

Musical Robots and the Serbian *Kolo*: A Narrative Analysis of Ana Sokolović's *Géométrie sentimentale* (1997)

Robots musicaux et le *kolo* serbe : une analyse narrative de *Géométrie sentimentale* (1997) d'Ana Sokolović

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Viva la musica ! Ana Sokolović

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Résumé de l'article

La compositrice Ana Sokolović a divisé son oeuvre instrumentale *Géométrie sentimentale* en grandes sections inspirées par de pures formes géométriques — « Triangle », « Cercle » et « Carré » — qui décrivent ces sections comme trois perspectives contrastantes du même matériau musical. Cet article utilise une approche analytique narrative à la manière d'un objectif à travers lequel on peut comprendre ces diverses sections et le matériau qui les peuple. Inspirée par l'emploi d'objets musicaux par Sokolović à l'intérieur de ses compositions et par les concepts extramusicaux qui inspirent nombre de ses oeuvres, cette analyse utilise un ensemble de robots jouets colorés en tant que métaphores du matériau de l'oeuvre. Trois perspectives singulières de ces jouets sont décrites : dans « Triangle », les robots interagissent à titre de personnages sur la scène dramatique ; dans « Cercle », ils coexistent pacifiquement, au ralenti ; et dans « Carré », de nouvelles combinaisons d'éléments robotiques sont brusquement juxtaposés les uns contre les autres. Les caractéristiques et interactions entre ces jouets, aussi bien que les divers « masques » harmoniques que la compositrice leur fait porter, sont utiles pour la compréhension de la structure harmonique de Sokolović, les techniques de variation/transformation, l'organisation formelle et les caractéristiques rythmiques. Le *kolo* serbe est également décrit comme un élément influent de l'oeuvre, se rapportant directement à la physicalité et la cinétique des robots métaphoriques.

Musical Robots and the Serbian *Kolo* : A Narrative Analysis of Ana Sokolović's *Géométrie sentimentale* (1997)

Brian Harman

Introduction

In an interview with Isabelle Picard, Ana Sokolović comments on narrative in her music and the perception of the listener:

Je construis un monde magique pour les auditeurs. Je raconte une histoire, et je veux que le public croie à mes histoires. Je ne parle pas de mes rêves dans ma musique; mon travail est de construire des rêves pour l'auditeur. [...]

Je ne souhaite pas que les images de l'auditeur coïncident avec les miennes. J'espère susciter sa curiosité et, surtout, son imagination. L'imagination est la chose la plus importante dans la vie.¹

With each work, the composer constructs a musical world and tells a story, but wants listeners to experience the music according to their imagination, not according to her personal compositional narrative.² This viewpoint suggests a specific approach to analyzing Sokolović's music.

Géométrie sentimentale, arguably Sokolović's most famous work, uses the concept of perspective to differentiate between the work's three sections: "Comme en un roman de William Faulkner, la même histoire, racontée par trois témoins différents. Le même matériau, vu sous trois angles différents."³ The composer presents three different viewpoints on the same subject matter—a play with perspective, based on three geometric shapes: *Triangle*, *Cercle* and *Carré*. With this frame as a starting point, she encourages listeners to conjure up a magical world of their liking as they listen to the work. Such

1. Picard, 2006, p. 107-108.

2. Sokolović's views on the listener's musical experience relate to those of Jean-Jacques Nattiez. He argues that "the narrative, strictly speaking, is not *in* the music, but *in the plot imagined and constructed by the listeners* from functional objects" (Nattiez, 1990, p. 249 [emphasis in original]).

3. Picard, 2006, p. 110.

a magical story imagined alongside *Géométrie sentimentale*, taken to an extreme, could have a reciprocal relationship with the piece. It might serve as a tool to explain the composition's materials, musical logic, and overall form. The following analysis will take exactly such an approach—it will describe a world filled with toy robots that metaphorically enlightens many aspects of *Géométrie sentimentale*.

Though there is much scholarly discussion about the narrative capacities of music, the following analysis does not engage directly with this debate⁴. Nattiez suggests that “music is [...] a specific symbolic form which has the semiological capacity of imitating the allure of a narrative.”⁵ Sokolović's comments about the importance of the listener's curiosity and imagination suggest a critical engagement with this ‘narrative allure’. By employing an unusual extra-musical analytical approach, I do not propose that *Géométrie sentimentale* intrinsically represents the robot narrative described below; rather, as Klein proposes, “the [work] is a nexus around which interpretive acts take place.”⁶ My interpretation will elucidate the composition's musical structure. “The impulse to narrativize music is a motivation to find the expressive logic within [...] [the] composition.”⁷

Toy robots are an appropriate metaphor to describe *Géométrie sentimentale* for a number of reasons. First, this piece is playful and joyful in nature, qualities that the composer explicitly aims to achieve in her music: “enfin—cela vous semblera peut-être naïf—je souhaite de tout cœur composer une musique joyeuse, une musique qui saura susciter un peu d'optimisme.”⁸ The work's air of playfulness, even naivety, readily suggests children at play. Second, the composer creates and manipulates Stravinskian musical objects that suggest unique musical characters with vivid personalities.⁹ Bernstein describes Sokolović's objects as “unities of disparate musical gestures and colours that are so pure, distinctive and enchanting that you want to reach out like a child and touch every one of them.”¹⁰ Sokolović's vibrant, plastic musical personalities are ideal for representing children's toys in motion. Third, toy robots, and their interaction on Sokolović's musical ‘stage’, are an appropriate metaphor because they effectively illustrate the theatrical elements of the piece. Although not explicitly theatrical, *Géométrie sentimentale* creates dramatic situations between the composer's musical objects, suggesting characters interacting in a stage work. Especially apparent in the *Triangle* section, this aspect of the composition might derive from Sokolović's childhood theatrical education and general interest in drama and theatre.¹¹ Finally, pure geometric shapes have an inherent innocence that relates to

4. For a concise summary of this debate, as well as a distinction between expressive and extra-musical narratives and an example of an expressive narrative analysis, see Michael Klein's “Chopin's Fourth Ballade as Musical Narrative” (2004). Klein's abstract narrative interpretation, describing elements of tragedy, heroism and apotheosis in Chopin's music, contrasts starkly with the more specific narrative analysis presented below.

5. Nattiez, 1990, p. 253.

6. Klein, 2004, p. 29.

7. *Ibid.*, p. 25.

8. Sokolović, quoted in Lesage, 1999, p. 81.

9. In fact, Sokolović acknowledges Stravinsky as influential in her correspondence with Isabelle Picard (Picard, 2006, p. 106-107).

10. Bernstein, 2009, p. 28.

11. *Ibid.*, p. 29.

children's toys. These robots might, after all, be constructed of simple triangles, circles and squares.

The title of *Géométrie sentimentale* refers to its inspiration: the geometric shapes in the work of Japanese architect Tadao Ando. Since the composer has described this influence in detail,¹² the following analysis will attempt to gain further understanding of the work from other perspectives. After defining the musical robots in the proposed narrative, describing their multifarious interactions, and explaining each section's distinct perspective on these toys, this article will consider the influence of Serbian folk music on the composition, specifically the *kolo*. Sokolović has commented, in general terms, on the influence of this round dance on her compositional personality,¹³ but has not acknowledged or described its impact on *Géométrie sentimentale*.

12. Private interview with Ana Sokolović, October 2009.

13. Sokolović Lecture, 2010.

Section I: *Triangle*. Playful Robot Battles

Sokolović's musical objects in the first section of the work suggest five toy robots; the rhythmic elements, gestures and trajectories of these objects create a unique sense of kinetics for each robot. These toys interact on a dramatic stage in *Triangle*. Two principal robot characters (blue and yellow in colour) and three subordinate characters (green, orange and red) comprise

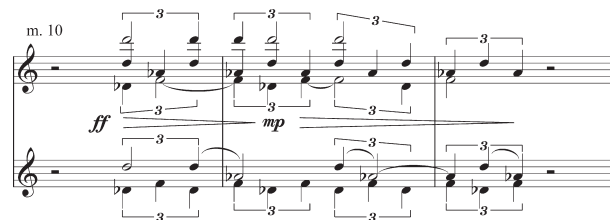
FIGURE 1 *Géométrie sentimentale*, i, mm. 1-4.

14. The given reductions display only the most salient musical elements for the purposes of this analysis.

the section's musical material. The blue robot opens the piece, presented in the strings, piano and percussion, and features a steady, medium-paced eighth note speed, with some contrasting rhythms creating a varied musical surface. The piano part, often doubled by string instruments, presents the robot's melody. Once in a while, the robot stops moving to wave at the audience, represented by oscillating quintuplet figures in the upper register (m. 4), and periodically shuffles his feet back and forth, represented by sextuplet figures in the egg shaker (m. 2; see Figure 1).

The yellow robot, first presented in measure 10 in the wind instruments, is more mechanical and jerky, and the slowest of the five robots (see Figure 2, a reduction of the yellow robot's music).¹⁴ It is characterized by repetitive oscillating gestures, and its speed and motion are generally unchanging and predictable. Usually, this robot enters the scene abruptly and gradually recedes into the background.

FIGURE 2 *Géométrie sentimentale*, i, mm. 10-12 (flute, oboe, clarinet, bassoon, horn, trumpet, trombone).



The green robot appears less frequently, and acts as a kind of “jester” robot since it distracts from the main stage action. It descends from above onto the stage in measures 41 to 43, in the wind instruments, and gradually runs out of battery power as it exits the stage (the repeated chords in measures 44 to 46 feature a written out *ritardando*). This slowing gesture defines the green robot (see Figure 3).

FIGURE 3 *Géométrie sentimentale*, i, mm. 41-45 (flute, oboe, clarinet, bassoon, horn, trumpet, trombone).



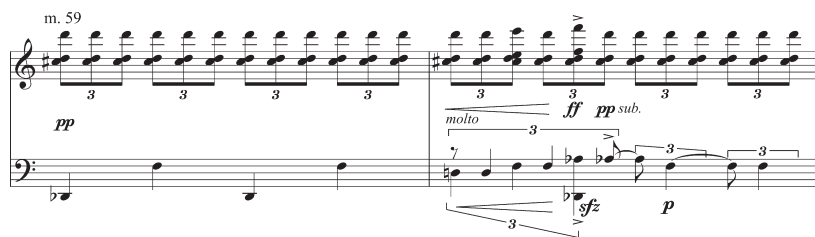
The orange “referee” robot is much faster and more predictable, first introduced in measure 48 in the piano (see Figure 4). It is stubbornly unchanging, retaining its quick speed, steady rhythm, pitch content, sparkling quality and instrumentation on each reappearance. As the work unfolds, this “referee” robot usually appears during or just after moments of conflict, and often has a transitional role.

FIGURE 4 *Géométrie sentimentale*, i, mm. 48-49 (piano).



Finally, the fast, jerky and aggressive red robot arrives in measure 59 in the winds, characterized by a steady eighth-note triplet rhythm in the upper register and a slower, sometimes syncopated accompaniment in the lower instruments. Its aggression sometimes gets the best of it, causing steam to burst out of its head; this is illustrated musically by the sudden *crescendi* leading to accented chords (see Figure 5).

FIGURE 5 *Géométrie sentimentale*, i, mm. 59-60 (flute, oboe, clarinet, bassoon, horn, trumpet, trombone).



The kinetics of these five robots can be further described through the state/process binary that Sokolović often employs in her work. For her, states are comprised of elements that are static and repetitive, while processes are goal-oriented and constantly evolving.¹⁵ At the extremes of this binary are the orange robot—static in terms of rhythm, pitch and instrumentation—and the green robot, which is constantly slowing at each appearance. The red and yellow robots are essentially static, though each incorporates some element of change: the red robot features a building dramatic interaction between the winds and the strings, resulting in small changes to its musical texture, and

15. Picard, 2006, p. 109.

16. The masks could be considered major or minor triads with added notes, since both the major and minor third is present in each collection.

17. Sokolović, quoted in Picard, 2006, p. 108.

the yellow robot almost always features a *diminuendo*. The blue robot is also essentially static in nature, but evolves slightly in character over the first half of *Triangle*, as described below.

Sokolović uses two pitch collections throughout *Géométrie sentimentale*—two harmonic “masks” that can be worn by any of her musical robots. The E-flat and D-flat masks are transposed inversions of each other, and are so called because they consist of E-flat and D-flat triads, each with two added notes (see Figure 6).¹⁶ These two collections, without any transposition whatsoever, govern pitch selection for almost the entire first section and remain central throughout the work. For Sokolović, “la composition est un acte de recherche qui a besoin de limites, de restrictions, pour s’accomplir [...] ‘il faut des restrictions, pour sentir la liberté.’”¹⁷ In *Géométrie sentimentale*, Sokolović has sought these kinds of limitations in her harmonic structure.

FIGURE 6 Pitch collections in *Géométrie sentimentale*.



Sokolović’s robots interact in diverse ways on *Triangle*’s dramatic stage. At the beginning of the work, the blue robot and the yellow robot oppose each other. The blue robot, heard in the strings, piano and percussion wearing an E-flat mask, moves around in circles, occasionally waving at the audience and shuffling its feet. The yellow robot, presented in the winds wearing a D-flat mask, periodically interrupts, trying to win the audience’s attention by entering the stage loudly and suddenly. Each time, it gradually recedes into the background, embarrassed for its outburst, while the blue robot briefly stands still to observe the audacious yellow robot’s actions. The blue robot is eventually affected by the yellow robot’s aggressive interruptions: threatened, it gathers its energy in case of a conflict. Musically speaking, the blue robot’s movement is gradually more confident beginning in measure 20. The strings have fewer jolting accents and contrasting rhythms to the principal eighth note pulse. By measure 26, the blue robot no longer stops to wave at the audience and shuffle its feet, instead focusing intently on its movement.

The relationship between these two robots is a microcosm of an underlying binary axis in Sokolović’s music: “[F]inesse and audacity. My perpetual conflict. [...] I want to work with the details of lace and embroidery in my music, and at the same time I want to pursue the raw, gross and Barbarian material. I do not seek to flee this contradiction; I want to confront it.”¹⁸ The

18. Sokolović Lecture, 2010.

blue robot, with its elegant embroidery of contrasting rhythms and syncopated accents, stands in stark contrast to the bold interruptions of the yellow robot.

As described above, the D-flat-masked green “jester” robot briefly distracts us from the mounting drama in measure 41: it descends onto the stage, then gradually loses battery power, wilting as it exits the scene. The composer then presents two blue robots on the scene simultaneously in measure 48, one in the winds and one in the strings. They wear contrasting masks and stand still, waving their arms at the audience and competing for attention (the music here is comprised entirely of the oscillating gestures associated with hand waving from the beginning of the work). In the same measure, the D-flat-masked orange robot acts as referee to the mounting conflict, bursting onto the scene in the piano to ensure all of the rules are being followed. It then slowly backs away, monitoring the action from a distance.

Beginning in measure 59, three small, aggressive red robots enter the scene, represented by the D-flat-masked winds, the E-flat-masked strings, and the marimba wearing both masks simultaneously—it utilizes pitches from both pitch collections. As described above, all three robots periodically spurt steam from their heads as they intensely circle the stage. The robots in the winds and strings engage in a battle as of measure 70—musically speaking, a loud dialogue with dramatic pauses ensues between these two instrumental groups—until measure 79, when the winds are victorious over the strings. The winds disappear slowly from *Triangle’s* stage as the orange referee returns to survey the conflict’s damage.

An interesting reversal occurs at measure 96, where Sokolović brings back the opening discourse between the blue and yellow robots. This time, the blue robot is in the winds, wearing a D-flat mask, and the yellow robot is in the strings, wearing an E-flat mask. The return to this material functions as a recapitulation of sorts, but offers a fresh perspective. The yellow robot abruptly halts this interaction in measure 109, just as the orange referee robot emerges, quickly circles the scene to collect debris from *Triangle’s* drama, and disappears into the wings of the stage.

Section II : *Cercle*. Microscopic Coexistence

True to Sokolović’s program, the second section presents a new perspective on the world of toy robots. *Cercle* explores, and zooms into, a scene where various elements of the five robots coexist peacefully and often share harmonic masks. The composer superimposes and combines robot elements in conciliatory ways to create hybrid textures, and eschews the interruption techniques

19. This melody is identical to *Triangle*'s blue robot melody, except for a few note repetitions and register changes.

found throughout *Triangle*. Further, the wind and string groups are no longer opposed to one another. As if under a microscope, the reintroduced robot components are in slow motion in *Cercle*, displaying much more musical detail than previously.

A good example of this microscopic approach is the return of the blue robot's melody in measures 16 to 41. This melody, previously heard in the piano at the opening of *Triangle* (illustrated in Figure 1), is presented here throughout the ensemble in a heterophonic, blurry, arrhythmic texture.¹⁹ It proceeds from note to note very slowly, featuring minute changes in timbre as the melody unfolds—a texture more suited to a smooth circle than to a pointy triangle. The yellow robot's reappearance in the winds and piano in measures 27 and 28 further displays this 'zoomed in' approach.

The red robot's relentless triplet figure similarly reappears in *Cercle* in measure 30, in the violoncello. It retains its inexorable rhythmic drive, with a pulse on each eighth note like its steady triplet pulse in *Triangle*, but this figure moves much slower here than previously. Like the top voice in this robot's repeated chords in *Triangle* (see Figure 5), the pitches that land on the eighth note pulses in *Cercle* centre on one note (E-flat) and two auxiliary notes (F-sharp and G) (see Figure 7). In this 'microscopic' view of the robot's music, additional rising notes with occasional syncopated accents between each pulse are now audible; by zooming into this musical object, the composer allows us to see more musical detail. This pulsing figure superimposes and coexists with the blue robot's melody, as well as other elements in this passage. Formerly the aggressor, the red robot is now at peace with its neighbours.

FIGURE 7 *Géométrie sentimentale*, ii, m. 30 (violoncello).



At its reappearance in measure 42, the orange robot wears a new harmonic mask: the chromatic cluster mask. This robot retains its transitional function, nervous sense of steady forward motion and sparkling quality—this time in the flute, oboe and clarinet—but is now comprised of pitches forming a slowly moving cluster. Bernstein has pointed out the influence of Serbian folk music on Sokolović's use of dissonant major and minor seconds in her vocal music.²⁰ This influence extends to *Géométrie sentimentale*, with the

20. Bernstein, 2009, p. 29.

chromatic cluster remaining an important pitch collection for the rest of the work.²¹

The extremes of finesse and audacity return on several analytical levels in this section. Indeed, when compared to the dramatic, confrontational *Triangle* section, *Cercle* is graceful. At the same time, the initial 15 measures of the second section are stark and boldly minimalist compared to the following rich heterophonic melody.

Section III : Carré. Obstinate Toys and Compositional Scissors

Contrasting the dramatic interactions of *Triangle* and peaceful coexistence of *Cercle*, *Carré* introduces new robots—synthetic combinations of the original five robots—that remain completely independent from each other. *Carré*'s perspective splinters the magical toy world into square, block-like robot scenes, animating only one robot at a time. Musically speaking, the composer crudely juxtaposes vivid musical textures using a cinematic crosscutting technique, preventing any interaction between these characters. In addition to fusing robot elements into new synthetic toys, Sokolović blends the three established harmonic masks in new ways in *Carré*.

After an introduction in measures 1 to 11, the composer presents the three synthetic robots that comprise the core material of *Carré*. The yellow/blue robot first appears in measure 12, and consists of a clarinet melody with an accompanimental pattern in the strings. The repeated low-high oscillating gesture in the strings recalls the regular oscillations of the original yellow robot, while several elements hark back to *Triangle*'s blue robot: the regular eighth note pulse and focus on E-flat as a bass note in the string accompaniment, the use of a similar melody with a steady rhythm and the application of the E-flat mask to this melody in all appearances of this robot (see Figure 8 for an example of this robot at measure 24).

21. Further, the major second is pivotal to *Géométrie sentimentale*'s structure: the pitches D-flat and E-flat govern the work's large-scale harmonic structure and fundamental harmonic masks.

FIGURE 8 *Géométrie sentimentale*, iii, mm. 24-25 (oboe, clarinet, piano, strings).

m. 24
ob., cl.
mf
piano, strings pizz.
mp
strings pizz.

The orange/red robot is introduced in measure 15 in the woodwinds. Like both the red and orange robots from *Triangle*, this hybrid toy's rhythmic makeup is mostly homogeneous, simply repeating one rhythmic value. It is impetuous like the red robot, and has the shimmering quality of the orange robot, especially in its scalar passages (see measures 41, and 45 to 52). Despite these defining characteristics, this robot is very chameleon-like, evolving from hard-edged sixteenth note clusters in measure 20 (see Figure 9) to virtuosic slurred gestures in measure 45.

FIGURE 9 *Géométrie sentimentale*, iii, m. 20 (flute, oboe, clarinet, bassoon, horn, trumpet, trombone).



Finally, the green/yellow robot comes to life in measure 38. It features a rhythmic oscillation between the winds and strings—inspired, again, by the obsessive oscillations of the yellow robot—with chords that gradually become shorter in duration; this quasi-*accelerando* relates to the green robot's *ritardando* in *Triangle* (see Figure 10).

FIGURE 10 *Géométrie sentimentale*, iii, mm. 38-40 (flute, oboe, clarinet, bassoon, horn, trumpet, trombone, strings).

The appearance of the green/yellow robot in measure 38 is a good example of the composer's crosscutting technique. The orange/red robot is simply cut off in measure 37 and the yellow/green robot takes over; these toys appear in juxtaposed scenes without interaction or dialogue. When Sokolović briefly superimposes two robots, they remain on independent planes and are unaffected by each other. In measure 26, the orange/red robot returns in the bassoon, horn, trombone and piano, as the yellow/blue accompaniment figure gradually disappears in the strings. These two musical layers are kept

disconnected, as if the composer were cross-fading between separate channels in an electroacoustic composition. Sokolović's new toys are independent compared to their counterparts in *Triangle* and *Cercle*. Again, these juxtaposed characters portray the extremes of finesse and audacity: the yellow/blue robot's melody is graceful and playful, while the orange/red robot is gruff and belligerent.

The work's final robot, important to the work's conclusion, will be discussed in relation to Serbian music.

Obsessive Balkan Turning

Sokolović has indicated that the Serbian *kolo*, a round dance performed with variable instrumentation, is an influential force in her music.²² The *kolo*'s function varies significantly: it can be performed prior to a wedding to promote good health and fertility, in daily life for recreation and rejoicing, or in mourning to express grief for the dead.²³ The composer describes the dance as a collective, obsessive trance, featuring a simple, repetitive melody that loses its melodic direction through repetition. Describing this dance's influence on her music, she says "I want to show you my micro-motif from all its sides [...] I want the music to run around itself, like a round."²⁴ This description of the *kolo* matches *Géométrie sentimentale*'s artistic program: we experience a scenario from all sides, viewing three different perspectives of it in the work's three sections. In general, the influence of the *kolo*'s physicality is evident in the insistent emphasis on repetitive rhythms that define the musical robots, especially in *Triangle* and *Carré*.

Sokolović's music is full of specific similarities to this Serbian dance form. In *Triangle*, the opening exchange between the blue and yellow robots could be characterized as obsessively repetitive, like the *kolo*. This dialogue between contrasting textures might even be likened to the *kolo*'s continuous sequence of refrains and verses. The red robot's dance-like triplet motive later in the section is also stubbornly repetitive, in terms of both rhythm and pitch. Further, syncopation abounds throughout the work, an essential rhythmic technique used in circle dances like the *kolo* to create complex decorative dance figures.²⁵ Syncopation is found in the initial blue robot's music, where accented notes on the second and fourth sixteenth notes of the beat add decorative relief to the musical texture, and in the red robot, where accents in the triplet figures are always off the beat. *Cercle* also features syncopated thirty-second note accents in its transformed red robot.

The composer's treatment of material also bears some resemblance to the cyclic *kolo*. Sokolović further explains the influence of the *kolo* on her

22. Sokolović Lecture, 2010. This section will uncover links between *Géométrie sentimentale* and the *kolo* via, primarily, the composer's description of the dance form. Sokolović has explained the *kolo*'s influence on some specific works (*Nine Proverbs*, *Ciaconna*, etc.), but has not discussed its influence on *Géométrie sentimentale*.

23. Janković, 1969, p. 125.

24. Sokolović Lecture, 2010.

25. Janković, 1969, p. 120.

writing: “I want to present my motive to you, but I want to make you forget it in time by repeating it.”²⁶ The blue robot’s repetitive initial melody, with its steady eighth note pulse, is cyclic and recurs so frequently throughout *Triangle* that we gradually become less conscious of its presence. We begin to focus more on the melody’s transformations—its gradual rhythmic simplification, its evolving interaction with the yellow robot, its gradual appearance and disappearance in measures 84 to 96 in the winds, and finally its use of the D-flat mask in the winds—than on the characteristics of the cyclical melody itself. Like the *kolo*, Sokolović repeats the melody at length while displaying multiple perspectives of it, as if the listener were literally dancing around the material. The melody regains our full attention in *Cercle*, now slow, arrhythmic and heterophonic, but as it slowly unfolds, we are again distracted by other things; it is gradually superimposed with more and more robot elements that place the melody in a new light. The red robot, after its introduction in measure 30, undergoes a similar role change in measure 51: it now wears the D-flat harmonic mask and underpins a new wave-like texture—it is placed further into the background of the musical texture. In terms of the handling of material, both the *kolo* and *Géométrie sentimentale* focus on repetition and changes in perspective.

Carré’s formal organization is also related to that of the *kolo*: both consist of a succession of transitions between recurring musical sections. Sokolović’s heterogeneous chain of musical personalities might suggest a chain of diverse characters dancing the round dance in a circle formation. Musical objects are again presented from various perspectives. For instance, each time the orange/red robot recurs it is varied in some way: the composer applies persistent polyrhythms, upward and downward machinistic trajectories and slurred bravado scales. This robot’s music, like the *kolo*, is almost trance-like in its rhythmic regularity, and often uses chromatic pitch content characteristic of Serbian vocal music. The recurring piano melody first heard in measure 16 is an offshoot of this robot’s music, and goes even further in suggesting folk music with its arabesque figures and syncopated rhythms (see Figure 11).

FIGURE 11 *Géométrie sentimentale*, iii, mm. 16-17 (piano).



Carré's hybrid yellow/blue robot (see Figure 8) employs folk elements more clearly than anywhere else in the work. Its repetitive woodwind melody and rhythmically regular, syncopated string accompaniment explicitly evoke a folk genre, if not the *kolo* in particular. Perhaps Sokolović intentionally held back this referential music until the end of the work, finally revealing the influence of the round dance on this hybrid robot's predecessors. As listeners, we now remember the previous concatenations of this folk-infused music from a completely new perspective.

Sokolović describes another form of the Serbian round dance:

The Silent Dance is a type of music deprived of [one] parameter — pitch. [...] What we actually hear is the rhythm of the dancer's heavy steps and the jingling of the jewelry, which the women wear around their necks.²⁷

27. Sokolović Lecture, 2010.

The Silent Dance relates to *Géométrie sentimentale's* final robot. Among *Carré's* crosscutting of musical personalities, Sokolović eventually establishes a new robot with a different function: the composer's robot. Introduced in measure 38, it consists of two elements, both lacking definite pitch. The first—short attacks and repeated notes on the tambourine, guiro, and later the cabaca—is superimposed in a casual manner onto the rest of *Carré's* music, completely disconnected from the juxtapositional robot play (see Figure 12 for this element). Contrarily, the second element—single loud attacks on the cuica—is the only musical object in *Carré* that affects the section's discourse. At each appearance, it halts the music abruptly, forcing it to restart or move on to another robot's music. My interpretation is that this robot's first element represents the composer dancing, with heavy steps and jangling jewelry, on a separate musical plane from the rest of the music, while the second element represents Sokolović's scissors, creating formal cuts in the music as a child would slice coloured strips of construction paper to create a piece of art. Although the composer only introduces herself as a robot character late in *Carré*, her scissors have been silently present throughout the section, controlling the formal proportions and the change from one musical section to another. It is only at the end of the work that the listener is made aware that this robot dream is imaginary, constructed and controlled by

FIGURE 12 *Géométrie sentimentale*, iii, m. 68 (percussion).



Sokolović for our listening pleasure. As of measure 56, the composer's scissors cut increasingly frequently, gaining complete control of the discourse before the work ends with the 'dancing' tambourine figure—Sokolović's robots have disappeared and she is left to perform the unaccompanied Silent Dance, jewelry jangling, with joy and wild abandon.

Composition as Child's Play

Sokolović talks about composition as *play*. She says that when she composes, "je joue!"²⁸ The playful manipulation and transformation of material is often the focus of her compositions. In *Géométrie sentimentale*, the composer's plastic musical objects are playfully transformed in each section to suit the desired perspective: interaction, coexistence or juxtaposition. *Cercle* stretches out *Triangle*'s robot elements in time, then *Carré* deconstructs and inventively recombines these musical toys.

The materials undergo further 'play' within the work's three sections. In measures 84 to 96 of *Triangle*, the blue robot's music slowly appears then disappears in the winds, as if a thick veil of mist were preventing us from seeing it clearly. Following this, Sokolović further manipulates this material by reversing the blue and yellow robots' instrumentation. In *Carré*, the abrupt interruptions and juxtapositions between musical sections eventually occur so frequently that they become the focus of the discourse, and the composer's scissors, heard in the cuica, ensure that this cinematic technique is emphasized. The piece concludes with fragmented robot scraps bouncing around a sink before falling down the drain as the pervasive composer's robot takes control of the discourse. Sokolović places her robot in the foreground as she quickly disposes of the musical objects that populated the three sections of the piece. Here, even more than the rest of the work, the composer underlines compositional play and her control over the piece and its materials.

Such an emphasis on playful compositional techniques does not suggest that the musical objects themselves are simply arbitrary, replaceable trifles. On the contrary, Sokolović has carefully crafted intriguing toys that effectively undergo various manipulations and contribute to the desired perspective of each of the work's sections. In this way, her music is similar to that of Stravinsky; both composers subject imaginative musical objects to diverse transformation techniques.²⁹

Conclusion

Tadao Ando's architecture inspired Sokolović to compose *Géométrie sentimentale*. The composer was not necessarily influenced by Ando's actual buildings,

28. Pascal, 2006, p. 38.

29. Isabelle Picard has discussed the influence of Stravinsky on Sokolović's music in more detail: see *supra*, note 9.

but instead by the use of pure geometric shapes in his architectural plans: triangles, circles and squares.³⁰ Like Ando, she employs these shapes as preliminary building materials: throughout the work, triangles, circles and squares are literally drawn into the score, generating vectors and trajectories that are applied to various musical parameters, becoming musical gestures as the work unfolds in time. These gestures contribute to the musical robots' identities by placing each in the state/process binary and by generating for each a unique sense of physicality and kinetics. In effect, Ando's pure geometry helps to form the imaginary robot world conjured up by Sokolović's playful music.

While the goal of an expressive narrative analysis may be "to convince readers that they could hear the music in a way consistent with the interpretation at hand",³¹ the goal of this article has been to use an extra-musical analysis as a lens through which *Géométrie sentimentale*'s musical elements can be understood. The contrasting relationships between robots in each section of the work make lucid the composition's three perspectives: dramatic interaction, peaceful coexistence and obstinate juxtaposition. The toys' evolution from section to section informs Sokolović's use of variation techniques and her means of fusing new musical objects from old ones. The harmonic masks worn by the robots symbolize plainly the work's pitch organization. Finally, and perhaps most importantly, the robots' defining kinetics and physical gestures elucidate the diverse rhythmic relationships at work in the piece.

Having established the meaning of the titular "Géométrie", how does "sentimentale" figure in? The composer has created a playful sonic universe with musical objects likened to children's toys, and incorporated elements of Serbian folk music into the work, consciously or not. Considering these elements together, perhaps the work represents the composer reminiscing about and yearning for her youth in the former Yugoslavia. It might be thought of as a dream-like return to Sokolović's childhood, full of playful toys, Balkan music and traditional dancing. At the end of the work, with the appearance of the composer's robot and its scissors, we are awakened from this dream and realize that Sokolović has been the puppeteer of these eccentric robots all along.

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30. Private interview with Ana Sokolović, October 2009.

31. Klein, 2004, p. 52.

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