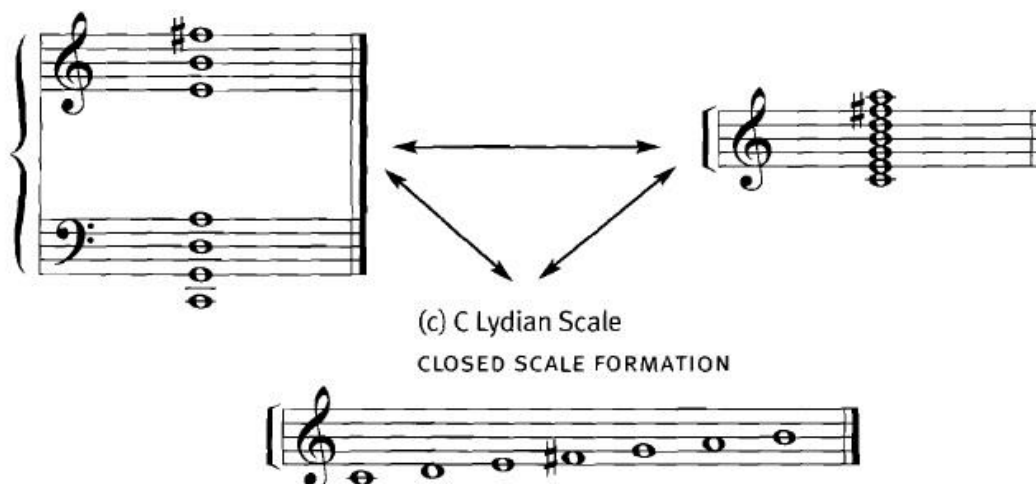
EXAMPLE 1:2

(a) ascending ladder of fifths

PRIMARY ORDER

(b) C Lydian (I) major chord

TERTIAN ORDER



Mixolydian (“Lydian Mode II”):

LYDIAN MODE II Seventh–Principal Chord Family

The Lydian Scale sounds a unity with its mode II seventh Principal Chord Family structured on its second degree modal tonic, D^b in this case.

C LYDIAN MODE II: II III +IV V VI VII I
D E F[#] G A B C

CHORDS PRODUCED: C Lydian Mode II seventh Principal Chord Family

EXAMPLE III:4

The diagram illustrates the Principal Chordmode and Sub-Principal Chords for the C Lydian Mode II seventh Principal Chord Family. The Principal Chordmode is shown as a single chord (D^b 13th) in the bass clef. The Sub-Principal Chords are shown as a series of chords (D^b 7th, D^b 9th, D^b 11th) in the treble clef, with the bass clef showing the D^b 13th chord.

Chart A with an overview:

CHART A

THE SEVEN PRINCIPAL SCALES OF A LYDIAN CHROMATIC SCALE AND ITS PRINCIPAL AND SUB-PRINCIPAL CHORDMODES

Lydian Scale Chordmodes

Lyd Maj 13th	13th	I Lyd Maj 13th/III ^b	I Lyd Maj 13th/+IV ^b	I Lyd Maj 13th/V ^b	min 13th	I Lyd Maj 13th/VII ^b
Maj triad	7th	Maj triad/III ^b	min 7th ^b 5	Maj triad/V ^b	min triad	7th ^b 9
Maj 6th	9th	Maj 6th/III ^b	min 7th ^b 5 ^b 9	Maj 6th/V ^b	min 6th	11th ^b 9
Maj 7th	11th	Maj 7th/III ^b	min 11th ^b 5 ^b 9	Maj 7th/V ^b	min 7th	11th ^b 9 +5
Maj 9th		Maj 9th/III ^b	min 11th ^b 5 +5 ^b 9	Maj 9th/V ^b	min 9th	
Maj 7th ^b 5		Maj 7th ^b 5/III ^b		Maj 7th ^b 5/V ^b	min 11th	
I	II	III	+IV	V	VI	VII

Of the three major type scales, Mixolydian is in fact the most frequently used scale in Zappa's music.

Clement also noted the occurrence of Mixolydian and ranks it as the third scale. **For the LCC the choice for Lydian for major chords is essential. That is what this theory is about: Lydian is the most natural major type scale. If a composer chooses for Mixolydian and/or major next to Lydian as well, then it's not a mere deviation from it. For the LCC Mixolydian first gets into the picture for the dominant seventh. Using Mixolydian over triads as an equally valid alternative for Lydian goes against the core of its concept. This also goes for somebody suggesting that Ionian is viable as well.** Clement notes parallels between Zappa and the LCC and calls his own theory a "loosely adapted" version of the LCC. Clement 2009, p. ii:

Chapter 4 offers a *Lydian theory* for Zappa's diatonic music, loosely adapted from George Russell's seminal jazz theory *The Lydian Chromatic Concept* (1953). This theory views the Lydian scale as representing a tonic state in Zappa's music due to its special static attributes.

The reasons Clement is adapting the LCC are not just done to adjust it to incorporate what Zappa does. These adaptations are made upon theoretical grounds. On page 71 a printscreen is shown with Clement calling the position of Mixolydian and the dominant 7th a crucial weakness of the LCC. This is done purely for theoretical reasons. This suggests that Russell and people influenced by his theory used a version of the LCC with a serious flaw in it. The Lydian theory by Clement should be seen as an improved version of the LCC and so far only one follower has been detected: Frank Zappa. And Zappa didn't have a clue himself. Isn't that a bit unlikely? Clement 2014, p. 149:

Lydian scale. But what of Russell's attempt to place other diatonic chords/modes under the umbrella of Lydian tonality? Since my theory will attempt to demonstrate a type of Lydian hierarchy in Zappa's music, this apparently problematic aspect of the LCC will require substantial refinement.

This is another rather vague reproach, formulated as an innuendo rather than as an argument, suggesting a problem with the LCC that needs refinement. Umbrella, hierarchy? That's only toying with words. Russell does identify non-Lydian modes by their corresponding scale step in the Lydian scale. If that is what Clement means, then I agree with Clement that what Russell does is unusual, but for practical purposes this doesn't make a difference. Russell may call Mixolydian Lydian mode II, it's still the same Mixolydian scale. It's not the purpose of this pdf to evaluate the LCC, but as a theory by itself I find it elegant and entirely logical (Zappa being no follower of it). George Russell is not with us anymore to defend his theory.

Clement 2014, p. 149, as already reproduced above:

- 23 Indeed, it is quite likely that Zappa's use of the Lydian scale surpasses that of any composer in music history. To date, I have found the Lydian scale in over sixty titles by Zappa. Kasper Sloots, who maintains a website of analyses and short transcriptions of Zappa's music (zappa-analysis.com), disputes the importance of the Lydian scale in Zappa's music. In the fourth edition of his study, Sloots attempts a rejoinder to my Lydian theory, claiming that only twenty-eight pieces use this scale. Clearly, I disagree with his findings. See Sloots (2012, 554–63).

In relation to the LCC the remark that Zappa's use of Lydian might be unprecedented is particularly

awkward. Since Lydian and Dorian are the central scales in the LCC, shouldn't one expect this unprecedented use of Lydian to occur with the followers of the LCC? The role of Mixolydian in the LCC is limited compared to Lydian. In Zappa's music Mixolydian is a common scale, even more used than Lydian (see chapter I). Also Clement does not try to deny the frequent occurrences of the Mixolydian scale. Nevertheless Zappa's use of Lydian is unprecedented in music history (thus not excluding followers of the LCC or any modal composer)?

In my opinion Zappa's use of Mixolydian should have been a sign not to associate Zappa with the LCC, also not in a mitigated form. But Clement simply goes on with his theory, stating that George Russell had made a crucial mistake by associating Mixolydian with the dominant 7th. Furthermore in his 2009 study it gets said that certain characteristics of Mixolydian show an indebtedness to the overriding Lydian tonic, without giving any explanation. In his 2014 article he does try to find an argument (see below). Clement 2009, p. 131:

3. Mode III: Mixolydian.

The Mixolydian mode (Mode III) occurs along with a pedal on pitch #3 of the Lydian fifth-stack. After Lydian, Mixolydian is the most commonly used of the “major” modes of the Lydian system. Contrary to Russell's strict association of the Lydian scale with the major triad, Zappa often pairs the Mixolydian mode with a major triad. Due to this fact, and as will be detailed several sections below, Lydian and Mixolydian can often serve as competing major modes in Zappa's works. Our current focus is on situations in which the Mixolydian pedal is clearly behaving as tonic. Nevertheless, certain characteristics in the vertical use of Mixolydian reveal indebtedness to the overriding Lydian tonic.

Clement states that George Russell made a mistake by his choice to place the dominant 7th in the Mixolydian scale. The argument has to do with chord identification methods. Clement 2009, 112:

Russell's location of the dominant-seventh-chord family on Mode II is more problematic theoretically. In the major-scale system, this chord appears on scale-degree five and resolves by descending fifth to the tonic of the scale, achieving the characteristic "horizontal" progression of the major-key tonality. A similar resolution of the dominant seventh by descending fifth to the tonic of the Lydian system is clearly not possible. Russell never provides any musical justification for the Mode II generation of the dominant-seventh chord, and there is perhaps no reason to expect any such evidence. Though he views the parent Lydian scale as akin to a key, his modes do not actually substitute for the scale-step theory traditionally applied to the major-scale system. Instead, the dominant-seventh chord's placement on scale-degree two of the Lydian scale is merely objective fact, having no musical significance per se. This reveals a crucial weakness of the theory as a whole, as most of the mode/chord relationships could be assigned just as easily within a major-scale system; in the case of the dominant-seventh chord, its placement on the fifth scale step of the major scale seems more appropriate both theoretically and pedagogically. Perhaps in "vertical" situations, where the goal is to find the scale that

The horizontal method of key-chord identifications is the standard way, traditional harmony. It deals with chord progressions as I-IV-V. The vertical method deals with playing over a chord, where the root note of a chord and the key note are taken as the same. One shouldn't mingle these methods as it suits you. Here Clement is using an argument from traditional harmony against a theory that chose not to follow traditional harmony. You don't explain most chords upon the tonic and another one, as the dominant 7th, on step V of the major scale. Moreover, if a composer doesn't like the sound of a resolving dominant 7th chord, then what is more logical: don't let it resolve or don't use this chord at all? I think the first. What Russell does is logical in the sense that, for his theory, he at least follows one method. More important is what Clement has to say himself about the dominant 7th chord, namely that it doesn't belong to a Lydian theory at all (Clement 2009, pp. 131-2; not limited to Mixolydian I 7th):

chords are present. However, Mixolydian's tertian sonorities are limited to the major triad, as Mixolydian has no seventh-chord representative. This fact is quite significant, as a seventh chord built from a Mixolydian pedal would provide a chord type as yet unaccounted for: the dominant-seventh chord. As discussed above, George Russell had located the "seventh-chord family" on scale-degree two (Mode II) of the Lydian mode. While our Mode III is essentially the same mode as Russell's Mode II (both being located on the pitch two perfect fifths away from the Lydian tonic), the dominant-seventh sonority is prohibited in this theory. Stated plainly, dominant-seventh chords do not occur within the Lydian system—or, for that matter, Zappa's diatonic music, wherein the presence of the dominant-seventh chord should be taken as a sure indication of the employment of the "horizontal" major-scale tonal system (see, for example, the discussion of Example 4.9). Within the Lydian system, this lack can be partly attributed to the tendencies of resolution expected of the dominant-seventh. By avoiding this chord above the Mixolydian pedal, the controlling pedal's status as local tonic is maintained. For musical environments in which the Lydian mode functions similarly to a "key" (to be discussed later), this potential dominant-seventh chord would have resolution tendencies towards the fifth scale degree of the mode, thereby challenging the supremacy of the Lydian tonic.

In Clement 2014, p. 152, this prohibition gets reformulated as a tritone restriction (here for his Mixolydian table):

Although I will comment upon the significance of some of the chords in Example 6, the contents shown are quite predictable when we proceed from the hypothesis that Zappa's chord types should uphold Lydian properties of consonance and dissonance. Two general rules may be formulated, the first regarding cyclic chords and the second pertaining to tertian chords: (1) cyclic chords should generally restrict their pitch content to adjacent segments of the lower pentachord of the Lydian fifth-stack (pitches 1–5);³¹ and (2) tertian chords are subject to a tritone restriction, whereby the interval can only appear with Lydian $\hat{1}$ sounding below $\hat{4}$. Adherence to the first rule, which essentially involves avoidance of the leading tones, allows one to experience cyclic chords as generally stable and therefore not in need of resolution. The second rule is necessary to maintain the melodic trajectories associated with the most stable ($\hat{1}$) and the least stable ($\hat{4}$) Lydian pitches. That is, $\hat{1}$ should remain melodically inactive, as its stability implies no motion in itself, whereas $\hat{4}$ is strongly suggestive of ascending melodic resolution. Reversing the registral configuration of the tritone, with $\hat{1}$ above $\hat{4}$, would activate $\hat{1}$ as a dissonant pitch in need of downward resolution.

In chapters II and VI enough is said about the occurrences of the dominant 7th. It's a normal chord in Zappa's music.

Next is his attempt to find an argument why Mixolydian should be seen as subservient to Lydian, as published in his article. Clement 2014, p 152:

tertian extensions to its tonic triad. However, considering the preference for using trichords in the chordal zone, Zappa typically incorporates upper extensions through superimposing the Ionian and Mixolydian triads (V and II, respectively) on top of the bass note. The synclavier piece “Night School” (1986), for

example, realizes its chordal zone with both of these triads (along with I) in a harmonization of the descending stepwise melody from B to E in C Lydian (Example 7). The V and II chords are inherently valued in the LS, as each sets one of the Lydian leading tones as a consonant chordal third. The Mixolydian triad (II) is particularly important, as its inclusion of leading-tone $\hat{4}$ marks it as the primary tonicizer of the mode.³⁴ In addition, superimposed V and II have the potential to assert a type of diatonic polymodality, whereby the Lydian pedal accompanies competing modes of the LS, which are represented in the chordal zone.³⁵ We will later see this implicit polymodality come to the fore in various ways.

Here Clement tries to find a way to incorporate Mixolydian in a Lydian theory. His Night school example includes the Lydian II chord over the Lydian pedal, which he names “Mixolydian” and then interprets as an “implicit polymodality”. Whether this is correct is debatable, since this only concerns

the root of the II-chord combined with a pedal note. Even if one would accept this as a form of polymodality, it's a thus weak one that it should not be used to give Mixolydian I a subservient function to Lydian in its normal definition. To a certain degree Clement also realizes this when he continues on page 153:

Mixolydian (Mode III) holds a more important position within the LS (see Example 6[c]). As described above, the Mixolydian triad (II) represents the strongest nontonic sonority in the Lydian scale. When clearly subservient to Lydian modality, it stands as a primary tonicizer. In other circumstances, emphasis on the Mixolydian triad (or its pitch center) in chordal/melodic zones can create the effect of competing polymodality within the scale. When the Mixolydian pedal is employed to create a locally stable mode, the tonicizing role of its triad (now a I chord) is clearly downplayed. However, Mixolydian structures remain indebted to those established by the LS. Tertian chords, for example, are limited to the major-tonic triad.

Now how should this be read? Does this say that, when you want to study Zappa's use of the Mixolydian I triad, one shouldn't look at compositions in Mixolydian, but in Lydian? And then identify the Lydian II chord as examples of Mixolydian? The encircled part says that when the Mixolydian tonic is stable, the tonicizing role (for Lydian) is downplayed. Uh... the Mixolydian tonic is stable: THAT IS WHAT PEOPLE MEAN WHEN THEY CALL SOMETHING MIXOLYDIAN. Downplayed to uh... NOT EXISTING. This thus confirms my critique that Clement has no viable reason to deviate from the LCC by suggesting that Russell made a mistake with his positioning of the Mixolydian scale, while maintaining that Mixolydian supports a Lydian theory nevertheless.

In the Clement study two progressions are seen as pedal substitutions, rather than chord alternations, the more common approach. One is I-II in Lydian, called a Lydian-Mixolydian or L/M substitution by Clement. The other is I-IV in Dorian, called a Dorian-Mixolydian or D/M substitution by Clement. Other authors get referred to, who, on their turn, can identify this progression differently (in pop music in general). I can understand the arguments, but I call these two instances simply Lydian and Dorian in my table from chapter I. By the Clement definition the number of occurrences of Mixolydian would augment, thus even more stressing that Zappa uses Mixolydian more often than Lydian. Zappa calls the L/M substitution simply Lydian as well. Just stick to the standard definitions, that's the easiest for everyone. The below (Clement 2014, p. 157) only leads to an endless bickering among academics.



Lydian: I II
Mixolydian: VII I

EXAMPLE 16. *The L/M progression.*

tonality here is given much stronger emphasis. Therefore, the ascending whole-step version of L/M shown in Example 16 will likely be interpreted as either I–II in Lydian or VII–I in Mixolydian.⁴⁸ That is, one's hearing will depend upon whether the first or second chord in the progression is identified as tonic/center. Since both Lydian and Mixolydian are central modes of the LS, this theory does not necessarily privilege one

45 Zappa (1982a); emphasis mine.

46 These two progressions are identical to the Lydian and Dorian progressions proposed by Ian Bates in his diatonic modal theory for the music of Vaughan Williams. Bates's progressions are based on the positioning of each mode relative to the tritone interval. See Bates (2009, 11–12).

47 The L/M progression may also appear exclusively in the chordal zone, with a single pedal accompanying.

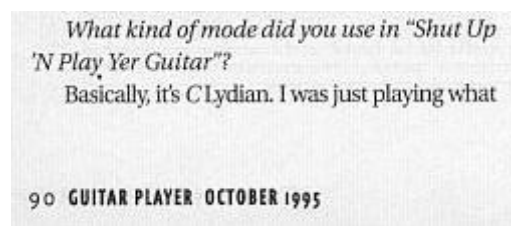
48 Of course, the ascending whole-step progression may also function as Ionian IV–V or Aeolian VI–VII; see Spicer (2009) for a discussion of such “absent tonic” progressions. However, given Zappa's general avoidance of the Ionian and Aeolian modes, we are not likely to hear the L/M progression functioning within these scales in his music. The Mixolydian VII–I progression is familiar from many rock/pop songs; see Everett (2009) and Biamonte (2010). Whether or not Lydian I–II occurs in rock/pop is a more controversial matter; see Clement (2013) for a discussion of this topic.

system in “Holiday in Berlin” (Example 17[a]), L/M acts as the vamp to the concluding guitar solo, and in “Aybe Sea” (Example 17[b]) it accompanies the opening theme. However, the order of the two triads is not the same in both pieces; “Holiday in Berlin” states the Lydian triad first, and “Aybe Sea” begins with the Mixolydian triad. Therefore, I interpret the excerpts as asserting different modes of the same LS: “Holiday in Berlin” Lydian and “Aybe Sea” Mixolydian.⁵⁰ In fact, both themes begin with an identical melodic motive (G#–A–B), which highlights their shared L/M progression.

49 Zappa (1982a). Documentary evidence also supports the view that Zappa conceives the progression in Lydian. For example, earlier versions of the vamp used for the guitar solo of “Inca Roads” consist only of the Lydian pedal C (see the version from Spring 1974). The second chord (D major) was added to the vamp in fall 1974 and remained in place for all subsequent tours.

50 One may also choose to hear the L/M progression of “Holiday in Berlin” as Mixolydian VII–I, as does Jonathan Bernard (2000, 89). However, the previous sections of the piece feature a pitch center of D (as discussed above). Additionally, early live performances of the piece (heard on the recently released *Road Tapes Venue #1* [2012]) use a single D pedal throughout.

Zappa calls this progression simply Lydian, apparently without even considering that this would need any explanation. *Guitar Player*, October 1995, pp. 90–91:



The reason to call it just Lydian is simply a matter of conventions. In case of a C–D alternation: when the solo begins with C, it's C Lydian (only if the D was played in a lower register or much longer held, one might consider calling it D Mixolydian). When it would have started with D it would be D Mixolydian. At any given point, other than the opening bars, it's impossible to make a distinction between I–II in Lydian and I–VII in Mixolydian (Zappa's solos normally don't have codas neither). The two chords are dealt with as totally equal. Or, when you use the terms by Clement, Lydian and Mixolydian are used as perfectly equal.

Ex. 5 C Lydian Scale

Ex. 6 Excerpt from “Shut Up ‘N Play Yer Guitar”

The following are printscreens of texts by the authors Clement is referring to. Not that I want to take part in this discussion, but because Clement wrote me he wanted to use their absence as a sign that I wouldn't understand pop-standards.

Below an example of Mark Spicer talking about emergent and hidden tonics. Here he's describing that the opening chord of "Ribbon in the sky" by Stevie Wonder should not be used to call it Eb Dorian. Instead of that this chord can better be seen as step II of Db major, the key of the refrain (from "(Per)Form in(g) Rock", Music Theory Online, October 2011). The reference by Clement to Mark Spicer is wrong for its argument, by the way. As you can see in the Burnt weeny sandwich section from my main study, www.zappa-analysis.com: major/Ionian is a normal scale in Zappa's music, certainly in general.

9. The initial Eb minor seventh chord in "Ribbon in the Sky" is actually not the tonic chord (it functions as ii⁷, hence the key signature of five flats). We must wait over a minute and a half for the Db major tonic finally to emerge as the goal of the refrain following the song's second verse. For a detailed harmonic analysis of "Ribbon in the Sky" and other pop and rock songs with "emergent" or "absent" tonics, see Spicer 2009.

[Return to text](#)

Jonathan Bernard, *Listening to Zappa*, page 89, simply naming the I-II alternation in Lydian differently, namely as VII-I in Mixolydian (in: *Contemporary Music Review* 2000, Vol. 18, part IV):

from *Joe's Garage* with a repeating (4/4 + 5/4) bass line. Also noteworthy are "Filthy Habits," with its five-beat bass ostinato, and the last section of "Holiday in Berlin, Full Blown," based on a ♭VII – I alternation and the occasion for one of Zappa's most beautiful early guitar solos.

Among pieces actually recorded by ACEs, "Outrage at Valdez," "The Girl in the Magnesium Dress," and "Naval Aviation in Art?" present

The two printscreens below stem from Walter Everett, *The Foundations of Rock: From "Blue Suede Shoes" to "Suite: Judy Blue Eyes"*, 2009. This is a survey of rock music from the period 1955-1969, the years Everett sees as the most creative period. On page 171 Everett points at the use of modal scales in pop music. Page 173 is about Mixolydian and Lydian. Everett does say that he finds Lydian rarely used, but on pages 251 and 256 he continues with saying he considers both VII-I in Mixolydian and I-II in Lydian viable progressions in a broader context.

Other diatonic materials: the aeolian, dorian, mixolydian, lydian, and phrygian modes; the blues scale.

Five other scales normally associated with the music of much earlier eras were given new life in rock music. Referred to as the medieval modes, these are the aeolian, dorian, mixolydian, lydian, and phrygian scales. Each is a seven-note scale with two minor seconds, and so these are cousins of the major scale (which, centuries ago, was known as ionian). They are spelled as follows, in order of popularity, and examples are illustrated in figure 7.04:

Dorian: 1—2— \flat 3—4—5—6— \flat 7	(minor seconds: 2— \flat 3, 6— \flat 7)
Aeolian: 1—2— \flat 3—4—5— \flat 6— \flat 7	(minor seconds: 2— \flat 3, 5— \flat 6)
Mixolydian: 1—2—3—4—5—6— \flat 7	(minor seconds: 3—4, 6— \flat 7)
Lydian: 1—2—3— \sharp 4—5—6—7	(minor seconds: \sharp 4—5, 7—1)
Phrygian: 1— \flat 2— \flat 3—4—5— \flat 6— \flat 7	(minor seconds: 1— \flat 2, 5— \flat 6)

MELODY: MATERIALS AND PATTERNS

173

Holding Co.'s "Ball and Chain," and Henry Mancini's "Love Theme From Romeo and Juliet."

The mixolydian scale is just like the major mode but for its lowered seventh scale degree, making a diatonic major V chord impossible. The major \flat VII chord, all of whose tones (\flat 7—2—4) are neighbors to members of the I chord, often substitutes in cadential situations for the unavailable V. (Listen to Web audio example 7.09.) Only a handful of mixolydian melodies are found in the era's top hits, and these nearly always involve some mixture from the major mode. The first phrase of the instrumental, Herb Alpert and the Tijuana Brass's "The Lonely Bull" (3—4—5—4—3—2— \flat 7— \flat 7—1—2—1—5—5—1—5— \flat 7), for instance, is fully mixolydian, but the verse concludes as a period with the major-mode's full cadence, V—I. The verse of Jay and the Americans' "She Cried" is strongly mixolydian, but the bridge contains changes of scale degree. Likewise, the chorus of Lesley Gore's "She's a Fool" is the only mixolydian section in that song. The Kingsmen's "Louie Louie," with its thirdless I and IV chords but its repulsive minor v, has a mixolydian vocal. The Kinks' "Tired of Waiting for You" ("[1] So [2] tired, [1] tired [2] of [3] waiting, tired [4] of [5] waiting [6] for [\flat 7—6—5] you") and the Stones' "Lady Jane" have beautiful mixolydian melodies, the latter introduced on dulcimer, harpsichord, and nylon-string guitar. Jimi Hendrix's expansive octave-doubled guitar tune in "Third Stone From the Sun" is in a placid mixolydian.

The lydian and phrygian scales are quite rare. (Listen to Web audio examples 7.10 and 7.11.) The former is represented by Donovan's "Peregrine,"

THE PENTATONIC SCALE

The pentatonic scale gets a section of its own both in the Clement study and article. By their definition pentatonic scales are not diatonic, but usually get explained as derived from major or minor by skipping two notes. They can be explained as derived from modal scales just the same. Clement looks at a note from the melody to be the tonic for the pentatonic scale instead of the pedal note. According to him the combinations of pentatonic scales and pedal notes in Zappa's music are quite limited,

namely the three combinations below. Clement 2014, p. 159-160:

reflecting the fact that Zappa's pentatonic melodies function within a diatonic context.⁵⁴ Example 20 presents the three distinct pentatonic collections within adjacent segments of the diatonic fifth-stack.⁵⁵ Zappa's use of the three collections is quite limited, as each collection is typically realized in only one ordering and is provided a clear pitch center/pedal.

Significantly, most of Zappa's pentatonic melodies are confined to the lower pentachord of the fifth-stack (Example 20 [a]). Therefore, these melodies avoid the leading tones of the LS.⁵⁶ The Dorian pedal accompanies this minor-pentatonic



EXAMPLE 20. *Pentatonic scales within the Lydian system.*

a) and b) look standard and can be seen as derived from Aeolian and Dorian just the same. The pedal F in c) is not a writing error for G. There's some sort of bitonality in Clement's major pentatonic interpretation for Zappa. In the example above the E pedal indicates E Lydian and Clement describes the melody as F# major pentatonic. But then who is to decide which note of the melody is the tonic? One can describe the separate melody as a pentatonic fragment, but not the whole. Personally I wouldn't call a situation like this pentatonic at all. Zappa rarely uses the pentatonic scale over a longer period. The two entirely pentatonic examples Clement is giving in his 2009 study are taken over from other studies, both uncredited. The Run Home Slow example was already present in the 1st 2000 version of my study. The King Kong example, including the analysis, stems from the Ludwig study (see chapter IV). If you insist you can also find shorter periods of five notes in the melody only, and call these examples of the pentatonic scale. I my study I'm not specifically doing that.

CHAPTER IV: THINGS YOU DON'T DO.

Copyright infringements.

The Berne Convention regulates copyright in general terms. Most countries have signed the convention, among them the U.S. and the European countries. National legislation can give a further detailing of copyright. Copyright includes music transcriptions as regulated via article 2, item 3, of the Berne Convention.

Berne Convention for the Protection of Literary and Artistic Works¹

of September 9, 1886,
completed at PARIS on May 4, 1896,
revised at BERLIN on November 13, 1908,
completed at BERNE on March 20, 1914,
revised at ROME on June 2, 1928,
at BRUSSELS on June 26, 1948,
at STOCKHOLM on July 14, 1967,
and at PARIS on July 24, 1971,
and amended on September 28, 1979

TABLE OF CONTENTS²

Article 1:	Establishment of a Union
Article 2:	Protected Works: 1. "Literary and artistic works"; 2. Possible requirement of fixation; 3. Derivative works; 4. Official texts; 5. Collections; 6. Obligation to protect; beneficiaries of protection; 7. Works of applied art and industrial designs; 8. News

Article 2

Protected Works:

1. "Literary and artistic works"; 2. Possible requirement of fixation; 3. Derivative works;
4. Official texts; 5. Collections; 6. Obligation to protect; beneficiaries of protection;
7. Works of applied art and industrial designs; 8. News

(1) The expression "literary and artistic works" shall include every production in the literary, scientific and artistic domain, whatever may be the mode or form of its expression, such as books, pamphlets and other writings; lectures, addresses, sermons and other works of the same nature; dramatic or dramatico-musical works; choreographic works and entertainments in dumb show; musical compositions with or without words; cinematographic works to which are assimilated works expressed by a process analogous to cinematography; works of drawing, painting, architecture, sculpture, engraving and lithography; photographic works to which are assimilated works expressed by a process analogous to photography; works of applied art; illustrations, maps, plans, sketches and three-dimensional works relative to geography, topography, architecture or science.

(2) It shall, however, be a matter for legislation in the countries of the Union to prescribe that works in general or any specified categories of works shall not be protected unless they have been fixed in some material form.

(3) Translations, adaptations, arrangements of music and other alterations of a literary or artistic work shall be protected as original works without prejudice to the copyright in the original work.

(4) It shall be a matter for legislation in the countries of the Union to determine the protection to be granted to official texts of a legislative, administrative and legal nature, and to official translations of such texts.

(5) Collections of literary or artistic works such as encyclopaedias and anthologies which, by reason of the selection and arrangement of their contents, constitute intellectual creations shall be protected as such, without prejudice to the copyright in each of the works forming part of such collections.

(6) The works mentioned in this Article shall enjoy protection in all countries of the Union. This protection shall operate for the benefit of the author and his successors in title.

(7) Subject to the provisions of [Article 7\(4\)](#) of this Convention, it shall be a matter for legislation in the countries of the Union to determine the extent of the application of their laws to works of applied art and industrial designs and models, as well as the conditions under which such works, designs and models shall be protected. Works protected in the country of origin solely as designs and models shall be entitled in another country of the Union only to such special protection as is granted in that country to designs and models; however, if no such special protection is granted in that country, such works shall be protected as artistic works.

(8) The protection of this Convention shall not apply to news of the day or to miscellaneous facts having the character of mere items of press information.

This article about derivative works means that in case of for instance a music transcription, there's a double copyright. The ZFT has the copyright on the music itself and the transcriber has a copyright on the transcription. This may look odd at first reading, but the intention of the legislator is here to protect the effort of transcribing. Suppose this wasn't the case, then you could take a page by Steve Vai from the Guitar book, make some cosmetic changes upon it, and then say that it's your transcription. That then would be legal and undermine the work by Steve Vai. You don't do that with transcriptions by Vai, not the Hal Leonard series, and, when you're re-using one of my examples, you don't do that with my transcriptions neither. If you want to call something yours it has to be substantially different or the overlap should be small, like a complete song compared to a note example.

Clement correctly states that he has a copyright on his own transcriptions and analysis. Clement 2009, p. 255:

MUSICAL EXAMPLES

Musical passages quoted in this volume are used in accordance with the "fair use" clause of the U.S. copyright law (17 USC 107).

All original analytical examples and annotations

© 2009 Brett Clement

All rights reserved.

All music of Frank Zappa

© The Zappa Family Trust

All rights reserved.

The peculiar thing about this is that he did not consider that others can say the same, and that, in case of an overlap, you thus have to refer to these others. From the beginning I've had a discussion with him about this via e-mail, that is private. However I can mention a form of naivety, namely Clement kept saying that he doesn't have to refer to others as long as he didn't use their work as a source (or claims that he didn't). Instead of saying something like sorry I'll be more careful about this in the future, I found the following (Clement 2014, p. 146):

Over one hundred titles by Zappa were analyzed for this study, primarily using transcriptions by the author alongside a small collection of scores/lead sheets released by Zappa during his life (which are no longer commercially available). The transcriptions are entirely my own and are not based on those of any other Zappa scholars.

This is only one step away from denying the copyright of other authors. It's irrelevant if you actually found something independently of others. Anyone can say that. Once again:

Transcriptions and music analysis are copyrighted.

As you can see in my main study, I always co-credit others as soon as I notice an overlap. Take for instance my Andy and Zomby woof examples and analysis. I find this natural for a number of reasons:

- It looks stupid when you call something originally yours, when, obviously, it isn't.
- I don't want to be accused of plagiarism.
- I respect the work by other Zappa scholars and transcribers, and even if I didn't, I'd still mention them for copyright reasons.

The following three examples may serve as a warning:

a) The Idiot bastard son

Clement 2009, pp. 137 and 315, deals with the sus2 chord from the opening of The idiot bastard son, 1967-8. His analysis of it gets dealt with briefly in my chapter VI and you can find an extensive (more correct) analysis of this piece in my main study, www.zappa-analysis.com.

As evidence of the above-stated restriction on Dorian sus-2 chords, consider the opening of the piece “The Idiot Bastard Son” (ECE 1967/1968a) (Example 4.26). Given here is the recurring “motto” of the piece as well as the first phrase. In the melody, the A-Dorian mode is

Example 4.26. “The Idiot Bastard Son”: opening measures.

The musical score is written for a melody and an accompaniment in 3/4 time. The melody is in the treble clef, and the accompaniment is in the bass clef. The key signature has one sharp (F#).

Melody: The melody consists of a sequence of eighth and quarter notes. It is divided into two parts: a "motto" (measures 1-4) and a "sequence" (measures 5-8). The motto is marked with a hat symbol (^) above the first, third, and fifth notes. The sequence is marked with a hat symbol (^) above the first note. The sequence is further divided into two groups by a curved arrow, indicating a sequence of intervals.

Accomp. The accompaniment consists of chords in the right hand and a bass line in the left hand. The right hand is marked with "chromatic planing of sus-2 chords". The left hand is marked with "D sus-2" and "i".

The opening of The idiot bastard son (from We're only in it for the money, 1968):

Handwritten musical score for the opening of "The idiot bastard son" (from "We're only in it for the money" as included in "Lumpy Money", 1984 remix). The score is written in 3/4 time, with a tempo marking of $\text{♩} = 110$.

The score is divided into two systems, each marked with a box containing the number 11.

System 1 (Measures 1-12):

- Staff 1 (Vocal):** Lyrics: "The i-di-ot--". Dynamics: *mf*.
- Staff 2 (Piano):** Dynamics: *f*, *mp*, *pp*, *p*, *pp*, *p*, *mf*, *p*, *pp*, *mp*.
- Staff 3 (Piano):** Dynamics: *mp*, *pp*, *mp*.
- Staff 4 (Bass):** Dynamics: *mf*, *pp*, *mp*.

System 2 (Measures 13-24):

- Staff 1 (Vocal):** Dynamics: *mf*, *mp*.
- Staff 2 (Piano):** Dynamics: *mp*, *pp*, *p*, *mf*, *p*, *pp*, *mp*.
- Staff 3 (Piano):** Dynamics: *mp*, *pp*, *mp*.
- Staff 4 (Bass):** Dynamics: *mf*, *pp*, *mp*.

The score includes various musical notations such as triplets, slurs, and dynamic markings (*f*, *mp*, *pp*, *p*, *mf*, *pp*, *mp*).

The opening of The idiot bastard son (from We're only in it for the money as included in Lumpy Money, 1984 remix):

Handwritten musical score for "The idiot bastard son" (from YCDTOSA, 1974). The score is in 3/4 time with a tempo of quarter note = 117. It features a vocal line and three instrumental staves. The vocal line starts with "mf The i-di-ot--". The instrumental staves include various dynamics like *f*, *mp*, *pp*, *p*, and *mf*, and include markings for "Bars 4-8" and "Bars 1-12" with "repeat a like" instructions. The score is marked with a box containing the number 1.

The opening of The idiot bastard son (from YCDTOSA, 1974):

Handwritten musical score for "The idiot bastard son" (from YCDTOSA, 1974). The score is in 3/4 time with a tempo of quarter note = 110. It features a vocal line and three instrumental staves. The vocal line starts with "mf The i-di-ot--". The instrumental staves include various dynamics like *p*, *pp*, and *mf*. The score is marked with a box containing the number 1.

That's pretty different from the Clement example. Then where does this Clement example stem from if there are elements in it not played like that on CD? It's based upon the Frank Zappa songbook vol. I. For instance nowhere on CD the pick-up bar is identical to the first beat of bar 1, but it is in the Songbook and the Clement example. This Songbook version served as the basis for various versions,

but it never got played literally in this manner. In my study I'm calling the above transcriptions from CD by me, with the Songbook as source for its basic material. Clement took over most of it, reduced the chords to the indicated guitar chords only, and only adapted the piano bass to the bass guitar part a little. Other than me, Clement refuses to mention this source and even excludes it from his literature list. Clement 2009, p. 243:

Yeston, Maury. *The Stratification of Musical Rhythm*. New Haven: Yale University Press, 1976.

Zappa, Frank. *The Frank Zappa Guitar Book*. California: Leonard, 1983.

Zappa, Frank, and Peter Occhiogrosso. *The Real Frank Zappa Book*. New York, NY: Poseidon Press, 1989.

Articles

Aledort, Andy. "Zappa's Universe: An Interview with Steve Vai and Mike Keneally." *Guitar Player*, February 1999.

The Frank Zappa songbook vol. I., p. 103:

THE IDIOT BASTARD SON

By
FRANK ZAPPA

Moderato

The I - di - ot Bas - tard Son: (THE FA - THER'S A

NA - ZI IN CON - GRESS TO - DAY.) The moth - er's a hook - er some -

b) King Kong

Clement 2009, pp. 145 and 320:

The theme of “King Kong” (ECE 1967/1968b) demonstrates how the minor-1 pentatonic scale and the Dorian mode may interact within a piece (see Example 4.33). This theme, accompanied throughout by an Eb pedal and an Eb-sus4 chord, utilizes both the Eb-minor pentatonic scale (the “black notes” on the keyboard) and the Eb-Dorian mode (which adds the “white notes” F and C). In order to elucidate certain procedures, it will be necessary to distinguish between musical segments residing in diatonic-space or pentatonic-space (hereafter, *d-space* and *p-space*).⁸² D-space includes diatonic steps the size of one or two semitones,

Example 4.33. “King Kong” main theme:
interaction between minor-1 pentatonic (P-space) and Dorian (D-space).

The image displays four staves of musical notation in Eb major (three flats) and 3/4 time. The first staff shows a sequence of eighth notes: Eb, F, G, Ab, Bb, C. Brackets above the staff label the first three notes as 'P-space' and the last three as 'D-space'. Below the staff, it says 'sequence:'. The second staff shows a sequence of eighth notes: Eb, F, G, Ab, Bb, C. Brackets above the staff label the first three notes as 'D-space' and the last three as 'P-space'. Below the staff, it says 'sequence (of thirds):'. The third staff, starting at measure 9, shows a sequence of eighth notes: Eb, F, G, Ab, Bb, C. A bracket above the staff labels the entire sequence as 'P-space (cont.)'. Below the staff, it says 'sequence:'. The fourth staff, starting at measure 13, shows a sequence of eighth notes: Eb, F, G, Ab, Bb, C. A bracket above the staff labels the entire sequence as 'D-space'. Below the staff, it says 'sequence:'. The notation ends with '(etc.)'.

This analysis was first published in 1992 study by Wolfgang Ludwig, *Research into the musical output of Frank Zappa*, pp. 134-5. It also gets referred to in my study from the beginning (1st edition, 2000).

King Kong (JEAN-LUC PONTY PLAYS THE MUSIC OF FRANK ZAPPA) ⁴¹



Die melodische Sequenz beruht auf der Wiederholung eines Motivs, das sich zunächst als Ausschnitt einer abwärts gerichteten pentatonischen Leiter (Takte 1 und 2 ohne *f*), dann aber doch als Bestandteil einer dorischen Tonleiter in *Es* (siehe Ton *c* in den Takten 3-4) zeigt. Die *Es*-Tonalität wird ständig durch den zweitaktigen Baßriff manifestiert. Aber auch in den Takten 6-12 wird die pentatonische Färbung der Melodie deutlich; denn es kommen nur die im ersten und zweiten Grad quintverwandten Töne *as*, *des*, *es* (1. Grad) und *ges*, *b*

40 Siehe Anhang, S. 253, Takte 15-26.

41 Siehe Anhang, S. 259, Takte 1-4 und 13-15.

- 135 -

(2. Grad) zur Anwendung. Die Töne *f* und *c*, die Bestandteil der dorischen Tonleiter mit dem Grundton *es* sind, kommen erst wieder in den darauffolgenden Takten vor. Auch die Sequenzglieder selbst (Takte 1-4) sind stufenweise pentatonisch abwärts gerichtet (Anfangstöne: *b*, *as*, *ges*, *es*). Eine weitere Sequenz der gleichen rhythmischen Ausprägung findet sich in den Takten 13-15.



Im Unterschied zur zuerst beschriebenen Sequenz ist sie stufenweise diatonisch abwärts gerichtet. Zudem ist auch ihr Grundmotiv melodisch anders geprägt. Während die Tonfolge des Motivs dort den Intervallraum von Quinte bzw. Tritonus und Quarte durchmißt, endet sie hier wieder auf ihrem Ausgangston.

2. i) *King Kong (JEAN-LUC PONTY PLAYS THE MUSIC OF FRANK ZAPPA)*



In English: "The melodic sequence [in bars 1-4] is based upon a repetition of motifs, that shows itself first as a section from a downwardly played pentatonic scale (bars 1-2 without an F), next as a part of the Eb Dorian scale (see the C in bars 3-4). The Eb tonality manifests itself by an ongoing bass riff of two bars [Ponty plays the music of Zappa version; on Uncle Meat it's plain Eb pedal]. Also in bars 6-12 the pentatonic coloring of the melody becomes clear; because only in the first and second grade fifth-related notes are used, Ab, Db, Eb (1st grade) and Gb, Bb (2nd grade). The F and C notes first return again in the next bars. Also the members of the sequence (bars 1-4) are following the ladder of a downward pentatonic scale (first notes: Bb, Ab, Gb, Eb)."

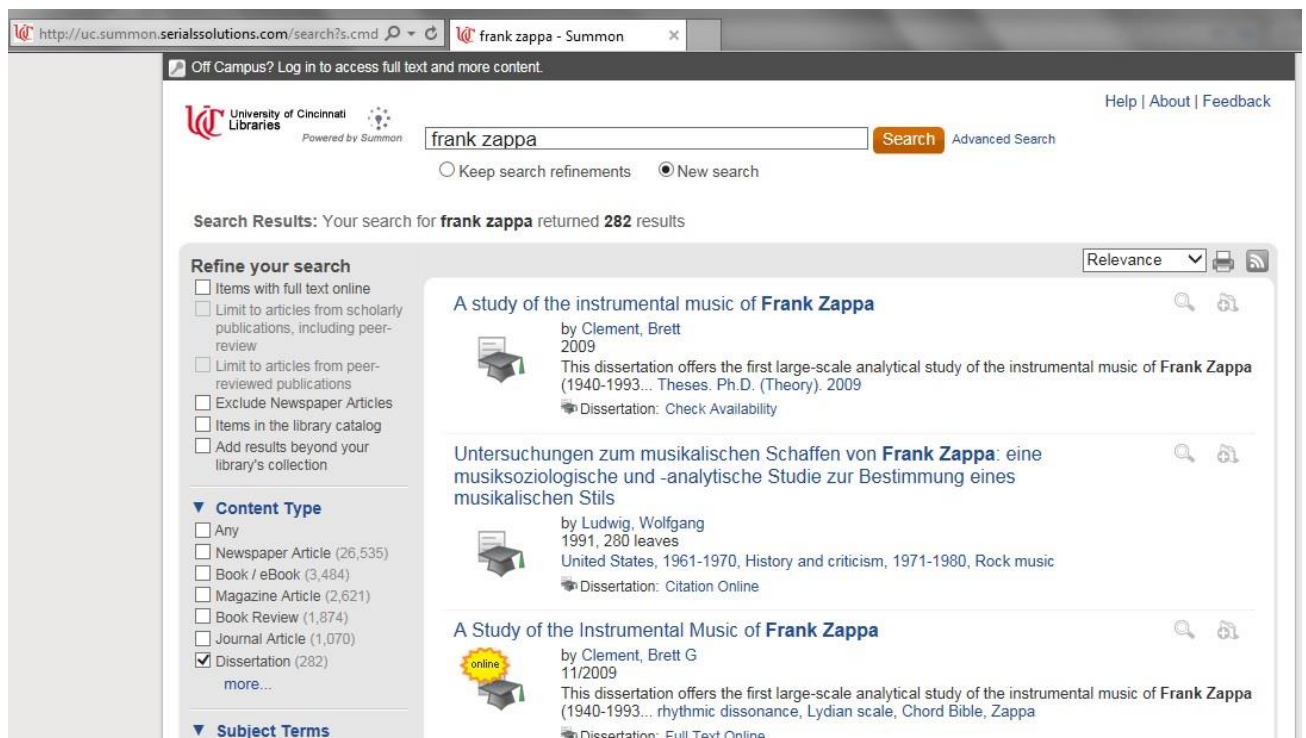
As for the Songbook vol. I, the Ludwig study even gets excluded from his literature list. Clement

2009, p. 243:

London, Justin. *Hearing in Time: Psychological Aspects of Musical Meter*. Oxford and New York: Oxford University Press, 2004.

Meyer, Leonard B. *Emotion and Meaning in Music*. Chicago, University of Chicago Press, 1956.

Clement got his degree at the University of Cincinnati. Their library lists the Ludwig study as below. It's one of many libraries in the U.S. who have a copy. It's an academic dissertation, written in 1991. It gets referred to frequently in my study. Up till today I consider this study one of the best sources on Zappa. There are no serious errors in it, the transcriptions are reliable and the conclusions correct.



Nevertheless Clement calls himself the first large-scale study of the instrumental music by Zappa. Clement 2009, p. ii (repeated on p. 1):

This dissertation offers the first large-scale analytical study of the instrumental music of Frank Zappa (1940–1993). Following initial commentary in Chapter 1 on the problems of

c) Eric Dolphy memorial barbecue

Clement 2009, pp. 59 and 281:

Further evidence for this contention is offered by comparing Example 3.16, from “The Eric Dolphy Memorial Barbecue” (ECE 1969/1970b) with the already discussed Example 3.14 from “Sinister Footwear I.” Just as “Sinister Footwear I” displayed the progressive augmentation and diminution of durations, Example 3.16 reveals a similar process of gradual diminution. This passage features a compound melody in which the lower register repeats the pitch A# while the upper part ascends chromatically from C# to G. Isolating both parts of the compound melody reveals that every successive pitch is of a shorter duration than the previous pitch. Considering the lower part (the repeated A#s), and as indicated on the example, the sequence of durations proceeds as follows: half note – dotted quarter – quarter – quarter – quarter triplet – eighth – sixteenth.

Example 3.16. “The Eric Dolphy Memorial Barbecue”
(*Weasels Ripped My Flesh* 0:07–0:18): progressive rhythmic augmentation.



Again this analysis was done first in the 1992 study by Wolfgang Ludwig, *Research into the musical output of Frank Zappa*, pp. 116 and 258:

Suggest a person is making mistakes when he doesn't do what your theory says he or she should do.

When someone is not exactly doing what you would like him or her to do according your theory, then that's a pity for your theory, rather than calling it a mistake by that person. On pages 79-80, Clement 2009, Clement is questioning the manner Zappa subdivides an irregular rhythm on some occasions:

no non-coinciding attacks). As can be seen, however, Zappa beams the pulses of this rhythm into non-equivalent groups in a 3-4-2-3 pattern. The perceptibility of Zappa's beaming is debatable; an easier interpretation of the pulses to hear is 4-4-4 (or 2-2-2-2-2-2), as all repeated notes will reside in the same group. Both of these groupings would produce dissonances with a slower pulse created by the groupings (3:4 or 6:4). (Without accepting Zappa's beaming or my alternate readings, it can be agreed that there is no support for a fully consonant 3-3-3-3 grouping

(On CD this example (Alien Orifice, bar 4, page 111 in this pdf) is played without strong accents and the CD version differs much from the lead sheet regarding details. But I could easily present midi files with accents that exactly follow the score or the groupings Clement is suggesting here, so that you can hear the difference.)

This is getting deluded in case of his analysis of two bars from Dupree's paradise.

Clement 2009, pp. 191-2, are about the symmetry one might find in the opening bars. As for most of what Clement writes it looks highly-educated, very detailed and sophisticated, people like Webern are referred to and often notes to academic journals are included. Clement undoubtedly is a talented musicologist. But he also got over-eager to prove himself. It looks like things were done in a rush, jumping to conclusions much too soon, with as end result that Clement's ambition level turns itself against him. In the first two chapters I showed that a whole theory fails, here it's more about details.

First Zappa didn't compose the intro from Dupree's paradise like that on paper and the 1973 version is a variation upon it, which Zappa apparently allowed. Secondly the transcription is done carelessly (transcribed from YCDTOSA vol. II). It's not that bad having errors in a transcription or a piece of analysis (that happens to me to frequently as well). What makes it silly is a detailed analysis of it of one and a half page length, including the suggestion that Zappa made a mistake and an "ideal" version (Clement 2009, p. 355).

Zappa's symmetrical structures. As Example 5.13a shows, a pattern of T5 transpositions controls the music at the highest level. Within each transposed segment lie two eight-note segments that are intervallic inversions of one another. As can be seen by investigating the first large segment (beats 1 and 2), however, there are slight abnormalities in the inversion, as the

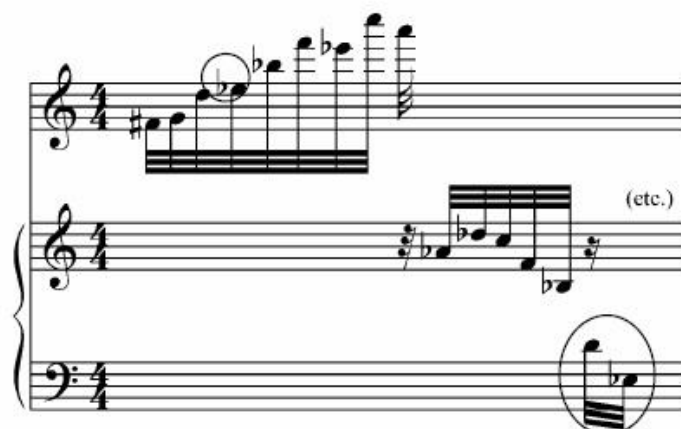
ordered pitch-class interval series of the first eight notes (1-7-5-3-7-8-E) is not precisely inverted by the second (E-5-E-5-5-5-E). The pitches that cause these discrepancies are indicated by an asterisk on the example. Only one of these pitches, G5, is “problematic” in terms of the T3I operation that relates the two segments; the other asterisked pitches, Db-C and Eb-D, are merely RI related.²² If this G5 were altered to Eb5, the two segments would be complete intervallic inversions under T3I. Example 5.13b shows an “idealized” version of the first large segment, wherein G5 is changed to Eb and the RI related pitches are reversed in order, thereby preserving the I relation. One wonders why Zappa chose to maintain this “problem” pitch, as it similarly violates the principle of pitch diversity within the first eight-note segment, causing a repeated pc

7.

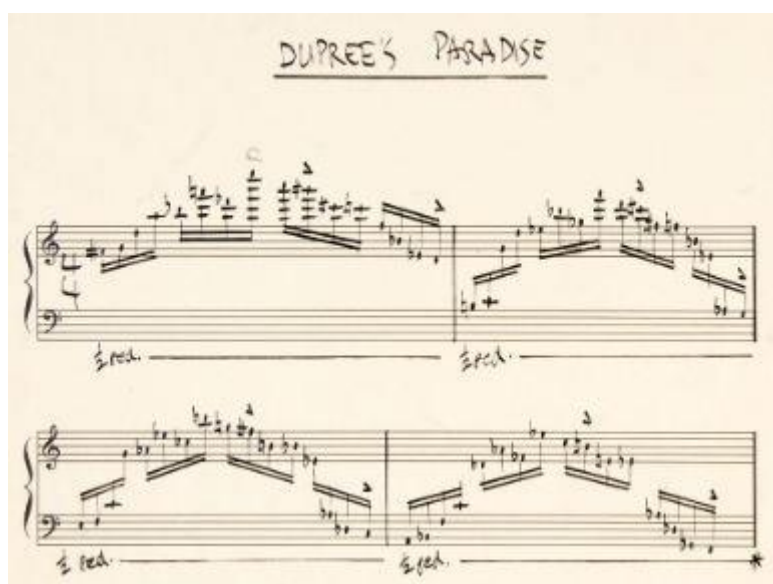
Example 5.13a. “Dupree’s Paradise,” introduction.

The musical score for the introduction of "Dupree's Paradise" features two staves: Vibraphone (top) and Synthesizer (bottom). The key signature has one flat (Bb) and the time signature is 4/4. The Vibraphone part consists of two main melodic segments. The first segment is marked with an asterisk (*) above it, and the second segment is marked with an asterisk (*) below it. The Synthesizer part provides a harmonic accompaniment, with a T3I* operation indicated by a curved arrow below the staff. A T5 (etc.) operation is indicated by a curved arrow above the Vibraphone staff, connecting the two melodic segments. The score illustrates the relationship between the two segments through T3I and T5 operations.

Example 5.13b. Idealized version of opening motive.



Zappa's own score:



This score, adapted to the 1973 version by me:

Dupree's paradise
① Faster

Fluctuates,
fades out

Etc.

mp mf

Accelerando

③

mp mf

Fast

⑤

Ova

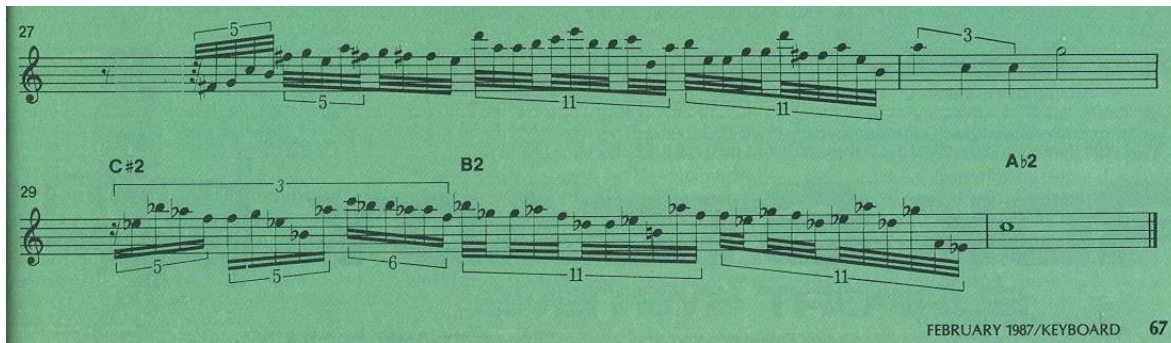
mf

P

mf

Misrepresenting data, so that your theory comes out better.

Clement 2009, pp. 127-8, is about his statement that Zappa mostly avoids the Lydian tonic in melodies that are played over the Lydian tonic. It gets said that this is not a rule, with bars 9-16 from The black page as an example with exceptions. The Black Page lead sheet is made up of only two pages, published in Keyboards, February 1987 (sample below). For copyright reasons I can't reproduce the full score. There are enough examples in the Clement 2009 study to show that he has the full score as well.



Clement 2009, p. 128:

within an octave and a fifth of this range (C#4 to G#5). It should be noted, however, that while examples of Lydian-tonic avoidance abound, they do not necessarily represent a *rule*. For example, the entirely Lydian “The Black Page #1” contains a lengthy segment (mm. 9–16) in the D-Lydian mode, wherein the Lydian tonic does in fact appear. However, it occurs only twice, while all remaining pitches within the scale appear at least ten times within this same segment. Therefore, it is perhaps better to think of Lydian-tonic avoidance as a strong *tendency* in Zappa’s Lydian-mode music. At the very least, one can expect melodies paired with the Lydian pedal to treat the Lydian tonic frugally.

Now, when you start counting, you're getting the following for the melody:

- bar 1: G Lydian. 11 notes with 1 time the Lydian tonic G.
- bar 2: Bb Lydian. 12 notes with 0 times the Lydian tonic Bb.
- bar 3: G Lydian. 4 notes with 1 time the Lydian tonic G.
- bar 4: Bb Lydian. 30 notes with 1 time the Lydian tonic Bb.
- bar 5: G Lydian. 17 notes with 1 time the Lydian tonic G.
- bar 6: Bb "Lydian". 4 notes with 0 times the Lydian tonic Bb.
- bar 7: G Lydian. 4 notes with 0 times the Lydian tonic G.
- bar 8: Bb Lydian. 18 notes with 1 times the Lydian tonic Bb.
- bar 9: D Lydian. 1 note with 0 times the Lydian tonic D.
- bar 10: D Lydian. 18 notes with 1 time the Lydian tonic D.
- bar 11: D Lydian. 10 notes with 0 times the Lydian tonic D.
- bar 12: D Lydian. 14 notes with 0 times the Lydian tonic D.
- bar 13: D Lydian. 32 notes with 1 time the Lydian tonic D.
- bar 14: D Lydian. 12 notes with 0 times the Lydian tonic D.
- bar 15: D Lydian. 17 notes with 0 times the Lydian tonic D.
- bar 16: D Lydian. 11 notes with 0 times the Lydian tonic D.
- bar 17: Gb Lydian. 12 notes with 1 time the Lydian tonic Gb.
- bar 18: Gb Lydian. 4 notes with 0 times the Lydian tonic Gb.
- bar 19: Bb Lydian. 30 notes with 1 time the Lydian tonic Bb.
- bar 20: G Lydian. 17 notes with 1 time the Lydian tonic G.
- bar 21: Bb "Lydian". 4 notes with 0 times the Lydian tonic Bb.
- bar 22: G Lydian. 4 notes with 0 times the Lydian tonic G.
- bar 23: Bb Lydian. 18 notes with 1 times the Lydian tonic Bb.
- bar 24: C Lydian. 1 note with 0 times the Lydian tonic C.

- bar 25: C Lydian. 17 notes with 1 times the Lydian tonic C.
- bar 26: C Lydian. 10 notes with 0 times the Lydian tonic C.
- bar 27: C Lydian. 35 notes with 3 times the Lydian tonic C.
- bar 28: C Lydian. 4 notes with 2 times the Lydian tonic C.
- bar 29, beats 1-2: C# Lydian. 15 notes with 0 times the Lydian tonic C#.
- bar 29, beats 3-4: B Lydian. 22 notes with 1 time the Lydian tonic B.
- bar 30: Ab "Lydian". 1 note with 0 times the Lydian tonic Ab.

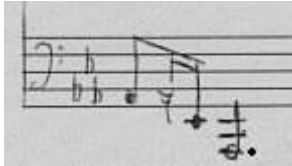
Throughout The Black Page the Lydian tonic appears relatively little in the melody. It's possible that this is the best example Clement found for an exception to his rule. What makes it a misrepresentation is his choice of a subset of seven bars: the seven bars Clement is picking out are the seven bars from The Black Page where this tonic appears the least. In any other sequence of seven bars, the Lydian tonic appears more often. This goes beyond carelessness.

So the Clement example to the contrary has two times the Lydian tonic in the melody, 2 out of 118 notes. You can compare this to two examples to the contrary by me. The Orange county solo example below is in E Lydian. The Night school part between the two stripes is Ab Lydian without altered notes. The E and Ab appear frequently in the melody. I can present much more examples, both in favor or against Clement's statement. But what's more interesting is to check out how they sound. If it's typical of Zappa to avoid the Lydian tonic in melodies, these two examples should sound as uncharacteristic. They sound as normal Zappa music to me.



Bars from the Orange County solo (Roxy and elsewhere). The Lydian tonic E appears 12 times out of 60 notes.





Section from Night School (ostinato bass figure stands separately below) The Lydian tonic Ab appears 8 times out of 32 notes.

As a Montana example from the Overnite sensation CD, the following example for the avoidance of the Lydian tonic is also wrong. But here I can't positively proof Clement is misrepresenting data. Clement 2009, p. 308, and Clement 2014, p. 153:

(c) "Montana" (*Over-Nite Sensation*, 1973), 3:56–4:06

Pedal: G Lydian

Pedal: D Lydian

Pedal: B Lydian

This example of four bars stems from Montana, correctly located at 3:56-4:06 on Overnite sensation. Only bar 1 is instrumental; the other three have lyrics. So it shouldn't be included in a study about instrumental music in the first place. It hardly can be a transcription by Clement from record, as the head suggests. It's highly unlikely that someone transcribes the difficult descant melody without mistakes, while indicating the much more easy bass line on Overnite sensation in bars 1-2 as G pedal. It's a counterpoint bass line that keeps moving, thus hardly fit to indicate pedal notes. I think this example has another source. Possibly it's derived from Zappa's own score with maybe the pedal notes as indicated by Zappa himself. The version on YCDTOSA II doesn't include this section and the one on YCDTOSA IV doesn't go like above neither. The Overnite sensation version (transcription: Paul Pappas/Original score?, with additions by me):

Handwritten musical score for guitar, featuring two systems of music. The first system includes the lyrics "With parallel octaves" and "I'm plucking--". The second system includes the lyrics "--folks." and "I'm gonna--". The score is written in treble and bass clefs with various musical notations including triplets, sixteenth notes, and fingerings.

I could go on pages and pages about detail errors in the Clement study. These errors always work in favor of his theory. I can't prove Clement is deliberately making these mistakes, but the overall impression is one of a bias or an over-eagerness to prove his theories.

CHAPTER V: THE CHORD BIBLE.

Chapter V of the Clement study deals among others with the chord bible, a collection of preferred chords Zappa seems to have used for writing atonal orchestra works around 1980. Its existence only got mentioned in interviews and hardly any indication has been given what the content would be like.

In his chapter V Clement tries to deduce the main chords from the chord bible by looking at the scores. One has to consider the following:

- The availability of Zappa's orchestra scores for the general public has become difficult due to the policies of the ZFT. This makes it difficult to verify someone's statements about these scores.
- By looking at the few examples of such scores in my study, one can only draw one conclusion: the number of occurring chords is huge.
- It is not known with certainty for which works Zappa used the chord bible.
- It is not known to which extent Zappa applied the chord bible in these works.
- The definition of a chord may also create difficulties: any sounding combination or should one try to distinguish lead melody and harmony notes?

So you're on a haphazard territory here. Scientifically things would become easier if one could say something like any chord from "Mo 'n Herb's vacation" is part of the chord bible. Without information like this one might call a deduction of the chord bible from the scores either audacious or futile.

For these reasons the content of the chord bible is not really my concern. I'm making some remarks about it nevertheless, because Clement likes to present the chord bible as additional evidence for his Lydian theory (Clement 2009, p. 203):

Example 5.19 offers a catalogue of the diatonic chords that are employed most often in the pieces in question.³⁸ The diatonic collection used to represent all chords is that of the F-Lydian system. As can be seen, nearly all the diatonic chords feature either the Lydian pedal or the Dorian pedal as their lowest pitch—a fact that provides further evidence of the special status that these two scales hold in Zappa's music (as discussed in Chapter 4). Accordingly, the example classifies all chords into one of two families: Lydian chords (Example 5.19a) and Dorian chords (Example 5.19b).

The number of chords you can create with the twelve notes of an octave has been dealt with by mathematicians, for instance by Herald Friperfinger. He used George Pólya's enumeration theory for analyzing the possibilities of each set of notes from the chromatic scale. The number of arbitrary chords you can create with for instance eight notes, out of the octave set of 12 notes, is $12 \cdot 11 \cdot 10 \cdot 9 \cdot 8 \cdot 7 \cdot 6 \cdot 5 = 19.958.400$. Chords could then spread out over eight octaves. This huge number has to be severely reduced for three reasons to get at the number of chord types, as they appear in music text books:

- Chords can appear on any step of the chromatic scale. So you need to start by dividing this number by 12, because for any chord you have 11 transpositions.
- The following order of the notes for chord types is taken as irrelevant. Each chord has a number of inversions.
- The notes of the chord should fall within an octave.

The calculation becomes complicated because these three criteria interfere with one another. So you can't start calculating it in an easy manner, step by step, but you need to solve it all at once. The results, as presented in some articles, are:

Number of notes	Chords types incl. the following order	Chords types indifferent to the following order of the notes
1	1	1
2	11	6
3	55	19
4	165	43
5	330	66
6	462	80
7	462	66
8	330	43
9	165	19
10	55	6
11	11	1
12	1	1

On some occasions people do find the following order of the notes relevant. In case of two notes one would get at 11 intervals, but above we're getting at six chord types because via the method above the fifth is seen as an inverted fourth (C-F and F-C are taken as the same chord type). As cited by Clement 2009 on page 200, Zappa did find the following order of the notes relevant, at least for some instances. Zappa also mentions that chords from the chords bible could spread out over four or five octaves, so the octave restriction from above doesn't apply neither. Clement follows this, thus including inversions and taking chords over an octave. The reductions from above are thus largely passed. In case of octatonic chords you're then not dealing with only the 330 chord types but somewhere between this number and the number of $19.958.400/12 = 1.663.200$ theoretical possibilities. According to Clement the core of the chord bible is made up of the following. Clement 2009, p. 241:

discussion. Described here as a response to the lack of consistent approach to harmony in the chromatic music, Zappa developed a system based on a “Chord Bible” in the period from 1977–82. These chords, which reveal some indebtedness to Varèse’s chordal writing, were shown to be primarily vertical realizations of three scales: diatonic, Minor Lydian, and octatonic.

These chords are:

Diatonic chords from the chord bible (Clement 2009, p 361):

Example 5.19. Diatonic chords of the Chord Bible.

(a) Lydian chords

Primary chord 1
D[4-7-7-1-7-7]

Derivatives
D[4-7-7-1-2-5] D[E-5-2-1-2-5]

Primary chord 2
D[E-5-3-2-5-4]

Derivatives
D[1-4-3-2-5-4] D[E-5-T-4-1-2] D[7-4-5-2-3-5]

(b) Dorian chords

Primary chord 1
D[7-7-1-7-7-4]

Derivative
D[T-5-2-1-2-5]

D[3-7-7-2-7-7] D[2-1-7-E-T-T]

Below the "most common minor Lydian" chords from the chord bible (Clement 2009, pp. 210 and 367). See below for the term "minor Lydian".

Example 5.27. Minor Lydian chords of the Chord Bible.

1 D[E-3-1-3-1-2] ML(2)

2 D[1-2-1-3-1-2] ML(2)

3 D[T-4-1-3-1-2] ML(1)

4 D[2-2-1-3-1-2] ML(1)

5 D[E-4-4-7-4-3] ML(2)

6 D[1-3-4-7-4-3] ML(2)

7 D[3-3-1-2-1-4] ML(1)

8 D[9-6-1-2-1-4] ML(1)

9 D[8-1-6-1-2-5] ML(2)

10 D[6-1-3-4-1-6] ML(1)

11 D[3-3-1-3-4-7] ML(1)

12 D[2-1-4-2-1-8] ML(1)

13 D[T-3-4-2-1-8] ML(1)

14 D[3-1-9-7-2-9] ML(2)

15 D[14-4-1-8-7-E] ML(1)

16 D[14-3-1-9-7-E] ML(2)

Below the octatonic chords from the chord bible (Clement 2009, p. 370). Clement remains a bit vague about seven-note chords (Clement 2009, p. 216). In a number of cases they can be seen as one of the above octatonic chords with one note skipped.

Example 5.29. Octatonic chords of the Chord Bible.

1 D[1-5-1-2-1-5-1]

2 D[T-3-5-1-2-6-1]

3 D[9-2-7-2-6-1-2]

4 D[2-4-2-1-2-4-2]

5 D[3-2-1-2-1-2-3]

6 D[2-1-3-3-2-6-3]

7 D[2-4-2-3-4-2-4]

8 D[1-3-2-1-2-1-5]

9 D[2-1-3-2-1-2-6]

10 D[2-1-2-3-1-2-7]

11 D[1-5-1-3-5-6-7]

12 D[1-2-1-3-2-1-8]

13 D[2-1-2-1-3-2-9]

14 D[16-2-1-2-1-5-T]

15 D[1-2-1-2-1-3-E]

16 D[3-2-1-8-6-1-14]

I'm having a number of problems with this presentation:

1) A diatonic chord normally can't be identified as belonging to a specific scale, because diatonic scales 100% overlap. Each chord occurs in any scale. However one may choose to call the root note the tonic. In that case I can go along with Clement by saying that the chords on F in his table 5.19 are "Lydian" and those on D "Dorian". But as soon as you're getting at inversions using another note as root no more. One has to choose one method. What's an inversion of what is arbitrary.

2) The term "minor Lydian" stems from Tommy Mars. Mars describes it as a chord only, on C being the Cm chord mixed with the D chord (Clement 2009, p. 207). The chord you're then getting at is C-D-Eb-F#-G-A. Clement extends this to a seven-note scale in two variants; the missing B can be natural or flat. The one that would use a Bb is called minor Lydian (1) by Clement, and the one with a B is called minor Lydian (2) (Clement 2009, p. 364, using D and F as starting notes). His table 5.27 from above is not the minor Lydian chord Tommy Mars is speaking of, but the seven notes of his two minor Lydian scales in a series of different following orders. Understandably the word Lydian in it tickled Clement to stress its importance. However "minor Lydian" is only a choice for a name and the two minor Lydian scales Clement is presenting are of course not truly Lydian or minor/Dorian. You can get at his minor Lydian (2) scale by altering one note in the Lydian scale. For his minor Lydian (1) scale you already need to change two notes, or one, as you see it as a variant upon the Dorian scale. But you can also get at for instance the Lydian scale by altering one note in the Ionian scale. And you can get at Dorian by altering one note in the Aeolian scale. Might one then interpret the LCC and the Clement theory as simple variants upon traditional harmony? Because of the minor third in it the minor Lydian scale could also be seen as a variant upon Gypsy scales. For this reason I can accept the term "minor Lydian" as defined by Clement, but not any suggestion that it can be used in support of his Lydian theory as described in chapters I-III of this pdf. Strictly following the definitions by Clement himself minor Lydian doesn't belong to a Lydian system and the chord tables, as shown in chapter III. Of course composers can alter notes all the time, but when this is done in the same manner over a certain period, it's a modulation to another scale.

The following stems from my main study. It's about the close relationship between a number of sets of diatonic scales and indirectly related to the above in the sense that I rather not suggest that a scale should be seen as derived from another scale. Like I wouldn't say Dorian is derived from Mixolydian by turning the third from major to minor. As soon as you start doing things like that the naming of scales becomes arbitrary and not workable anymore.

"Orrin hatch on skis" is another solo using a vamp. This one has a reggae beat and a bass figure with a syncope in it during the second beat. Regarding scales it's an example where Zappa is alternating or mingling two closely related scales while using the same keynote, two scales that only differ by one note. C major and C Lydian are for instance very close: you only have to vary between F and F#. For modulating from C major to minor (Aeolian) you would have to change three notes. There are other diatonic scale combinations, which behave the same like minor-Dorian, major-Mixolydian and Dorian-Mixolydian. It's a subtle manner of modulating, that Zappa sometimes applied both for his solos and written compositions. As already mentioned Zappa normally doesn't use drastic key changes in his solos. He preferred to stay in one key. When the key does change he could effect it by changing the pedal note (leaving the set of notes the same) or changing a note as in the list below. Solos that are using unrelated scales are rare. Examples mentioned in this study are the "Black napkins" ending and the solo from the Hammersmith Odeon version of "King Kong". Below are a number of examples with two closely related scales with a common keynote, which have come by in this study:

- "The Gumbo variations": G Mixolydian and G Dorian (B versus Bb).
- "My guitar wants to kill your mama": idem.
- "Think it over" guitar solo: D Dorian and D minor (B versus Bb).

- "Fifty-fifty": a couple of combinations, see the Overnite sensation section.
- "Echidna's arf of you": E major and E Lydian (A versus A#), B minor and B Dorian (G versus G#).
- "Dickie's such an asshole": F# minor and F# Dorian (D versus D#).
- "All skate": A major, A Mixolydian and A Dorian (G# versus G and C# versus C).
- "Inca roads (1975)": C major and C Lydian (F versus F#).
- "RDNZL" solo: A major and A Lydian (D versus D#).
- "Phyniox": Ab major and Ab Lydian (Db versus D).
- "Black napkins", the C# pedal bars: C# minor and C# Dorian (A versus A#; see my remarks below the "Pink napkins" example).
- "Filthy habits": F minor/C minor and F Phrygian/C Phrygian (G/Gb versus D/Db).
- "Stink-foot" (1978): C Mixolydian (bass) and C Dorian (others) (E versus Eb).
- "While you were out"/"Stucco homes": D Dorian and D Mixolydian (F versus F#; only mentioned in the Shut up 'n play yer guitar section; see the Guitar book for the transcriptions of these solos).
- "Ship ahoy": D Dorian and D Mixolydian (F versus F#).
- "The deathless horsie": C# minor and C# Dorian (A versus A#).
- "Stevie's spanking" solo bars: A Dorian and A Mixolydian (C versus C#).
- "Theme from Sinister footwear III": F Lydian and F major (B versus Bb).
- "Orrin hatch on skis": D Dorian and D Mixolydian (F versus F#).

In "Orrin hatch on skis" D Mixolydian tends to have the upper hand. The keyboard and rhythm guitar are in D Mixolydian all through. The bass starts chromatically (bars 1-3) and then continues in D Dorian. The guitar opens with an accentuated F in bar 1, bar 2 has an F# and bar three an F natural again. Next the guitar continues in G Mixolydian with only one more time the Dorian F on beat three from bar 6."

3) If his table 5.29 presents the core of the chord bible for octatonic chords and Zappa was indeed following it for a number of his works, it would mean that he had radically reduced his palette.

The next example may show that what Clement is doing is relative:

MO 'N HERB'S VACATION

I.

Frank Zappa

This is the opening of Mo 'n Herb's vacation (orchestra pitches; top part; the bottom part is percussion).

- Pick-up bar, beat 1: (C)-C-Db-E-Ab-Bb-Eb-G (chromatic 7-note combination), 1-3-4-2-5-4.
- Pick-up bar, beat 2: (C)-C-E-G-A-Bb-Db-F# (chromatic 7-note combination), 4-3-2-1-3-5.
- Bar 1, beat 1: (D)-D-Eb-Gb-Bb-C-F-A (chromatic 7-note combination), 1-3-4-2-5-4.
- Bar 1, beat 2: Bb-D-A-E-F-C-G (Bb Lydian scale), 4-7-7-1-7-7.
- Bar 1, beat 3, chord 1: Db-Ab-A-E-B-Eb-F# (Db Aeolian scale), 7-1-7-7-4-3.
- Bar 1, beat 3, chord 2: F-Bb-C-Db-Ab-Eb-G (F Aeolian scale), 5-2-1-7-7-4.
- Bar 1, beat 4: A-D-F-Gb-Bb-C-E-G (chromatic 8-note combination), 5-3-1-4-2-4-3.
- Bar 2, beats 1-2: Eb-G-Bb-C-Db-E-F-A (chromatic 8-note combination), 4-3-2-1-3-1-4.
- Bar 2, beats 3-4: (A-Db-E-F)-Db-E-F-A (chromatic 4-note combination).

Only on one spot you can find a chord from the Chord bible as Clement describes it. Of the three diatonic chords one can be identified as Lydian, but two others as Aeolian (thus as examples to the contrary of the above (Clement 2009, p. 203)). The other seven-note combinations aren't the minor-Lydian chords or one of their inversions Clement is presenting. The seven-note combinations aren't octatonic chords with one note skipped either. The octatonic chords aren't from the above Clement table neither. Above I've taken any vertical combination as a chord, though some notes are taken as melodic embellishment only (for instance the upper G during beat 1 of bar 1). The first longer held

chord we're arriving at in bar 2 is Eb-G-Bb-C-Db-E-F-A. As intervals, by counting half-tone steps, it's 4-3-2-1-3-1-4. This doesn't prove anything. It's just the opening page from "Mo 'n Herb's vacation" I happened to come across via the Allen Wright study. But it does point at the relativity of things.

B Someplace in New Jersey where they make them

20 **Slower** ♩ = 88

1 Bells *p*

2 Chimes *f*

3 Perc. Vibes *hard stx.* *p*

5 Marimba *hard stks.* *p*

El. Gtr. *w wah-wah ped.* *mf espr.* *wah-wah off*

El. Bass *flanger off, m.o.* *mf* *gvi*

(kbd. 1) Grand *mf* *22a* *

(kbd. 2) Rhodes *mf*

Harp *[D# C# B#]* *G#* *mf*

B **Slower** ♩ = 88

Vn. I *m.o.*

Vn. II *m.o.*

Vn. III *m.o.*

Vla. *m.o.*

Vc. I *m.o.*

Vc. II *m.o.*

Cb. *m.o.*

Example 1. Sinister Footwear 1, mm. 20–27. © 1981, Frank Zappa/Munchkin Music. All rights reserved.

Example 1. Continued

- Bars 20-21, held chord: F#-B-G#-A-C#-D#-E-C (chromatic 8-note combination), 5-9-1-4-2-1-8.
- Bar 22, held chord: F#-A#-C#-D#-E-B# (chromatic 6-note combination).
- Bar 26, held chord: (E)-E-(B)-F-B-F# (chromatic 4-note combination).
- Bar 27, held chord: (E)-E-(B)-(F#)-B-F# (stacked fifth or Esus2; the melody uses C natural, thus not diatonic).

The unavailability of the scores to the general public has led to the awkward situation that I had to transcribe some samples from record to keep the coverage of Zappa's output balanced in my study. Next to the Mo 'n Herb's vacation I encountered two excerpts from Sinister Footwear I in an article by Arved Ashby in *The Musical Quarterly*. In the Sinister Footwear example above I'm not finding chord bible examples as described by Clement.

Other samples from around 1980:

- Sinister footwear II, bars 121-6, are also reproduced in the article by Ashby: three-part chords.

Transcriptions from my main study:

- Mo 'n Herbs vacation, part I, 2:18 till 2:25: three-part chords.
- Sad Jane, section: fragmented diatonic material.
- Envelopes, section: counterpoint movements.
- The perfect stranger, fragment: four-part chords.

I'm willing to accept that the examples in the Clement study are correct. The above doesn't prove anything for certain, but it is strange that in some randomly picked examples I'll find hardly any support for the chord bible as presented by Clement.

The relativity of the Clement tables can also be shown via the next examples, sections from Alien Orifice from the sheet music and the "FZ meets the mothers of prevention" CD. When studying it for its chords, it shouldn't be presented as a 1982/84 ECE work, as Clement does (ECE stands for Electric chamber ensemble, mostly a rock band). The chords Clement's analysis is about, the minor Lydian chords, only happen in the sheet music version of this song. On both CD versions the lead melody is played basically the same as in the lead sheet, but the harmony is totally different. Thus the minor Lydian chord in this instance is not as important as Clement suggests. It's just one of the ways Zappa had it harmonized. Zappa's attitude towards harmony and song structures is extremely flexible, something you can notice repeatedly by comparing versions of a song on different CDs. This makes the analysis of Zappa's songs tricky. One can get at a correct analysis of one version. Next one is inclined to think it applies to this song in general. And then, when you're listening to the details of another version, your analysis is suddenly not applicable anymore. Clement 2009, p. 368-9:

Example 5.28. "Alien Orifice"
Minor Lydian Chord-Bible substitutions.

(a) Theme

Phrase 1:

Chord symbol: EbM7
Pedal: Eb Lydian

And:

Phrase 2:

Chord: D[8-1-6-1-2-5]
Scale: G Minor Lydian (2) (substitute for E Dorian)

Phrase 3:

Chord: D[3-3-1-3-4-7]
Scale: A Minor Lydian (1) (substitute for C Lydian)

On album (Mothers of prevention):

mf
R4. Guitar
mp
pp mf
Keeps repeating
mf
b7ab.

And:

Handwritten musical score for measures 5-8. The score is written for four staves: Treble (5/4), Violoncello (C), Double Bass (C), and Double Bass (F). The key signature is one flat (B-flat). Measure 5 is marked with a box containing the number 5. The Violoncello part features a melodic line with triplets and a dynamic marking of *p*. The Double Bass (C) part has a melodic line with triplets and a dynamic marking of *p*. The Double Bass (F) part has a melodic line with triplets and a dynamic marking of *p*. The score includes various musical notations such as slurs, ties, and dynamic markings like *mf*, *pp*, and *p*.

Handwritten musical score for measures 9-12. The score is written for four staves: Treble (5/4), Violoncello (C), Double Bass (C), and Double Bass (F). The key signature is one flat (B-flat). Measure 9 is marked with a box containing the number 9. The Violoncello part features a melodic line with triplets and a dynamic marking of *mp*. The Double Bass (C) part has a melodic line with triplets and a dynamic marking of *pp*. The Double Bass (F) part has a melodic line with triplets and a dynamic marking of *p*. The score includes various musical notations such as slurs, ties, and dynamic markings like *mp*, *pp*, and *p*.

Handwritten musical score for measures 13-16. The score is written for four staves: Treble (5/4), Violoncello (C), Double Bass (C), and Double Bass (F). The key signature is one flat (B-flat). Measure 13 is marked with a box containing the number 10. The Violoncello part features a melodic line with triplets and a dynamic marking of *mf*. The Double Bass (C) part has a melodic line with triplets and a dynamic marking of *p*. The Double Bass (F) part has a melodic line with triplets and a dynamic marking of *p*. The score includes various musical notations such as slurs, ties, and dynamic markings like *mf*, *p*, *mp*, and *pp*.

CHAPTER VI: MY ARGUMENT AS INCLUDED IN THE 4TH PDF EDITION.

For matter of completeness I'm here including the text from the 4th pdf edition of my main study, pages 554-563. It tells basically the same as chapters I-III. In this case in words only.

THE LYDIAN THEORY BY BRETT CLEMENT

In 2009 a study by Brett Clement was published in pdf format at the University of Cincinnati, dealing with Zappa's instrumental music. It contains two theses. The first smaller one is about rhythm. In chapter 3 rhythmic dissonance is presented as Zappa's rhythmic trademark. This term stems from Zappa himself. He takes up six pages for defining this term leading to what's in my opinion the definition of irregular rhythmic groupings, a normal musical term. As a thesis it's defensible, but also a matter of defining what's the most appropriate way of using the word trademark. More generally speaking Zappa seeks for rhythmic diversification and the use of irregular groupings is one of the ways in which he's achieving this. It can also be argued that syncopes are his trademark. Or on beat 4/4. The second thesis is the core of this study and deals with Zappa's use of scales and chords in his diatonic instrumental music. In 1953 jazz composer George Russell first presented his Lydian Chromatic Concept (LCC). Today it's available in a 4th edition with a foreword by Andy Wasserman at a steep price (the page numbering from below is from this edition). Contrary to traditional harmony, that's built around major and minor, in this concept Lydian is seen as the central scale:

- When you're stacking fifths the group of notes you're getting is the Lydian scale (page 2; starting on C it becomes C-G-D-A-E-B-F#, the notes of C Lydian).

- Lydian is the more elegant way of playing over a major 5th chord, better than the major scale itself. On pages 5-6 the argument goes as: playing in C you get to the fourth first (C-F), whereas in C Lydian there's an F# instead of an F and you get led to the fifth. This playing over a chord is called the vertical use of a chord-scale combination. The theory was first intended for jazz musicians, who improvise over chords. Progressions like I-IV-V-I are called the horizontal use of chords.

The first counts heavily to Russell. Because a fifth is the first and thus strongest overtone (page 2-3), the series of stacked fifths is seen as a gravity field, sort of a natural law (page 52) that establishes Lydian as the mother scale of all other ones. The other scales aren't even given their normal names but presented as modes of Lydian. When you, following the notes of the C Lydian scale, move over to playing from D to D, it gets called Lydian mode II instead of Mixolydian. Number VI then would be Dorian. In chapter III you get idea of the vertical chord-scale combinations extended to all chords, summarized in chart A. The principle it's based upon gets explained on page 20-21, in combination with a scale's potential to produce chords families as indicated on the following pages. Lydian and Dorian are the most important ones, whereas major and minor are seen as mere variants upon Lydian with the 3rd or 5th of this scale used as pedal note instead of the tonic itself.

In his dissertation Brett is confident that Zappa's diatonic instrumental music can be positioned within the LCC, in a modified form, leading to his conclusion at the end of chapter 4 that: "[...] that said, though Zappa's music is certainly influenced by many trends in the twentieth-century music, Zappa was keen upon developing his own original approaches to composition. Thus the Lydian-based approach described here, which treats Lydian as tonic while allowing for a highly codified limited treatment of additional diatonic modes, represents Zappa's original solution to composing with the diatonic scale". In Zappa! page 30, Zappa commented in 1992 that, after some experiments with 12-note music: "... So I started moving in the direction of a more haphazard style. That's what sounded good to me for whatever reason, whether it was some crashing dissonance or a nice tune with chord changes and a steady beat in the background". Anything anytime etc. became his credo. If this Lydian theory is correct, then the implication is that Zappa has been bit naive as it comes to his diatonic instrumental music. Instead of moving away from traditional harmony as the only system and diversifying his music towards whatever he felt like, he landed into the Lydian system as described by Brett without being aware of it (if Zappa knew of the LCC is unknown; on page 116 Brett writes in note 48 that: "It should be stressed, however, that there is no evidence that Zappa was familiar with

the LCC"). If someone came up with a similar theory for any of the modern classical composers, anybody would immediately raise his eyebrows. But that's not an argument, it can happen that someone follows a system without realizing it himself.

I've been in doubt if I should include a comment upon it. My study doesn't deal with instrumental music taken separately, though half of my study happens to be about instrumental music. Since it doesn't overlap well with my own findings on Zappa's music, both in general and limited to instrumental compositions, doing nothing may make me look as if I've missed the point or at least that my study lacks depth. Doing something means spending your energy in a negative manner. Furthermore, in my opinion, it doesn't do justice to the full width of Zappa's music. If I don't come up with an argument, I think eventually somebody else will.

- On pages 116-117 and 123 Brett is explicit in saying that Lydian is Zappa's most-used scale in his diatonic instrumental music: "More significantly, Zappa's approach to modality - particularly his preference for the Lydian mode - offers the potential for parallels [with the LCC]. In fact, the Lydian mode can easily be considered the characteristic sound of Zappa's diatonic music" and "As mentioned previously, the Lydian mode is by far the most commonly encountered mode in Zappa's diatonic works. Of the many examples in which Lydian was contextualized as tonic, consider the introductory guitar solos to Zappa's concerts from 1978-79. Texturally, this improvised event consisted merely of a sustained pedal note over E, over which Zappa would embark on a lengthy E-Lydian solo." My study contains 310 note examples and anyone can judge by himself whether it's representative of Zappa's output. If I put a filter on the table from the Burnt weeny sandwich section by the rough method of skipping all the ones that contain lyrics, still half of them remain leading to the following: Major/Ionian: 29, Dorian: 56, Phrygian: 8, Lydian: 28, Mixolydian: 35, Minor/Aeolian: 20, Varying rapidly: 45 (several examples are marked for more than 1 scale; for an overview in the form of a table: http://www.zappa-analysis.com/keys_instr.xls). At the end of this section these examples are simply listed. By varying rapidly I mean that the scales are changing thus rapidly that I preferred not to assign these scale fragments to individual scales for this table. A more refined method would be the counting of the number of instrumental bars in which a certain scale is used. The result can be expected to be somewhere between this reduced table and the table from the Burnt weeny sandwich section, though I find it exaggerated to go to such lengths to prove a point. In his instrumental music the modal scales come out more pronouncedly, but still I see no sign of Lydian becoming the central scale. Brett's study concentrates on written examples, but this effect of the modal scales becoming more important is largely caused by the many improvised guitar solo examples in my study (see the Shut up 'n play yer guitar section for an overview). For his solos Zappa has a clear preference for Dorian, Lydian and Mixolydian. But also for his solos Dorian and Mixolydian occur more often than Lydian. The only Zappa album that actually tends to favor Lydian is "Shut up 'n play yer guitar", for it contains four examples of the C Lydian solo he used to play during "Inca roads". About all titles with diatonic music in Brett's study are also passing by in mine - or the one by Wolfgang Ludwig - though the passages can be different.

- My study offers enough examples to show that Zappa's harmonies use the whole range of what's possible. The Zoot allures section gives an overview. At one end you have Zappa quoting "Louie Louie" or the instrumental opening bars of "Doreen": pure traditional I-IV-V in major. At the other end you have bars where Zappa is mingling about all notes of whatever scale or examples where he lets two or more melodies play over each other - with or without pedal notes - in such a way that the harmonic combinations you're getting keep changing all the time, almost at will. To me Zappa's message is clear: I can use any chord in any position in any scale and combine it with a melody as I please.

- Note examples from "Oh no", "Strictly genteel" and "Rollo interior" are passing by. The presence of a number of bars in Lydian or Dorian in a composition isn't enough to qualify it as a Lydian system to me. It's something I expect to find automatically with a composer who uses modal scales as more or less equivalent. With Phrygian and Locrian seldom being used in music in general, you've got five regular diatonic scales (Ionian/major, Dorian, Lydian, Mixolydian and Aeolian/minor). When someone is using all five of these scales without any system - thus also choosing not to compose via Brett's Lydian systems - then the statistical chance that a bar is in Dorian or Lydian still gets to 40%. I've got hundreds of such bars. With Zappa changing scales frequently, then the statistical chance that Lydian or Dorian happens in a composition is way over 50%.

- The idea of the vertical use of chord-scale combinations gets mentioned frequently and presented via a couple of tables spread out over pages 305-317. Most chords are on the tonic as is also done in the LCC. Root of the chord and tonic are in the LCC mostly seen as the same. When Zappa plays a progression, in Brett's text it can get called a traditional horizontal progression (page 124 above) or only the chord over the tonic is taken as relevant (page 137 below). Only for Lydian I, II and V 5th get mentioned separately for playing progressions over the tonic (to the exclusion of others). Only for Dorian and Ionian thirds stacked to larger chords than 5ths (I 7th, 9th etc.) are mentioned. Sus2 in Dorian can be seen as I 9th without the third and seventh, but that's not what he wants (page 137: no sus2 on the Dorian pedal; page 318: Bbm11 includes all third-steps). So what's I 7th without the third or fifth? The purpose of mentioning a group of combinations of three notes separately (other than triads) seems to be to explain them as (inversions of) the sequent notes from the stacked fifths series ("T7 cycle") that form the Lydian scale, rather than from stacking thirds in the scale they belong to (it's an elegance of Lydian that you can stack fifths up to the 7th grade of the scale, starting with the tonic, but one can stack fifths this way up to the 6th grade in major as well by the way). It remains a bit cloudy to me, so I'll only make some remarks:

a) In all four tables the tonic gets combined with a triad. Well yes, that's always a very common combination in diatonic music, more pointing at a modal theory when you associate it with each scale (except minor in this case). The number of instances in minor in my study indicates that the absence of a table for minor is exaggerated. It's only a relatively less used scale.

b) The stacked fifth on the tonic gets presented as a preferred, characteristic chord for Lydian, but as a plain chord that one is rare (as a cell in a melodic line you'll encounter it more often). I had to look hard to find examples in my study. In my "Duck duck goose" example you have one in E Mixolydian and in my "Zoot allures" example you see them as the three triplets in major (there's a series of stacked fifths present in the "Piano intro to little house..." score, but that's in an atonal environment). To a lesser degree this also applies to the stacked fourth as a plain chord. In melodic lines you'll find Zappa stacking fourths more frequently. Their inversions, sus2 and sus4, happen more frequently. It would be a hell of a job setting up a general table of chords Zappa uses with their frequencies, but by looking through the available scores/transcriptions collections (see the Scores per CD section) you can see that sus2 and sus4 are two of the many chords that occur, not preferred or characteristic chords. Triads, 7th chords (complete or without the 3rd or 5th), sus2, sus4 and other types of larger chords happen on any scale step in Zappa's music.

c) His "Idiot bastard son" example 4.26 is the Songbook arrangement, that you can hear in this form on "YCDTOSA II", 0:38-0:50. Interpreting these bars as D Dorian or minor modulating to A Dorian is just as well possible as Brett's explanation on pages 137-8 from his study. It looks as if he was well aware of this, because he takes an effort to prevent that you see it as D Dorian/minor. Then it becomes an example to the contrary instead of proof. Following Brett's reasoning a stacked fifth and its inversion, sus2, are excluded because in D Dorian these two chords include an E; in the corresponding Lydian system F (F Lydian is the Lydian scale with the same notes as D Dorian) the E would be in dissonance with the Lydian tonic. When you take it as D minor it would correspond with Bb Lydian, causing a similar A-Bb dissonance. It would be a cryptical reason to avoid this chord. When I hear a sus2 on the Dorian pedal passing by (as in the "The torture never stops" coda), at least I don't react like hey, wasn't that a miss? Ruth Underwood plays the D Dorian/minor part from "The idiot bastard son" separately on the Classic albums DVD as an example of 2-chords, which raises another practical problem: if Zappa wasn't consciously busy with Lydian systems, then how could it be avoided that band members would play things that go against it? I mean Zappa didn't prescribe every note or chord.

d) Examples from my study that include a much wider use of chords than these tables are numerous. To mention some: "Foamy soaky", "Little house" main theme, "It must be a camel", "Twenty small cigars" opening bars, "Big swifty" piano part, "D.C. Boogie", "Conehead" vamp, "Why Johnny can't read", "Sunrise redeemer" (E pedal combined with D+F# by the guitar), "9/8 Objects".

There's also a large number of examples where Zappa lets the notes from a scale mingle freely, either improvised or prescribed (like "Dwarf nebula", "Your mouth", "Greggory Peccary mvt. I" interlude, "I promised not to come in your mouth", "What will Rumi do?", "Dog breath variations" (1992)).

e) Static situations with Zappa not using a chord directly related to the pedal (examples from my study): "King Kong" (Dorian, Eb pedal with Absus4), "Eat that question", "Chunga's revenge" solo

from 1975 (Dorian, D pedal with the C chord), "No more Mr. nice girl" outro (Lydian, A pedal with Esus2), "The torture never stops (1980 solo)", "Hot plate heaven at the Green hotel".

f) There are numerous examples of instrumental compositions that are entirely melodic, thus played almost without chords, like the following examples from my study: "Holiday in Berlin", "The little march", "Dog breath" (1974), "Big swift" album version, "St. Alphonso's pancake breakfast" (the indicated 2-chords in the score aren't actually played on the album, the same goes for "The black page"), "Pygmy twylyte", "Debra Kadabra", "Filthy habits" and "Aerobics in bondage". Of course they can be harmonized and Zappa often changed things during tours. One can see groups of sequent notes as chords too and then you can see that Zappa is very free in his formation of melodies, thus also in this perspective not specifically following tables like Brett's.

g) Some progressions or chords over the Lydian tonic being more than I, II and V 5th (examples from my study): "Would you like a snack", "Rollo" opening, "Andy" bar 2, "Wild love" bar 5, "Occam's razor" bar 9 and "Dupree's paradise" (1984).

h) Following his reasoning you can also add the stacked fifth to the major and Mixolydian tables. When you also accept for instance that Zappa's range of chords in Mixolydian can go up to I 13th just as well as he allows it for major and Dorian (see point d)), then the tables become very similar. In fact, following his reasoning, it looks like of the three major family scales Mixolydian is the best equipped one for "Lydian" chords and the Lydian scale itself the least. Theoretically that still might be acceptable, if it weren't that this goes contrary to his reasoning in other parts.

- Whereas his theory starts with explicitly saying that Lydian is by far the most common scale in Zappa's diatonic music, reading it makes you think he's changing his tone. On page 134 Dorian is quite okay too, "appearing only less often than Lydian". "By far the most" and "only less often", sounds close to a contradiction to me. Statistically Dorian occurs twice as often as Lydian in Zappa's music. The frequent use of Dorian is not in conflict with the LCC, but Dorian heavily outnumbering Lydian doesn't sound nice when you've earlier used Zappa's alleged preference for Lydian as the entrance for a Lydian theory and it doesn't sound nice for Russell's gravity field neither (the so important idea of stacking fifths only applies to Lydian). On page 131 and 163-5 Mixolydian is okay too, over for instance major chords, "touching upon Zappa's three favorite modes - Lydian, Mixolydian, and Dorian" (more on Mixolydian below). On page 149 it's "Of his four most often employed modes (Lydian, Ionian, Mixolydian, Dorian) ...". On page 150 switching between five pedal notes is allowed in a Lydian system and when Zappa does change to another key it still can be seen as a switch to another the Lydian system. Then what are you trying to say, "highly codified" or can eventually all diatonic music be explained towards Lydian systems? The regular diatonic scales can all be seen as pedal substitutions for one another. At various points the theory takes the appearance of a modal theory with the primacy of Lydian being highly theoretical. In his own words on page 135: "Considering our general tendency to conceptualize all non-Lydian events within a Lydian framework, we can also see Dorian as a strong analog to the Lydian tonic".

- When Mixolydian enters the picture on page 131, things are getting stranger. Out of the blue Brett's text turns itself opposite to the LCC: "Contrary to Russell's strict association of the Lydian scale with the major triad, Zappa often pairs the Mixolydian mode with a major triad". He has to do so because Zappa does indeed use Mixolydian frequently, over triads or not. It breaks away from the logic behind the LCC - whatever one may think of it - but what then is the new logic? In Brett's example 4.2 (with explanation on page 105) C Mixolydian would miss both the F# and B lead tones, which would make Mixolydian - from the LCC point of view - even less fit than the major scale itself for playing over a major triad (both the lead tone to the 5th and the tonic fail). It gets noted that "certain characteristics in the vertical use of Mixolydian reveal an indebtedness to the overriding Lydian tonic". To me Zappa's use of Mixolydian shouldn't have been a sign to deviate from Russell's theory and still call it a Lydian theory. To me the theory then becomes more a modal theory. When someone plays a melody over I 5th in Mixolydian, I can't think of it as something with a Lydian tonic somewhere there in the background. Mixolydian exists for ages; I'm not going to call an E Mixolydian solo as "Heidelberg" Lydian system D. It wouldn't make sense. The same can be said about the examples in major and minor from my study.

The thing Brett calls L/M and D/M substitutions are called I-II and I-IV alternations in Lydian and Dorian in my study, which is the common way of identifying chord alternations. Thus I identify these examples as entirely Lydian or Dorian. Mixolydian in my study uses this term in its common form,

thus by Mixolydian I never mean the "M" part in such progressions. I'm not going to call chord alternations key changes. Re-identify "Any way the wind blows" (1963) as a major minor substitution, theoretically it's possible, but no.

- In the LCC, page 24, Russell first associates Mixolydian with the dominant 7th chord, but in Brett's theory "the dominant-seventh sonority is prohibited in this [i.e. his] theory. Stated plainly, dominantseventh

chords do not occur within the Lydian system - or, for that matter, Zappa's diatonic music, wherein the presence of the dominant-seventh chord should be taken as a sure indication of the employment of the "horizontal" major scale tonal system [because of its resolving tendency]." On page 112 he speaks of a "crucial weakness" of Russell's theory. In the examples of my LCC edition I see this chord being used normally. The dominant 7th is also in Zappa's music a normal chord, though possibly it appears less often than usual. Brett's remark reads a bit difficult. What he seems to mean is not that the dominant 7th never happens, but that when it happens it's only in the context of a traditional progression. Instances where Zappa is not using a Lydian system, which in the light of his thesis then should be relatively rare. Some examples from my study: "I was a teenage maltshop" bars 1-4, "Cheap thrills" accompanying chord progression (introduced instrumentally), "No, no, no" idem and opening bar. These are indeed clear horizontal/traditional progressions. Others are "Didja get any onya?" (opening riff, bass and chord), "Son of Orange county" E-F#/F#7 chord alternation (you can hear the E of the F#7 chord brightly at for instance point 3:43), "Imaginary diseases #1" bar 13 beat 3, idem bar 16 beats 1-3 and "D.C. Boogie" bars 5/7/9 beat 1 (sounding combination of bass note and descant) and "Promiscuous" (the opening bars are mostly the plain D7 chord). These are less traditional.

Indicated guitar chord examples from other score collections to show that other people treat the dominant 7th as normal to Zappa's instrumental music:

Hot Rats guitar book: page 8 (E7) and 32 (Bb7), pages 45 and following (G7 as the basic chord for most of the song; the F# in the presets is a convention in the Hal Leonard series to notate in major or minor; the actual F is natural and the scale G Mixolydian). See also the "Gumbo variations" example in my study.

Overnite sensation guitar book: pages 43 and 47-51.

Apostrophe (') guitar book: pages 44, 83-84 and 88; pages 71, 74, 76-77 (G7); pages 83-84 and 88 (C7).

One size fits all guitar book: pages 30-35, 46, 49, 63-65, 73-81, 118 and 122.

The FZ Songbook vol. I: pages 22-23 (a larger number, though with lyrics), 70 and 98 (with Zappa modulating, half diatonic, half chromatic).

I haven't checked out these examples of dominant 7th chords by comparing them with the records, but it looks like they are used in various sorts of environments.

- Both major/Ionian and minor/Aeolian are presented as rarities in Zappa's music. On page 128 he says about major/Ionian: "However, examples of the Ionian mode in Zappa's music are rare. This fact alone provides strong evidence that Zappa considered Lydian to be the best scalar representative of major tonality". On page 140 he continues with minor: "In part, this question mark reflects the fact that Aeolian is seldom found in Zappa's diatonic music". He also notes that minor is the darkest of the diatonic scales and that "the general brightness of Zappa's modal choices highlights the lack of "tragedy" expressed by his music". The latter I consider a simplification, as also indicated below with the "Ancient armaments" comment. "Outside now" is in Bb Lydian, according to Brett the brightest scale, while most people consider this song tragic. You can't directly relate scales with moods, it depends upon what you do in a scale. The examples of major/minor in his study are indeed rare and the few that he gives are explained towards Lydian in a forced manner (as mentioned below for "Uncle meat" and "RDNZL").

"Outrage at Valdez" in minor gets explained as Lydian system Db largely for its final 6 seconds with a Db pedal (next to some "hints" at a Lydian system). These seconds can be interpreted as Lydian, while the rest of this three minute composition is in different keys. Suppose it was the other way round: three minutes largely in Db Lydian with for the last 6 seconds an F pedal. I'm sure if it was composed in this way he would also have called it Lydian system Db and made nothing of the last F pedal bar, certainly not presenting it as an example contradicting his Lydian theory. See also my remarks about "Outrage at Valdez" on page 459: Zappa liked to end a piece in an evasive manner

every now and then. The examples in major and minor in my study aren't rare, though I agree with minor being relatively rare. Phrygian doesn't get dealt with in his study.

- On page 154 Brett states that the opening and closing bar of "Rollo interior" are "two occurrences of the main motif of the interlude: essentially the only diatonic music that occurs within this section". The second one is in Bb Lydian, thus convenient for his theory. There's no strict borderline between tonal and atonal and Zappa is here playing around the border. The two bars mentioned by Brett are indeed the ones that use a scale for an entire bar (following the Apostrophe (') guitar book in 4/4; Zappa himself used a smaller unit, 4/8, automatically leading to more bars using a single scale). The others are made up of scale fragments and chromatic movements. I wouldn't call it atonal altogether. There are many Zappa compositions that use scales and chords in a highly flexible way. Like the "Uncle meat" 3rd example, "Sad Jane", "Run home, slow, soundtrack excerpt #4", "It must be a camel", "Little umbrellas", "Five-five-FIVE" and "Marque-Son's chicken" - the many examples qualified as varying rapidly regarding scales in my study. The examples commented upon above are presented as supporting his theory, but a bigger problem for the Lydian theory might be these titles not present in his study. Explain these pieces from the angle of the Lydian theory, I think it would be difficult. They show the full width of what Zappa does, uninhibited by any system.

Next are some comments upon details, till I get at the conclusion.

- The construction of "Montana" gets commented upon on pages 150-151, ending with: "More generally, this analysis manifests the central premise of pedal substitution, specifically the employment of various pedals within a Lydian system (here A Lydian) to alter one's modal reading of the same melody." In his note example the song gets presented via its lead melody and bass notes. There's nothing wrong with that, but when your theory is about scales and chords - and you're specifically using an example to demonstrate something - one should better check the details. The first "Montana" example in my study (2007), as well as the more recent Paul Pappas guitar book (2011), do include the harmonies (played as a series of parallels) and then you can see that the G, and D (Pappas), in bars 1-2 are always natural. The more logical key then is A Mixolydian and the D# in bar 3 can better be seen as an altered note.

- The opening of "RDNZL" gets presented as a construction with the bass pedal notes moving via fourths from D to F (D-G-C-F, an example of "T5"), going from D Dorian to F Lydian, thus an F Lydian system. On page 158 he notes: "Perhaps this T5 schema offers additional evidence as to why Zappa chose to alter the opening pedal of the waltz [second theme] from C (Ionian) to F (Lydian)". In my *Orchestral favorites* section you can see that "RDNZL" changed drastically between 1972 and 1975. From 1974 onwards the bass is playing parallel with the opening melody, so when Zappa has arrived at the F in 1975, the T5 pedal note steps are unrecognizable. It's more an imaginary construction. And even if it did happen in full: those changes Zappa made between 1972-5, were they because he subconsciously reasoned like as I originally composed it, it doesn't fit well in a Lydian system, so I better adapt it?

- Another "correction" Zappa did is changing the pedal note for the opening bars of "Uncle Meat" from D (1969) to G (1974/92), making it move from D to G Lydian. He notes: "These two [Uncle meat and RDNZL] Lydian substitutions can also be viewed as a kind of retrospective "correction", as the overwhelming evidence suggests that Zappa judged the Ionian mode as offering a less definitive "major" tonality than the Lydian." He further notes that Zappa preferred to avoid the Lydian tonic for his melodies over this tonic as a pedal and that the G isn't present in melody in bars 1-6 (page 160). On "Uncle meat" you also have the "Uncle meat variations" played over an ongoing drone created by a tom that has C as pitch. In bar 8 of my note example the key would then be C Mixolydian. In both "Uncle meat" and the variations you have a little counterpoint melody, that would use the Lydian tonic if the pedal note was such that these pieces were in Lydian. One can judge by oneself if these two versions sound less definitive as Zappa than the 1974 version.

- The avoidance of the Lydian tonic in the melodies over this tonic as pedal note in Lydian compositions gets first mentioned on page 127-8 in Brett's study: the tonic gets reserved for the pedal note/basic chord. It's used as the main argument in the previous example that "Uncle meat" is a Lydian melody. Some examples are given on page 308. But is this something like a "strong tendency"? Next are some other examples in Lydian:

Orange county: the E pedal bars in my example have an accentuated E in the melody.

Theme from Sinister footwear III: most bars contain the pedal F also in the melody.

Night school, my example, bar 1, pedal C# present in the melody; bars 11-13, pedal Ab present in the melody (bars 1 and 12 are entirely Lydian, various other bars in this example have chromatic elements in them).

Rollo, my example, bars 1-2: pedal Bb gets also used for the harmonies of the melody.

The entire score of the "Black page" has been published in *Keyboard*, February 1987. This composition is predominantly in Lydian when you take the root note of the prescribed 2-chords as pedal notes (the bass does follow them, but with a degree of liberty; the 2-chords aren't actually played on album versions; there are chromatic passages and bars that don't have enough of a complete scale to identify it positively). When you take all as Lydian, you can check the following yourself: bars that include the tonic in the melody: 14, number of bars that don't: 15, in 8 bar the tonic appears altered. On page 128 Brett notes that the avoidance of the Lydian tonic is not a rule. He picks out bars 9-16 from "The black page" as an example to the contrary, that do have the Lydian tonic twice, while the other notes occur ten times or more. In my counting these specific bars are split as 2 bars with the tonic and 6 without them. As an example to the contrary it's poorly chosen. It's actually the part from "The black page" where the tonic appears relatively the least.

The argument is also used to identify the opening of "Inca roads" as a Lydian melody (page 153 in Brett's study, a mostly failing F in this case). Here the opening does use the F and F# to modulate the melody. In bar 10 in my example it's an F and in bar 22, with the variation via triplets, it's an F# in the sung harmony. When you're listening to the keyboard harmony notes in the background you can also hear that during the opening both F and F# turn up, making it vacillate between C major and C Lydian. So it's difficult to see it as a pedal substitution as he indicates, and it's also a bit arbitrary what's a pedal substitution for what. Seen his theory he likes to explain things as pedal substitutions for Lydian, but one might also reason that occurrences of Lydian are pedal substitutions for other scales. Brett can also be inconsistent in limiting himself to instrumental bars. The arbitrariness of explaining comes out for instance in the "Deathless horsie" example (or in "Outrage at Valdez", see above). The central scale is B Mixolydian (the solo begins and ends in B Mixolydian and its central theme is in B Mixolydian). But since there's also a block in it in A Lydian, both get explained as Lydian system A. More neutrally one would call the A a pedal substitution for B. As for the A/A# thing over the C# pedal part in this solo and "Black napkins": see the example in my study and my remarks below the "Pink napkins" example.

The examples he's giving on page 308 for the avoidance of the Lydian tonic, when used as pedal note, are only partially correct. "RDNZL" ("Studio tan" 7:27-7:39): the second theme has a bass F only vaguely audible right at the beginning. After that it continues unisono. "Montana" ("Overnite Sensation" 3:56-4:06): in his bars I'm hearing sort of a counterpoint bass line: B (bar 1) descending to E (bar 2), bar 3 is D to D upwards and bar 4 has B-F#-B-F# downwards. Only the third bar you can call D Lydian as he indicates. See also the second Montana example in my study for the type of bass line.

- On pages 134-5 he continues with the Lydian concert opener from 1978-79 from above. The only occasion where you can actually hear such a solo, opening a concert, is on the Halloween DVD. That one is titled "Ancient armaments", an A pedal solo in Dorian. The choice for Dorian gets explained as: "On Halloween night 1978, Zappa modified the opening solo by substituting an A pedal for the standard pedal on E and accompanying this A pedal with a Dorian improvisation. Given the occasion of Halloween, therefore, the characteristic minor tonality of Dorian was deemed a more appropriate concert introduction than the typical major tonality of Lydian." Dorian is in the LCC indeed the scale for minor chords, but the argument for the change is awkward to me. Dorian/minor is a dark key when the solo would use the bass pedal note as key note as well - and even then you would have to play standard patterns around this key note. That's not the case here. See also Zappa's remarks about "Heavy duty Judy" in the Shut up 'n play yer guitar section. The "Ancient armaments" transcription in my Halloween section further clarifies my point: A doesn't function as the tonal center for the solo itself. The keyboards are playing along I 11th and the crowd is enthusiastic; nothing gloomy going on. In my opinion this Lydian theory is a highly "academic" theory. What you can say of it is that it demonstrates the theoretic possibility as such to look at a partial collection of Zappa's instrumental diatonic music in this manner. It suggests a strong inner logic by itself, but it apparently only found Zappa as user, and he wasn't even aware of it. It has several elements in it that are ambiguous, arbitrary and far-fetched, which could lead to an endless bickering over its validity and applicability.

It can be inconsistent and at various points it reads more as a modal theory or some sort of an avoid minor theory. Zappa does use Lydian and Dorian a lot, which you could call similar to the LCC or a Lydian system. George Russell made reasoned choices. But you can't start adding chords like a triad on the Mixolydian tonic and call it a Lydian system as well, just because Zappa uses this chord frequently in this way. That's arbitrary. And you can't explain all instances of major and minor away as pedal substitutions in a Lydian system. You can't call stacking fifths essential for a Lydian system when it leads to tables that favor major and Mixolydian above Lydian and at the same time say things like that Zappa considered Lydian to be the best scalar representative of major tonality. It doesn't make sense. Traditional harmony explains all chords from stacking thirds, also the unusual ones, and it's true some combinations of three notes coincide with stacked fifths, which you can create, among others, by stacking fifths on the tonic of the Lydian scale. No big deal. In my opinion what he actually found is Zappa's use of modal scales, part of my conclusion from the beginning. The supremacy of Lydian gets forced upon it in an unconvincing way. There's also a partial collection of Zappa's instrumental diatonic music that is unrelated to this theory or in conflict with it. The more you want to generalize this theory, the more you have to allow major and minor, a larger number of chords and a more prominent place for horizontal chord progressions. The more you do so, the less meaningful the Lydian label becomes and the more you get at my primitive conclusion: Zappa uses all kind of scales and all kind of chords in any position. The best you might get at are possibly some tendencies. Zappa didn't quit traditional harmony in order to find a new system for his instrumental music, with nobody realizing what it was till discovered by Brett. What he did is from the theoretical point of view rather simple and exactly in line with his own sayings ("whatever sounded good to me ...", "anything anyplace ..."): he widened his scope. So he uses modal scales next to major and minor and he uses untraditional chords next to traditional patterns. There are undoubtedly errors in my study and probably also in the reasoning here, but I think I've said enough to cast some reasonable doubt upon this theory.

Theories that suggest to be general but only apply at partial collections, in my opinion create a fog. You can't prove they are accurate, but you can't prove they are really off neither. I could also come up with a thesis that Zappa is a normal rock star who only pretended to be different (and dismiss his atonal modern works as academic exercises for instance). The larger part of Zappa's pop music is in 4/4, without irregular groupings, and with normal chords. Doing so you're molding Zappa into some sort of an average that complies with your theory, taking away the spiciness of it. The LCC and Brett's Lydian theory may be refreshing, in the sense that they look at things from a different angle. But as a theory for Zappa's instrumental diatonic music it's too limited.

For matter of completeness I have to mention a study by Martin Herraiz, called *The perfect stranger*, a study of Zappa's orchestral works. It's in Portuguese. I can read Spanish and recognize some of the Portuguese, only to be able to follow it very roughly. He reiterates much of what Brett says (as he wrote me he finds it a valuable contribution to the studying of Zappa's music). But on page 101 he also makes clear he chose to follow a different approach himself: "To expose the interaction and the 'attractive forces' between the modes of the Lydian system, this study had used a fundamentally different approach from that of Clement. The author chooses to address each mode separately, sequentially, showing the harmonic material that can be employed in this way and illustrating [his discussion] with some musical applications before moving on to the next mode. However, except for the relative position of each degree of the scale in relation to the pedal, the only concrete difference in the treatment of each mode [in Zappa's music and as explained by Clement] lies in the possibilities of organizing the material used in the chordal zone - which in turn is essentially the same for all modes. Therefore, a more paradigmatic approach, examining each type of material in the context of the Lydian system as a whole and comparing its possible uses, can prove more fruitful for the present work. Furthermore, much of the theoretical explanations given by Clement for each mode are equal to or very close to each other, resulting in a degree of redundancy." He continues on page 108: "We can conclude by saying that, although the Lydian theory of Clement provides, as the next chapter should highlight, an important methodological basis for the study of any of Zappa's diatonic works, especially regarding the hierarchy between the various modes and processing cycle of fifths and two "sus" chords, a detailed study of the exceptions to the 'rules' postulated by Clement may ultimately prove to be as vast and extensive as his own work."

In case some of my remarks above might coincide with what he says, the credit is of course his.

The about 150 diatonic instrumental examples in my study (see the Burnt weeny sandwich section for the keys):

Lost in a whirlpool; The legend of the golden arches; The world's greatest sinner movie sample #1-#3; Holiday in Berlin; Run home, slow theme #1/#3; The little march; Run home, slow movie sample #1/#2/#4; Take your clothes off while you dance (1963); Walkin' out; Waltz (Pal records); Speedfreak boogie; Grunion run; I was a teenage maltshop; Toad of the short forest; Duodenum; Bossa Nova; Mondo Hollywood; The return of the son of the monster magnet; Invocation & ritual dance of the young pumpkin; Mother people; Oh no; I don't know if I can go through this again (2nd example); Almost Chinese; It's from Kansas; King Kong (Lumpy gravy); Foamy soaky; Unit 3a; Uncle meat; Zolar Czaki; Project X; King Kong; Dog breath variations (1969/74/93); Epilogue; It must be a camel; Peaches en regalia; The Gumbo variations; Little umbrellas; Twenty small cigars; My guitar interlude; Little house main theme; Dwarf Nebula; Sofa interlude; Didja get any onya; Lumber truck solo; Baked-bean boogie; Chunga's revenge; Twinkle tits; Chunga's basement; Dance of the just plain folks; Holiday in Berlin solo; Call any vegetable solo; Willy the pimp (1971); Brixton still life; Overture; Big Swifty; Eat that question; The grand wazoo; Another whole melodic section; Gregger Peccary mvt. I interlude; Imaginary diseases; Rollo; D.C. Boogie; Echidna's arf; Don't you ever wash that thing; Orange County; Pygmy twylyte; Sheik Yerbouti tango; Be-bop tango; Florentine Pogen; 200 years old; Cucamonga (1972); Original duke of prunes; Duke of prunes (1975); Bogus pomp, tuna sandwich theme/coda; Music for a low budget orchestra; New brown clouds theme; RDNZL; Keep it greasy (1979); Black napkins; Chunga's revenge, rhythm guitar solo; The torture never stops (coda); Zoot allures; Friendly little finger; Filthy habits; The ocean is the ultimate solution; Sleep dirt; Regyptian strut; The black page #1; I promise not to come in your mouth; Duck duck goose; Down in the dew; Ship ahoy; Conehead vamp (1977); Conehead (1978); The black page #2; Wild love; Mo' mama; Yo' mama; Flakes (H.O.); Watermelon in Easter hay (prequel); King Kong (H.O.); Heidelberg; Ancient armaments; Occam's razor; On the bus; Watermelon in Easter hay; No more Mr. nice girl; Five-five-FIVE; Shut up 'n play yer guitar; Treacherous Cretins; The deathless horsie; Pink napkins; Return of the son of Shut up 'n play yer guitar; Why Johnny can't read; Stevie's spanking (intro); Sad Jane; Outside now, again; Dupree's paradise; Sinister footwear II/III; Marque-Son's chicken; Tink walks amok; Moggio; The torture never stops (1980), solo; Let's move to Cleveland; For Giuseppe Franco; G-spot tornado; One man - one vote; Aerobics in bondage; Night school; What's new in Baltimore; Sexual harassment in the workplace; Republicans; Canadian customs; GOA; Sunrise redeemer; Orrin hatch on skis; Trance-fusion; Soul polka; Bavarian sunset; The black page (1984); Heavy duty Judy (1988); The black page (new age version); When yuppies go to hell; The torture never stops, part II; Zomby woof (solo); Outrage at Valdez; Improvisation in A; Budapest solo; Strictly genteel; 9/8 Objects; What will Rumi do?; T'Mershi Duween (1991); This is a test; Get Whitey; Put a motor in yourself; Reagan at Bitburg.