

PHYTHAGRAM

THE MUSICAL CIPHER

*From Gematria and Numerology to
an Intervallic Language of Music*

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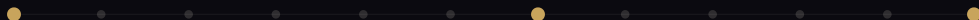
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LEVON REED

A question underneath

There is a question underneath this book, and it is worth stating plainly before anything else.

What happens when a word stops being only a word?

Not metaphorically. Not as a poetic gesture. Practically: what happens when the letters of a word are treated as positions, those positions as musical distances, and those distances as harmony? What comes out the other side?

Something does. That is the honest reason this book exists. Not a theory about language, not a claim about hidden structure in the alphabet, but a system that takes a word in and returns a chord — and the persistent, slightly unreasonable interest of finding out which chord.

You will not need to read music to follow what happens here. You will need a little patience for the first third, where the ground is prepared, and a willingness to accept that the most interesting part of the idea is also the simplest: a number that measures *distance* behaves very differently from a number that merely counts.

One more thing at the outset. This book will not tell you that words secretly contain music, or that the alphabet encodes harmony, or that any of this was known to the ancients and forgotten. Those claims are available elsewhere and are not made here. What is offered instead is a made thing — a system somebody built, for reasons that will become clear — together with enough real examples to judge whether it produces anything worth hearing.

That distinction is the whole book.

What PHYTHAGRAM Is

A musical cipher system. It maps the letters of the alphabet onto degrees of a scale, so that a word becomes a sequence of intervals — and that sequence can be read as notes, stacked into chords, arranged into progressions, and played.

The mapping is not fixed. A cipher is generated from a scale, and the working system holds a large library of them: ordinary major and minor, the modes, and a good deal of stranger territory beyond.

What is stored is never a note. It is a *distance* — which is why a word holds its shape in any key. Transpose the root and the relationships survive intact.

That is the mechanism. The rest of this book is about why the mechanism is interesting, where the idea comes from, and what it sounds like.

The Ancient Question of Numbers

People have been assigning meaning to numbers for as long as they have been counting them.

Some of this is practical. Numbers describe quantity, and quantity matters: harvests, debts, days. But almost everywhere numbers were used to count, they were also used to *mean*. Three recurs. Seven recurs. Twelve recurs, in calendars and in tribes and, later, in the division of the octave.

It is tempting to read this as evidence of something hidden. It is more likely evidence of something human. We are pattern-finding creatures, and a number that appears in several unrelated places will feel significant whether or not it is.

What matters for our purposes is not whether ancient number-symbolism was true. It is that the impulse behind it — the sense that quantity and meaning might be connected — is the same impulse that eventually produced a musical scale.

HISTORICALLY CAREFUL

Pythagoras and Musical Number

No writing by Pythagoras survives. Everything attributed to him reaches us through followers and much later commentators, and the tradition around him accumulated legend freely. This should be said before anything else, because a great deal of what is confidently reported about Pythagoras is not reliably history.

What can be said is that a body of thought associated with his name held that number and proportion underlie the order of things — and that music offered the clearest demonstration.

Octave		1 : 2
Fifth		2 : 3
Fourth		3 : 4

Stop a stretched string at its midpoint and the pitch rises by an octave. Stop it at two-thirds and you get a fifth. These are not interpretations – they are measurable, and anyone with a string can check them. That is the durable insight, and the one this book actually relies on: musical intervals correspond to numerical ratios. Not symbolically. Physically.

Gematria

Gematria is the practice of assigning numerical values to letters, most familiar from Jewish textual tradition, where each letter of the Hebrew alphabet carries a value and words can therefore be summed.

The practice has a long history in rabbinic literature and later in kabbalistic writing, where correspondences between words of equal value were treated as interpretively meaningful. A closely related practice, isopsephy, existed in Greek.

It is worth being precise about what gematria does. It converts letters to numbers. It does not, in itself, say anything about music, pitch or interval. The numbers are quantities — sums to be compared with other sums.

This is the tradition PHYTHAGRAM is most often mistaken for, and the difference is the point. Gematria asks *what number does this letter carry*. It is a question about value. The question this book pursues is a question about distance, and distance is a different kind of number entirely.

Numerology

Numerology is the broader and looser practice of assigning symbolic significance to numbers — that a given number is fortunate, or expressive of a character, or indicative of a path.

Its popular modern forms are considerably more recent than they are usually presented as being. Systems marketed today under classical names were largely assembled in the nineteenth and twentieth centuries, whatever antiquity they claim.

There is no need to be dismissive about this. People have always used number as a language for talking about temperament and fate, and that is a real cultural practice. But it should be described accurately.

PHYTHAGRAM makes no claim of this kind. It does not hold that a value is fortunate, or that a word's musical result reveals something about the word's meaning. When ECHO produces a major chord, that is arithmetic and a scale — not a statement about echoes.

From Letters to Numbers

The simplest way to turn letters into numbers is to count them.

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

Versions of this appear wherever letters and numerals have shared a script. It is easy to learn, easy to apply, and requires no theory at all.

It is also where most systems stop. And stopping there is exactly the problem — because a counting number and a musical number are not the same object, however similar they look written down.

Why $A = 1$ Is Not Enough

Consider what those numbers actually tell you.

$A = 1$ and $B = 2$ says that B comes after A . It establishes order and position. It does not say how *far* apart they are in any sense that a musician could use, because “one letter apart” is not a musical quantity. There is no sound in it.

Music does not work in positions. It works in distances. The gap between two pitches is the unit of the art — it determines whether something sounds resolved or unresolved, bright or dark, at rest or in motion. Two notes are not interesting because of where they sit in a list. They are interesting because of the space between them.

So a linear count gives you a sequence of labels. What it does not give you is a sequence of *relationships* — and relationships are the only thing harmony is made of.

The move that makes the system musical is the move from position to distance.

The Intervallic Idea

An interval is the distance between two pitches. That is the whole definition, and it does more work than it appears to — an interval is not a note but a *relation* between notes, which means it has no fixed location.

Unison		0
Major second		2
Major third		4
Fourth		5
Perfect fifth		7
Major seventh		11
Octave		12

The distance from C to G is the same distance as from F to C. Different notes; identical relationship. This is why intervals travel — a melody transposed is still recognisably itself, because what you remember is not the pitches but the gaps between them.

What Is an Interval?

Take C and count upward through the ordinary major scale: C, D, E, F, G. G is the fifth degree. The distance from C to G is therefore a fifth.

Now start on F and count: F, G, A, B^b, C. Again five steps; again a fifth. The notes are different. The distance is the same — and it sounds the same, recognisably, in a way most people can hear without training.

Intervals have characters. The fifth is open and stable, which is why it sounds like foundation. The third is the interval that decides whether a chord is bright or shadowed — a major third gives one colour, a minor third another. The second is close and unsettled.

You now know enough theory for the rest of this book. Distance, and the character of distance.

From Number to Sound

Here is where the two halves meet.

If a letter is assigned a number, and that number is read not as a count but as a *degree of a scale*, the letter acquires a pitch — but only relative to a chosen root. The number 5, read this way, does not mean G. It means *the fifth degree*, whatever that happens to be in the current key.

This is the hinge of the whole system, and it is why the numbers in this book behave differently from the numbers in gematria. A value of 5 is not a quantity to be summed with other values. It is a position in a scale, and therefore a distance from the root, and therefore a pitch as soon as a root is chosen.

Numbers become sound when they are read as degrees.

The PHYTHAGRAM Concept

Three traditions, three questions. Gematria asks what number a letter represents. Numerology asks what a number might mean. PHYTHAGRAM asks a third question, and it is the only one of the three that has a sound: *what happens when the numerical relationships between letters are read as intervals?*

The distinction matters more than it first appears. A number assigned to a letter is inert — it sits there, available for summing. But an interval is not a quantity; it is a distance between pitches, and distance is the raw material of harmony. The moment a letter's value is treated as a scale degree rather than a count, the alphabet stops being a list and becomes a set of relationships.

A word is then no longer a string of characters. It is a small collection of distances, and distances can be stacked. Stacked distances are chords.

There is a further consequence, and it is the one that makes the system worth building rather than merely describing. Because the values are degrees rather than fixed pitches, a word does not produce *a* chord. It produces a chord *relative to a root* — and the root is yours to choose. The same word in twelve keys gives twelve chords of identical internal structure and entirely different colour.

The word supplies the relationships. You supply the ground they stand on.

None of this is a discovery, and the book will keep saying so. The mapping is a decision — a made thing, like a tuning system or a key signature, chosen because of what it produces rather than found in nature. What follows from the decision is where the interest lies.

Words as Musical Structures

A word has properties a random string does not. It has length, repetition, shape. It has letters that recur, and letters that recur are values that recur, and values that recur become emphasis.

Consider what that means before we look at an example. A word with four different letters will tend to produce four different degrees, and four degrees is enough for a seventh chord. A word whose letters collapse onto fewer values produces something simpler — a triad, or a chord with a doubled tone.

The word is not decorative here. Its actual construction — which letters, how many, in what order — determines what comes out.

Word → Value → Music

The rule is one sentence: a letter takes the value at its own position in the cipher's sequence, and when the sequence runs out it begins again.

Take the word ECHO, read through the Ionian cipher.

E	C	H	O
5	3	1	1

H returns to 1 because it is the eighth letter of a seven-value cipher; O returns to 1 for the same reason, being the fifteenth. The repetition is the rule working, not a coincidence selected to look tidy.

THE FIRST CHORD

A word, opened

WORD	E C H O
CIPHER	Ionian
VALUES	5 3 1 1
ROOT	C
NOTES	G E C
CHORD	C major

Four letters produce three distinct degrees: the fifth, the third and the root. Those are precisely the three tones of a major triad, and so the word resolves to C major.

Notice what did not happen. Nobody chose C major and worked backwards. The values came from the letters, the letters came from the word, and the chord is what the values happened to be. ECHO would have produced this result whether or not anyone found it pleasing. That is the standard every example in this book is held to.

Triads

Three more, all read through the Classic Major cipher with C as the root.

WORD	VALUES	NOTES	CHORD
JAZZ	3 1 5 5	E C G	C major
ROOT	4 1 1 6	F C A	F major
WIND	2 2 7 4	D B F	B diminished

ROOT produces F major — the subdominant, the chord a fourth above the tonic. There is no significance in that beyond the arithmetic, and it would be easy to pretend otherwise.

WIND is the more instructive case. Its values include the seventh and the fourth, which together produce a diminished triad — the least stable of the three. Not every word returns something comfortable.

Four Notes

When a word supplies four distinct degrees, the result gains a fourth voice.

WORD	VALUES	NOTES	CHORD
CALM	3 1 5 6	E C G A	C6
VOICE	1 1 2 3 5	C D E G	C add9
STAR	5 6 1 4	G A C F	F add9
SILENCE	5 2 5 5 7 3 5	G D B E	G6

SILENCE is seven letters producing only four distinct degrees — the value 5 appears four times. Repetition in the word becomes emphasis in the chord: the fifth is insisted upon, and what emerges is a G major sixth.

This is the first hint of something the system does constantly. The shape of a word — its repetitions, its length — is not incidental to the music. It is most of it.

Extended Harmony

Longer words with more varied letters reach past four voices.

WORD	CIPHER	VALUES	NOTES	CHORD
MUSIC	Ionian	6 7 5 2 3	A B G D E	E minor 11
NUMBER	Classic Major	7 7 6 2 5 4	B A D G F	G9
NUMBER	Chromatic	9 #13 b9 b2 3 #11	D A# Db E F#	F#7b13

Five distinct degrees give five-note harmony. MUSIC produces an E minor eleventh — a chord with a genuine jazz character, sixth and seventh and second all present, none of it planned.

NUMBER produces a G ninth. The word that names the book’s subject returns a dominant chord, which is the chord of motion and unresolvedness — the one that wants to go somewhere. It would be very easy to make something of that. It is arithmetic.

Read instead through the Chromatic Cipher, whose sequence runs past the octave into ninths, elevenths and thirteenth, and the same word returns something considerably stranger. Five distinct degrees again, but drawn from a vocabulary that includes altered tensions: a dominant seventh with a flattened thirteenth, a chord with genuine bite, of the kind that appears in jazz and in film scoring where something needs to sound unresolved and faintly dangerous.

Same word. Different cipher. A different musical world.

Ionian

The cipher a word is read through determines its values, and the modes are the clearest demonstration of this because they differ from one another by very little.

Ionian is the ordinary major scale. Its degrees are unaltered: 1 2 3 4 5 6 7. A word read through it will tend toward the bright and settled, because the third is major and the fifth is perfect.

ECHO read through Ionian gave us 5 3 1 1 — G, E, C — a major triad, about as stable a result as the system produces.

Keep those four values in mind. They are about to change without the word changing at all.

Dorian

Dorian flattens the third and the seventh. Everything else stays. That single alteration to the third is enough to move a word from major to minor.

WORD	VALUES	NOTES	CHORD
ECHO	5 ♭3 1 1	G E♭ C	C minor
MUSIC	6 ♭7 5 2 ♭3	A B♭ G D E♭	E♭ maj7 #11

Identical letters. Identical positions. The third has fallen by a semitone and the chord has changed character entirely.

In Ionian, MUSIC was an E minor eleventh. In Dorian it is an E♭ major seventh with a raised eleventh – a different root, a different quality, a different world. Two flattened degrees did that.

Phrygian and Lydian

Phrygian flattens the second as well as the third and seventh, producing the darkest of the common modes. Lydian goes the other way, raising the fourth, producing the brightest.

Read through Phrygian, ECHO returns the same result Dorian gave — 5 $\flat$ 3 1 1, C minor — because the letters of this particular word do not reach the degree Phrygian alters. Read through Lydian it returns 5 3 1 1, C major, for the same reason in reverse.

This is worth dwelling on, because it is a genuine property of the system and not a shortcoming. A mode only changes a word's music if the word actually touches the degrees that mode alters. Short words touch few degrees. Long words touch many, and are therefore far more sensitive to context.

The word's own construction decides how much the environment can affect it.

Mixolydian, Aeolian, Locrian

Mixolydian flattens only the seventh. Aeolian flattens the third, sixth and seventh: the natural minor. Locrian flattens five degrees, and is the only common mode whose tonic chord is diminished.

MODE	VALUES	NOTES	CHORD
Mixolydian	5 3 1 1	G E C	C major
Aeolian	5 $\flat$ 3 1 1	G E $\flat$ C	C minor
Locrian	$\flat$ 5 $\flat$ 3 1 1	G $\flat$ E $\flat$ C	C diminished

Locrian is the moment the word finally loses its footing. The fifth – the interval that gives a chord its stability, the one this book called foundation back on page eleven – is flattened, and the chord collapses into a diminished triad.

The same word, seven times

One word. Seven readings.

MODE	VALUES	NOTES	CHORD
Ionian	5 3 1 1	G E C	C major
Dorian	5 ♭3 1 1	G E $\flat$ C	C minor
Phrygian	5 ♭3 1 1	G E $\flat$ C	C minor
Lydian	5 3 1 1	G E C	C major
Mixolydian	5 3 1 1	G E C	C major
Aeolian	5 ♭3 1 1	G E $\flat$ C	C minor
Locrian	♭5 ♭3 1 1	G $\flat$ E $\flat$ C	C diminished

Nothing about ECHO changed. Not its letters, not their order, not their positions in the alphabet. Only the environment through which they were read. Major, minor, diminished — decided entirely by context.

This is the central musical claim of the book, and it is a modest one: a numerical relationship does not carry a fixed musical meaning. It carries a fixed *distance*, and distance is interpreted.

There is a temptation, looking at that table, to decide that Locrian is the true reading because it is the most unusual, or that Ionian is because it is the most consonant. Neither is. There is no privileged row — the word has seven readings, each complete and each internally consistent. Which one you use is a compositional decision.

Meaning is not in the number. It is in the reading.

Reading the Numbers

Three kinds of number have appeared in this book, and they must not be confused.

A PHYTHAGRAM VALUE

What a letter returns — the number given by its position in the cipher's sequence. In ECHO, E returns 5.

A SCALE DEGREE

A position within a scale, written 1 through 7 with accidentals where a mode alters it: $\flat 3$, $\sharp 11$, $\flat 7$. PHYTHAGRAM values *are* scale degrees — the same number wearing a second name, and the reason the system works.

A CHORD FORMULA

A chord's construction independent of any word or key: a major seventh is 1 3 5 7; a minor seventh is 1 $\flat 3$ 5 $\flat 7$. These describe the chord, not the word that produced it.

So when you read 5 3 1 1 → C major, the first group are values and degrees at once, and "C major" is the name of what they build. The numbers did not become the chord. They were read as degrees, given a root, and the chord is what they spelled.

Word Studies

None of the following were chosen because their meaning suited the result. The result came first, out of the system; the words were selected afterwards from what it produced.

WORD	CIPHER	VALUES	NOTES	CHORD
ROOT	Classic Major	4 1 1 6	F C A	F major
WIND	Classic Major	2 2 7 4	D B F	B diminished
CALM	Classic Major	3 1 5 6	E C G A	C6
MUSIC	Ionian	6 7 5 2 3	A B G D E	E minor 11
NUMBER	Classic Major	7 7 6 2 5 4	B A D G F	G9
LOVE	Chromatic	7 #9 1 3	B D# C E	no common name

The last is included deliberately. LOVE, read through the Chromatic Cipher, returns a stack containing both a major third and a sharpened ninth — a structure that exists, sounds like something, and has no settled name in ordinary harmonic vocabulary. The system produced it correctly and the textbook simply has no word for it.

A stack without a name is not a failure. It is the point at which the system stops agreeing with received categories, which is the point at which it starts being worth having.

The Circle of Fifths

Chords do not live alone. They live in keys, and keys have neighbours. The circle of fifths arranges the twelve keys so that each is a fifth from the next — C to G to D to A, all the way round and back to C. Its usefulness is that proximity on the circle corresponds to closeness in sound: adjacent keys share almost all their notes; opposite keys share very few.



This is why movement around the circle feels like movement. A step clockwise is the most natural harmonic motion in Western music, which is why so much of it does exactly that. There is a reason the fifth holds this position, and we have already met it: on page five, a string stopped at two-thirds of its length produced a fifth — the ratio 2:3, the simplest relationship after the octave itself.

PHYTHAGRAM sits inside this landscape rather than replacing it. A word produces a chord; that chord occupies a place on the circle; and the distance to the next word's chord is a real harmonic distance with a real character. Two words whose chords sit adjacent will move smoothly into one another. Two words whose chords sit across the circle will not — and sometimes that is exactly what a passage needs.

The system does not choose for you. It puts the chords on the map and leaves the travelling to the composer.

Chords, Progressions, Movement

A single chord is a moment. Music is what happens between moments. Once a sentence is read rather than a single word, each word contributes a chord, and the chords fall into an order the sentence itself determined. That order is a progression — and a progression has direction, tension and release, in the ordinary musical sense.

Some sequences will resolve satisfyingly. Others will not. This is not a defect to be engineered away: a system that only ever produced comfortable progressions would be a system that had stopped listening to the words.

Here is a sentence, read through the Classic Major cipher with C as the root.

THE	6 1 5	A C G	no name
SEA	5 5 1	G C	C5
IS	2 5	D G	G5
CALM	3 1 5 6	E C G A	C6

Look at what the sentence did to itself. The short function words produce only two distinct degrees each, and two degrees a fifth apart is a bare open fifth: a chord with no third at all, and therefore neither major nor minor. Unresolved by construction. Then CALM, the word carrying the sentence’s meaning, supplies four degrees and lands a full C sixth.

Nobody arranged that. Short words in English are short because they are common, and the letters they are built from return low degrees that collapse into simple intervals. The grammar of the sentence and the arithmetic of the cipher happen to pull in the same direction: the small words stay open, and the word that matters closes.

There is a great deal more to say about how such progressions can be shaped — voiced, re-ordered, led from one chord to the next with the smoothest possible motion between them. That is method, and method is where this introduction stops.

Playing the System

None of this is theoretical.

A chord derived from a word is a chord that can be played, and how it is played matters as much as what it contains. The same four notes can be spread across two hands at the piano or compressed into four adjacent strings on a guitar, and the two will not sound alike. Voicing — the arrangement of a chord's notes in register — is a large subject and a genuinely musical one.

One practical consequence is worth naming. A chord of four notes has many possible arrangements: the same tones stacked closely, spread across two octaves, or with a single voice dropped below the rest. These are not cosmetic variants. A close voicing and an open one carry different weight, sit differently under the hand, and suit different instruments. Guitarists reach for arrangements that fall naturally across adjacent strings; pianists have two hands and a wider field to place them in.

The system is built to be played rather than merely calculated. Words become chords; chords become shapes under the hands; shapes become something you can sit down with.

What a word means is a question for language. What it sounds like is a question you can answer at an instrument this afternoon.

What It Is — And Is Not

NOT GEMATRIA

Gematria assigns values to letters and compares sums.

PHYTHAGRAM reads values as intervals and builds harmony. The operations are different and so are the results.

NOT NUMEROLOGY

No value here is fortunate or unfortunate. No chord tells you anything about the word that produced it.

NOT A SCIENTIFIC CLAIM

Nothing in this book asserts that these relationships are encoded in nature, in language, or in the alphabet. The mapping is a creative decision.

NOT ANCIENT

No historical civilisation used PHYTHAGRAM. The traditions described earlier are context and inspiration — the long human habit of connecting number, letter and sound — not evidence.

WHAT IT IS

A modern musical framework for turning language into harmonic material, built because the results are interesting to play.

Beyond This Book

This book has given you the idea. It has deliberately not given you the method.

You have seen what the system produces and why the results take the form they do. What you have not seen is how chords are chosen from a word's values when several readings are possible, how voicings are constructed and led from one chord to the next, how progressions are shaped across a sentence, or how the system is worked at the instrument as a practice rather than a curiosity.

That is the deeper material, and it is deeper in the ordinary sense: more detailed, more technical, more useful to somebody who intends to compose with it rather than read about it.

The cipher sequences themselves are published openly – the system has nothing to hide about its mapping. What takes longer to learn is what to do with them.

THE PHILOSOPHY

A word is a set of relationships that has agreed, for a while, to mean something.

Take the agreement away and the relationships remain. They can be measured. They can be spaced. They can be sounded.

Whether that reveals anything about language is a question this book does not answer and does not pretend to. What it offers is smaller and more useful: a way of starting. A composer who does not know where to begin can begin with a word — not because the word contains music, but because the word provides constraints, and constraints are what make composition possible at all.

The blank page has no opinion. A word has four letters, three degrees, and a chord it insists on.

You now know what the system does and roughly how it thinks. The rest is listening.

Take a word — your name, a city, something you have been turning over — and find out what it sounds like. The answer will not mean anything. It will simply be true, in the narrow and satisfying way that arithmetic is true, and then it will be a chord you can play.

