

(frequencies corresponding to the overtones) during the performance, in order to attain pure overtone tuning. Second, the title can also mean *tuning in*, which is a process that occurs in each of the 51 sections of the piece as the ensemble of singers tunes into the lead singer's model to reach "*identity*". Only when this *identity* has been reached can the lead singer cue the next lead singer to start the following section. Finally, *Stimmung* can mean mood, atmosphere, or aura. Indeed, different moods are achieved throughout the piece especially with the integration of *magic names* and recitation of erotic poetry.

Certain defining elements found in *Stimmung* can be traced back to Stockhausen's prior works. Most notably, an unfinished work from 1960 entitled *Monophonie* was an orchestra work that was to consist of a single note, E flat. This piece serves as a precedent to Stockhausen's pursuit of radically restricted pitch materials.¹ Similarly, *Microphonie I* (1965), a piece described by Stockhausen as "a personal breakthrough" for relying on only one source of sound (a large tamtam) from which to draw the entire range of sounds in the composition², is another prior example of deprivation of compositional resources with an aim of generating rich and interesting tone quality. Other factors, such as the fluidity of musical form which is subdivided into smaller, often mobile frames or sections, the use of a "form-scheme" to outline the piece, and the extensive use of symbols to communicate musical ideas, can also be found in *Plus Minus* (1963), composed five years before *Stimmung*. It is also speculated that La Monte Young's drone music with the Theater of Eternal Music may have influenced Stockhausen's exploration of the harmonic series³, and Steve Reich quotes that *Stimmung* "was [Stockhausen's] 'LaMonte Young piece'."⁴

The overtone singing technique, which is a defining characteristic of this piece, however, "were almost completely unfamiliar in the West,"⁵ and *Stimmung* has been cited as an important influence on

¹ Richard Toop, "Stimmung," *Six Lectures from the Stockhausen Courses Kurten 2002*. (Kurten: Stockhausen Foundation for Music, 2005), 39.

² Robin Maconie, "Microphonie I" *The Works of Karlheinz Stockhausen*. (London: Oxford University, 1976), 182.

³ Keith Potter, "Four Musical Minimalists: La Monte Young, Terry Riley, Steve Reich, Philip Glass," *Music in the Twentieth Century* 11. (Cambridge: Cambridge University, 2002), 89.

⁴ Steve Reich, *Writings on Music, 1965-2000*. (Oxford: Oxford University, 2002), 202.

⁵ Richard Toop, "Stimmung," *Six Lectures from the Stockhausen Courses Kurten 2002*. (Kurten: Stockhausen Foundation for Music, 2005), 39.

the French spectralists, such as Tristan Murail and Gerard Grisey.⁶ Stockhausen also notes in a 2002 supplement to his 1969 Program Notes that the overtone-singing technique that he first employed in *Stimmung* became consequential to his future works. He notes, “My work *Sternklang* (1971) transferred and expanded the technique used in *Stimmung* to 20 singers and instrumentalists. Since then, I have composed many new types of overtone singing in my works.”

As for the compositional goal, the following excerpt from the composer’s Program Notes describes Stockhausen’s intent for the piece’s meditative and inward-looking nature:

“*Stimmung* is certainly meditative music. Time is suspended. One listens to the interior of the sound, to the interior of the *harmonic spectrum*, to the interior of a vowel, *to the interior*. The most subtle fluctuations—rare outbursts—, all senses are alert and calm. In the beauty of the sensual shines the beauty of the eternal.”⁷

Interestingly this meditative, timeless freedom is achieved in harmony with the extreme precision to which certain compositional elements have been prescribed. In the remainder of this paper, I hope to illustrate how *Stimmung* embodies both of these seemingly-opposing characteristics: the free, indeterminate elements that liberate the performers and encourage them to look “to the interior”, contrasted by the exacting requirements and limitations of resources that the performers must adhere to in order to create music.

PERFORMANCE SETUP & INSTRUCTIONS

Each of the six performers (soprano I, soprano II, alto, tenor I, tenor II, bass) receives (1) *explanations*, which carefully explains the score, performance setup, and ensemble interaction, (2) a *form scheme*, which is an outline to the piece as a whole and is a crucial invariant compositional element, (3) a page of *models* (where three pages, each with eight models, are to be disturbed to the three female singers,

⁶ Michel Rigoni, “Karlheinz Stockhausen: *Stimmung*: Si chanteurs en quête d’harmonie,” *Analyse Musicale 4e trimestre*, (1992) 75–83.

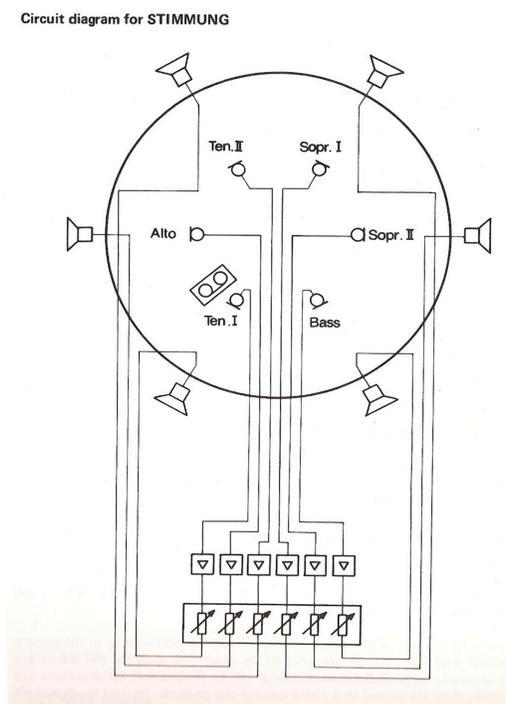
⁷ Karlheinz Stockhausen, from Program Notes (August 21st 1969)

and three pages, each with nine models, are to be distributed to the three male singers), and (4) a page of *magic names* (where six pages, each with eleven names, are to be distributed to the six performers).

PHYSICAL SETUP

Though the original version of the score does not provide details about the physical setup of the ensemble (other than recommending the use of microphones to make the nuances more audible), the Paris Version offers a thorough account of the setup that results in an ideal sonic experience.

The Paris version calls for a 7th “performer”, a sound projectionist, who regulates the balance of the loudspeakers to ensure that the six parts are amplified at equal levels. The singers are to use six microphones with wind protectors that can be held by hand, and the microphones are to be connected to six amplifiers and a potentiometer with six sliding faders, to be output to six loudspeaker amplifiers that sit on towers of height 3.5 meters. The tape player (between Alto and Tenor I) plays 7 sine waves at the frequencies in the overtone series of the B_1^b fundamental. The singers sit in a circle, cross-legged.



<FIGURE 2 – circuit diagram for setup>

UNDERSTANDING THE PERFORMANCE RULES

Interestingly, the *explanations* pages are extremely detailed and leave little room for interpreting certain aspects of the score. In particular, the interaction paradigms for the six singers denoted in the *form scheme* have been carefully explained in items #3, 4, and 8 of the *explanations* page. For each of the 51 sections, the one singer having a “pitch with a think line” (often referred to as the ‘model-singer’) chooses a model and sings it on the pitch notated, while other singers observe the following rules based on what is notated on the *form scheme*:

(a) **A pitch with a thin line after a pause or after a double bar:** the pitch is to be sung in perfect tuning (as an overtone) in relation to the pitch of the model, while tempo, rhythm, timbre, and envelope are to be brought into *identity* with the model as soon as possible

→ In this rule, the singer has no “freedom”, as s/he must perfectly match the model-singer in all parameters, as soon as possible. This immediate and mechanistic move to reach identity with the model-singer helps bring the model pattern to the foreground.

(b) **A pitch with a thin line continued without a barline:** to be sung with the same tempo, rhythm, timbre, and envelope, with no change in the periodicity, as in the previous combination

→ This rule forces the performer to maintain the previous section’s pattern, disregarding the other performers’ tendency towards identity with the model-singer. Again, the singer has little performance freedom as s/he must (almost mechanistically) prolong the pattern sung in the previous section. This rule helps bridge two neighboring sections by *not* refreshing all six performers’ singing patterns at each new section.

(c) **A pitch with a thin line continued after a barline:** the tempo, rhythm, timbre, and envelope of the previous model are to be gradually transformed into those of the new model until complete identity is reached, and the parameters can be transformed in any order. (These are marked with a circled T.)

→ This rule gives a performer freedom in how s/he varies each of the available musical parameters to reach identity. Performers not only decide on the order of the parameters to work on to match the model, but they also have control over the timing; i.e. they can take a long time to come into identity with the model if they so desire. By allowing for transitional time, this rule helps achieve smooth flow from the one section into the next.

(d) **A pitch with a thin line beginning a little before a barline:** the last few periods of the previous model are to be sung along with the model-singer, and then after the barline transform according to (c) above.

→ This rule is in a way a converse of rule (c). As opposed to gradually coming into identity with the model, this rule *anticipates* the new model by coming in a few periods before the start of the new section. Similarly to (c), this rule results in blurring of section boundaries and helps smooth out the musical line.

(e) **A stave without a note:** sing only here and there around the pitch of any of the others, making small, more or less slow glissandi, taking advantage of beats resulting from extremely small pitch differences...

→ This rule encourages the performers to listen to each other and to “improvise”. Additionally, by instructing singers to intentionally break away from pure tuning and create beating effects, it takes advantage of the otherwise perfectly tuned pitch material. This rule helps create tension in music and further enriches the timbre.

In this manner, these rules for the *form scheme* provide the foundation for simultaneously realizing the seemingly opposing qualities of *precision* (i.e. achieving exact identity with the model) and *freedom* (i.e. in the transitional process before attaining *identity*).

MOBILE (OPEN) FORM

Shifting our focus beyond the *form scheme*, a crucial source of freedom and flexibility in *Stimmung* is in (1) the distribution of the *models* and the *magic names* pages to the performers, as well as (2) the order in which the models in the *models* page and the names on the *magic names* page appear in the 51 sections. By not pre-assigning parts to the six voices, it is implied that the *models* and the *magic names* are to be distributed randomly.⁸ As for the ordering of *models* and *magic names*, Stockhausen describes in *explanations #2* that “Each singer cuts his models and his magic names apart. Their orders may be fixed beforehand or decided upon by the singers during the performance. Each singer may also shuffle his cards and use them in the resulting order. Ideally, each singer knows the form scheme, his

⁸ The most commonly performed version of *Stimmung* (known as the Paris Version, put together by Wolfgang Fromme with Stockhausen’s supervision), however, has the parts assigned and the model-orders decided in a way that maximizes effectiveness (i.e. with long prose elements spaced out across the 51 sections, and with models placed in positions that gives the piece a narrative flow).

models, and his magic names by heart and employs the two latter ones according to the context.” In other words, the formal structure beyond what is dictated by the form scheme is intentionally left open for the performers. It is interesting to note, however, that this openness does not imply leniency in mastering one’s part for an accurate performance, as Stockhausen desires the performers to know their models and magic names *by heart*.

MAGIC NAMES & POEMS

The verbal elements of the piece provide yet another dimension of performance freedom. The two major types of verbal elements used in the piece are magic names and poems. First, magic names are to be used in 28 of the 51 sections marked with an “N” above the boxed section-numbers in the *form scheme*, and their uses are described in *explanations* item #7(a). Once a name is called out, other voices that have reached identity are instructed to do the following:

“...immediately (but not all at the same time) repeat the name periodically, with the same pitch, tempo, and approximately the same articulation as that of the model and in this manner attempt to integrate the name into the model and to reach identity again... The vowels of the name and the vowel sequence of the model are to be accommodated as much as possible to each other... After the integration of the first magic name, a second, third, fourth, fifth voice, and finally the singer of the model himself, may each call a magic name which is to be integrated into the period of the model in a like manner”

One may conclude from these instructions that the magic names are meant to naturally blend in with the ongoing model in terms of its vowel sounds, pitch, and tempo. Somewhat in contradiction to this though, is the following instruction that follows the description above:

“The reaction to a magic name should, due to the character and meaning of the name, make a change in mood clearly perceptible... Each magic name should be called in a special way. One may also call a name several times in order to emphasize it.”

Perhaps one can interpret this to mean that the source of change in mood comes not so much from the *sound* of the magic names than it is from the *meaning* of the names. But this hypothesis does not check out upon listening to the recording of the 1969 performance of the Paris Version, in which the magic names are enunciated in a conspicuous manner that breaks out of the underlying texture and creates a rather dramatic effect. In the recording, the change in mood that results from magic names indeed heightens the expressivity of the piece, and further adds to the meditative freedom that Stockhausen hopes to engender in *Stimmung*.

In addition to the strong change in mood, certain degree of performance freedom comes from (1) not specifying precisely when the names should be called out in a given section (other than that performers must wait to achieve *identity* before calling out the name), and (2) by leaving open how many different names should be used in such a section (Stockhausen writes, “at least one magic name must be called in each *N*-combination, and up to six—one per voice—may be integrated”). That is, Stockhausen lets the performers to discover for themselves what is most effective. And the way other voices are supposed to react to the performer who has just called out a new magic name, by repeating the name until *identity* is reached again, encourages the performers to listen carefully within the ensemble and to always have in mind the goal of seeking identity.

Recitation of poems is another major use of texts and words in the piece that provides additional opportunities for an inward-looking, timeless freedom. There are four major poems used in the piece: three poems that are to be assigned to the three male voices, and one poem to be assigned to a female voice. Three out of these four poems are extremely erotic, and Stockhausen had composed them during a time referred to as his “amorous days” in California, in April 1967. In *explanations* item #7(b), Stockhausen gives a general instruction that applies to all poems, which are to be supplemented by poetry-specific instructions denoted on the *models* page. As in the recitation of magic names, the poems are to be spoken in a manner that blends in with the phonemes of the model while at the same time evoking a change in atmosphere. In fact, it is somewhat difficult to envision what Stockhausen really has

in mind when one sees an instruction that says, “The poems are to be spoken with a great deal of variation in pitch, without exaggeration, peacefully, gay, with gestures towards the other singers.” It seems as though speaking with a great variation in pitch contradicts with the other requirements of speaking peacefully without exaggeration. As we saw with the magic names, and as we will soon discover with other musical parameters to be illustrated below, the co-existence of two seemingly opposing qualities is a recurring theme in *Stimmung*.

SPECIAL VOCAL TECHNIQUE

Stimmung is unique and demanding in that it requires the performers to master a special voice technique that emphasizes certain harmonics associated with vowels as shown in his *vowel-square*. Stockhausen comments in his Program Notes (August 21, 1969) the process one must go through to master the *vowel-square*:

“In the course of many months, the singers learned a completely new vocal technique: the notes must be sung rather softly, and certain *overtones*—indicated by a series of numerals from 2 to 24 and by the series of vowels of the phonetic alphabet—must dominate. No vibrato is used, the overtones resonating only in the frontal and other cranial cavities; breaths are long, calm, and even.”

In fact, the vocalists of *Collegium Vocale Cologne*, who premiered the piece and eventually performed it extensively in the decade that followed, rehearsed the piece regularly from March to December 1968, and even went into seclusion a week before the world premiere to rehearse all day every day. Much technical preparation and mental discipline had to be invested in to produce a work whose goal is rather meditative, spiritual, and free.

TELEOLOGY: INVARIANT VS. VARIABLE STRUCTURAL ELEMENTS

Stockhausen’s piece has in place elements that are invariant as well as variable across different performance instances. More specifically, the *form scheme* is a crucial invariant element that defines the

overarching structure of the piece, and gives a sense of narrative flow using the set of pitches that it binds to the six voices in 51 sections. And while the assignment and ordering of *models* and *magic names*, as mentioned previously, are the extremely variable elements that impact the flow of content, the models and magic names do provide a sense of musical direction on a smaller time-scale, within section boundaries. Putting these ideas all together, one may conclude that both the invariant and variable elements ultimately establish some kind of teleology: the former provides flow and direction to the piece *across* 51 sections, while the latter defines identity goals *within* each of the 51 sections. The following subsections goes over how these are achieved.

THE FORM SCHEME: AN INVARIANCE THAT DEFINES THE OVERARCHING STRUCTURE

The *form scheme* essentially binds one pitch (from a set of six available pitches—the 2nd, 3rd, 4th, 5th, 7th, and 9th harmonics of the implied B^b₁ fundamental) to the active voice parts in each of the 51 sections. While the *model* content for each section varies, the set of pitches used in a given section, including the model-singer's pitch (which becomes the fundamental note relative to which the vowel-specific overtones must be brought out according to the specific *model* used), is invariant.

The first six sections introduce, as the fundamental note of the model-singer, the six pitches to be used in the piece. The model-singer's pitch (in bold) with other active parts' pitches are as follows:

<FIGURE 3 – model pitch in the first six sections>

Section 1: **B^b₂** (2nd harmonic, Bass), with B^b₃

Section 2: **D₄** (5th harmonic, Alto), with B^b₃ and F₃

Section 3: **flat A^b₄** (7th harmonic, Soprano II), with B^b₂, F₃, B^b₃, D₄, and C₅

Section 4: **C₅** (9th harmonic, Soprano I), with B^b₂, D₄, and A^b₄

Section 5: **F₃** (3rd harmonic, Tenor II), with B^b₂, D₄, A^b₄, and C₅

Section 6: **B^b₃** (4th harmonic, Tenor I), with A^b₄

The first four sections introduce the pitches *in order*, from **2nd** (in Section 1) to **3rd**, **4th**, and **5th** (in Section 2), to **7th** (in Section 3), to finally **9th** (in Section 4). Thus, Stockhausen builds up the overtone series of the B^b₁ fundamental in the piece's beginning sections. Also, the existence of a double barline after the 7th

section in the Alto part bundles together the first seven sections as a unit, somewhat like an introduction to the piece.

An interesting observation is that the six voice parts take turns (i.e. in a serial manner) serving as the model-singer in the first six sections, and the fundamental pitch they use in their respective first models will become their “home pitch,”⁹ to which they constantly return to in the remainder of the piece. The home pitch for the six parts have been assigned such that the harmonics number matches the voice height to allow for comfortable singing:

<FIGURE 4 – home pitch for the six voice parts>

Bass: B^b_2 (2nd harmonic, model pitch for section 1)

Tenor II: F_3 (3rd harmonic, model pitch for section 5)

Tenor I: B^b_3 (4th harmonic, model pitch for section 6)

Alto: D_4 (5th harmonic, model pitch for section 2)

Soprano II: **flat** A^b_4 (7th harmonic, model pitch for section 3)

Soprano I: C_5 (9th harmonic, model pitch for section 4)

The only times a singer does not sing his home pitch are in sections marked with square brackets in the *form scheme*. Stockhausen had marked in the brackets on the score to denote sections that have only one pitch being sung across all voices, and naturally, this can be realized only if some of the voices move away from their home-pitch to sing the common pitch. The following lists all such bracketed sections along with the harmonic number representation for the common pitch:

<FIGURE 5 – bracketed sections with a single common pitch>

- Section 1: 1 measure long common pitch = 2
- Sections 8~10: 3 measures long common pitch = 5 → 4 → 7
- Sections 18~23: 6 measures long common pitch = 3 → 5 → 9 → 2 → 7 → 4
- Sections 27~30: 4 measures long common pitch = 5 → 3 → 4 → 9
- Sections 36~40: 5 measures long common pitch = 4 → 3 → 7 → 9 → 5
- Sections 50~51: 2 measures long common pitch = 7 → 5

Some interesting structural patterns for these bracketed sections should be noted. First, there are six blocks of bracketed sections, having lengths 1, 3, 6, 4, 5, and 2. (Consequently, there are $1+2+3+4+5+6 = 21$ sections, out of 51 total, that uses only a single pitch in a section.) The ordering of

⁹ This is a term I named for convenience to use in this paper

these six numbers also happens to match the number of different pitches used in sections 1 through 6: As illustrated in <FIGURE 3 >, Section 1 uses only one pitch; section 2 uses three pitches; section 3 uses six pitches, section 4 uses four pitches, section 5 uses five pitches, and section 6 uses two pitches. Moreover, the common pitches used in a contiguous block of bracketed sections are “serial”. That is, once pitch gets used for a common pitch, it does not get re-used as a common pitch within the same block.

All of these observations regarding the *form scheme* are consistent with Richard Toop’s remark in his *Six Lectures* (2002), that “Stockhausen is looking for an ‘equality principle’—that all 6 notes and all 6 singers should be equally deployed.” It turns out that the remaining 30 out of 51 sections, in which more than one note is sung, are divided up such that there are six sections with 2 notes, six sections with 3 notes, 6 sections with 4 notes, and 6 sections with 5 notes. In these various ways, Stockhausen has imbued an overarching logic and organization to the *form scheme*.

MODELS & MAGIC NAMES: VARIABLE ELEMENTS THAT (RE-)ESTABLISHES IDENTITY

If the *form scheme* provides flow and direction to the piece at the macro level, the *models* and *magic names* define identity goals at the micro level. Because the models are mobile and the magic names more-or-less freely interjected, effectively integrating them into the ongoing pattern of sound necessitates knowing where that point of *identity* lies in the multi-dimensional space of sound— a rich space in which a degree of freedom exists for each musical parameters that the performers have control over, including pitch deviations, vowel-overtone specific timbre, rhythm, and accent envelopes.

One of the techniques that Stockhausen uses in *Stimmung* in order to cover more of this rich sonic space is to assign the 51 models to a wide range of formant tempi in a variety of meters. To ensure coverage, Stockhausen employs the same harmonics relationship used to restrict his pitch materials to define his models’ tempi and meters. As shown in <FIGURE 6>, this is achieved by creating a matrix of formant tempi that are integer multiples of the *fundamental tempi*, where the six fundamental tempi are the harmonic numbers (in red, see right column) multiplied by 3. A wide range of tempi, from 6 to 243 (in black, see matrix in middle), are created as a result, and these tempi are assigned to one of the 6 possible

meters ranging from 9x1 beats to 2x6 beats (in blue, see left column). The green boxed-numbers denote the section numbers that the models ended up being assigned to in the Paris Version.

<FIGURE 6 – organization of tempi and meters according to the harmonics relationship>

meter/ # beats in model.	formant tempi								fundamental tempi	↔ pitch (1 th harmonic of B ₁)
9 x 1 beats	16 B 243	32 TII 216	24 SI 189	43 TII 162	11 B 135	27 A 108	9 B 81	42 TII 54	17 TII 27 (= 3 x 9)	C ₅ ≈ 513 Hz +x
7 x 2 beats	48 A 189	41 B 168	23 TII 147	8 SI 126	6 TII 105	20 SII 84	3 A 63	25 B 42	26 SI 21 (= 3 x 7)	A ₄ ^b ≈ 399 Hz +x
5 x 3 beats	45 SII 135	39 A 120	35 B 105	15 TII 90	75 TII 75	51 TII 60	24 SII 45	30 15 (= 3 x 5)	1 B	D ₄ ≈ 285 Hz +x
4 x 4 beats	47 TII 108	3 SII 96	15 A 84	44 B 72	38 TII 60	49 SI 48	31 TII 36	27 SII 24	22 A 12 (= 3 x 4)	B ₃ ^b ≈ 228 Hz +x
3 x 5 beats	19 SI 81	46 TII 72	33 SII 63	31 A 54	11 B 45	13 TII 36	41 SI 27	36 TII 18	14 SII 9 (= 3 x 3)	F ₃ ≈ 171 Hz +x
2 x 6 beats	34 SI 54	21 TII 48	12 TII 42	50 SII 36	25 A 30	19 B 24	40 TII 18	10 SI 12	18 TII 6 (= 3 x 2)	B ₂ ^b ≈ 114 Hz +x
	(27)	(24)	(21)	(18)	(15)	(12)	(9)	(6)	(3) (= 3 x 1)	(B ₁ ^b) ≈ 57 Hz +x
	x9	x8	x7	x6	x5	x4	x3	x2		↓ frequencies used for tuning

By (1) coming up with this precise tempi and metric organization that cover virtually the entire range of tempo/meter spectrum, by (2) defining pitch materials to a pure harmonic series that cover over four octaves, and by (3) inventing vowel squares that account for all major vowel sounds that humans are able to produce, Stockhausen creates an extremely wide space in which one can explore sound. Consequently, in order to correctly navigate towards the point of *identity* in this rich space, performers must be stay focused, listen *to the interior*, and make appropriate musical moves.

To summarize, the performers' focused effort to re-establish *identity* upon facing various "disturbances" (i.e. from calling out magic names and transitioning into a different model) is what drives this piece forward. This concept also explains the compositional theme of *Stimmung*, the coexistence of *precision* and *freedom*, which can be viewed as the flip sides of the same "identity coin": While demanding mechanistic precision allows the singers to reach *identity* in its purist form possible, offering them the freedom to deviate from these ideals re-defines *identity* in a new light and reinforces the momentum towards re-establishing the state of *identity*.