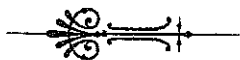


Norton Anthology of Western Music, 6th edition

Note for:

Karlheinz Stockhausen: Kreuzspiel (1951)



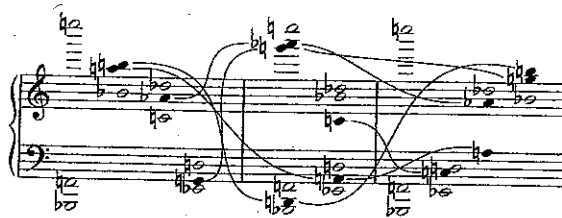
In the summer of 1951, Karlheinz Stockhausen attended the Darmstadt Summer Course for New Music for the first time. There he performed in Karel Goeyvarts's *Sonata for Two Pianos* and heard a recording of Olivier Messiaen's *Mode de valeurs et d'intensités* (Mode of Durations and Intensities) for piano solo, and he was struck by the novel ideas these pieces introduced. Messiaen based his piano piece on a "mode" of thirty-six pitches in which each pitch is assigned a duration, dynamic level, and articulation that are used with that pitch every time it appears. Goeyvarts, a student of Messiaen's, used a different system to link the four parameters of each note in his sonata, and in its middle movements material introduced in the highest register gradually moves down to the lowest, and vice versa. Stockhausen combined these ideas with new serial procedures in composing *Kreuzspiel* in the fall of 1951, making this one of the first pieces to explore serializing parameters other than pitch. It was premiered the next summer at Darmstadt, provoking an uproar and helping to make Stockhausen's reputation. Stockhausen revised it in 1959 before its publication in 1960, and dedicated it to his wife Doris Andreae.

Kreuzspiel is thoroughly systematic, applying serial principles to register, dynamics, and duration as well as pitch. The piece is in three parts or movements played without a break, of which the first part is included here. The title means "cross-play," and the piece is full of crossings.

Some crossings are audible, especially the crossing of register. After a thirteen-measure introduction (marked $\text{♩} = 90$), the main portion of Part 1 (marked

$\text{♩} = 136$) begins with notes in the extreme registers of the piano, six notes of the chromatic scale near the bottom and the other six near the top (measure 14 to the first half of measure 20). Over the course of Part 1, the low notes gradually rise, passing through the low middle range played by bass clarinet and the high middle range played by the oboe, and end up in the highest range of the piano (second half of measure 85 through measure 91). Meanwhile, the notes that begin in the highest register of the piano trace the opposite path, so that the whole part is defined by this crossing of register. Part 2 begins in the middle range, moves out to the extremes, and returns to the middle. Part 3 combines the motions of the first two parts, creating a complex fabric of crossing registers.

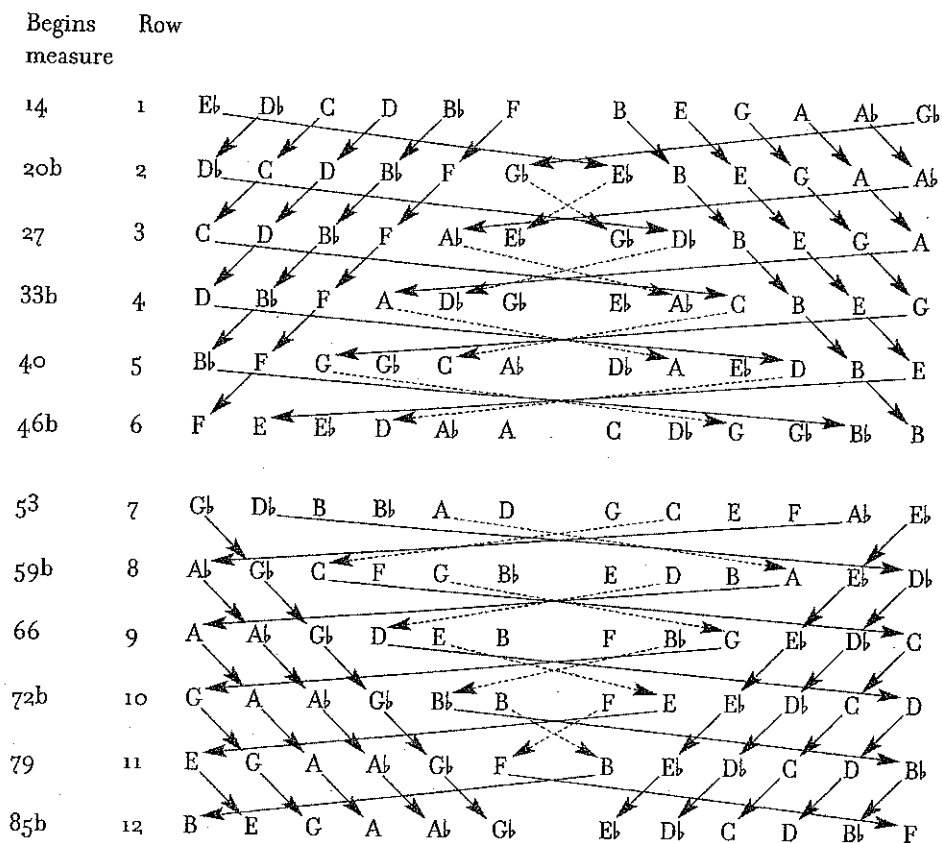
A preview of this registral crossing can be heard in the introduction (measures 1–13). The piano presents three groups of chords, each of which includes all twelve chromatic pitch-classes. The first (measure 1 through the first half of measure 7) and last (measures 9–13) use chords of three notes, the middle group chords of six notes. The damper pedal is held down through each group of chords, allowing all twelve notes to resonate simultaneously, then is briefly released to articulate the beginning of the next group. As shown in the example below, most of the notes remain in the same register through all three groups, but several notes cross register: B descends four octaves and A \flat rises two octaves, then both return to their original positions, crossing each other twice; A descends three octaves and G rises four octaves, then both move an octave in the opposite direction; and C stays the same at first, then descends an octave. The result is a complex of registral crossings, heard against the static background of the other pitches.



Other crossings are present in the compositional design, but may not be audible to a listener. One aspect full of such crossings is the sequence of pitches. After the introduction, through the rest of Part 1 only one pitch is attacked at a time, although pitches in different registers are often sustained long enough to overlap. The sequence of 144 pitches consists of twelve successive twelve-tone rows, and each new row is derived from the previous one by moving notes to new positions in the row in such a way that their paths cross in a symmetrical arrangement. The twelve rows and their derivations are shown in Figure 1, where the crossings are easier to see than they may be to hear in the music.

Stockhausen creates derived rows through a process of rotation akin to that in the finale of Crawford's String Quartet (NAWM 180) but much more elaborate. In this process, each note of the first hexachord is paired with its counterpart in the retrograde of the second hexachord (the first note of the row with the last, the second with the second to last, and so on). The two notes in each pair always move the same number of places, but in opposite directions. For example, the first and last notes of Row 1 are rotated into the middle of Row 2, each crossing over to join the

Figure 1: Pitch rows and their derivation



other hexachord, while the rest of each hexachord moves outward. The changes are shown by arrows. Similar transformations generate the next four rows, except that the notes in the middle of the row continue to cross back and forth between hexachords in a free rather than systematic way; the first subsequent crossing of each pair is shown by dotted arrows. Rows 7–12 follow a similar process in reverse, ending with a variant of the original row with the two hexachords reversed.

Thus the pitches in Part 1 are entirely systematic, derived through complex manipulation of the original twelve-tone row. The measure each row begins is shown in Figure 1, using "b" with the measure number to indicate that it begins on the second half of the measure. Occasionally, Stockhausen changes the order slightly in the piece itself: the E and E \flat in Row 6 are reversed (see measures 47–48), and the order at the beginning of Row 8 is reshuffled (see measures 59–61).

The registral placement of the pitches is determined by another serial procedure. A typical modern piano has a range of seven octaves (plus four extra notes at the top, which are not used in this piece). Each octave is assigned a number, with 7 for the lowest octave (from the A that is the piano's lowest note to the G \sharp above it) and 1 for the highest octave. The pitch-classes that are introduced in the lowest octave during the statement of Row 1 in measures 14–20 move upwards

through the registers in the order 7-2-5-4-3-6-1; those first presented in the highest octave move downward in the opposite order, 1-6-3-4-5-2-7. In the statement of Row 12, the notes that began in octave 7 are in octave 1 and vice versa. Pitches in the extreme ranges are played on the piano, pitches in the middle ranges on bass clarinet or oboe. Thus at the beginning and end of the process, the piano plays all the pitches. The number of pitches played by the wind instruments gradually increases until they play ten of the twelve in Row 6, then decreases again as the pitches move out of the instruments' ranges.

The pitch-classes start and end their motions through the registers at different times: F is the first to change register in measure 22, then A in measure 25, D in measure 27, and so on. Once a pitch-class starts to move, it keeps changing register with each new row until it arrives at its ultimate destination, then it stays there. The first time and the last time each pitch-class changes register, it is highlighted by a short, *sforzando* attack played by two or more tom-toms.

Duration is also serialized, in three different ways.

First, each pitch-class is assigned a duration, and each time that pitch-class is sounded, in any octave or instrument, there is the same length of time before the next pitch is played in the same or any other instrument. Thus the durations are serially ordered, in exactly the way the pitches are. A pitch may be sustained for a longer or shorter time, but its duration for the purpose of this structure is the length of time to the next attack. The duration for each pitch-class is given in Figure 2 in numbers of triplet sixteenth notes, from 1 to 12. The pitch-classes are listed in the order of the original row. The origin of these durations will be explained below.

Figure 2: Pitch-classes and their associated durations and dynamic levels

Pitch-class	E \flat	D \flat	C	D	B \flat	F	B	E	G	A	A \flat	G \flat
Duration	11	5	6	9	2	12	1	10	4	7	8	3
Dynamics	<i>sfz</i>	<i>mf</i>	<i>mf</i>	<i>p</i>	<i>ff</i>	<i>pp</i>	<i>ff</i>	<i>p</i>	<i>f</i>	<i>mp</i>	<i>mp</i>	<i>f</i>
	(<i>pp</i>)					(<i>sfz</i>)						

There are twelve triplet sixteenth notes in each measure of $\frac{3}{4}$ meter. The sum of the numbers from 1 to 12 is 78, or 6.5 times 12, so each complete statement of a row takes six and a half measures. This divides Part 1 into a series of units, each six and a half measures long.

In addition to duration, each pitch-class is associated with a particular dynamic level, also shown in Figure 2. In general, the shorter the duration, the louder the dynamic. There are rare spots in the music where Stockhausen changes the dynamic level associated with a particular pitch, and mid-way Stockhausen exchanges the dynamic levels for E \flat and F—another kind of crossing.

A second treatment of serialized duration is in the four tom-toms, in a process entirely independent of the *sforzando* attacks mentioned above. During the second half of the introduction (measures 7-13), the tom-toms play a series of diminishing durations, from 12 to 1 triplet sixteenth notes. Once again, the duration is the interval of time between one attack and the next. For the rest of Part 1, the tom-toms move through a sequence of twelve durational rows, shown in

Figure 3: Duration rows in the tom-toms and their derivation

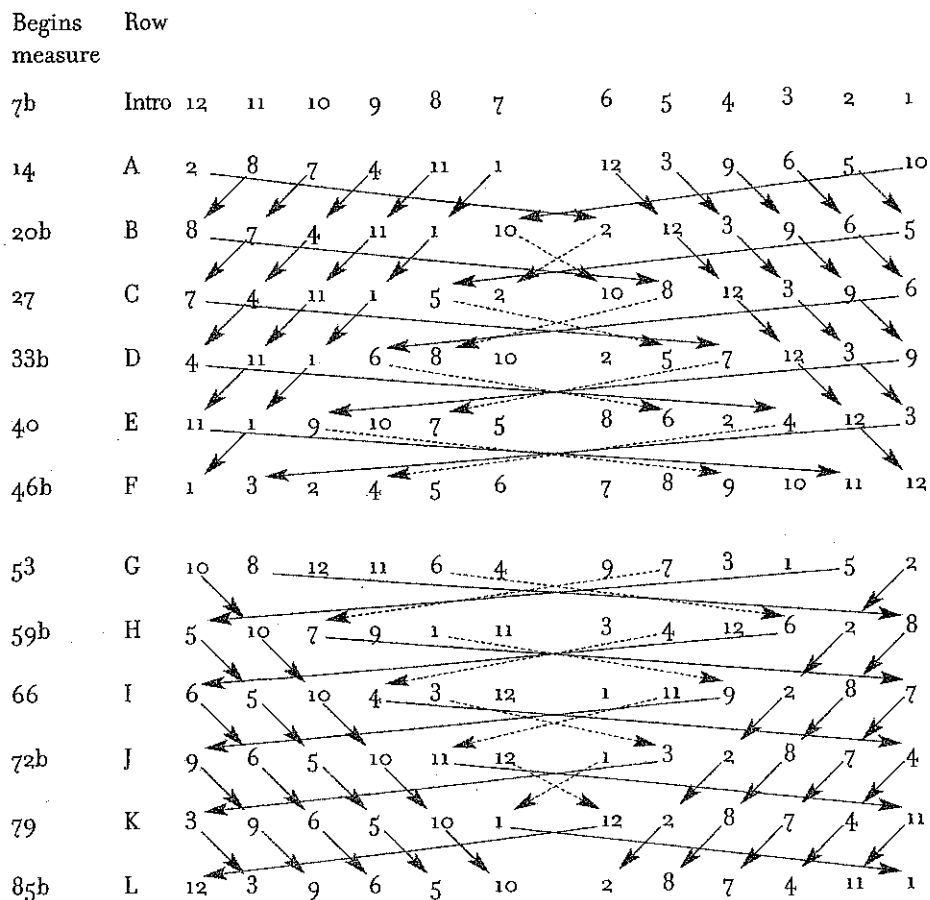


Figure 3 as Rows A through L. Each row includes all twelve numbers between 1 and 12. These rows also take six and a half measures each, and they are precisely coordinated with the pitch rows (Row A with Row 1, Row B with Row 2, and so on). The first row is the inverse of the durational series associated with the pitches in Row 1, shown in Figure 2. That is, subtracting each number in Figure 2 from 13 produces the numbers in Row A. Successive rows are derived using the same procedures as in Figure 1. Stockhausen makes only one alteration to this sequence of durations in the music itself; in measure 46, the durations of 3 and 2 are reversed, so that Row F becomes a statement of the twelve durations in increasing order from 1 to 12.

Like the pitches, the durations in the tom-toms are also assigned dynamic levels that stay constant throughout the piece. In addition, each duration is given to a specific drum. Durations 1, 4, and 7 are played on the first (highest) tom-tom, 3, 6, and 8 on the second, 2, 5, and 9 on the third, and 10, 11, and 12 on the fourth (lowest).

The tumbas or conga drums (paired drums, one higher pitched than the other, that are played with the hands) present yet a third sequence of rows, shown in

Figure 4: Duration rows in the tumbas and their derivation

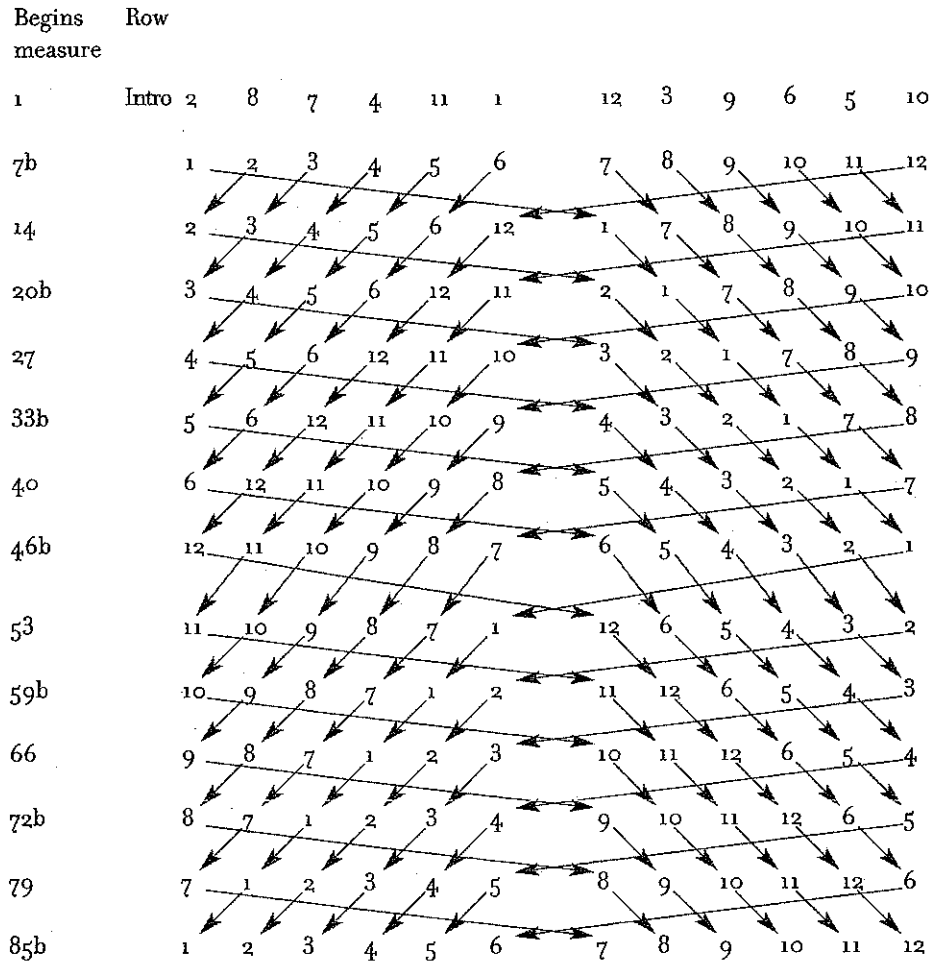


Figure 4. The tumbas keep time throughout Part 1, articulating every triplet sixteenth note at a soft level, like a pulsation in the background. The durational groupings are initiated by the higher-pitched tumba, which is also played slightly louder than the other. In the introduction, the tumbas play the pattern from the tom-toms' Row A, then their own series, the durations from 1 to 12 in increasing order. During the rest of Part 1, this series is rotated as shown in Figure 4. The tumbas' durational series is much simpler than those of the pitched instruments or the tom-toms, and they follow a rotation which is much simpler than those in Figures 1 and 3, making their process of permutation the easiest to hear in the music.

The metaphor of crossing is particularly apt for the top half of Figure 4, in which every duration crosses over to the other side of the series, resulting in a complete reversal from an ascending sequence of durations in measures 7b-13 to a descending one in measures 46b-52. The latter is pointed out in the music by playing the beginning of each grouping on a woodblock (played by the pianist) rather than on the higher tumba.

This moment (measures 46b–52) is in fact the crux—the main crossing—of the whole movement. This is where Row F in the tom-toms is a series of increasing durations from 1 to 12, exactly countering the decreasing durations in the woodblock and tumba. This is where the process of changing registers is crossing in the middle register, with ten of the twelve pitches of Row 6 sounded in the wind instruments. Moreover, with Row 6 (altering the position of the second and third note, as Stockhausen does in the music), the durations and dynamics are now in progressive order, with decreasing duration and increasing intensity:

Figure 5: Pitches in measures 46b–52 and their durations and dynamic levels

Pitch-class	F	E♭	E	D	A♭	A	C	D♭	G	G♭	B♭	B
Duration	12	11	10	9	8	7	6	5	4	3	2	1
Dynamics	<i>pp</i>	<i>pp</i>	<i>p</i>	<i>p</i>	<i>mp</i>	<i>mp</i>	<i>mf</i>	<i>mf</i>	<i>f</i>	<i>f</i>	<i>ff</i>	<i>ff</i>

This explains the derivation of the durations and dynamics for the pitch series. Compare Figure 5 to Figure 2 above, which showed the durations and dynamics at their first appearance with Row 1. The ascending dynamics are matched in the woodblock, emphasizing them. The first three and last two notes sound simultaneously with the woodblock, as they all should; but whimsically, Stockhausen delays notes 4 through 10 of his pitch row by one triplet sixteenth note, so that they sound just after rather than together with the woodblock.

How much of this elaborate structure is audible to the listener? The overall process of registral crossing, the move from piano notes to wind instruments and back, the coordination of elements at measures 46b–52, and the patterns of rising and falling duration in the tumbas should all be possible to hear. But without careful study of the score, listeners may be completely at sea, or may simply focus on the interesting sounds of varying dynamic levels, timbres, and pitches, all heard over a constant, yet constantly changing, quiet pulsation in the tumbas.

In a note to the score, Stockhausen indicates how the players should be arranged onstage. The grand piano's lid should be removed and the piano positioned with its keyboard facing front, so that the pianist's back is to the audience. The oboist is to the left (from both the pianist's and the audience's perspective), the bass clarinet to the right, and the three percussionists are arranged around the piano, with Percussion I (playing tom-toms 1 and 2) on the right behind the bass clarinetist, Percussion II (playing tumbas) behind the piano, and Percussion III (playing tom-toms 3 and 4) behind the oboist. Although just six players are involved, precise coordination is both so necessary and so difficult to achieve that the piece usually requires a conductor, standing just to the left of the piano keyboard. Stockhausen himself conducts the performance on the accompanying recording.