Turning the Wheel by Fifths: A Colour Codex for Pitch

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This paper publishes the colour codex that governs Arnaud Quercy's paintings, and fixes it as version 1.0: a stipulated rule assigning a colour to each note of the eighty-eight-key piano keyboard. Hue follows the cycle of fifths, with C as red and each fifth turning the colour circle one step; value follows register, with middle C at full strength, the lower registers darkening until every note merges into black, and everything white from C7 upward. The rule originated in a wind player's practice: the clarinet's twelfth, then an attempt to read saxophone transposition at sight through colour, which failed within a month because the reader is colour blind. The codex inverts that failed direction: music, which the painter masters, governs colour, which his eye cannot verify. After a proto-codex phase in 2022 and 2023, the rule was stabilised in 2024. The paper describes how the rule maps intervals onto the circle (fifths and fourths as neighbouring colours, thirds at a signing distance, the tritone as complementary opposition, the semitone as an uneasy near-opposition) and states what lies outside it: chords and gesture belong to composition. It corrects the description of the codex given in PUB-PAP0004, which presented it as a rule on tonalities, supplies the reference that paper's measurement device requires, and completes the chain of the field-material codices by giving their pitches a colour. The codex claims no perceptual truth; it claims only to be complete, fixed, and checkable.

A painter who cannot trust his eye gives each note a colour, and lets the music he masters govern the colours he confuses.

Arnaud Quercy — Ideamorphic Studies
Ideamorphic Studies Papers, PUB-PAP0014 — Specifies the Colour Codex for Pitch, version 1.0

1. What This Paper Does

This paper states a rule. It assigns a colour to each note of the piano keyboard, and it says where that rule came from, what it does, and what it leaves outside itself. It does not propose a theory of colour, of hearing, or of their relation. It publishes a codex that has governed a body of paintings for years without ever being written down in full.

That absence has a cost. A companion paper specified an instrument to measure the distance between what this rule prescribes and what the painter's hand actually puts on the canvas [1]. An instrument of that kind needs a reference. Until the rule is published, the measurement has an output and nothing to compare it with. This paper supplies the reference.

It also completes a chain. Three specifications fold a field recording onto pitches, a rhythm and a sequence of forms [2] [3] [4]. The pitch codex returns notes; it says nothing about what those notes become on a canvas. This codex is the rule that gives them their colour.

It also corrects a sentence. The companion paper described the codex as a rule covering the twenty-four major and minor tonalities. That is wrong. The codex works on the single note. Whatever happens to a tonality or a chord follows from its notes, or belongs to composition, as section 6 explains.

2. Where the Rule Comes From

The rule did not begin in painting. It began in the hands of a wind player.

On the clarinet, the register key does not raise a note by an octave. It raises it by a twelfth, an octave and a fifth. The same fingering, overblown, gives a note a fifth higher. Long before any colour was involved, the fifth was the interval the fingers knew best: the distance between one register and the next.

The second step came with a change of instrument. Moving from the clarinet in B♭ to the alto saxophone in E♭ meant reading every part transposed, and the distance between the two instruments is a fourth or a fifth depending on the direction. Some notes already carried a colour from childhood: C was red, E yellow, A♭ blue, F♯ green. The idea was to complete that set and to read the transposition at sight through colour. If colours were laid out by fifths, changing instrument would amount to turning a wheel by one step.

The idea was logical, and it failed within a month. The eye could not read colours fast enough to keep pace with the music, and the reader is colour blind, so the colours could not be told apart reliably in any case. The real books in E♭ came back, one by one.

3. The Inversion

What failed was a direction, not a structure.

The first attempt used colour to master music: the less reliable faculty was asked to guide the more reliable one. The codex as it stands reverses that direction. Music, which this painter commands with the precision of a trained pianist, is used to govern colour, which his eye cannot verify. Where the eye hesitates, the rule decides, and the rule is musical. The painter trusts the logic of the fifths more than what his eyes return to him.

This is why the codex is a rule and not a perception. Had it been a perception, it would have helped him read; it did not. It survived only once it stopped being asked to see anything, and became an instruction for making. It is instituted, not discovered: nothing in sound or light grounds the pairing, and the rule binds by being stated and executed [5]. It went through a protocol phase in 2022 and 2023, as a proto-codex, during which the paintings served to adjust the rule, and it was stabilised in 2024 in the form described here. Since then it has been fixed, and the paintings are made from it.

4. The Rule

The codex has two axes, independent of each other.

Hue is given by the note. The twelve notes are placed around a colour circle in the order of the cycle of fifths, each a step away from the last. C is red. Each fifth upward turns the circle one step: G red-orange, D orange, A yellow-orange, E yellow, B yellow-green, F♯ green, C♯ blue-green, G♯ (A♭) blue, D♯ (E♭) blue-violet, A♯ (B♭) violet, F red-violet, and the next fifth returns to C. Enharmonic spellings share one colour: the note is a key on the keyboard, not a name on the staff.

Note	Colour
C	red
G	red-orange
D	orange
A	yellow-orange
E	yellow
B	yellow-green
F♯ / G♭	green
C♯ / D♭	blue-green
G♯ / A♭	blue
D♯ / E♭	blue-violet
A♯ / B♭	violet
F	red-violet

The four colours that predate the rule were not displaced by it. C, E and A♭ divide the octave into three equal major thirds, and on the circle they fall a third of a turn apart: red, yellow, blue. F♯, the tritone, falls opposite C: green. The early anchors were already points of symmetry, and the cycle of fifths joined them without forcing any of them.

Value is given by the register. Middle C, C4, is pure red, and every note at the same height carries its colour at full strength. Going down the keyboard, colours darken toward black, until in the depths every note merges into it and none can be told from another. Going up, colours lighten toward white, and from C7 upward everything is white.

The field is the keyboard. The codex covers the eighty-eight keys of the piano. Beyond them there is only black or white.

5. What the Rule Does to Intervals

Because hue follows the fifths, every interval becomes a fixed distance on the circle, and the distances behave as a musician would expect.

The fifth and the fourth fall on neighbouring colours. C and G, red and red-orange, reinforce each other; so do C and F, red and red-violet on the other side. An open fifth, the power chord, thickens a single colour rather than setting two against each other.

The thirds sign the chord. Read in the direction in which the circle was built, the major third lies close, four steps on, and the minor third lies far, nine steps on. Seen whole, the two are symmetrical about the root; read in the order of construction, the major third is near and the minor third distant. Either way, the thirds sit far enough from the root to be told from it, and near enough not to oppose it.

The tritone falls opposite. C and F♯ are red and green, complementary colours: the most unstable interval in tonal music becomes the most direct contrast.

The semitone is the hardest case, and the most interesting. The cycle of fifths places neighbouring keys far apart: C and C♯ stand seven steps apart, red against blue-green. They are almost opposite without being opposite, and that near-opposition makes them difficult to marry. The harshest dissonance, the minor ninth, does not fall on the cleanest contrast but on an uneasy one, which is closer to how it sounds.

6. What Lies Outside the Codex

The codex stops at the note. It says nothing about chords.

A chord is a construction. Which notes sound together, in which voicing, with which weight, belongs to composition, and composition is the painter's work, not the rule's. The codex gives each note its colour; it does not say how much of each colour, where it goes, or which one dominates. In the same way, the gesture of painting lies outside it. The choices made on the canvas, imperfect by nature, are added to the rule and are not derived from it. A painting comes from both: the colours the codex prescribes, and what the hand does with them.

The codex is also not a translation. It does not claim that a piece of music and its painting say the same thing. It expresses the relations between notes, fifths that reinforce, thirds that sign, tritones that oppose, as relations between colours.

7. What This Codex Does Not Claim

It does not claim that C is red in any sense beyond this rule. It does not report a perception, reveal a correspondence waiting in nature, or describe how anyone else hears or sees. A stipulated rule is neither true nor false. It is executed, or it is not.

It does not claim that its colours are apt, beautiful, or expressive. It claims only that it is complete, from the lowest key to the highest, that it is fixed, and that every painting made under it can be checked against it.

This paper fixes the codex as version 1.0, the form stabilised in 2024. Any change to the twelve colours, to the order of the circle, or to the behaviour of the registers produces a new version. A painting stays attached to the version under which it was made, and nothing already painted is reread under a later one.

8. The Codex as Reference

With the rule published, the instrument specified in the companion paper has its reference [1]. For measurement, each named colour of section 4, and the darkening and lightening of the registers, can be expressed as coordinates. That translation belongs to the measuring infrastructure, not to this paper, and it obeys one condition: it is derived from the rule as written here, never from the paintings it is meant to measure.

The sequence is the one the practice requires. The rule is stated, it is published, and the work is made from it. What the measurement will find, noise, drift, or a stable displacement belonging to one hand, cannot be known in advance. That is precisely why the rule had to be published first.

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