HELMUT LACHENMANN’S “SOUND TYPES”

MING TSAO

HELMUT LACHENMANN, IN HIS ARTICLE “Klangtypen der Neuen Musik” (“Sound Types for New Music,” 1966), defines two classes of sound types that are perceived either as musical processes or objects.¹ For a sound type to be perceived as process, the sound’s Eigenzeit or “own time” must be identical with its real time duration, in other words a sound type whose duration is dependent upon a “characteristic process of unfolding.”² A Kadenzklang (or cadence sound), for example, is a sound as process where its Eigenzeit is identical to the time it takes for its characteristics to unfold and achieve cadence. For Lachenmann, the Eigenzeit of a sound structure that is identical with its real time duration (such as the Kadenzklang) can contribute to a more active listening.³ (See Example 1.)
Lachenmann’s *Impuls-klang* (impulse sound) is a subclass of the *Kadenzklänge* by reducing the *Kadenzklänge* to a process of attack impulses followed by natural or artificially constructed decay. “Natural,” in this context, means assembling or disassembling the energy of the sound as part of the internal structure of that sound (usually through its resonance). On the other hand, “artificial” means assembling or disassembling the energy of the sound from without: i.e., as a composed process.4 The other types, *Einschwingklänge* (attack sound) and *Ausschwingklänge* (decay sound), are simply the two component parts of the *Impuls-klänge*.(See Examples 2 and 3.)

For a sound type to be perceived as an object, the sound’s Eigenzeit is less than its real time duration, in other words a sound type whose characteristics are appreciable before the sound finishes. Examples of sound types as objects are *Farbklang* (color sound) and *Fluktuation-klänge* (fluctuation sound), where both are defined by their static or periodic outer contour comprised either by a static sound (such as a sustained chord) or periodic internal processes that create an overall impression of a static sound (periodic arpeggiations, micropolyphony in a fixed register, etc.). With these examples, a listener can appreciate the sound type independent of the sound’s Eigenzeit through a shortening or lengthening of their durations.(See Examples 4 and 5.)
EXAMPLE 2: ASSEMBLING THE ENERGY THROUGH “NATURAL” MEANS:
A COMPLEX SOUND IS BUILT THROUGH THE RESONANCE OF SINGLE ATTACKS ON INSTRUMENTS

(“Klangtypen der Neuen Musik” in Musik als existentielle Erfahrung: 2)

EXAMPLE 3: ASSEMBLING THE ENERGY THROUGH “ARTIFICIAL” MEANS:
A COMPLEX SOUND IS BUILT THROUGH COMPOSED GESTURES ON INSTRUMENTS

(“Klangtypen der Neuen Musik” in Musik als existentielle Erfahrung: 2)
Sometimes the outer contour of a Fluktuationsklang can itself be dynamic but periodic at the same time. In this case its Eigenzeit can be perceived after one or two of its external fluctuations. (See Example 6.)

A more complex sound object is the Texturklang (texture sound), where the details of the sound are continually changing (making it internally more complex than the Farbklank or Fluktuationsklang whose internal details are static or periodic), but whose general shape is static, akin to a statistical sound field. Although every detail of the Texturklang is more or less different, its overall shape does not depend upon its real time duration of unfolding through relationships and is experienced after some time as an object. (See Example 7.)
Thus, Lachenmann has the following classification:

**SOUND AS PROCESS:**
- Kadenzklang
- Impulsklang
- Ausschwingklang
- Einschwingklang

**SOUND AS OBJECT:**
- Farbklang
- Fluktuationsklang
- Texturklang

(“Klangtypen der Neuen Musik” in Musik als existentielle Erfahrung: 13)
For Lachenmann, sound as process as well as the Farbklänge and Fluktuationklänge are composed of details that generally mirror their overall shape (crescendo/decrescendo processes or static/periodic contours). Only the Texturklänge is composed of details that do not mirror the overall shape (which is static) but are highly differentiated and unpredictable.⁸

Lachenmann’s Strukturklänge (structure sound) is one whose internal details are constantly changing (akin to the Texturklänge) but experienced as a process where its Eigenzeit is identical to its real time duration, which is Lachenmann’s way of prioritizing the ordered relations between the various sounds in his music and not the sounds themselves (an idea that Lachenmann inherits loosely from serial thinking). The Strukturklänge conveys a sense of a formal projection of sounds in a “palpably temporal space” where the “border between sound presentation and form presentation becomes more fluid.”⁹ (See Example 8.)

The musical grammar that underlies Lachenmann’s string quartet, Gran Torso (1971–72), is based on a series of oppositions such as “much effort” as opposed to “little effort” on the part of the performer, or instrumental actions that meet with much or little

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**EXAMPLE 8: A SCHEMATIC DRAWING OF A STRUKTURKLÄNG, WHERE EACH DETAIL IS MORE OR LESS DIFFERENT, BUT THE WHOLE SHAPE CONSTITUTES ORDERED RELATIONSHIPS WHOSE EIGENZEIT IS THE TOTAL (REAL) TIME DURATION OF ITS UNFOLDING**

(“Klangtypen der Neuen Musik” in Musik als existentielle Erfahrung: 18)
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resistance on the instrument. These stark oppositions, through which
the energy and materiality of sound is conveyed, allow a listener to
build a map in their mind onto which relationships can be drawn and
the idea of a Strukturklang can be perceived. For example, consider
the first phrase (mm. 1–7) of Gran Torso (Example 9).

ORDERED RELATIONS:

Line 1: \[ a \rightarrow b \rightarrow c \]
Line 2: \[ d \rightarrow e \rightarrow f \]
Line 3: \[ g \rightarrow h \rightarrow g' \]
Line 4: \[ i \rightarrow j \]

This opening phrase begins with the second violinist applying
pressure while moving the bow hairs vertically up the string \((a)\). One
can hear this action in relation to the action at the end of the phrase by
the same instrument \((c)\). That is, the second violinist applies pressure
but moves the hair of the bow horizontally across the strings. Between
these two actions, we have the entrance of the cellist who applies much
force in moving the wood of the bow obliquely up the strings \((b)\). In
other words, the bow is drawn vertically as well as given a bit of
horizontal movement with the arm. A few moments later, the cellist’s
bow is obliquely drawn back down, an inversion of the cellist’s original
movement. So these three actions create a line across the phrase whose
direction is determined by the transition from vertical to oblique to
horizontal actions on the instruments, and whose energy is generated
by the heavy effort (or pressure) required in producing them.

Against this line, we have those actions that require very little effort
on the part of the performer. The light bowing by the second violin
obliquely up the strings then across and then obliquely back down \((d)\),
as a kind of rhythmic augmentation of the proceeding viola action.
This light bowing sounds more the white noise of the bow hairs
against the strings than the harmonics fingered by the left hand under-
neath. This is immediately imitated in the viola by a concatenation of
the cellist’s actions in the second measure; the violist lightly moves the
wood of the bow obliquely up and then down the strings of the instru-
ment \((e)\). Finally, we have the flautato bowing up and down the strings
by the cello \((f)\), a kind of rhythmic diminution of the preceding viola
action. So we have the following line whose direction is determined by
a process of rhythmic contraction: (1) augmentation of viola action by
the second violin, (2) the viola action and, finally (3) a diminution of the
viola action by the cello. All three actions are unified by the light effort
required to produce them, yet energy is supplied by an almost rhyth-
mic alternation among the players between hair and wood of the bow.
EXAMPLE 9
What is the first violin doing? The action in the first violin (g) produces an energy discharge that extends at least through measure 23. The indication *knirschen auf Ruckwand* asks the performer to rotate the bow against the back of the instrument so that the sound of bow hairs grinding against wood is produced. This action could be called an action of *zero-degree* movement where there is neither horizontal nor vertical motion of the bow, simply a rotation of the bow and yet, in a sense, one can say that all other actions are formally derived from it. This action requires a good deal of pressure on the part of the performer. (Related to this action in measure 23, we have its augmentation theatrically. Instead of rotating the bow, the entire violin is rotated right side up so that the bow hairs lightly fall against the strings as the violin turns, preparing the violinist to play the violin in the normal fashion.) Before the first violinist returns with the *knirschen auf Ruckwand* in measure 6 (g'), the second violin drops the bow onto the strings with the arco balzando creating a new movement perpendicular to the instrument with very little effort (h). So a third ordering of relationships is created by actions that require neither horizontal nor vertical motions of the bow. The movement of energy in this line is suggested by the following alternation: much effort → little effort → much effort.

There is also a fourth ordering of relations that emerges in this first phrase with respect to left-hand actions. This line is defined by the opposition between a light left-hand pressure, as exemplified through most of the phrase with harmonics and half-harmonics (i), and a heavy left-hand pressure, such as the use of the *vibrato largissimo* in the second violin (j). The energy of this line is directed through a general increase in left-hand pressure.

In this first phrase of *Gran Torso*, there are several ordered relations defined by actions that require varying degrees of physical effort and varying directional movements on the instruments. These lines are placed in counterpoint with one another since they themselves are related by oppositions such as “light pressure” as opposed to “heavy pressure” or the “left-hand” as opposed to the “right-hand.” But their combined energies direct the material forward toward a conclusion (m. 7) in an almost classical phrasing. This is why Lachenmann then defines musical structure as “polyphony of orderings.”

As a listener, one can begin to hear traditional categories such as pitch in new ways. For example, I hear the left-hand pitch with vibrato less in terms of pitch but rather in terms of the required effort to produce that pitch, which places it in the same “family,” so to speak, as the overpressure bowing that immediately follows (m. 7). This allows
for seemingly incommensurable sounds “to be brought under one roof and made into a musical sense-unit—i.e., category of experience.” In other words, one becomes sensitized to the work behind phenomena, so that one hears pitch as a degree of human effort rather than as beautiful tone. Indeed, a musique concrete instrumentale refers not to Pierre Schaeffer’s sense of an acousmatic music where one forgets about the source of a sound and focuses only on the sound itself, but to the contrary focuses on the concrete musical experience of producing sounds on instruments. One hears the conditions under which a sound—or noise—action is executed, what materials and energies are involved and what resistances are encountered.15

Even when Lachenmann’s music arouses strong associations of “Nature,” suggestive of a non-intentionality, he does not present it as absolute, but in relation to its opposite, as structured sound. As a means toward this end, he creates a polyphony of ordered relations that allows for incommensurable elements (such as overpressure bowing and expressive vibrato on string instruments) to be projected onto the same temporal plane.

In listening to Lachenmann’s ordered relations or “arrangements,” one develops a sense of structure within his “instrument” (the composition) in the same way that a pianist, in arpeggiating the keys of the piano, demonstrates a sense of structure within the piano (for example, the scalar disposition of the keys), which is why he often refers to his composition (or “sound-structure”) as an extended “arpeggio.” Lachenmann proceeds from a serial aesthetic by searching for meaningful organizations of sounds whose logic of gradation is extended beyond a parametric representation of their acoustic characteristics into a more generalized logic of association that can refer to method of sound production, tonality, and other associations that lie outside of the composition (which he terms aura). However, his method of deconstructing sound is always dialectical in that the establishment of new orders, new relationships, implies that old orders have been negated in some way.

As an example of Lachenmann’s methodology for deconstructing sound, consider another passage from Gran Torso (mm. 103–116). A “negative climax” is reached at the beginning (m. 104) that manifests itself as an opposition between an extremely reduced set of materials and an expanded expressivity. This expanded expressivity is suggested by the “tempo rubato” indication. This extremely reduced material, as “white noise” produced by the viola and cello bowing the tailpiece of the instrument, emerges from a process of thematic unfolding, whereby gestures in the form of physical actions on the instruments
slowly dissolve to achieve a sense of growing stasis. The sound of bowing on the tailpiece has strong associations to wind and nature. Lachenmann gradually deconstructs this “natural” sound in order for a listener to hear it as a “denatured Nature” and thus to rediscover something familiar as something new. (See Example 10.)

A *schreiben* (i.e., writing) motion, produced by lightly wiping the bow across the strings in a back and forth oblique manner, approaches stasis by gradually dissolving the directional energies from the visceral thematic material at the beginning of the piece. The viola throughout the *schreiben* motion projects a very slow arpeggiation across the strings (mm. 81–103), occasionally exaggerating the arpeggio onto the wood (the rib) of the instrument (m. 95). This arpeggiation, as a single bow stroke across all strings, is slowly exchanged for a tremolo of many (down/up) bow strokes on a single string, ultimately performed on the tailpiece of the viola (m. 104). (See Example 11.)

In reducing the materials to a negative climax, Lachenmann uses that position as a “first principle” in order to slowly rebuild his sound world. This new construction is based on both a dialectical movement between oppositions and an examination of the means of sound production on the instruments. In measures 104–105, the viola’s tremolo on the tailpiece, as discrete iterations, is foregrounded against the continuous bowing on the tailpiece of the cello, particularly since a large degree of dynamic expression is given to the viola. The presence of the viola is augmented when the cello drops out in measure 105. The continuous/discrete opposition that was presented by the cello and viola respectively in measure 104 is continued in the viola alone (m. 106). The slow tremolo in the viola that was identified as discrete iterations against the continuity in the cello (m. 104) is now perceived as continuous, in measure 106, because of the short impulses, also in the viola but performed by the left hand alone, that occur against the slow tremolo. The appearance of these short impulses in the viola (m. 106) also places the continuous/discrete opposition into the dimension of instrumentation whereby a single instrument exists as a plateau for opposing actions. The continuous/discrete opposition also gives rise, in measure 106, to the opposition of short/long durations.

Furthermore, providing each eighth-note with a different point of entry in measure 107 highlights the polyphonic nature of this event. The two discrete sixteenths in measure 106 trigger, in measure 107, their augmentation as two discrete eighths in the cello that are then expanded into a polyphonic manifestation of the eighth-note impulse in all instruments. Thus, solo instrument/ensemble is another opposition that is derived from the continuous/discrete one. Another opposition, fast/slow, is manifested by the fast tremolo of the second violin that refers back to the slow tremolo of the viola in the measures prior. (See Example 12.)
EXAMPLE 10

Helmut Lachenmann, *Gran Torso*, © 1972 by Musikverlage Hans Gerig, Köln
EXAMPLE 11

Helmut Lachenmann, Gran Torso, © 1972 by Musikverlage Hans Gerig, Köln
EXAMPLE 12

Helmut Lachenmann, *Gran Torso*, © 1972 by Musikverlag Hans Gerig, Köln
Thus, measure 106 presents the beginning of a process where an initial opposition engenders further oppositions not necessarily in a linear sequence. The “continuity” of the continuous/discrete opposition is a link to the short/long opposition (i.e., the short versus long impulses on the same—continuous—instrument, the viola). The “short” of the short/long opposition is a link to the tremolo/non-tremolo opposition (i.e., the short sixteenth impulse in measure 106 augments to the eighth impulse in the viola in the next measure, triggering the other eighth note impulses, one of which is tremolo, in the remaining instruments in m. 107), which then collapses back to the continuous/discrete opposition (i.e., between the viola tailpiece action and the other instruments in m. 107). However, this collapsing recontextualizes the original opposition where the slow tremolo continued in the viola, once perceived as discrete, is now perceived as continuous against the discrete impulses in the other instruments. Indeed, the crux of Lachenmann’s dialectical process lies in the relativization of parametric thinking, where a given parameter can always turn into its opposite depending upon how that parameter is contextually heard.

Oppositions in Play in mm. 106–115:
(a) continuous/discrete
(b) short/long
(c) tremolo/non-tremolo
(d) same time point/different time point
(e) one impulse/many impulses
(f) crescendo/non-crescendo
(g) consecutive impulses/non-consecutive impulses
(h) solo instrument/ensemble

In measure 107, a maximum differentiation between the number of oppositions present occurs between all four instruments: continuous/discrete, short/long, tremolo/non-tremolo, same time-point/different time-point, one impulse/many impulses (which exists in both the tremolo of the second violin as well as the discrete impulses of the cello, thus collapsing this particular opposition into others), consecutive/non-consecutive impulses, and crescendo/non-crescendo. Some of these oppositions are foregrounded over others due to the dynamic markings, as well as their quantity or uniqueness of appearance. In measure 108, the perspective shifts as focus is placed upon a single discrete impulse from the prior measure. In this case, the point of entry (i.e., time point) is the same, yet the duration is different: in one voice, the duration is increased by a sixteenth, and, in the other, it is decreased by a sixteenth. Both impulses have tremolo, which creates opposition to the viola. Yet a dynamic expressivity through the
crescendos links the first violin with viola and opposing both to the second violin. Furthermore, in measure 108, the fast tremolo is emphatically stated in the violins obfuscating the slow tremolo in the viola in measures 107–08, since the viola only performs a single bow movement in each measure (i.e., either down or up), thus causing the viola to momentarily be perceived in the category of non-tremolo.

In measures 109–10, all instruments begin to approach the viola with long durations that blur the metric boundary, precipitating further differentiation between the other three instruments: each instrument begins at a different time point and lasts for a different duration. Yet the opposition between viola and the other instruments is maintained by the presence of the tremolo. What existed prior as long duration with slow tremolo versus short duration with no tremolo, now transitions, through long duration with no tremolo versus short duration with fast tremolo, to long duration with no tremolo versus long duration with fast tremolo.

\[
\text{long duration + slow tremolo/short duration + non-tremolo} \rightarrow \\
(m. 106: vla. right hand/vla. left hand)
\]

\[
\text{equal duration + tremolo/equal duration + non-tremolo [or simply, tremolo/non-tremolo]} \rightarrow \\
(m. 107: vln. 1/cello, vln. 2, vla. left hand)
\]

\[
\text{long duration + non-tremolo/short duration + fast tremolo} \rightarrow \\
(m. 109: m. 108: vla./vln. 1 and 2)
\]

\[
\text{long duration + non-tremolo/long duration + fast tremolo [or simply, non-tremolo/tremolo]} \\
(mm. 109-110: vla./cello, vln. 1 and 2)
\]

Thus, accompanying each opposition is a link that creates both a new opposition as well as a collapsing back into a previous one. This elasticity in the movement between oppositions is a formally expanded perspective on the earlier elasticity found in the tempo rubato of the solo viola. Furthermore, the alternation between measures indicated by a tempo rubato and a fixed tempo represents a formally expanded view of the slow tremolo introduced by the viola (i.e., as the alternation between down and up bow).

The long duration with tremolo in measures 109–10 where the continuous (long duration) and discrete (iterative tremolo) overlap provides a link to a new opposition. This opposition, found in measures 109–10
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and 112, occurs between rhythmic unison (i.e., same time-point and same duration) and rhythmic diversity. The rhythmic unison in measure 112 provides a link to measure 115 where all instruments but the viola also perform in rhythmic unison. However, rather than a long duration with tremolo and crescendo (or diminuendo), the three instruments perform short durations with no tremolo and no crescendo (or diminuendo). This presence of discrete impulses gives rise to yet another opposition. Rather than two discrete sixteenths separated by a rest (m. 106), there are now two consecutive discrete sixteenths, yielding the opposition consecutive/non-consecutive impulses. This last opposition further expands the concept of rhythm that is slowly constructed in these measures by adding the notion of sequence to that of duration, iteration, and time-point. What is perceptually fascinating about the iterative impulses in measure 115 is the fact that they precipitate the cello reentry by continuously bowing the tailpiece so that the continuous/discrete opposition can clearly manifest itself again between the viola and cello. However, unlike the first instance in measure 104 where the cello is perceived as background to the slow tremolo in the viola, the viola now appears as background to the cello because of the cello’s reemergence, thus inverting the listener’s perspective. (See Example 13.)

From these thirteen measures, Lachenmann carefully assembles energy through the various parameters of rhythm—a Strukturklang—to renew our sense of listening so that we come to hear the slow bowing on the viola tailpiece as a sound once associated more with “natural phenomena” now heard as expressive tone, albeit an alienated one, placing the idea of an unmediated “Nature” into doubt.

Lachenmann’s idea of a Strukturklang is thus essential to his compositional thinking. One the one hand, it represents his loose adherence to a serial thinking as inherited particularly by Stockhausen, where a sound texture’s details are governed by ordered relations that situate it with respect to a larger temporal framework. These relationships, between the physical energy of sounds—as well as their accompanying instrumental actions—and their phenomenal qualities (ranging from discrete, or “perforated,” to continuous sound textures), unfold in a consequential way that depends upon a specific temporal unfolding. It is precisely through this unfolding that Lachenmann develops the idea of a “polyphony of configurations” as the juxtaposition of “families of sounds” (including “families of families of sounds”): sounds, or groups of sounds, of varying individuality that act together as components with reference to a superordinate character defined by their quantitative temporal deployment.
EXAMPLE 1.3

Lachenmann’s *Strukturklang* also implies tonal remnants from which a sound texture’s temporal unfolding engages with the rhetorical qualities of music. In his essay “Conditions of the Material,” Lachenmann cites four fundamental dispositions that belong together in his music: tonal, sensual, structural, and existential.19 These four aspects are later developed in his article “On Structuralism” and amended to tonality, acoustic–physical experience, structure, and aura.20 The sensual (acoustic–physical) and the structural are merged into the idea of a *Strukturklang* by embedding the phenomenal aspects of sound experience (including its purely acoustical parameters) into a quasi-serial framework of “ordered juxtapositions.” Lachenmann’s “existential” aspect becomes *aura*, the realm of associations (such as church bells with certain percussion instruments or the evocation of traditional musical materials), where “preexistent existential structures” are absorbed within a *Strukturklang* causing it to abandon its “self-containment” and to refer to things outside of itself.21 It is precisely the fluid confrontation between these “preexistent existential structures” and the structures imposed by the composer that Lachenmann refers to as *dialectical structuralism*.22

Yet it is the tonal aspect that most readily sheds light upon the nature of a *Strukturklang*, as explained in more detail in “Conditions of the Materials.” Indeed, for Lachenmann, the tonal aspect refers to the “emphatic gesture”—as directed energy—including the “dialectical mechanism of tension and release,” rhetorical aspects that are brought to fruition in such late works as his large ensemble piece *Concertini*.23 These rhetorical (and expressive) qualities feed a composition’s dialectical tensions between what Lachenmann refers to as “discursive text” and “situation” or, rather, between music as discourse and phenomenal aspects of sound experience.24 These phenomenal aspects are exemplified in each composition by such moments as the un-conducted passages in his orchestral work *Schreiben* where performers play according to their “own time” yielding an almost Cageian atmosphere, or the sounds of thunder-sheets in *Schwankungen am Rand*, the endlessly repeated highest key on the piano with pedal depressed exemplifying a piano’s resonant qualities in the cadenza for his piano concerto *Ausklang*, the motorized bell keyboard evoking a mechanical alarm in *Mouvement (– vor der Erstarrung)*, the recorded Mozart excerpts that surprisingly confront the performer in the clarinet concerto *Accanto*, or a bowed wooden tailpiece on the viola in *Gran Torso*. In other words, it is “situations” that elicit a heightened perception of a sound texture’s *aura*, bringing forth a different kind of listening than the more
rhetorical qualities of the music. Lachenmann’s Strukturklang recuperates these rhetorical qualities from tonal music with a structural thinking from the post-war generation of serial composers in order to create an expressive language always mediated by the materiality of sound and sound production.
NOTES


2. Ibid.: 8.

3. Ibid.


8. Ibid.: 17.


10. Ibid.: 17.

11. Ibid.: 3.


19. Ibid.: 35.