

From Matrix to Model: Conceptualising Improvised Counterpoint at the Organ

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Introduction

As remarkable as their surviving keyboard works are, contemporary accounts of the organ improvisations of such figures as Bach, Handel, and Weckmann often point to their even greater powers of creativity *ex tempore*.¹ What were the patterns that went through the heads of these composer-improvisers that enabled them to furnish instantaneous polyphony and fully-formed structures? By what means were organists able to conceive complex stretto patterns and constitute, and remember, workable countersubjects? How could a double fugue, or a ricercare with four subjects, be conjured on the spot?

Perhaps even more remarkable than any of these individual feats is the fact that these skills were the domain not only of the greatest players, but were in fact common to all organists seeking a job.² Professional keyboard players were by necessity improvisers, and their job was to emulate styles and models so fluently that their improvisations were unable to be differentiated from fully written works.³ They learned their craft through good teaching, methodical application and immersive study, and at the centre of this industry were the mutually dependent pillars of analysis and emulation. Improvised performance was born through emulation, and emulation was effected through analysis.

Speaking to a recent international conference on historical improvisation pedagogy, Thomas Christensen's keynote address reminds us that today, classical music is almost exclusively an art of *interpretation*.⁴ He describes our recent "fetishism for notational fixity" as having "overshadowed—if not completely effaced"—the central role

¹ Chapter Four of Forkel's *Life of Bach* remains the most vivid account of Bach's organ improvisation: see Hans David, Arthur Mendel and Christoph Wolff, *The New Bach Reader: A Life of Johann Sebastian Bach in Letters and Documents* (New York: W.W. Norton, 1998), 437–41. Handel's improvisations are discussed in Stanley Sadie and Anthony Hicks, *Handel: Tercentenary Collection* (Ann Arbor: UMI Research Press, 1987), 271–79; and an account of Mathias Weckmann as an improviser, recorded by his pupil Johann Kortkamp, is given in Kerala J. Snyder, *Dieterich Buxtehude: Organist in Lübeck*, rev. ed. (Rochester, N.Y.: University of Rochester Press, 2007), 228.

² For a discussion of organists' trials, see Peter Williams, *The Organ Music of J.S. Bach*, vol. 3 (Cambridge: Cambridge University Press, 1980): 43–47.

³ William Porter makes a convincing case for improvisations of the Hamburg Organ School to be no different from their written counterparts. See William Porter, "Hamburg Organists in Lutheran Worship," in *The Organ as a Mirror of Its Time: North European Reflections, 1610-2000*, ed. Kerala J. Snyder (Oxford: Oxford University Press, 2002), 60–77.

⁴ The conference, *Con la Mente e con le Mani: Improvisation from 'cantare super librum' to partimenti*, took place at the Fondazione Giorgio Cini in Venice, from 9–11 November 2013. Details, including abstracts of the presentations, can be found at http://www.mentemani.org/Conference_2013/Abstracts.html.

improvisation played in the past.⁵ Happily, at least in some quarters, the tide appears to be turning, for in addition to a number of scholars publishing in the field, practical initiatives—such as the Smarano International Organ Academy, and various tertiary organ programmes teaching improvisation—are seeing a new generation of organists being trained in historical improvisation practices.⁶

This paper contributes to this activity by focusing on the thought processes and *aide memoire* devices improvisers might employ in order to create polyphonic structures. I focus on the relationship between polyphonic abstractions (*matrices*) and their realisation in fully-worked counterpoint (*models*), and here I am guided by the work of Michael Callahan and William Porter.⁷ In particular, I seek to explain the relationship between visualising the *matrix* "in the mind's eye," and at the same time "feeling under the fingers" the resultant counterpoint of the *model*. By describing the process *from the inside* I hope to say something useful about an area that is habitually silent in the historical treatises.

My approach is also influenced by David Sudnow's classic phenomenological account of learning to improvise Jazz at the piano.⁸ With the insights of a professional ethnographer and social psychologist, Sudnow's *Ways of the Hand* perceptively describes the process of improvisation as the melding of musical imagination, the memorization of formulae and the subtle activation of learned hand positions. For me, success in improvising counterpoint is similarly dependant on simultaneously controlling the mind and taming the hand. In the discussion that follows I focus on two improvisational tasks: constructing fugal expositions, and improvising paired counterpoint.

⁵ An abstract of Christensen's address, *The Improvisatory Moment*, can be found at http://www.mentemani.org/Conference_2013/Abstracts.html.

⁶ A good selection of recent studies appears in a special issue of *Philomusica on-line: Rivista del Dipartimento di Musicologia e Beni Culturali* 11, no. 2 (2012): <http://riviste.paviauniversitypress.it/index.php/phi/issue/view/117>. For a number of years now the *Fondazione Accademia Internazionale di Smarano* has presented a summer organ academy devoted to historical improvisation. Amongst the most prominent tertiary organ programmes offering courses in historical improvisation are The Royal Academy of Music and the Royal College of Music (London), the Eastman School of Music (Rochester, New York), and McGill University (Canada).

⁷ Michael Richard Callahan, "Techniques of Keyboard Improvisation in the German Baroque and Their Implications for Today's Pedagogy" (PhD diss., University of Rochester, 2010). Instead of matrices and models Callahan uses the rhetorical terminology *elaboratio* and *decoratio*. See also William Porter, "Observations concerning contrapuntal improvisation," *GOArt Research Reports* 3 (2003).

⁸ David Sudnow and Hubert L. Dreyfus, *Ways of the Hand: A Rewritten Account* (Cambridge, Mass.: MIT Press, 2001).

Matrix and Model in Fugal Expositions

In a recent article in *Eighteenth-Century Music*, Bruno Gringras points to the gulf between realising a fugue from a partimento bass and actually improvising one from scratch.⁹ Nowhere is this more apparent than in the exposition, where traditionally things are most contrapuntally dense. There are a number of ways to approach this task, but for me, the most practical approach is to visualise the entire exposition as a single entity—that is, an entity that is graspable in its entirety in one single thought. The visualised object is the *matrix*, and this contains all the information the improviser needs to flesh out the *model*. Figure 1 shows the matrix I would visualise when improvising an exposition with the following characteristics:

1. The "key" is centred on D (either mode 1, D major or d minor);
2. The order of the voices enters from top to bottom (S-A-T-B);¹⁰
3. The subject spans scale degrees 1-5, which in turn require an answer spanning 5-1;¹¹
4. There is no regular countersubject.

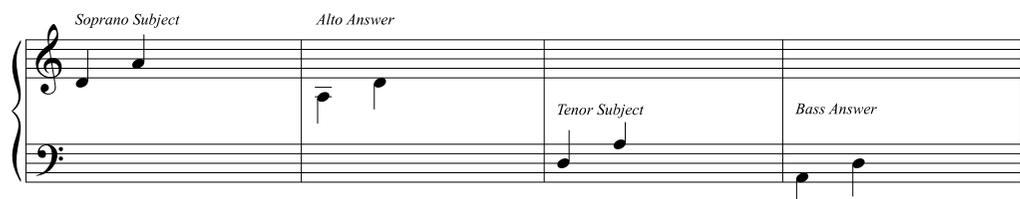


Figure 1. A matrix for the improvisation of a fugal exposition

The matrix is the skeletal form of the exposition. It shows the order of the voices and the correct starting and finishing notes of each subject and answer.¹² These elements

⁹ Bruno Gringras, "Partimento Fugue in Eighteenth-Century Germany: A Bridge Between Thoroughbass Lessons and Fugal Composition," *Eighteenth Century Music* 5 (2008): 51–74.

¹⁰ In relation to the order of the entries, the simplest plan, by a considerable margin, is either S-A-T-B or B-A-T-S. In the former, the lowest sounding voice at any one time contains either the subject or the answer, and in the latter, the subject or the answer is always in the highest part. Were one to dispense with the difficulties of improvising (and remembering) a regular countersubject, and armed with a fluency in improvising 'filler' harmony/counterpoint, improvising a S-A-T-B exposition is essentially akin to harmonising a bass, and improvising a B-A-T-S exposition is essentially harmonising a melody.

¹¹ This paradigm is the most common form of 'tonal answer.' In the sixteenth and early seventeenth centuries a subject spanning the *diapente* was answered by its complementary *diatessaron* (and vice versa). In the later Baroque this morphed into the rule whereby subjects starting in the tonic and modulating to the dominant (1-5) were given an answer starting in the dominant and ending in the tonic (5-1) [and vice versa].

¹² William Renwick's *Analyzing Fugue: A Schenkerian Approach* (New York: Pendragon Press, 1995) demonstrates the relationship between subjects and answers and offers a taxonomy of types. The subject and answer pair in the matrix conforms to paradigm fourteen (see p.70).

can be considered the axioms of the exposition, and as such they are immovable lest the edifice crumble. The matrix can be fleshed out in various ways in order to create a variety of musical foregrounds (models).



Figure 2. Fleshing out the matrix's subjects and answers

Four subject-answer pairs are shown in figure 2, and whilst each pair reveals a different and distinctive musical foreground, they are in fact all models of the same matrix (figure 1). Subject 1 is treated as a slow modal fugue (or with the addition of an F# in bar 1 and a G# in bar 2 it could further transform to a tonal fugue in D). Subject 2 is similar to many fugues *sur la trompette* in the French Classical repertoire. Subject 3, an Italianate string-style allegro, is taken from Handel's partimento fugue no.3 (here transposed from F),¹³ and the fourth example is taken from the Victorian hymn tune *Nicea* by John Bacchus Dykes.¹⁴

Armed with a workable subject-answer pair, the improviser must now "fill in" the rest of the exposition. Figure 3 shows a fully worked exposition using the first subject-answer pair from Figure 2 and the oblique lines between the two systems show the relationship between matrix and model. Essentially, subjects and answers are "harmonised" by first-species filler counterpoint, and provided the improviser has acquired a fluency in this procedure, improvising this type of exposition is a relatively straightforward task.

¹³ George Frideric Handel and David Ledbetter, *Continuo Playing According to Handel: His Figured Bass Exercises*. Early Music Series, (Oxford: Oxford University Press, 1989): 44–61.

¹⁴ John Bacchus Dykes, "Nicea," Hymnary.org, accessed December 6, 2016, http://www.hymnary.org/tune/nicaea_dykes.

Figure 3. The matrix and the model

In my experience, two further elements need to be in play in order to achieve success: the prioritisation of the mind in dealing with essential (matrix) and non-essential (filler) material, and an awareness of the physical sensations of the hand as it relates to the matrix unfolding. It is only through the process of actually improvising an exposition that one discovers how important it is to keep the matrix material always at the forefront of the mind. Were I to improvise the above example, almost all of my concentration would go on making sure each subject and answer started and finished on the correct pitch. Helping me to achieve this, and underpinning that which would be going through my head, would be the physical sensation of feeling the span of each subject (a fifth) and answer (a fourth) within each hand.¹⁵ Conversely, the filler material—which, of course is the largest part of the texture—would need very little attention, as its generation would be assured through years of playing commonplace sequences, species counterpoint and the like.

Matrix and Model in Sancta Maria

The ability to fix in the mind's eye various contrapuntal abstractions is also key to improvising paired imitation as taught by Thomas de Sancta Maria (c.1510–1570). Sancta Maria's 1565 improvisation treatise *Libro Llamado El Arte de Taner Fantasia* is the single most sustained exposition of how to improvise renaissance polyphony.¹⁶ After several hundred pages on "filler" material—that is constructing duos, harmonising scalic lines in three and four parts, working through consonance and dissonance treatment, diminutions, and species counterpoint, the culmination of the treatise, and certainly the most revealing part, is the section on imitation.

¹⁵ The importance of hand placement and musical content is addressed in Matthew J. Hall, "Keyboard Techniques as a Contrapuntal Structure in J.S. Bach's Clavier Works," *Understanding Bach* 10 (2015): 85–107, <http://bachnetwork.co.uk/ub10/ub10-hall.pdf>.

¹⁶ Thomas de Sancta Maria, *The Art of Playing the Fantasia*, trans. Almonte C. Howell and Warren E. Hultberg (Pittsburgh: Latin American Literary Review Press, 1991).

Figure 4 sets out Sancta Maria's model fantasia using paired canonic entries (a style most often associated with Josquin)¹⁷.

The image displays a musical score for a fantasia by Thomas de Sancta Maria, consisting of four systems of music. Each system is written for two staves (treble and bass clef). The first system (measures 1-7) features a pair of entries labeled 'Pair A' in the lower two voices (bass and tenor) in the first three bars, and then in the soprano and alto voices in the next two bars. The second system (measures 8-14) continues the development of the first pair. The third system (measures 15-22) introduces a second pair of entries labeled 'Pair B' in the upper two voices (soprano and alto) in the first three bars, and then in the lower two voices in the next two bars. The fourth system (measures 23-29) continues the development of the second pair. The score is in common time (C) and features a mix of rhythmic values including minims, crotchets, and quavers.

Figure 4. *Fantasia* by Thomas de Sancta Maria (c.1500–1590)

How might such a work be improvised? Once again, the secret lies in training the mind to differentiate between filler material and material that is crucial to the contrapuntal edifice. Sancta Maria's fantasia is constructed using two separate pairs of imitative entries. Pair A first appears in the lower two voices in the first three bars, and two bars later the same music is repeated in the soprano and alto. Consequently, improvising the first eight bars of this fantasia involves:

¹⁷ For a discussion of paired imitation see Peter Schubert, "Counterpoint Pedagogy in the Renaissance," in *The Cambridge History of Western Music Theory*, ed. Thomas Christensen (Cambridge: Cambridge University Press, 2002) esp. 503–533.

1. Constructing and memorising pair A;
2. Providing filler material between the end of the first paired entry and the beginning of the second paired entry;
3. Being able to place pair A in the soprano and being able to improvise a "filler" T/B below.

Pair B first appears in the upper two parts between bars 15-20, and is repeated between bars 20-25, and partially repeated between bars 25-27. Consequently, improvising the later half of this fantasia involves:

1. Providing filler material between bars 9-15;
2. Constructing and memorising pair B, and being able to place it either in the upper two voices or the lower two voices, and where necessary (eg. bb.21-22) provide filler material above or below;
3. Being able to round the fantasia off with a few bars of filler material.

It is extremely likely that improvisers committed to memory contrapuntal combinations such as the above and drew freely upon them in their improvisations. Again, success depends upon being able to prioritize the points of imitation in the foreground of the mind, whilst allowing filler material "just to happen."

What is not immediately obvious from the above music is the relationship between the two imitative pairs to their respective matrices and models. The middle system of Figure 5 shows Sancta Maria's paired imitation A. Its matrix is shown on the bottom system and a further elaboration (model) is given in the top stave.

Figure 5. Paired imitation A

From this we can clearly see how the improviser is able to generate multiple subjects from the one matrix.

Figure 6 shows the paired imitation B. In this case we can see that Sancta Maria's point of imitation is actually the matrix itself. The upper two staves represent how this matrix can be decorated.



Figure 6. Paired imitation B

It will also be noted that both pairs of imitation are strictly imitative. In pair A, the *comes* follows the *dux* at the interval of a fifth above after two notes, and in pair B the *comes* follows the *dux* a fifth below, after two notes. In chapter 33 of his treatise, Sancta Maria gives rules in order to affect canonic imitation at the fourth and fifth, both above and below. These rules were identical to those memorised by choirboys at this time to generate the species of improvised vocal polyphony known as *contrapunto al mente*. Given that Sancta Maria's Renaissance readership would have been young organists, almost all of whom would have been trained as choirboys, it is not difficult to imagine how familiar such procedures would have been to Renaissance organists.¹⁸

Figure 7 shows how the imitative pair at A might be further extended. The secret as to how this is achieved—indeed the secret to how imitations are conceived and controlled—lies in which intervals are permitted in the subject, and which are not. In this case, to effect an imitation at the fifth above after two notes, the matrix is can rise a second and fall a third.¹⁹

¹⁸ This area is thoroughly explored by Philippe Canguilhem: see in particular "Singing Upon the Book According to Vicente Lusitano," *Early Music History* 30 (2011): 55–103; and Philippe Canguilhem et al, *Chanter sur le livre à la Renaissance: Les traitées de contrepoint de Vicente Lusitano* (Turnhout: Brepols, 2013).

¹⁹ Morley makes a similar point: see Julian Grimshaw, "Morley's Rule for First-Species Canon," *Early Music* 34 (2006): 661–66.

Figure 7. Extension of imitative pair at A

Over many years now, I have systematically practiced improvising these, and similar, contrapuntal combinations. Any success I have met with has invariably involved *visualising* the material and *feeling* the same material under the fingers. For example, in the case of Figure 7 above, I would first seek to master the matrix. In doing this I would practice the *dux* with the left hand and the *comes* with the right. Then I would practice the imitation *within the hand*, first with the left hand then with the right, where each hand learns to play both the *dux* and the *comes*. I physically try to experience and remember what is like to *feel* each combination under the fingers. The tactile experience of taking two parts in the one hand, for example—whereby the sinews of the hand are literally stretched over the counterpoint—is part of the memorization and assimilation process. For me, it is the dual engagement of the hand and the mind that allows me to fully internalise the material.

As there is almost nothing written on this in contemporary treatises, it is impossible to tell whether my own experiences are simply of my own making or if they are similar to those practices adopted by improvisers in the past. A tantalising clue, however, is given in Werckmeister's treatise *Harmonologia Musica* (1702). Being a working organist himself, Werckmeister's goal was to make the craft of improvisation as simple and as practical as possible. To this end he talks about hand positions (*Griffe*), and also manages to affect an ingenious contrapuntal *tour de force*—namely stretto in four parts—largely conceived by the player controlling and remembering hand positions.²⁰

Although the improvised fugues, riccercas and canzonas of past masters have long since vanished into the ether, residual traces of this music can, if one looks hard enough, still be found, and the most obvious evidence stems from sources such as partimento fugue collections and the treatises dealing with improvisation—such as those by Werckmeister and Sancta Maria. However, the most overlooked body of evidence may in fact rest in the many thousands of surviving keyboard works from the past. Our default

²⁰ See Michael R. Dodds, "Columbus's Egg: Andreas Werckmeister's Teachings on Contrapuntal Improvisation in *Harmonologia musica* (1702)," *Journal of Seventeenth-Century Music* 12, no. 1, par. 4 and 6, accessed December 6, 2016, <http://www.sscm-jscm.org/v12/no1/dodds.html>.

position, that all surviving keyboard music was expressly written to be performed or interpreted, needs to be seriously questioned.²¹ Many collections of short German fugues, literally thousands of French Baroque organ versets, and countless Italian toccatas, were published not as repertoire to be played—but as models to be studied, internalized, and emulated *ex tempore*.

It is surely in the active and immersive study of such examples that the skills of improvised counterpoint can be hoped to be resurrected. Moreover, as my experience has shown, fluency and mastery of the material is also dependent upon a dynamic and multisensory approach that engages the eye, the ear, the hand and the mind. In Italian, the word *contrapunto* in fact refers to the practice of *contrapunto al mente* mentioned above.²² Literally "counterpoint in the head," this was largely an improvisatory practice that, at its highest levels, allowed keyboard players the headspace to improvise densely wrought ricercars, and groups of singers to improvise in four-part canon without any previous planning. Today, if it's taught at all, counterpoint is usually tagged on to a course of tonal harmony, and it's usually taught from a dense and impenetrable textbook. This pedagogically fallow and anachronistic pedagogy has seen generations of students practice contrapuntal exercises at the desk with pen and paper in the same typically slow and laborious manner. Most find it difficult and, because it's often so far removed from their own experience of music, perhaps a little pointless or tedious. Such an approach does not represent at all how the subject was practised and conceived in the past. Previously, counterpoint was manifest in singing, thinking, playing, writing and improvising. Consequently, once learned, it stuck for good.

²¹ See chapter 10 of Ibo Ortgies PhD dissertation, "Die Praxis der Orgelstimmung in Norddeutschland im 17. und 18. Jahrhundert und ihr Verhältnis zur zeitgenössischen Musikpraxis" (PhD diss., University of Gothenburg, 2004/revised 2007).

²² For a summary of the most recent literature see Peter Schubert, "From Improvisation to Composition: Three 16th Century Case Studies," in *Improvising Early Music: The History of Musical Improvisation from the Later Middle Ages to the Early Baroque*, ed. Dirk Moelants (Luven: Luven University Press, 2014), 94 (footnote 3).