## Editorial Policy: Encoding

In encoding the scores used for this project, my principle was to recreate the relevant Universal Edition score as closely as possible. On the whole, this was a fairly simple process that required little editorial intervention. This was particularly true of pitch and duration notation; the greatest ambiguity surrounded the exact placement of dynamic and tempo markings, and whilst the first has little bearing on this project, in practice the second could usually be inferred from proximate musical gestures. Nonetheless, in order to use these scores in music21, various alterations had to be made to the scores. At the heart of this project lies the methodological assumption that scores can be viably used as proxies for sounds: these interventions seek to minimise the difference. I am outlining these here both to ensure full methodological transparency, and also as a guide for similar work.

The first group of alterations are small-scale local interventions that interpret particular notational phenomena. In all cases, trills have been removed, resulting in the note being sustained for the given duration. For percussion instruments this is fairly uncontroversial as the effect of the trill is many repetitions of the same note, creating prolongation. For non-percussion instruments, where the trill is a fast alternation between two notes, this hinges on an understanding of the upper note as fundamentally ornamental, almost timbral rather than harmonic. By contrast, fast alternations between notes (Example 5) have been modelled as a sustaining a dyad (Example 6). In both cases it is understood that the alternations should not be read as multiple new attacks.

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Example 5: Op. 10/III, bb.1-3, original version, Anton Webern, ‘5 Stücke für Orchester, Op. 10’© 1923, 1951 by Universal Edition A.G., Wien/UE5967

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Example 6: Op. 10/iii, bb.1-3 processed version

Turning to the piano, arpeggiations have been removed from chords. In part this is to standardise the inevitable variety of performance, in part because the aural effect is still of one harmony. The sustaining pedal presents further difficulty. My approach has been to prolong notes for the indicated period in any case where Webern indicates use of pedal, and to assume that performers otherwise would not use the pedal. Though this latter assumption is certainly speculative, it seems legitimate lest they cloud the ascetic textures. Indeed, the only works for piano with no pedal markings are Opp. 11 and 27, and surely neither would benefit from unmarked prolongation.

String instruments present some further interpretative matters. Harmonics have been spelled out at sounding pitch, typically notated by Webern, but otherwise easy to infer. Timbral distortions, for example *Am Steg*, have been modelled as having no pitch effect. The reality of this is hardly so clear cut: playing on the bridge often emphasises the second partial at the expense of the fundamental, resulting in an effective transposition up an octave. However, this is highly inconsistent, often changing within the course of a note, and so is impossible to model meaningfully.

Octave transpositions do, however, inspire a tangle of interpretative judgements with regard to Webern’s notation. It is not until Op. 14 that his scores begin to be notated at sounding pitch, and even then, all is not clear. The following is a survey of those instruments where transpositional matters are not always clear, with some discussion of my reasoning in each case. In the case of ambiguities, the general principle I have adopted is to minimise octave doubling in favour of unison doubling where possible, given Webern’s general apathy towards doubling at the octave, particularly in the more contrapuntal, later music.

To begin with the easiest cases, the guitar is transposed down an octave in Op. 10; in Opp. 18 & 19 it is specifically marked as sounding at the written pitch, which also confirms Webern’s knowledge of the traditional transposition. Similarly, the piccolo is transposed up an octave, contrabassoon and contrabass down, until the final three orchestral pieces (Opp. 29, 30, 31), where everything sounds precisely at pitch. French horns present a problem with regard to the bass clef. I have opted to read it in the traditional (now outdated) manner that transposes up a fourth rather than down a fifth. This only occurs in Op. 13, and is principally justified by the first note, which would otherwise give a sounding A1.

The knottiest problems come, however, with the celesta, glockenspiel, and xylophone. I will discuss each of the relevant pieces in turn. As before, Opp. 30 and 31 are simple, as they are notated at sounding pitch; other pieces, less so. With regard to Op. 6, my policy has been to read the celesta as transposing up one octave, as would be expected. The evidence for this is limited, but rests on places where reading it at concert pitch would create octave doublings in the harmony (e.g. Op. 6/I, b. 15; Op. 6/v, bb. 11-12). The glockenspiel is harder to judge, and will be discussed below, in light of the other works.

Op. 10 presents some clearer evidence. I have read the celesta as transposing up one octave (e.g. Op. 10/i, bb. 1 & 10, Op. 10/ii, bb. 5 & 7, Op. 10/v, b. 10), and the xylophone and glockenspiel both up one octave (the traditional transposition in the case of the xylophone). Op. 10/v provides the justification here: in bb. 8-9 they are doubled by the harp, bb. 16-17 the violins.

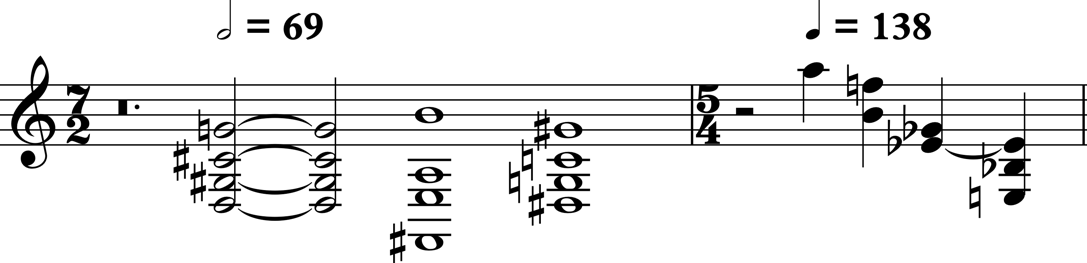
In Op. 13 I have maintained the same transpositions as Op. 10. There are at least three clues in the celesta part that point towards this: Op. 13/i, b. 17, Op. 13/ii, bb. 21-22 & 24-25. In the first case this is a matter of doubling, in the second and third, to match the surrounding texture. For the glockenspiel, Op. 13/i, b. 17 suggests a single octave transposition, though Op. 13/ii presents a contradiction, as bb. 24-25 and 28 double the violin at different octaves, so a transposition of either one or two octaves would result in one of these passages doubling at the octave rather than the unison.

Finally, despite the lack of clarifying markings, in Opp. 26 & 29 I have read the celesta and glockenspiel at pitch, matching the other instruments discussed above, and supported by some examples (e.g. Op. 26 bb. 12-13).

Returning to the glockenspiel in Op. 6, the situation is far from clear. Traditionally the glockenspiel transposes up two octaves, but to maintain consistency with Opp. 10 and 13, in this piece I read it as transposing by one octave. Counter to this, two examples suggest that an argument could be made to read it at concert pitch: Op. 6/iii, bb. 5-6, and Op. 6/v, bb. 19-21. In the former case, transposing would create contrapuntal parallel octaves; in the latter, consulting the earlier 1909 score shows the glockenspiel (written) doubling the trumpet exactly. In the latter case the removal of the trumpet removes this melodic octave doubling; in the former, this is perhaps the exception that proves the rule.

Many of these decisions are speculative. They rely on an assumption about Webern’s practice (e.g. that he disliked octave doublings) that is largely inferred from an intuitive knowledge of his music and style. Nonetheless, there is enough evidence to suggest that he consistently notated the celesta, xylophone, and glockenspiel each sounding an octave higher than written, until the final four orchestral works, all written at sounding pitch.

The final matter to mention here is a peculiar quirk of the Sibelius-XML-music21 chain which, although easy to miss, wreaks havoc if unattended. The matter in question is full-bar rests. In Sibelius, as is notational convention, irrespective of time signature these are denoted with a semibreve-shaped rest, located in the middle of the bar. In exporting a file to XML, these are therefore defined as ‘whole’ rests. When importing these into music21, however, these ‘whole’ rests are understood to be ‘whole-note’ rests, with a duration of four crotchets. As such, any part with such a bar in a time signature with fewer than four crotchet beats suddenly gains extra silent beats at the end of the bar. Not only does this extend the duration of the given work and introduce all sorts of unintended silences, but it often misaligns the parts (e.g. Example 7). My solution to this was to replace full-bar rests with rests of the correct duration, a crude and time-consuming response, but an effective one.



Example 7: Op. 29/i, bb. 1-2, chordified, with problems

Many of these editorial decisions rest on my personal understanding of Webern’s music. Whilst I have tried to hew as closely as possible to the realities of the score, in certain cases interpretation and inference play an important part, particularly in realising these scores as proxies for sounding realities. It is fully possible that other scholars would interpret some of these features in other ways; in many cases there are no definitive interpretations, and so I have opted for those interventions that I think make most sense in the context of the broader corpus.

## Counting Parts

Assessing the size of an ensemble is a more fraught exercise than it may at first appear. The intention of the activity is to provide a figure quantifying the size of an ensemble, and therefore allow for investigation into what effect this variable might have. This is easy for the smaller ensembles: quartets, whether string or other (e.g. Op. 5, Op. 22); chorus (e.g. Op. 2); etc. For larger ensembles, particularly orchestras, this is rather more difficult.

One option would be to use categorical values, for example: 1 for solo music; 2 for two-part music; 3 for chamber music; 4 for medium-sized ensembles; 5 for orchestral music. This is comparatively easy to adjudicate, but rather crude, and particularly in movement-level analysis, misses a lot of detail. It seems flawed to describe, for example, Op. 31/ii as using the same ensemble as Op. 31/iii: the first deploys only a single vocal soloist alongside a fairly light ensemble consisting of 9 individual players; the second an SSA chorus as well as a soprano soloist with four full string parts and numerous wind and brass. The same issue would occur if the number of parts used in the complete piece were deployed (i.e. the number of parts presented in the instrumentation list): though this would be more detailed than a simple categorical characterisation, it still misses out on movement-to-movement changes.

As a result, my solution has been to count the number of parts deployed in each movement, though this is hardly free of controversy. It immediately sparks the question: what constitutes a part? The following survey will try to answer some of the most significant questions, but it is important to acknowledge that, as with the editorial policy above, several of these are no more than subjective judgements. In the final analysis, I seek not to provide an incontestable answer, but rather a helpful metric which I could deploy in my work.

I have conceived of a part in its basic form as an instrumental part. For each movement, I have counted the total number of such parts deployed across the movement. This figure therefore takes account both of the number of instruments playing, but as a corollary of this, the timbral variety. This means that octave or unison doubling between parts is treated as producing multiple parts, rather than being reducible to one contrapuntal voice (as, in strictly harmonic terms, it is). Likewise, if a wind player switches to an auxiliary instrument, this is counted as two parts due to the timbral differentiation, even though the two are never played concurrently and, from the perspective of the player, it is essentially one part.

So far, these positions, if open to challenge, are at least fairly straightforward. String divisi, by contrast, is rather more complicated: sometimes the parts divide into two clearly contrapuntal lines, in which case they are counted as two lines, but sadly this is certainly not always the case. Where they divide into two lines that are rhythmically identical and merely playing in parallel at some interval (e.g. Op. 1 bb. 25-32 Violin I at the octave; Op. 6/v bb. 1-5 Viola & Cello) this is counted as one voice. Whilst this may seem to contradict with the earlier policy, in the case of one instrument, as here, it seems excessive to count this as two individual lines. This is certainly a questionable decision, but in these cases the division does not seem contrapuntally significant enough to qualify as creating a new voice. As for solo string parts, if they occur at the same time as the rest of the same string part they are treated as an independent line, otherwise they are deemed to be part of the same part. On the whole, these policies have erred on the side of undercounting, or at least condensing, string voices: one could count every individual manifestation as a separate voice, but this would then describe Op. 1 as having 20 different string parts, which seems exaggerated. Conversely, one could forgo divisi altogether, but then Op. 30 would have the same number of string parts as Op. 1; logistically this might be true, but as a representation of the ensemble this seems flawed.

The final matter for clarification regards the piano, which has consistently been counted as 1 part. This is inevitably highly reductive given its contrapuntal potential: arguing that Op. 7/ii has the same number of parts as Op. 25/iii whilst obviously true also seems to misrepresent the sounding reality of the music, and yet attempting to quantify the ‘size’ of piano writing seems a flawed enterprise.