

For my father,
Harold Ernest Perry,
who might well have written a book, had he not devoted so much of his time and energy
to the care of his family: with gratitude, love and respect.

Preface

The collection of documents listed below might well be termed ‘the mutable number chronicles’: a written account of the evolution of my thoughts about the fundamental nature of music. They describe a computational model of music built upon an open position-value number system (mutable base numbers) that is imbued with qualities that encapsulate the transformations of harmony and meter found in western tonal music. If you have opened this archive looking for bass recorder music there is just one piece at the end of Appendix XI.

Initially, and impetuously, I put a great deal of effort into articulating my ideas in a book-like form a task undertaken while the ideas themselves were fresh, yet still developing in my mind. This resulted in an almost unending cycle of revision and rewriting, leading to a rather amorphous outcome. Eventually, wearied, I decided in 2015 it would be better to bring the project to a halt and view it more as a record of the path taken than a destination secured. The dedication from *Journey to the Heart of Music* is reproduced above. Since then I have confined myself to writing separate documents addressing one or other aspect of the overall idea and/or the analysis of individual compositions.

Appendix I, *Music by Mutable Numbers* introduces the overall concept of tonal music viewed as a form of number processing; and hopefully, the deeply rooted traditional approach pursued here might compliment the more newly established mathematics centred upon atonal music and the modulus of twelve: Each view enhancing our understanding of the western musical canon. (A footnote to this introductory document has a section harkening back to the genesis of the whole idea itself in a speculative article entitled *Elements of Music?*) Building upon the document *Music by Mutable Numbers*, a straightforward example of a complete mutable number analysis is given for the *Polonaise from a Notebook for W.A. Mozart, 1762* (Appendix II).

However, in terms of drawing out and understanding the gist of ‘the thing’, my best endeavours at a foray into group theory has been for myself a catalyst in crystallizing precisely what it actually involves and is — Appendix III, *The Mathematics of Tonal Music and Mutable Base Numbers*. Following on from this, Appendix IV, *The Math of Exchange* is an analysis of a Bach chorale highlighting the group theory mechanics of mutable numbers developed in the former document.

Appendix V, *Bach's Calculation* is an analysis of the first prelude from the Well-tempered Clavier (my third attempt!) an iconic piece often cited as a delineation of the extent of a key or tonal-centre. Other analyses are: Appendix VI, *Chopin: Prelude 20* providing an example of how stylistic developments in the later nineteenth century were beginning to undermine the foundations of tonal music as understood through mutable numbers; Appendix VII, an investigation of the implications of the use of *Just Intonation* in the

MBN model; Appendix VIII, an analysis of ‘impressionist’ harmonic language in *Piano Prelude No.1* by *Claude Debussy*; and Appendix IX, a brief examination of the ‘*Tristan Chord*’ from the point of view of mutable numbers. Appendix X, *Spiral* provides a single page working, in mutable numbers, of one cycle in the spiral of fifths. Appendix XI, *The Divisors of 72* is a worked example of computation in music alongside the equivalent computer program. And finally, a chronological Survey of Western Music (Appendix XII) viewed from the perspective of tonal computation demonstrates how these ideas make sense of the long arc of the tonal era, circa 1500-1900 AD.

While naturally formed upon the basis of a lifetimes’ education, reading and experience, (and doubtlessly some degree of misapprehension, bias and error) I cannot say that the material presented in the above documents possesses any authority beyond that of being my own thoughts, opinions and conclusions on the question of what music fundamentally is.

Philip Perry, 2022.