Beta Foly: Experiments with Tradition and Technology in West Africa

Lukas Ligeti

ABSTRACT

In 1994, together with several West African traditional musicians and German electronics expert Kurt Dahlke, the author founded the music ensemble Beta Foly, based in Abidjan, Côte d'Ivoire. The group explores creative musical possibilities generated through the bringing together of different cultures and traditions, placing a strong emphasis on the use of both ancient African instruments and the most recent music technology. The members of Beta Foly compose and improvise eclectic, polymetric music, trying to combine styles in innovative ways in order to find new avenues for composition, ensemble interplay and cross-cultural understanding.

BETA FOLY

Early one morning about 7 years ago, I was awoken by an unexpected phone call. It was the Goethe Institute, Germany's network of cultural institutes abroad, inviting me to travel to Côte d'Ivoire to conduct a workshop with African traditional musicians. I was rather surprised, as I was still a student at the time, enrolled in the composition program at the Vienna Music Academy (I now live in New York City). Also, I am not German, had never led a workshop and had never been to Africa. I had, however, become more and more interested in, and influenced by, African music in the preceding years. I happily accepted the Goethe Institute's invitation, not least for sheer curiosity, but did impose one condition. Although at the time I was starting to develop a serious interest in electronic music and in using the computer for composition, I felt that I had no experience in this field. I therefore asked to take a collaborator with me, someone more seasoned in electronic music than I was. I felt that an interesting premise for this voyage would be for me not to attempt to play African music, and not to ask the African musicians to play in a European style, but to construct a "third plane" on which we could meet and interact, exploring the creative possibilities of musical electronics. The Goethe Institute recommended Kurt Dahlke, an experimental musician/producer from Düsseldorf who had been involved in the "Neue Deutsche Welle," a highly creative direction of early-1980s German pop music, in which humorous German lyrics were set to oddly experimental "lo-fi" synthesizer sounds. I had never heard of Dahlke.

A few months later, I met Dahlke; we discussed our work and our ideas for the project and decided that we would like to work together. Finally, in February 1994, we traveled to Abidjan, the largest city in the Ivory Coast.

I did not know what to expect of Côte d'Ivoire, but what I found—the beauty of the country, the friendliness of the people, and the richness and diversity of the culture—far exceeded anything I had imagined. The local Goethe Institute and its director, Bernd Pirrung, had assembled some of the most interesting resident traditional musicians to participate in the dialogue with us. From the beginning, I tried to make it clear that I wanted to adopt an experimental approach to this collaboration, and that some of my influences came from musical areas that were not widely known in Africa such as contemporary composition, experimental jazz, electronica and non-African traditional music. However, I also "confronted" the local musicians with ways in which I had incorporated African elements into my work, by playing for them drum solos containing such concepts. Undoubtedly, what Dahlke and I did sounded quite unusual to the African musicians, and, not surprisingly, many stopped showing up by the third day.

A group of about 15 musicians remained, however, and they were curious and open-minded enough to engage in a more in-depth exchange, staying together throughout the entire 2-week workshop (and, in large part, to this day [1]). These musicians, who came from many different regions of West Africa, shared some common aspects of a musical language, but their interpretations of a certain basic rhythm, for example, could be very different. Dahlke and I spent a few days doing little more than being attentive, slightly confused onlookers. As Dahlke and I asked them questions, trying to understand the structural makeup of their music, the musicians were trying to come to terms with one another; an intra-African cultural exchange therefore preceded the exchange between the African and Western musicians.

After a few days, consensus between the musicians began to emerge, and Dahlke's and my compositional ideas began to solidify. The last days of the workshop were spent experimenting together and rehearsing pieces, and these few rehearsal days generated such a strong feeling of community and cohesion that it was clear to all of us that we had become an ensemble. On the final day, before the concert we performed together to end the workshop, we decided to "officially" form a group, giving it the name Beta Foly, which means "the Music of Us All" in Malinké, a language spoken by a sizable number of people in northern and western Côte d'Ivoire, Guinea and some surrounding regions. As Dahlke and I left Africa, we had resolved that this group must go on working together.

I returned to Abidjan in 1995 to record a demo tape on a shoestring budget, and in 1996 the Goethe Institute commissioned Dahlke and me to visit Côte d'Ivoire again. By this time, Intuition Music, a German record label specializing in jazz and world music, had also become interested in the project. In September of 1996, we recorded a CD in Abidjan, documenting our work up to that point. (The pieces discussed in this article, and the two pieces included in the *Southern Cones* CD accompanying this issue of *Leonardo Music Journal,* are all on the Intuition Music recording [2].) Much of the composition of these pieces was done in the period immediately preceding the recording sessions, and in the studio itself.

Lukas Ligeti (composer), 440 West 47th Street, #3D, New York, NY 10036, U.S.A.
E-mail: <vitaminm@thing.net>.

After completing the recording, Beta Foly undertook its first voyage to Europe (some band members had traveled extensively before this, others never at all) and played at the Wien Modern festival, a festival usually devoted to contemporary "classical" music. For this concert, we were joined by electric guitarist Henry Kaiser, who also appears on our CD as guest soloist (overdubbed in Berkeley, California, after our sessions in Abidjan). A highly creative improvisor with a strong interest in traditional musics, Kaiser is also the producer (with David Lindley) of very successful CDs featuring the music of Madagascar [3]. His approach is eclectic and often incorporates unconventional uses of effects units such as harmonizers. (Kaiser does not appear in the two Beta Foly pieces on the *Southern Cones* CD.)

In 1997, a further work phase took place in Abidjan, in which the group underwent the transformation from a workshop band into a professional performing ensemble. We visited Europe again, performing at the opening festival of the Goethe Institute's new concert hall in Munich, among other venues. Although this completed our phase of formal collaboration with the Goethe Institute, Beta Foly lives on. Dahlke and I were in Abidjan again in 1998 and another tour took the group to several concerts in Austria. In 1999, we again rehearsed in Abidjan, with the emphasis on beginning a new repertoire to bring our cross-cultural understanding and our use of technology to a higher level of sophistication; the year 1999 took us to Burkina Faso, Germany, Belgium, Holland, Austria and France.

Throughout this time, Beta Foly has also performed in Côte d'Ivoire, sometimes without me. Several of the group's members are among the most renowned in the region and have, outside of Beta Foly, worked with groups and musicians such as Alpha Blondy, Sekouba Bambino, Adama Dramé, Super Mama Djombo, Awana, Ki-Yi Mbock and Pharoah Sanders. Although when performing without Dahlke and me the group may be less electronic and may focus somewhat more on traditional music, it retains a basically experimental attitude. Both in Africa and abroad, Beta Foly performs at a wide variety of venues, from concert halls to neighborhood clubs, and the reactions of audiences have always been extremely positive. We have also received quite a lot of radio airplay, including in African countries where our CD is unavailable.

Musicians and Instruments

The African members of Beta Foly come from numerous different cultures and ethnic groups, and many of them play instruments typical of these cultures. Babagalé Kanté and Yero Bobo Bah are Peul (Fulani) musicians from the Fouta Djalon region in the Republic of Guinea (Conakry) and play pastoral flute and *wassamba,* respectively. The Peul flute is an instrument with three holes, capable of producing up to 12 distinct pitches, and Babagalé has a large number of flutes to play in different "keys." (Describing African music using European terminology is not always useful; for example, it is questionable to speak of "keys" in many forms of African music, as tonality in the European sense, with the concept of tonic, dominant and subdominant, is not necessarily relevant here.) The *wassamba* is a pair of rattles, one held in each hand, in which gourd discs are centered on a curved wooden stick. Tchemsé Kanté, also from Guinea, is an exponent of the Malinké griot tradition and performs on many instruments but mainly on *bolon,* a bass lute. This instrument has a body consisting of a large gourd, with a curved neck sticking out, and usually has three strings. Lassiné Koné, our *djembé* player, is also Malinké, but grew up in Côte d'Ivoire. The *djembé* is the most widely known of West African hand drums; it is a one-headed wooden drum in the approximate shape of ⅔ of an hourglass. Mamadou Dao, from the south of Burkina Faso, is ethnically Toussian and speaks Dioula as his main language, placing him in a cultural/linguistic area very closely related to Tchemsé and Lassiné. He plays the *soku,* a monochord violin, but also performs on *kora* (lute) and guitar. Like Bobo Bah and Tchemsé, he is also a singer (Bobo Bah and Babagalé are also excellent dancers). A Wolof from Senegal's Petite Côte, Amadou Leye M'Baye plays a typical Senegalese percussion instrument, the *sabar*: an assortment of several drums that the player strikes with one bare hand as well as with a stick held in the other hand. Our *balafon*ist, Aly Keïta, was born and grew up in Côte d'Ivoire, but his family comes from the south of Mali. He is of Bobo ethnicity, and the *balafon* (West African xylophone) music of the Bobo is traditionally pentatonic. Though as an instrument builder he has retained the tradition of *balafon* building of his ancestral region, he has also adopted a heptatonic (diatonic) tuning very close to the European C major (the white keys of the piano), in order to be more compatible with Western musicians. (A heptatonic *balafon* in a major key is, however, not unheard of in this region; Malinké musicians have used such tunings for a long time.) Keïta is interested in experimentation and especially enjoys working with musicians who do not share his cultural heritage. Siriki Keïta, Aly's brother and a founding member of the group, died recently, a shock from which we are trying to recuperate. He played the *bara,* a gourd drum of flexible tuning that is characteristically used to accompany the *balafon* in Senoufo and Bobo music.

Some other members of the group play instruments that are not uniquely characteristic of this region. Lamine Baldé, a central figure in the ensemble, is from Guinea-Bissau and sings (in Crioulo, Portuguese, Balante, Mandinka and other languages) and plays the acoustic guitar; his style, however, is highly syncopated and infused with vocabulary borrowed from accompanying techniques on the *kora* and the *ngoni* (a banjo-like plucked string instrument found mainly among the Bambara in Mali). Wendé K. Blass, a Mossi from Burkina Faso, plays electric guitar; our singer, Maï Lingani, also hails from Burkina Faso and sings in French, Moré and Dioula. Hervé Blé Yao, the bass guitarist on our CD, is Bété from Côte d'Ivoire; Sylvain Dando Paré of Burkina Faso has since replaced Yao.

I perform on two instruments in Beta Foly. One is the drum set. I keep my setup rather conventional: a bass drum, a snare drum, several tom-toms, a hi-hat and some cymbals. I do this, among other reasons, in order to be able to play our pieces on the drum sets with which I am provided in Africa. I also perform on electronic drums. My live electronic setup usually consists of an old Macintosh PowerBook, an Opcode Studio 4 MIDI interface, an Oberheim Echoplex digital delay and, as my main sound source, an Akai S-3000 sampler. I control all these machines using a DrumKat, a MIDI controller employing 10 force-sensitive resistor (FSR) playing surfaces that may be hit with sticks. Additionally, the DrumKat allows the use of nine external trigger pads; I usually limit myself to two (in the form of HatKat foot pedals, a type of piezo-electronic trigger).

Kurt Dahlke performs exclusively on electronics, controlling his samplers (mainly a Roland S-770) using a Buchla Lightning controller. Occasionally, he also uses a Buchla Thunder and a miniature Yamaha keyboard; another old PowerBook completes his lineup. The Lightning is a MIDI controller for which the player holds a "stick" in each hand. The space in front of the player may be subdivided into eight imaginary zones, and the player moves the sticks in the air within these zones to generate triggering information. The Thunder MIDI controller is an assortment of tiny, highly pressure-sensitive surfaces; it is best played with hand and fingers.

We try to keep our setup simple, light and rugged, since climatic and travel conditions in Africa are not always easy. Nevertheless, we have experienced several problems. The Lightning, for example, uses infrared sensors and is therefore very sensitive to sunlight. We have played numerous daytime open-air concerts during which this instrument proved very difficult to use.

On Several of Our Pieces

General Remarks

Some of the pieces in Beta Foly's repertoire are principally composed; others are nearly free-improvised. In every piece, we seek to explore different rhythms, melodic styles, forms of interplay. All band members are invited to contribute pieces, and most do; I have composed roughly half of the repertoire thus far. Group members bring in pieces at different stages of completion, but at least some arranging is usually done when we are together. We try to avoid clichés typical of contemporary African productions, such as certain synthesizer sounds.

At the core of our efforts is the idea of creating a music that could not be done without the collective know-how of this particular selection of people; we strive to understand each other's cultures as best as we can and to base our music on this understanding. This is done by showing one another a wide range of musics and thinking analytically, and by asking each other about the reasons, the history and the societal meaning behind certain customs and conventions that we happen upon in our exchange. Though we like to entertain, it is more important for us to find new ways of music-making, to give food for thought. I would therefore not hesitate to consider Beta Foly an experimental group. Though our stance is quite unusual in a region where music usually serves one of three clear purposes (ritual, entertainment or political propaganda), we believe that we have a role in society. We hope to show people new ways of thinking, to open up new worlds for them. If we give people an impetus to think creatively and to come up with ways to improve their personal, social or artistic outlook or situation, we have succeeded in our efforts. On tour, we hope to bring African culture—far too little known—to people's attention, along with the innovative potential of that continent, and to make a statement in favor of communication and exchange between different cultures and ways of life.

In the following paragraphs, I explain in some detail the compositional makeup and use of musical electronics in several of our pieces, beginning with the two that are featured on the *Southern Cones* CD.

Balarama

Balarama is a duo of Aly Keïta on *balafon* and me on electronic drums triggering samples. As always, Keïta's *balafon* is tuned close to a C-major scale, where the a above middle c has a frequency of 440Hz. The samples I use include a recording of me pounding on a metal rod, some whistling, and my humming a melody I thought of after listening to the Pokrovsky Ensemble, a Russian men's choir. The vast majority of my sound material, however, consists of samples of two *balafons*: One is Keïta's; the other belongs to Kaba Kouyaté, who was a member of Beta Foly for roughly the first year of the group's existence. Kouyaté hails from Guinea and plays music in the Malinké tradition; his instrument was tuned in G major. The timbres of Kouyaté's and Keïta's *balafons,* while related, are not identical; the range of Keïta's instrument is a fifth below Kouyaté's. The *balafon* Keïta built has a larger frame and uses larger gourd resonators. Musicians all over Africa add elements to their instruments to produce a certain buzzing sound (the African sonic ideal includes sympathetic vibration, unlike Occidental sound culture); Keïta's *balafon* buzzes much more strongly than Kouyaté's. On the other hand, Kouyaté used harder mallets. Overall—and I use this comparison with great care—Kouyaté's instrument may sound slightly more like a xylophone, Keïta's more like a marimba.

During the course of *Balarama,* I move through a progression of tuning tables, executed using the Akai S-3000's tuning feature. At the opening of the piece, I use drastically de-tuned samples of both *balafons*; the live *balafon* played by Keïta stands in stark contrast to these tunings. Then, little by little, the samples converge on the original tunings of their respective instruments. The samples of Kouyaté's instrument reach their destination first, whereupon they drop out. Those of Keïta's continue to change until they, too, have reached their original tuning. It is only now that I can play in unison with Aly; here, the piece ends.

This tuning progression and, more generally, my route through a series of sample setups (different tunings are paired with different pounding, whistling and humming sounds) are all that is pre-determined in *Balarama.* Everything else is open to improvisation, and even after having performed it many times, Keïta and I keep finding new rhythmic and melodic potential in this piece. The most interesting aspect, though, is the harmonic change and the new harmonic relationships attainable by the process of wandering through gradually changing tunings.

I do not use a calculated tuning system; the tunings used are merely the result of "tweaking" knobs and listening. Although I am very interested in microtonality, I have come to gain greater appreciation from systemless microtonality than through complexly constructed tuning systems. At some points in "Balarama," the tunings include octaves, at others they do not; sometimes, there is no apparent logic to the tuning at all. The only rule I followed was that in every subsequent tuning table, each sample must be closer to its original tuning than in the preceding one.

Brontologik 3.44

Brontologik is a flexible, interactive four-voice monophonic sequencer, programmed by Dahlke in Max, an object-oriented programming environment widely used by musicians in the creation of interactive applications (Fig. 1) [4]. Brontologik generates variable patterns that can be controlled via MIDI instruments; its basic concept is akin to analog sequencers and deliberately includes some of their limitations, such as limited sequence length.

In Beta Foly, Brontologik is used as a kind of "duo partner" for *balafon*ist

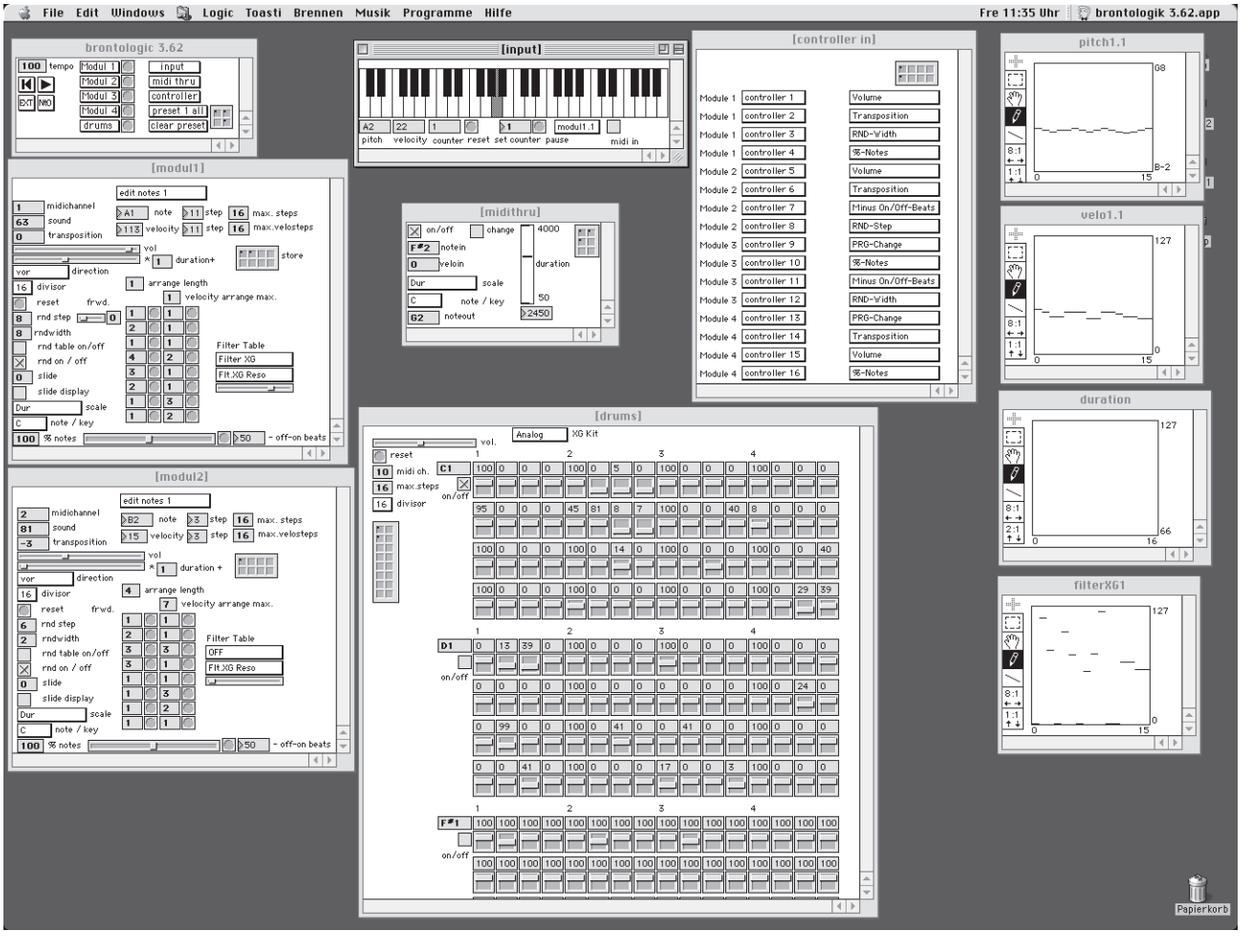

Fig. 1. Kurt Dahlke, screenshot of the Brontologik 3.62 program, made with Max (Opcode).

Keïta. The *balafon* is miked using conventional microphones. The data thus generated is fed into a pitch-to-MIDI converter, which relays the MIDI data to Brontologik, where it is stored, transformed and played. Keïta hears these results via loudspeaker and reacts to what he hears, generating new data, and so the piece develops.

The strength of the system is based on the assumption that short, repeating sequences are more easily influenced than a large and complex sequential system. The individual building blocks of the music produced by Brontologik can be seen as small modules of musical data that are flexible and easy to play back and change. In terms of the Max programming language, this means that the input note values are stored in tables that can vary in size depending on the length of the phrases Keïta plays but cannot exceed 16 notes. At this stage, it is already possible to select notes for storage according to certain criteria, for example, repeated notes may be input into the system or may be ignored. When the musician plays a rest of pre-determined length (e.g. one bar at tempo M.M.=100 or the like), a new table is started immediately; the old one is stored in a "coll" (collective) to create a memory database. The patterns played by Keïta are then analyzed for several immediately recognizable properties: Does the melody contain a line of three or more notes ascending or descending in pitch? Are arpeggios being played? Does the melody contain repetitions of short phrases? Does the range of the melody exceed an octave? After having done this analysis, the program looks at the previously classified "coll" memory and can thus play back similar melodies that were played by Keïta at an earlier point.

Note selection is further influenced by the use of numerous "fuzzy" controls. For example, one can slide back and forth between the extreme values "play notes that are as closely related as possible" and "play values that are as unrelated as possible." Therefore, the operator of the program has direct influence on the results generated at any given time. Further controls include "play more/less on-beats than off-beats" or "vary *x*% of the played material with other notes belonging to/not belonging to said key." A great advantage in using the *balafon* as a partner for Brontologik is that Keïta's *balafon* is diatonic, eliminating the need for key recognition; differentiation between notes belonging to or not belonging to a key was therefore unnecessary.

These melodies are then fed into Brontologik's actual playback modules, which determine dynamics, MIDI channel and sound. In this case, a conventional Extended General MIDI module was used as a sound source.

Keïta learned to interact with Brontologik very quickly, giving it patterns and melodies it could easily understand and transform. We enjoy playing this piece live, as it often succeeds in generating new and surprising musical twists and turns. The next step is to improve Brontologik's capabilities in rhythm recognition, as the program currently assumes the presence of a fixed, pre-determinable rhythmic pulse.

African Loops

During our rehearsals, Dahlke sampled each member of Beta Foly playing characteristic phrases on their instruments. Some of these samples were made with the musician playing at a pre-determined tempo; others were made freely. From the material thus collected, Dahlke assembled a soundtrack in his sequencer, arranging the music in a style loosely related to techno, house and trip-hop. He combined this soundtrack with live vocals contributed by Bobo Bah. This song, called *Beydo* and sung in the Peul language, speaks of how a man should strive to please and satisfy his wife and was composed by Bobo Bah with Babagalé Kanté's assistance.

As the only other non-sequenced element in the piece, I play a short electronic drum solo. The idea here is an extension of the piece as a whole: the composition uses pre-recorded samples from the rehearsals and my solo uses pre-recorded samples from the rest of the CD. Thus, this solo was the last element of the entire CD to be recorded, at a point when much of the rest of the CD had already been mixed.

Sound of No Restraint

In *Sound of No Restraint,* as well as in several others in our repertoire, we use a headphone setup that helps us listen in performance to information that the audience is not privy to. This practice is a result of my long-standing interest in click tracks as an aid for polymetric ensemble performance; I would like to explain this in general terms before focusing on *Sound of No Restraint* in particular.

In the world of commercial music, a piece is generally expected to have a steady tempo. Since the advent of such technologies as drum machines, the steadiness in execution expected of the recording musician sometimes exceeds what is humanly possible. To help musicians here, or in the execution of rhythmically demanding material, metronomes are often used. Usually recorded on one track of a multitrack tape on which the musicians record their "overdubs," these metronomes have come to be known as "click tracks." Though I am not necessarily a fan of the obligation to play at a steady speed, I am a great fan of click tracks and have been experimenting with them, often in live situations, for many years, beginning in earnest in 1993 when I composed a piece called *Groove Magic,* which has been performed by a number of excellent ensembles in Europe and the United States. In *Groove Magic,* 11 musicians play live while listening to click tracks via headphones; each player has his own individual track, and the conductor, coordinating these tracks, is a computer. The ensemble plays at many different speeds at once, or at the same tempo but with the beat staggered from one instrument to the other. Impossible to perform without clicks, the piece is challenging even using them, but entirely possible, even within the rehearsal time constraints usually present in the contemporary "classical" world.

The click tracks for *Groove Magic* were originally made using the program Polyrhythm, written by Frank Baldé of Amsterdam's STEIM electronic music institute. Made exclusively for the compilation of click tracks (originally for Den Haag Percussion Group to help them play pieces by Iannis Xenakis), Polyrhythm allows the programming of the "wildest" metric configurations but has several drawbacks: MIDI output possibilities (choice of note numbers, dynamics, etc.) are limited, rests are difficult to program, and Polyrhythm runs only on Atari computers. Having entered my click tracks into Polyrhythm, it was clear that my 11 highly complex tracks far exceeded the capabilities of the little Atari I used: the result was chaos. I therefore copied the tracks one by one into a Cubase sequencer running on a Macintosh. Not only was playback now precise, the MIDI output choices were much better, and editing became easier. Since then, I have tried to write my click tracks directly in a sequencing program such as Cubase, although there are occasions when this becomes tedious due to the simultaneity of different meters: I still find myself reverting to Polyrhythm from time to time.

My PowerBook is connected to an Akai S-3000 sampler, which plays the click sounds, usually cowbells (a timbre that proves to be pleasant to listen to and is clear due to its fast attack). The sampler is programmed in such a way that each individual track is routed to a different sampler output (my Akai has eight individual mono "outs" in addition to the stereo pair; should I need more tracks, I set up another sampler). From here, the sound travels to headphone amplifiers. I usually give musicians a small amp—known as either CB-Labs Performer or Epiphone Headjammer. Originally intended as a practice amp for guitarists, this is the smallest and lightest headphone amp I have ever seen and generates an excellent sound. Using these amps, each musician can control headphone volume individually. I employ open, Walkman-style headphones, because they allow musicians to hear sounds coming from "outside," enabling them to maintain the listening habits commonly associated with musicianship. It seems to take most musicians about 5 or 6 hours to get so used to this setup that they "forget" their "isolation" and start treating the click as a "friend" in the background, allowing them to concentrate on listening to their fellow musicians in a nearly normal fashion. I have used such setups on many occasions, in compositions and improvisations, and do not limit myself to "click" sounds: spoken word samples can be used to imitate speech rhythm; samples in certain keys can be used to influence the harmonic direction of an improvisation, for example. When I first used clicks in Beta Foly, the musicians would either isolate themselves completely or simply ignore the clicks if they gave different musicians different tempos, but since then, many have developed a remarkable degree of skill in this area.

Sound of No Restraint was the first piece in Beta Foly's repertoire to employ click tracks, and its use of them here was quite a simple one. Whereas African music usually has a fixed tempo (exceptions exist), Korean music is often very flexible in its temporal structure. Musicians "breathe" together, expanding and contracting the flow of time to facilitate the performance and "feeling" of their musical gestures. I was interested in what would happen if African musicians tried to imitate this Korean way of perceiving tempo. After describing some of the features of Korean music to the members of Beta Foly, we gave it a try, and the results were interesting and weird, even more so after I played them examples of Korean music, most notably the CD *Unrestrained Sound* by Park Byung Chon [5]. Our results did not sound Korean at all, but they do not sound exactly African, either. One of the most enlightening moments in all the time I spent in Abidjan was when Yero Bobo Bah, Babagalé Kanté and Lamine Baldé played a traditional tune from Guinea arranged in a "Korean" way: the result was some of the most peculiar music I have ever heard.

To give our Korean improvisations another level of cohesion, I decided to introduce a very simple use of my click track setup. *Sound of No Restraint* is an

improvisation for up to eight musicians, each listening to an individual track. Most of the time, no information is relayed and the musicians improvise freely. At certain points, they hear a succession of six cowbell beats. During these beats, they play a crescendo, with a loud accent on the last beat. After the accent, they pause for a few seconds, then resume their improvising. Since the musicians do not necessarily have their accents at the same time, strange instrumental combinations and accent distributions become possible.

Langage en Dessin

The same headphone setup is used in this piece. (On the Intuition CD, nine musicians play the piece; our live rendition is different and does not use clicks.) The piece is based on a drumming style I developed, inspired by Kiganda xylophone music, a form of traditional court music from Uganda, played on xylophones called *amadinda.* (For an in-depth analysis of this music, see the article *Xylophonspiel im Süden von Uganda* by Gerhard Kubik [6] or one of the many other papers on Ugandan music by the same author). Suffice it to say that in this musical practice one musician begins a piece by playing a melody at a fast tempo, whereby all notes have the same length (in Western terms, one could speak of a steady eighth-note chain). A second player then joins in with another melody, at the same tempo, also in eighth notes. However, the notes of this second melody fall right between those of the first; thus, the resultant image is a single melody at twice the speed of those melodies played by any one musician. Since the tempo is very high (M.M.=500 for the resultant melody is an average), the question arises: how is the second player able to syncopate so quickly?

The answer is: not at all. Rather than assuming the first player's melody to be "on the beat" and proceeding to play a series of off-beats, the second player listens to the first, understands the speed, and then "slips" between the first player's notes to start his melody. That very first note could be considered syncopated, but from that point on, the second player convinces himself that it is he who plays on the beat, and the first player who is syncopating.

This method of metric cognition, featuring a relative notion of the beat, is unknown in Western music. In this style, there are at least two different basic beats, one shifted relative to the other by one unit of a fast basic pulse common to all players, and both of these beats are equally valid. Listening to the fast melody formed by the combination of the two melodies played, one hears new melodic figures emerge in different frequency bands. These figures, called "inherent patterns" by Gerhard Kubik, are not played by either musician in the gestalt in which they are heard by the listener.

After first reading Kubik's papers on this music and listening to some of the few recordings available, I tried translating these concepts to the drum set, using complex ratios of phrase length between the patterns used. (I should add that the xylophone music was originally played by the two hands of one player on a harp, the *ennanga,* and that my drum technique therefore bears similarities to *ennanga* playing). This led me to a choreographic, motion-based way of playing very long patterns, repeating only after hundreds of beats. Assume, for example, that I play a pattern with my left hand, describing a certain "route" around the drum set. I might hit the hi-hat, then the snare drum, then a tom-tom, then another tom-tom, then a cowbell and then go back to the hi-hat, starting to repeat the figure. This "melody" around the drums is a cycle of five notes. With my right hand, I could play a figure that is seven beats long. Playing them together, it would take the resultant figure 5×7, or 35 pulse units, to repeat. But I do not hit simultaneously with my hands: one hand represents the first xylophone player, the other the second, interlocking with the first hand. Therefore, the pattern lasts 70 pulse units. Now, I can add my bass drum on, say, every third pulse unit, and play the hi-hat using my foot pedal on every eighth. At this point, I already need $5 \times 7 \times 2 \times 3 \times 8 = 1{,}680$ pulse units until the first repetition! All the while, I am not counting; I know where I am within my pattern at any time due to the relative position of my limbs.

While not straightforward to play, such patterns are by no means as difficult as they might seem. What turned out to be next to impossible, however, was reading them when notated in conventional "five-line" music notation. This is questionable practice for drum-set music in general; here, all my attempts led to an indecipherable mess. I therefore created a tabulature notation system and had a stamp made, displaying my drum set as seen from the top (Fig. 2). I

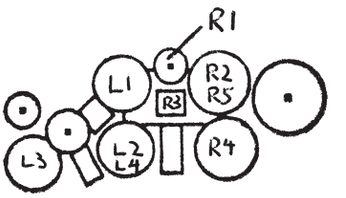

Fig. 2. Lukas Ligeti, tabulature notation for drumset (with a rhythm pattern written into the tabulature diagram) as used in *Langage en Dessin.*

now write my movement patterns on this one small diagram; the pattern thus illustrated can be sight-read quickly. The drawback of this notation, as of most tabulatures, is that it does not allow any conclusions to be drawn about the rhythm. Initially, this was not a problem, as the rhythm was always assumed to be a chain of interlocking notes of equal length. Recently, however, I have started to create patterns with rhythmic irregularities, rests, etc., so my tabulature notation might be due for an overhaul.

In concert, we enjoy playing "polymetric improvisations" where I play such drum patterns and individual musicians select different components of my drum kit to play along with. For example, Leye might try to hit his *sabar* whenever I hit my ride cymbal. When I change my pattern, he might go along with me or stay in his previous pattern. The result of this type of interplay is a complex hocketing structure [7].

Such is also the result of the recorded version of *Langage en Dessin.* In keeping with a certain drum pattern I play, musicians receive click tracks, some parts falling together with my right hand, some with my left. The musicians play on either every third or every fifth beat of their click, depending on the meter the click provides. Later during the piece, rests of various lengths are inserted, "pushing" the clicks "out of sync" and giving the music an ametric feel; in reality, everyone remains coordinated by the computer. Towards the end, the clicks gradually revert to the original structure, creating the complex interlocking hocketing present at the piece's beginning.

Samaya and Other Pieces

Samaya combines two sections: one by Babagalé Kanté, in the Fulani tradition of Guinea; the other by me, slightly resembling Austrian traditional music. Electronics are used in two ways in this piece: there is an electronic drum solo, and the arrangement was conceived us-

ing a sequencer. The latter helped me design a transition between the two parts of the piece, where musical material (belonging mainly to the section composed by Kanté) is superimposed in two different tempos. Henry Kaiser bridges this transition with an electric guitar solo. My electronic drum solo, which is unaccompanied, makes use of samples of other instruments in the group, some again deliberately detuned.

We used the sequencer as an arranging tool in numerous pieces in Beta Foly's repertoire. It is a good notation tool, since most of the musicians do not read; its flexibility is much greater than that of, say, a cassette deck. We used the computer on many occasions to experiment, test-drive and compare different arrangement proposals and as a means of support when learning segments by rote.

Some Present and Future Experiments

Some time has passed since the recording of our CD; we would like to record our next one soon. Lately, we have been creating new pieces and looking for new uses for electronics.

One example is yet another application for the click-track setup: rather than having a sequencer play the clicks, which are then relayed to the musicians, I play them on my drum pads. Every pad triggers the same sound, but from each pad, the sound is routed to the ears of a different musician. I can play patterns on my pads and in so doing conduct the musicians as they play a hocketing rhythmic structure. We would also like to expand the interactive use of the computer in our music.

I am also planning to conduct experiments to better understand cognitive aspects of African music-making. I would like to record some members of Beta Foly as they play certain traditional pieces. The resulting information can be converted to MIDI data using audio-to-MIDI conversion; then, individual musicians can listen to music played as MIDI files and play along. While they do so, I can edit the data: change rhythms, add or leave out parts, detune instruments, etc. How will the musicians react to which changes? How much can, say, a rhythm be altered until the musicians are no longer able to play along? This kind of research could lead to valuable conclusions as to what is relevant in this music, what the musicians are listening for, and what degrees of tolerance they have, in which areas, when it comes to deviations from the convention. Since audio-to-MIDI conversion is often difficult to execute in a clean and accurate way, the process could be done by having the musicians play MIDI controllers to begin with, using sampled sounds of their instruments, and thus avoiding the conversion. This approach would necessitate careful selection of MIDI controllers and would pose high demands on the quality of the samples used. It seems to me that both methods still contain numerous flaws; as a general direction, however, I find the idea interesting, and it is definitely a road less traveled by musicologists, who usually rely on taped performances that do not enable one to edit the music in quite the same ways once it has been recorded.

Be it for artistic purposes or for research, in our future work in Beta Foly we need to afford the African musicians more time to experiment with MIDI controllers so that they can develop their own playing techniques and approaches, some of which will certainly be based on experiences from their "original" instruments. Since African playing techniques are sometimes very different from Occidental ones, I hope that this might lead to interesting ideas for MIDI controller design, software possibilities, and ensemble interplay and improvisation.

Working in Côte d'Ivoire has made me intensely interested in the area of cultural exchange. I have many more ideas for the future, feeling that the exchange that is going on in Beta Foly be led to even greater depths of inter-cultural understanding. I believe that two of the most interesting areas of exploration for contemporary composers are the possibilities created by advances in technology and the ways of thinking about and approaching music that exist in various traditions around the world. For some reason, there seem to be too few composers and musicians interested in both of these areas at the same time. I feel very privileged to be able to combine these interests in collaboration with great musicians from Africa, in adventurous and hopefully innovative ways.

References and Notes

1. The members of Beta Foly have included: Yero Bobo Bah, wassambe, vocals; Lamine Baldé, acoustic guitar, vocals; Wendé K. Blass, electric guitar; Kurt Dahlke, electronics; Sylvain Dando Paré, bass guitar; Mamadou Dao, soku, kora, guitar and vocals; Babagalé Kanté, pastoral flute; Tchemsé Kanté, bolon, vocals; Aly Keïta, balafon; Lassiné Koné, djembé; Lukas Ligeti, drums, electronic drums; Maï Lingani, vocals; Amadou Leye M'Baye, sabar.

2. *Lukas Ligeti & Beta Foly* (Intuition Music & Media INT 3216 2, Cologne, Germany, 1997), distributed in the U.S.A. by Allegro.

3. *A World out of Time* (Shanachie Entertainment Corp., U.S.A., 1992), as well as numerous other titles on the same label.

4. This section is based on explanations by Kurt Dahlke.

5. Park Byung Chon, *Unrestrained Sound* (Nices/Samsung Electronics SCO-024CSS, S. Korea, 1994).

6. Gerhard Kubik, *Xylophonspiel im Süden von Uganda,* part of the anthology *Zum Verstehen afrikanischer Musik* (Leipzig, Germany: Verlag Philipp Reclam jun., 1988).

7. The term "hocket" is derived from the Latin *hoquetus,* or hiccup, and refers in music to a structure of short phrases, distributed among different instruments and interlocking like the cogs of synchronized cogwheels.

Manuscript received 17 March 2000.

Lukas Ligeti was born in Austria and studied composition and jazz drums at the Vienna Music Academy. As a drummer playing improvised music, he has performed and/or recorded with Henry Kaiser, Gianni Gebbia, Benoit Delbecq, Michael Manring, Elliott Sharp, Mari Kimura, George Lewis, Ned Rothenberg, John Tchicai and many others. He has been a member of numerous bands playing rock, jazz and improvised music, and frequently performs solo on electronic percussion. Since 1994, when he co-founded Beta Foly, Ligeti has been active in the field of cultural exchange, working in Zimbabwe with Batonka musicians and in Egypt with musicians from Nubia, and performing in South Africa, Mozambique and Burkina Faso.