Renaissance Counterpoint in Theory and Practice: A Case Study

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Research Question

How well do theoretical treatises accurately reflect musical practice in the Renaissance?

(Specifically with regard to counterpoint and voice-leading)
Choosing a Renaissance Treatise

*Nicola Vicentino:*

‘Ancient Music Adapted to Modern Practice’ (1555)

- Hundreds of examples of two-part counterpoint
- Specifies the minimum number of voices for each
Vicentino (1558); Book II, Chapter 29, “On Various Steps and Leaps Placed Above and Below, Ascending and Descending Together.”
Choosing a Renaissance Composer

• Palestrina widely held as exemplar of Renaissance contrapuntal style
• Masses written for between 3 and 8 voices

(masses conveniently already symbolically encoded!)
Narrowing the Scope of “Contrapuntal Practice”

• Only examples moving to perfect intervals
• Any example in **two-part counterpoint** with **no rhythmic interpretation** given
• Only prohibitions (i.e. ‘good’ voice leading excluded)

Total: 54 examples
Corpus Analysis

• Palestrina’s 104 masses (707 movements)

• Vertically “slice” the music at any new attack (salami slicing)
Example of “Salami Slicing”
Corpus Analysis

• Palestrina’s 104 masses (707 movements)

• Vertically “slice” the music at any new attack (salami slicing)

• For each pair of voices in texture, look at a sliding 2-slice window and calculate all horizontal and vertical intervals (2-gram)
2-gram

String Representation: “V1, m1, m2, V2”
Computational Analysis

- Each 2-gram gets entered into a large table with the following information attached:
  - The 2 voices (parts) participating in the 2-gram
  - Pitches that generate the 2-gram
  - Mass and movement title
  - Beat and measure position
  - The resulting type of motion (contrary, oblique, etc.)
  - Total number of voices in the texture at each moment
Assumptions

• Compound vertical intervals reduced to their simple counterparts (horizontal intervals were not)
Assumptions

• Compound vertical intervals reduced to their simple counterparts (horizontal intervals were not)

• Examples written with particular pitch classes can be thought of as equally ‘bad’ if transposed (i.e. focus on interval content)
Vicentino’s Voice Leading Rules for 5+ voices
Vicentino’s Voice Leading Rules for 5+ voices
Instances of single “a 5” rule:

m3 -P8 -m3 P8
Instances of single “a 5” rule:

m3 -P8 -m3 P8
Nasce la Gioia, Benedictus:

Open 5th (G-D)

O Regem Coeli, Gloria:

Octaves (all G)
8 voice texture allows for greater number of intervallic relationships than is afforded by a 3 voice texture

Uneven distribution of vocal textures in corpus:

<table>
<thead>
<tr>
<th>Number of voices</th>
<th>Percent of movements</th>
<th>Percent of all intervals</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>4.2</td>
<td>3.2</td>
</tr>
<tr>
<td>7</td>
<td>0.7</td>
<td>1.0</td>
</tr>
<tr>
<td>6</td>
<td>22.6</td>
<td>11.6</td>
</tr>
<tr>
<td>5</td>
<td>37.1</td>
<td>24.5</td>
</tr>
<tr>
<td>4</td>
<td>34.5</td>
<td>42.1</td>
</tr>
<tr>
<td>3</td>
<td>0.9</td>
<td>16.0</td>
</tr>
<tr>
<td>2</td>
<td>0</td>
<td>1.6</td>
</tr>
</tbody>
</table>
Vicentino’s Voice Leading Rules for 5+ voices
Corpus Results

Voice Leading Patterns Legal in 5+ Voices

Actual Vocal Texture during Instance

VL Patterns that never occur: 0/10

VL Patterns that occur only once: 1/10
Corpus Results

Voice Leading Patterns Legal in 5+ Voices

VL Patterns that never occur: 0/10

VL Patterns that occur only once: 1/10
Corpus Results

Voice Leading Patterns Legal in 8+ Voices

VL Patterns that never occur: 3/13

VL Patterns that occur only once: 2/13
Corpus Results

Voice Leading Patterns Legal in 3+ Voices

VL Patterns that never occur: 0/6

VL Patterns that occur only once: 0/6

(Pattern with lowest number of occurrences: 46!)
Corpus Results

Voice Leading Patterns Grouped By “Rule Class”

Vocal Texture During Realizations of Vicentino Rules

Frequency of Occurrence

Number of Voices

a3
a4
a5
a6
a7
a8
Parallel and Direct Perfect Intervals

- Parallel and direct perfect intervals represent instances of so-called “hard” and “soft” rules, respectively.

- Modern formulations of this rule vary.

- The most common version:
  - Two voices must not move in similar motion into a perfect interval unless the upper-most voice moves by step.
Vicentino’s Guidelines in Prose

• Clear prohibition against parallel octaves and fifths

• No direct instruction on both voices leaping into perfect interval.
Parallel and Direct Perfect Intervals

Vocal Texture During Instances of Parallel and Direct Intervals

- Instances of Direct Intervals: 1,609
- Instances of Parallel Perfect Intervals: 154
Parallel and Direct Perfect Intervals

Vocal Texture During Realizations of Vicentino Rules
Conclusion

• By the present definitions, it appears Palestrina’s voice leading is not exactly consistent with the specific guidelines offered by Vicentino

• However, there is a general trend where “poorer” progressions become increasingly rare, and more likely to be “hidden” in thicker textures

• No such thing as a “hard” rule? (Even parallels occur)
Thank You!

Special thanks to Peter Schubert and Julie Cumming for their expertise

Extra-special thanks to Cory McKay for presenting my research on my behalf!

Questions or comments? Email: claire.arthur@mcgill.ca
Which Patterns are Most/Least Common?

• Although there are 3,326 unique voice-leading patterns, 450 of them account for the voice-leading in 90% of the corpus
Vicentino’s Voice Leading Rules for 5+ voices
Vicentino’s Voice Leading Rules for 8+ voices:
Examples of Direct Perfect Intervals

\[ \begin{array}{cccccccccccccc}
  m3 & P5 & M3 & P1 & M3 & P1 & M3 & P5 & m3 & P5 & M6 & P5 & M6 & P5 & P4 & P5 & m3 & P8 \\
  a2 & a8 & a8 & a2 & a7 & a7 & a5 & a7 & a8 \\
  m3 & P8 & M3 & P8 & m3 & P8 & M3 & P5 & m3 & P5 & M3 & P8 & m3 & P8 & M6 & P8 & m6 & P8 \\
  a4 & a4 & a5 & a3 & a5 & a6 & a8 & a7 & a5 
\end{array} \]
Corpus Results

Voice Leading Patterns Grouped By “Rule Class”

Vocal Texture During Realizations of Vicentino Rules

Frequency of Occurrence

Number of Voices

- a3
- a4
- a5
- a6
- a7
- a8
Corpus Results

Voice Leading Patterns Grouped By “Rule Class”

Vocal Texture During Realizations of Vicentino Rules (Direct Intervals Only)

Out of 1,612 total direct intervals...

...1,483 accounted for by Vicentino’s rules
Corpus Results

Voice Leading Patterns Grouped By “Rule Class”

Vocal Texture During Realizations of Vicentino Rules (Remaining Rules Only)