

Narrativity in Multimedia Composition

Master's Thesis of Constantin Basica

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Preface

During my Bachelor studies in Classical Composition, I often felt the need of giving eloquent titles to my pieces, which did not only describe the idea behind the piece through words, but rather implied that the piece was a story in itself. Titles like “Murder in a Glass” (piano solo), “Confrontations with a Mathematician” (string quartet), “The Strange Story of the Five Angry Insects” (wind quintet), “Confetti Cannot Become Snow” (sextet), “This War Has Already Been Led” (septet) or “Storm Over a House in Leymen” (orchestral) suggest that the music in these pieces aims to describe characters and events. However, at that time my titles were merely a connection between the musical content of the pieces and the imagination of the listeners. Although music is a universal language, my music was still abstract and I was not composing pieces with a clear message or plot in my mind. Things changed when I came to Hamburg and started learning Max/MSP/Jitter. A whole new world opened for me with countless possibilities of translating, mapping and expressing ideas through computer-aided media. Out of all, the combination between music and the realm of video, as well as the freedom of controlling multiple parameters of the audio-visual elements in real-time, were the most significant additions that allowed me to further develop my techniques of storytelling. The multimedia pieces written during my Master studies in Hamburg have emerged from different thoughts that have troubled me recently and convinced me to share them with other people. Since I am more of an introverted person, I referred to art in order to make a sense of these thoughts and emotions. This thesis explores the methods employed in the process of composing my pieces, while trying to explain their premises and purposes; in short – their *narrativity*.

Constantin Basica
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Being able to write this paper and finish my Master's degree is due to my parents, who deserve my deepest gratefulness for supporting me every day of my life. Last, but definitely not least, I want to thank my brother for putting up with all my compositions for horn, and my girlfriend for being the pillar of help that I needed.

Confirmation of Authorship

I hereby formally declare that the work submitted is entirely my own and does not involve any additional human assistance. I also confirm that it has not been submitted for credit before, neither as a whole nor in part and neither by myself nor by any other person. All quotations and paraphrases, but also information and ideas that have been taken from sources used are cited appropriately with the corresponding bibliographical references provided.

A handwritten signature in black ink, appearing to read 'Sascha Lino', with a long horizontal flourish extending to the right.

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1. Narrative and narrativity

1.1 Introduction

Humans are communicative beings by nature and storytelling is probably almost as old as human intelligence is. People need to express themselves in various ways and stories have always been a useful and resourceful tool for communicating ideas and sharing knowledge across time and space. Stories are used as a complex way of organizing and understanding human experience. It is generally believed that the narrative process helps us expand our intelligence, our ability to empathize with others (Worth 2005, 1) and gives us a sense of our reality. By definition, *narrative* is a story, a series of events or experiences, be it true or fictional. The term should be distinguished from *narrativity*, which refers to the qualities and characteristics of a narrative. To emphasize the difference between the terms, and for a better understanding of the upcoming chapters, I will shortly discuss each of them from the narratological point of view.

Narrative is both a largely used and highly debated term in academic writing. Wilkens et al. (2003, 2) give the following classification (based on definitions by David Bordwell, Kristin Thompson and Jerome Bruner): “narrative is a chain of events related by cause and effect occurring in time and space and involving some agency”. This description captures very concisely the basic premise of the narrative: not any random series of events can be considered a story, unless there is a force of intentionality, which drives the chain of causes and effects. Usually, this agency takes the form of characters or of the narrator (ibid.).

In the introduction of her book *Narrative across Media: The Languages of Storytelling*, Marie-Laure Ryan seeks a definition while looking at the various positions from which the term of narrative has been investigated: existential, cognitive, aesthetic, sociological and technical (2004: 2-6). The existential category tries to explain how the act of narrating helps us comprehend temporality, mortality, humanity, and, in Ryan’s words, how it might be “a way [...] to give meaning to life” (2). In turn, she argues that the cognitive approaches describe the methods implied by the narrative intellect, but without a proper distinction from

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the literary narrative fiction (4). Furthermore, the author observes that aesthetic and sociological studies tend to get idiosyncratic towards a definition, either by considering narrative inseparable from fiction and literature or by evaluating it from an exclusive contextual perspective, thus being unable to isolate the term from external factors (4-5). Finally, the technical approaches, through narratology, folklore, experimental psychology, linguistic and discourse analysis, succeed in giving Ryan an adequate field to search further for an appropriate definition (5-15). The phenomenon of narrative has also been recently studied from discursive, historical, cultural and evolutionary points of view, shifting the focus to its relationship with the creator (Abbott 2011).

A key feature of narrative, and also vital for this paper, is its transportability or *transmediality*, given by the fact that it is a process of organizing human experience. This makes storytelling valuable in various fields and allows it to be replicated in other media, even when the language factor is not involved, e.g. music and visual arts. Michael Mateas and Pheobe Sengers sustain that contemporary artists “rarely tell straightforward narratives employing the standard narrative tropes available within their culture, but rather ironize, layer, and otherwise subvert the standard tropes from a position of extreme cultural self-consciousness” (2003, 10). Hence, a work of art which engages narrative should not be regarded as a surrogate for traditional storytelling, but rather as a different and often radical method of sharing thoughts.

To find a definition of the term *narrativity* is even a more complex task and maybe the widest dispute in narratology. John Pier offers a set of questions that outline the multiple issues of understanding narrativity, but he admits that they might never receive definitive answers:

Can narrativity be defined by its formal features? Is it one narrative category among others? Are there types of narrativity?, degrees of narrativity? Do narratives possess narrativity or do they exhibit narrativity? Do they produce narrativity or are they produced by narrativity? Does narrativity in, say, a novel differ from narrativity in a short story or a film? Can narrativity be perceived in different ways? (2008: 109)

Although narrativity is an on-going field of research, the many narratological studies conducted in the last 30 years have cast light upon this controversial concept. One of the first to explore the term narrativity in English fiction was Philip John Moore Sturgess, who

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referred to it as “the enabling force of narrative [...] present at every point in the narrative” (Sturges cited in Ryan 2004, 4). Along with him, narratologist Gerald Prince describes it as “the set of properties characterizing narrative and distinguishing it from non-narrative; the formal and contextual features making a (narrative) text more or less narrative, as it were” (Prince cited in Rudrum 2008, 254). For Sturges and Prince, narrativity is the range of qualities or characteristics which shape into narrative, the fundamental property of narrative, or “*that* which distinguishes narrative from other texts” (Rudrum 2008, 254 emphasis added).

Conversely, David Rudrum (2008) is not completely satisfied with Prince’s idea that narrativity is linked to the receiver, because it can be either confused with readability or be subjective and consequently unclassifiable. So, to assume that the way in which the receiver perceives a narrative is a sign of narrativity can be misleading, due to external factors like the reader’s background, culture, intelligence or even *taste*. Rudrum (ibid.) also questions Sturges’s belief that causality is a sign of the “logic of narrativity”. He argues that causality is significant in other areas, too, like mathematics, therefore it cannot be an essential argument for narrativity.

H. Porter Abbott tries to explain narrativity by giving as example a micro-narrative: “She drove the car to work” (2008, 24). He observes that such a story lacks narrativity and compares it to other two improved versions of it: “She ate lunch. Then she drove the car to work” and “Brooding, she ate lunch. Then she drove the car to work” (25). By adding, in order, a new temporal event and a literary aid, he demonstrates that the amplified narrativity of the text is “a matter of degree” (ibid.). Hence, narrativity lies in the way the narrator convinces the reader about its story. In *Narrativity*, Abbott describes it as “the ‘narrativeness’ of a narrative” (2011), similar to “the lyricism of a lyric” (ibid.), which consolidates the idea that narrativity is a quality of the narrative.

Gerald Prince defined two of the characteristics of narrativity. An “extensional” category – *narrativehood* – that denotes all the entities meeting the conditions of a narrative and an “intentional” category – *narrativeness* – that refers to the qualities or features of a narrative. Both characteristics rely on scalar values, the first on quantity and the second on

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quality. Another term that requires is *narratibility* (or *tellability*). It was first used to describe the characteristics of informal storytelling, but later began to be associated with any narrative. Narratibility refers to the *ability* of an experience or event to become a narrative, should its narrator decide that it is worthy. Therefore, it distinguishes itself from narrativity, because the latter appears only after the story is told. Livia Polanyi assumes that narratibility is defined by answering these questions: “What is worth telling, to whom and under what circumstances?” (Polanyi cited in Baroni 2011).

It may seem like a doubtful idea to attempt a demonstration of the narrativity in a field that is not primarily word-based, as long as the theory of this concept has not yet reached a common definition and narratologists often still have different opinions about what it means. Nonetheless, I consider that this uncertainty leaves enough room for interpretation and gives me a chance to sustain my own theory about what narrativity in multimedia composition means and how the concept is applied in my pieces.

1.2 Narrativity in art

Marie-Laure Ryan beautifully summarizes narrativity as the “ability to bring a world to life” (Ryan cited in Abbott 2008, 25). Considering this quality, the concept can clearly be applied to art. But which of the arts provide a suitable medium for stories? Controversially, all of them. While narrativity in art is a topic that bears endless discussions, I would like to point out from the start that, in my opinion and gazing to Ryan’s previous words, even the poetic nature of art itself should be considered its narrativity. To put it in simple words, I believe that art *tells* us something and, even when it is not a story, the sum of all the qualities by which art communicates can be thought of as *narrativity*.

Art is generally considered a form of communication, therefore the linguistic theories should provide some information about narrative in art. But if narrative in art can be easily questionable by making a parallel to linguistics, the debate about narrativity in visual and performing arts remains open. Wolf Schmid (2003) informs us that, whereas the classical narratology limited the term of narrativity to works that include a “narrating authority”

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(ibid.), the newer structuralist concept embraces any medium, with the condition of a change in the temporal structure. This is a vital assertion for music and dance, because it defends their capability of having narrativity through other means than words, but visual arts cannot subscribe to this, as they are primarily synchronic. Nevertheless, through the power of imagery, visual arts have the ability to simulate narration.

So what contributes to the narrativity of an artwork? Since each art has its own characteristics and processes of communication, it would be a difficult task to find mutual categories of qualities that allude narrativity. But even in case of non-narrative art it is still not impossible to think about their *narrativeness* in relation to the viewer. An abstract painting of Pollock or Mondrian clearly was not meant to be narrative, but an art critic could tell you a story about the colours, shapes and intentions of the painter. Two statements can be drawn from this:

1. it is frequently less important *what* (or even *if*) an artwork narrates, but *how* it does it, thus the process of making the artwork itself becomes narrative;
2. the narrativity of an abstract artwork is dependent on its viewer interpretation.

Of course, my hypothesis about the narrativity of abstract art could be considered a speculation, since it cannot be universally applied. Then again, art is highly subjective, so evaluating its narrativeness is accordingly subjective.

Since narrative is intrinsic to literature, as well as to drama and cinematography, I will omit the discussion about them and focus further on visual arts and music.

1.2.1 Visual narratives

It may look like images can effectively replace human languages, as the adage enunciates: “a picture is worth a thousand words”. Truly, visual representations are universal, crossing the boundaries set by languages and, what text tries to express through literary figures of speech and complex phrases, visual arts can easily communicate in a single image. Particularly interesting about this is the assumption that the narrativity of a visual artwork can occur in a more symbiotic relationship with the viewer than the one between the narrativity of a text and reader. As noted before, narratology does not necessarily take the reader into account when it analyses the narrativity of a text. Though this may be, visual

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artworks can tell stories that were not necessarily intended by their authors, but discovered by the viewers.

On the other hand, narrative art proves that humans need more than words to communicate, especially when it comes to intangible notions like emotions, profound thoughts or ambiguous concepts. Although the term *narrative art* means art which tells a story, it is usually used in association with the visual arts. The first cases of this kind in history are the cave paintings, found all over the planet and dated up to 35000 years ago (“Cave Painting”, Wikipedia). It is believed that by that time humans were already communicating with the help of languages, but we cannot know to what degree, so cave paintings may actually be the first testimony of narrative in the world. During the course of history, narrative art has evolved, along with its practices, characteristics and physical support, but also with its purposes. In the past century, this kind of art has mostly taken the form of comic strips, comic books and graphic novels, which are known as *graphic narratives*. Robert Petersen remarks that, historically, graphic narratives have inclined towards a moralizing attitude, which “is not essential to graphic narrative action, but it tends to put the narrative into sharper focus” (2010, 16). He also agrees that there is an intimate relationship between author and receiver, which articulates into narrative, so the latter should be a platform for reciprocal understanding (ibid.). But to talk about meanings in narrative art also requires a short clarification about the domain of visual semiotics.

René Magritte gave us valuable clues about visual semiotics in works like “The Treachery of Images” or “The Key to Dreams”. By painting a pipe and writing underneath “This is not a pipe” he raises our awareness about the fact that images are often nothing else but representations of reality. To understand a sign, there has to be a common agreement about its meaning and Ferdinand de Saussure, as well as Charles Sanders Peirce elaborated this in their works about semiotics¹. Daniel Chandler makes a comparison between these two works in *Semiotics: the Basics* (2002): while Saussure defined a sign with two elements – *signifier* (a word) and *signified* (a concept), Peirce proposed a triangular model – *representamen* (the form of the sign), *interpretant* (the sense made by the sign) and *object*

¹ *Semiotics* is the American term, while in France Saussure called it *sémiologie* (“Semiotics”, Wikipedia).

(the concept to which the sign refers). Umberto Eco also notes that “usually a single sign-vehicle conveys many intertwined contents and therefore what is commonly called ‘a message’ is in fact a *text* whose content is a multilevelled discourse” (1979, 57). Although these theories mainly refer to linguistic signs, they are not only applicable to visual arts, but are indeed the starting point in visual semiotics, which consequently helps us understand visual narratives.

1.2.2 Musical narratives

Music is one of the art forms that needs time to unfold itself and this makes it a suitable medium for narrative. The link between music and words has been undoubtedly very early established, as the human voice was probably the first instrument ever used. Over the centuries, music has been utilized together with languages to add a new layer to stories, one which words alone hardly can describe. It is therefore understandable that narrative in music is to be found in every culture of the world and it can be seen as a correspondent of narrative visual art. The western European music has also been an efficient medium for transmitting stories. From Gesualdo’s madrigals to Ligeti’s “Nonsense Madrigals”, from Bach’s chorales to Schubert’s Lieder, from Mozart’s Requiem to Mahler’s Resurrection (2nd Symphony with choir) and from Wagner’s “Tristan and Isolde” to Schönberg’s “Pierrot Lunaire”, the marriage between music and literature has been prosperous. It is thereupon clear that assessing the narrativity of such genres of music is foremost a matter of analyzing the text and secondly its relationship with the music. This leads to the obvious question whether a symbiotic musical work, especially opera and ballet, has separate levels of narrativity or if there is a greater logic that governs every aspect of the narrative. To attempt an answer, another aspect must be first debated: can music be narrative through its own mechanisms? And is there such a thing as narrativity of abstract musical discourse?

In the past century, many musicologists have described music as a language, with its own grammar, syntax, semantics and semiotics. Thus, music as a narrative process appears to be an eligible assertion. And indeed, many people feel that instrumental music, such as Beethoven’s for instance, has a narrative force that resembles dramatic text. This is first of all a consequence of the fact that music, similarly to fictional narratives, has a logical sequence of events that is named *form*. So the parallel between literary and musical form can

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be further sustained: words become cells of musical notes, sentences and phrases become musical motifs, characters – musical themes, conflicts – musical sections and so on. Talking about the musical theme, the Romanian composer Dan Dediu compares it to a character from a novel or a drama and explains that not the sound pattern is the key to underlining a theme, but its power of invocation:

To become a theme, the sound configuration has to adopt a role, to wear a mask. It becomes consequently a character, a significant sonorous entity that bears soulful content. It is not the composing sounds that constitute the theme, but the expression that they invoke and illustrate. (2004, 117)

This statement also applies when explaining music as narrative in general: not the actual sounds tell a story, but rather what they depict in our imagination.

The best example of a musical narrative is probably the sonata form, based on tonal relationships, which served as foundation for most classical and romantic composers in their symphonies, concertos or chamber pieces:

Literary plot ²	Musical plot
Exposition (introduction of characters, usually good and bad)	Exposition (first and second theme in contrasting tonalities)
Rising action (conflicts, obstacles etc.)	Development ³ (structural, tonal and rhythmic instability)
Climax	Climax
Falling action (conflicts head towards a resolution, but the action is still tense)	Retransition (going back to the main theme/tonality, often through a tense dominant ⁴ section)
Dénouement (final confrontation between protagonist and antagonist)	Reprise (first and second theme again, but in the same tonality)

While the close similarities between the two forms establish the sonata as a convincing musical narrative, it is not only the form of a piece that associates it to fiction, since not every listener has information about music theory. Berio's pieces "Sequenzas" for different solo instruments give the impression that a narrator is telling a story – a consequence not necessarily of the form, but also of the musical discourse's fluidity. Fred Everett Maus

² The dramatic structure proposed by Gustav Freytag for Greek and Shakespearian dramas: <http://www.wvph1079fm.com/download/lafreyta.pdf>

³ In the classical sonata form, the development includes the climax and the retransition.

⁴ The sense of musical dominant (the harmonic function of the 5th step in a tonality).

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observes that the musical discourse has other characteristics than the literary one (e.g. repetitions), since it lacks the power of *past tense*, and that the listener usually does not differentiate the discourse from the narrative in a musical piece. “To the extent that musical surfaces are understood as discourse [...] there will presumably be some sense of an agency [...]. But this agency has a strange impersonality, akin to the silent, invisible intelligence that guides the montage of a film rather than a vividly dramatized speaker [...]” (Maus 1990).

And what about narrativity in instrumental music? Is it the actual power of music to evoke storytelling or is it a sum of all the qualities that make music *musical*? François-Bernard Mâche claims that it originates in the flow of energy:

Narrativity in music implies that instead of starting from such static notions as form, symmetry or dissymmetry, proportions or tone-hierarchy, one cares first for dynamic processes, either abstract, like energy distribution, or metaphorical, as scenarios and plots. The details, episodes, characters, conflicting or coalescing Gestalten, all are organized afterwards. (1995)

Clearly, narrativity in instrumental music is a figurative notion and it involves the interpretation of abstract concepts, such as musical entities. While narrative in music is shaped by its creator and his compositional techniques, the narrativity of music is usually perceived as *expressivity*.

Perhaps the most simple, yet profound explanation of the narrative in music was given by Theodor Adorno, when he talked about Mahler’s music: “a narrative that narrates nothing” (Adorno cited in Nattiez 1990, 128).

1.3 Digital stories

Along with the transfer of traditional art forms and cultural practices into the digital realm, narratives have also gained an important place in the computer-related phenomena. Old stories have been translated and adapted, while new ones have emerged from the uniqueness of each medium. To underline the ways by which narrative is correlated to digital media, Marie-Laure Ryan delimits five essential properties of the latter in *Will New Media Produce New Narratives?*:

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1. “Reactive and interactive nature” (2004, 338) ensures the premises of cooperative storytelling;
2. “Multiple sensory and semiotic channels” (ibid.) indicate the capability of digital media to be fused together;
3. “Networking capabilities” (ibid.) allow people to surpass the spatial inconvenient and connect in virtual environments;
4. “Volatile signs” (ibid.) refer to the ability of digital media to accommodate flexible content that can be changed or improved without losing the original context;
5. “Modularity” (ibid.) or “the fractal structure of new media” (Manovich 2002, 30) indicates how the constituting elements maintain their own characteristics, though giving birth to larger objects.

Further on, Ryan makes an analogy between digital media and the three elements of language grammar: “semantics (*the study of meaning*⁵) becomes the study of plot, or story; syntax (*the study of the combinatorics of units of a language*⁵) becomes the study of discourse, or narrative techniques; pragmatics (*the study of the relationships between the symbols of a language, their meaning, and the users of the language*⁵) becomes the study of the uses of storytelling and of the mode of participation of human agents in the narrative performance” (2004, 354).

People are addicted to stories and, for the first time in history, they are creating stories in real-time, by means of hypertext, computer games or interactive applications. The ever-increasingly spread of Internet has democratized the use of narrative in virtual societies. For example, online social networking has changed modern storytelling by putting each user in the middle of the equation. Any user⁶ can be the author, the narrator, a character or the critic of a story or, often, all at the same time. However, the concept of narrativity in online social networking is undermined on one hand by the mechanisms of the hosting application, and on the other by the lack of interest in narrativity: a user who uploads recent pictures taken on a trip doesn't usually augment them with short stories (sometimes only simple comments about the places or persons from the pictures).

⁵ “Semantics”, Wikipedia.

⁶ Because the human agent in computing can either be a reader, a viewer, a listener or a character, the term *user* was adopted, which combines and replaces the previous ones.

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The narrative design of computer games stimulates the human urge for solving problems and the predisposition for competition. In a game, stories are generated while playing and the player becomes part of the story. Most computer games already have a story (a script) and the user is left with a few predetermined paths to choose from. The stories are not personalized and cannot differ so much from user to user, but their experiences do. Moreover, virtual-, augmented- and alternate-reality games, as well as the new methods of human-computer interaction (through sensors or multi-touch technology), have brought a whole new dimension to narrative. The users become less conscious of the border delimiting the real world from the virtual one and become more involved in the story.

As a combination between games and online social networking, the online virtual world created by Linden Lab and released in 2003 – “Second Life” – allows users to create their own stories. By choosing avatars, they are able to interact with other users and simulate real life or create an imaginary one. Due to the continuous work of improvement, programmers can modify or bring new properties to this world. All the ingredients for creating a narrative are present, but the story is left open-ended.

Interactive art (i.e. interactive installations) is not further away from computer games. Sensors grab data from real world, translate it into numbers and send it to the computer for processing. Then, with the help of algorithms written by the artist, the data takes a new physical or virtual form and is given back to the user as feedback to its actions. Interactive art installations, together with games and cinema are breaking free from the 2D screen and they explore new dimensions in order to blend with reality.

2. Multimedia storytelling

2.1 Introduction

In the desire of creating something new and original, numerous connections have been made among media platforms. Different terms – intermedia, transmedia and multimedia – have been assigned to define the employment of multiple media when transmitting a message. The term *intermedia* was first introduced by Dick Higgins of the Fluxus movement, who noticed that: “Much of the best work being produced today seems to fall between media” (Higgins cited in Visel, 2005). Therefore, new combinations were born by pairing old mediums. *Transmedia* was first introduced by Henry Jenkins and was designated for stories that unfold across multiple media platforms:

In the ideal form of transmedia storytelling, each medium does what it does best — so that a story might be introduced in a film, expanded through television, novels, and comics, and its world might be explored and experienced through game play. Each franchise entry needs to be self-contained enough to enable autonomous consumption. That is, you don't need to have seen the film to enjoy the game and vice-versa. (2003)

Transmedia artists try to expand the fictional world and minimize its border with the real world. Their goal is to increase the public’s emotional experience towards the story. Multimedia is a form of communication through multiple media. To prevent confusions upon what the term *multimedia* stands for, Marie-Laure Ryan (2004, 15-16) tries to explain and exemplify the two definitions assigned to the word *medium* in Webster’s Dictionary: the first one labels “a channel or system of communication, information, or entertainment” (TV, radio, the Internet, the gramophone, the telephone, books, newspaper etc.), while the other one signifies “material or technical means of artistic expression (painting, sculpture, photography, performance, music etc.). The term *multimedia* must be differentiated from *mixed-media*. The second involves the handling of multiple traditional visual arts in the process of creating an artwork (usually a collage), while *multimedia* primarily combines visual and non-visual content forms. In multimedia art on the other hand, the message is emphasized by the interaction of multiple art forms.

2. Multimedia storytelling

Multimedia composition is a new concept that has recently started to make its way through the digital art domain and to gain its own aesthetics. John Coulter tries to grasp a definition:

Multimedia composition is a term that is difficult to define. The name implies that a range of interdisciplinary craft practices will be employed in the creation of unified works of art that exhibit specialist sonic characteristics. Furthermore it implies a departure from the traditional and well established craft of musical composition and gravitation towards a conceptual or aesthetic framework that operates irrespective of specialist craft practice or media type. (2005)

Perhaps one of the most ambitious goals of multimedia composition is to reinvent the perception of time and space that was long explored by traditional art. The multimedia composer utilizes any form of art, traditional or digital, for the purpose of a symbiotic artistic expression. He meticulously plans and organizes every aspect of the employed media and creates a unified product. The artwork can be a real-time performance, an interactive installation or can take an innovative form. From a narratological point of view, multimedia composition accentuates the non-linear part of a narrative through the interaction between its components.

Further on, I will explore some of the main methods and compositional tools that I have employed in my multimedia pieces, while trying to keep an eye on their relation with the concepts of narrative and narrativity described in the previous chapter.

2.2 Encoding and decoding an artistic message

*Everything we see hides another thing, we always want to see what is hidden by what we see.*⁷

René Magritte

To experience an artwork we make use of our sensory system, just like we do with any other thing in our lives. Then, by processing the information received, we automatically generate some thoughts about it. But unlike all other things in our lives, artworks invite us to deeper

⁷ “The Son of Man (Magritte)”, Wikipedia.

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contemplations, in order to interpret their meanings. And we do this by unconsciously asking ourselves one or more of the following questions:

- “1. What is the *artwork*⁸ intended to mean?
2. What could it mean?
3. What does it mean?
4. What is its significance to me?” (Stecker 2003, 4; italics added)

In a reverse procedure, the artist reflects upon an idea, an emotion or some kind of a stimulus and encrypts a message about it in the artwork, with the help of artistic material. Each form of art owns numerous methods that can be employed for encoding and distributing a message. Of course, the more abstract an artwork is, the more difficult to decipher the initial intentions of the artist is. In conceptual art, for instance, the *physical* creation is only the support of the artistic idea, which undermines the importance of an aesthetic experience. That is to say that an artwork can either be the message itself or just a container of it.

Marcel Duchamp’s “Fountain” has been voted the most influential modern artwork of all times in a poll of 500 art experts from the UK⁹. But the disagreement of people quickly appeared in negative reactions like: “This is ludicrous! I mean what ISN’T art these days? These days you can stick your name on anything and call it art. I see no beauty in a sculptured toilet.” (Maya McKee, Southampton, UK)¹⁰ or “It certainly is original, but when compared against all the other art works out there that took plenty more time and work, I think it's just insulting to the other artists.” (Steve Wilson, Nottingham, England)¹⁰. This demonstrates that most of the people are accustomed to look at art as some sort of craftsmanship and not necessarily a means of making a point or expressing an idea. And this is understandable, because until the 20th Century artists portrayed the world with great regard to aesthetics. The more an artist would work on a creation and make it *beautiful*, the more admiration would the public display for it. Elisabeth Schellekens (2007) explains this in the following way:

⁸ Robert Stecker uses the word *object* for these basic interpretative questions, but they are equally valid when applied in art.

⁹ <http://news.bbc.co.uk/2/hi/entertainment/4059997.stm>

¹⁰ http://news.bbc.co.uk/2/hi/talking_point/4061491.stm

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The artwork is a process rather than a material thing, and as such it is no longer something that can be grasped merely by seeing, hearing or touching the end product of that process. The notion of agency in art-making is thus particularly emphasized. In many cases, the 'art-making' and the 'artwork' come together, as what is sought is an identification of the notion of the work of art with the conceptual activity of the artist.

Different disciplines, like psychology, aesthetics, semantics and semiotics, have been transposed to the field of art with the purpose of studying human perception and behavior regarding art. These studies can be (and often are) used as tools for manipulation. Knowing how individuals may react to certain images or sounds empowers scientists, artists and others who are familiar with the scientific theory to influence the way one thinks (or even acts). Artists can intentionally provoke different emotions to their public. Nonetheless, the impact of an artist's work is still reliant on each targeted individual. Therefore, when experiencing the same artwork, emotions can (and will) vary from one person to another. Nowadays, the methods used to make the public sensitive to artistic messages have to be more aggressive in order to outbalance the information that mass-media bombs continuously. To illustrate this, in his struggle to raise awareness about the condition of stray dogs, the artist Guillermo Habacuc Vargas Jiménez captured one of them, chained it in a gallery and put a big sign made of dog biscuits on the back wall: "Eres Lo Que Lees" ("You Are What You Read"). This action shocked people all over the world, even if they had only read about it, and their feedback matched the aggressiveness of the artist's method. An online petition¹¹ was signed by almost 3 million people, including Vargas himself apparently, to boycott his participation at the 2008 Bienal Centroamericana Honduras.

Contemporary semioticians use the terms *encoding* and *decoding* when referring to "the creation and interpretation of texts" (Chandler 2001). In 1960, the structural linguist Roman Jakobson introduced a model of classifying communication, involving an *addresser* (encoder), an *addressee* (the receiver), a *contact* (a psychological link between the two persons), a *code*, a *context*, a *message* and six appropriate functions: *referential*, *expressive*, *conative*, *phatic*, *metalingual* and *poetic* (Jakobson cited in Chandler 2001). The next table (ibid.) exemplifies these notions and how they interact:

¹¹ <http://guillermohabacucvargas.blogspot.com/>

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Type	Oriented towards	Function	Example
referential	context	imparting information	It's raining.
expressive	addresser	expressing feelings or attitudes	It's bloody pissing down again!
conative	addressee	influencing behaviour	Wait here till it stops raining!
phatic	contact	establishing or maintaining social relationships	Nasty weather again, isn't it?
metalingual	code	referring to the nature of the interaction	This is the weather forecast.
poetic	message	foregrounding textual features	It droppeth as the gentle rain from heaven.

To encode and decode a message by means of symbols and metaphors is essential in order to understand narrative in fields that are not word-based, such as abstract art. Symbols and metaphors stand for something else than their primary meaning. Compared to metaphors, in the case of which we have to totally ignore the literal sense and replace it with the new figurative one, symbols have to be interpreted having in mind their primary sense but adding new connotations to it.

2.3 Algorithmic composition

Over time, music has been regarded as a combination of art and science. Even if the art of music surpasses its physical form, musical composition relies on a set of complex rules to manipulate the parameters of sound. The tonal system, for instance, proposed a hierarchical organization of pitches, based on the relationships between the chords that are formed on the notes of an equal-tempered scale. It led to the development of numerous composition instructions, which on one hand constrained composers to obey certain aesthetics, but on the other hand left them enough room for individual expression. Although tonal music, like baroque or Renaissance music before or serial and chance music after, could also be labelled as *algorithmic composition*, the expression is generally used to describe modern techniques of creating music with the help of a computer.

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An *algorithm* is “a procedure for solving a mathematical problem in a finite number of steps that frequently involves repetition of an operation”, therefore algorithmic composition comprises, but it is not limited to, models from mathematics and computer science. Basically, the composer specifies a set of instructions that the computer follows to generate music – this attracted the term *automated composition*. The amount of involvement of the computer in the process of composition is a matter of individual aesthetics from one composer to another or one piece/program to another. Thus, there are two terms for the different methodologies implied in algorithmic compositions: “stochastic” (non-deterministic) and “rule-based” (Maurer 1999). These approaches are explained by Gerhard Nierhaus (2009, 27) in his book *Algorithmic Composition: Paradigms of Automated Music Generation*:

1. “non-knowledge-based methods” output musical data that is assessed and exploited by the composer;
2. “knowledge-based methods” generate musical entities as a result of the rules given by the composer.

The first kind of procedures were pioneered by Iannis Xenakis, while the second manner was employed in programs such as Gottfried Michael König’s “Projekt 1” and “Project 2”. John Maurer also makes the distinction of a third type of techniques: programs that have “artificial intelligence” and, by *learning*, can produce their own rules. This type draws information from the cognitive science and neural networks, in order to endow the computer new capabilities of composing.

The human-computer connection in algorithmic composition is achieved with dedicated programming languages. Concerning the purpose of music programming, Curtis Roads writes:

Music systems programming can have all the technical and intellectual challenges of programming generally. Composition problems are notorious difficult to define precisely and completely, so satisfying one composer’s need may not lead to a universal solution. Sometimes it is better to provide a flexible toolkit that the user can play with than it is to attempt to solve all aspects of a musical problem once and for all. (1996, 51-52)

And indeed, programming languages like Csound, Max/MSP, PD, OpenMusic, Common Music, Patchwork, SuperCollider and many others provide composers a modular framework

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for audio signal manipulation, sound synthesis, score notation, sound spatialization, various compositional practices and much more. Although composing algorithmically requires additional knowledge extrinsic to music, the accessibility of personal computers and the versatility of object-oriented programming languages have recently convinced more and more *classical* composers to acquire some level of skills in electronic music.

The narrative side of algorithmic composition is somewhat overlooked, analogous to conceptual art. Often, the resulted music seems too abstract for telling a story, but the inner logic of algorithmic composition narrates about the mind behind it. In multimedia, this way of composing allows the creator to automate the processes of generating content and helps him organize a story in a manner that can encompass any digital medium.

2.4 Data visualization and audio mapping

According to Stephan Few, *data visualization* is “the graphical display of abstract information for two purposes: sense-making and communication” (2010). The process of continuously organizing information is a vital step in human evolution and progress. As time passes, the society changes and the amount of information increases. Thus, the systems of managing data are reinvented and adapted to the new requirements. Data visualization is most commonly met when dealing with statistics, usually illustrating quantities or values and the relationship between them, so as to facilitate an easy comparison. This method, as opposed to the classical *tables with numbers*, is an easy and fast way of systematizing and transmitting information.

Very good knowledge about human perception is necessary in order to encode a message into an image that can easily be decoded by others. Artists and designers are most likely to respond to this challenge. Artists have transformed data that floats all around us into a tool for creating stories and expressing artistic messages. The intelligent use of shapes, colors and signs, as well as their skill of organizing information in a structured way, generate amazing systems and help guiding the viewers through the fascinating universe of data. In 2003, Fernanda Viégas, Kushal Dave and Jonathan Feinberg collaborated in the project

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called “History Flow”¹², in which they extracted data regarding the dynamics of editing on Wikipedia and transposed them into diagrams. This gathering of data in time showed, through flowing shapes and colors, how often were some of the articles from Wikipedia vandalized and exactly how rapidly they were fixed. Another piece that created narrative in this manner is the one of Jonathan Harris and Sep Kamvar, who searched to bring stories and personal data from online dating and social networking websites in their interactive application “I Want You to Want Me”¹³. They created a system that collects data every hour and organizes it into virtual balloons containing personal messages. It gives users the possibility to surf through various beautifully designed environments by touching the screen. This navigation not only reveals the micro-stories trapped in the floating balloons, it also creates macro-stories, in the users’ struggle to make connections and to make sense of the experience.

Unlike data visualization, *audio mapping* is not such a well-defined term, although it basically has the same properties. The process of mapping audio, too, includes the extraction of non-artistic data from data sources and the assignation of this information to sound parameters, with the help of algorithms. In a way, it can be regarded as a form of algorithmic composition, because it creates rules for translating numbers into a musical narrative. In my piece *Autoimmune Disorder* I exemplify audio mapping by transforming a list of statistics into pitches.

2.5 Audio signal processing and sound spatialization

Also known as *audio processing* and recently referred to as *live-electronics*, *audio signal processing* is a series of procedures by which sounds are captured via microphones, manipulated algorithmically with different electronic devices and then played-back over loudspeakers. Curtis Roads believes that this process is essential for an electronic composer:

The artificial division between “composition” on the one hand, and “orchestration” on the other, need not apply in computer music. To generate

¹² <http://www.bewitched.com/historyflow.html>

¹³ Watch the documentation video:

http://www.youtube.com/watch?v=GZUaXDm4qik&feature=player_embedded

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and process acoustical signals is to compose – more directly than inscribing ink on paper.” (1996, 349)

Perhaps the most common examples of audio processing are the *audio effects*, widely practiced in electronic music, such as *ring modulation*, *delay*, *reverb*, *chorus* or more recently *granular synthesis*. Not only the power to alter auditory signals is appealing to composers, but also the ability of acoustical sound analysis, which has multiple applications in the field of electronic music. An illustration of this would be the software *Macaque*, which I used in one of my pieces to *translate* recordings of animals into pitches and rhythms. It was written by Georg Hajdu in Max/MSP and it allows the transcription of sound spectres and partial-tracking data into standard musical notation (Didkovsky & Hajdu 2008).

Sound spatialization is the process by which the position and movement of sounds is simulated in a confined space. Acoustic signals can optionally be recorded with dedicated microphones for a more accurate reproduction, but any acoustic or electronic sound source, be it pre-recorded or live, can be *moved* in 3D space. They are played-back with the help of algorithms that precisely control various arrays of specially positioned loudspeakers. The practice of spatialization was broadly commercialized by the film industry to enhance the audio-visual experience in cinemas, but it was also pioneered in electroacoustic music since the 1950s by composers like Karlheinz Stockhausen, Edgar Varèse or Iannis Xenakis, who wrote the first pieces for multi-channel playback. Some of the contemporary techniques for spatializing audio in electroacoustic music are:

- Ambisonics¹⁴ – invented by Michael Gerzon from the Mathematical Institute, Oxford;
- Wave field synthesis¹⁵ – researched first at the Delft University of Technology in Holland;
- VBAP¹⁶ (Vector Base Amplitude Panning) – developed by Ville Pulkki at the Helsinki University of Technology.

Ambisonics and VBAP have already been implemented in music programming software, such as Max/MSP, permitting composers to expand their range of expression by adding sonic *depth* to their pieces.

¹⁴ <http://www.ambisonic.net/>

¹⁵ http://recherche.ircam.fr/equipes/salles/WFS_WEBSITE/Index_wfs_site.htm

¹⁶ <http://www.acoustics.hut.fi/~ville/>

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Both audio signal processing and sound spatialization are highly valuable tools for the multimedia composer. Also, they provide the capability of magnifying the narrativity of acoustic music. By processing their live signals, instruments can become actors that play intriguing roles or they can generate unpredicted electronic sounds and conglomerates. Adding the spatial element to instrument signals and electronic sounds results in a further aspect of narrative: the personification of musical elements.

2.6 Visual music

People make associations between the experiences they perceive through the five senses and some of these have become conventions. For instance, we associate colors like red or blue with sensations like warm and cold, or the taste of various foods with sharpness or strength. Equivalently, associations have been made between sound and images. A study made by Scott Lipscomb and Eugene Kim (2004), with the goal of setting the basis of algorithms that would transform music into visual animation, showed how humans perceive the connection between visual and audio:

Audio parameters	Visual parameters
Loudness	Size, colour
Timbre	Shape
Duration	Not conclusive
Pitch	Vertical location, colour

First proposals for transposing music into visuals were made by Sir Isaac Newton in his *Opticks* (1704). “He was the first to observe a correspondence between the proportionate width of the seven prismatic rays and the string lengths required to produce the musical scale D, E, F, G, A, B, C” (Kenneth cited in McDonnell 2007). His correlations were red to C, orange to D, yellow to E, green to F, blue to G, indigo to A and violet to B. Also in the 18th century, the French Jesuit Louis Bertrand Castel, in his desire to show the color of music to the world, built an *Ocular Harpsichord* that contained 60 small colored windows, each revealed by pressing a specific key of the instrument. At the beginning of the next century, once with the discovery of electricity, there have been more advanced constructions, based on lamps instead of natural light. The visualization of music was further explored by

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abstract painters like Paul Klee, Wassily Kandinsky and Roy De Maistre. They all shared the passion for music and visual art, therefore each of them tried to develop ways for transposing musical parameters into painting. Their methods generated abstract images that were based on the principles of musical composition.

One more characteristic of music remained yet to be explored at the beginning of the 20th Century. This characteristic was the *time-based development* of the composition. It is considered to be one of the most important aspects in order to achieve a close correlation of music with the visual elements. Avant-garde filmmakers experimented with the principles of composition in the recently discovered media, such as film. Hans Richter, Jean Cocteau, Marcel Duchamp, Viking Eggeling, Fernand Leger, Man Ray and others extended the visual universe – once imprisoned in static paintings – into short experimental motion pictures. The abstract stories, first silent and colorless, offered the viewer studies of shapes, repetition, scaling and motion that were full of rhythm and musicality. Richter's first film, *Rhythm 21*, “involved expanding and contracting forms on a black or white background in a contrapuntal interplay. Much of the tension of the film results from the way that background forms develop into foreground figures and foreground elements into background (much as the lines in a polyphonic composition do)” (Elder 2008, 162). Oskar Fischinger was another advocate for the harmonization of motion pictures and music: “He created synthetic sound by modifying a camera that was able to photograph his ornament drawings and other geometric shapes right onto the film's soundtrack” (McDonnell 2007).

Contemporary performances of visual music involve both hardware and software usage in order to synchronize music and video in real-time. In the digital era, sound and images are, in their essence, a product of numbers and algorithms, hence they have the same root and can be modelled in the same way. Programmers create software that allow the simultaneous processing of visual and audio. The user-friendly interfaces of these programs make them very accessible and artists all around the world use them as tools for creating audio-visual narratives.

3. *Daily Choices* – narrativity in a multimedia concert

3.1 Introduction

The final project for my Master's exam was a multimedia concert, comprising five pieces that I had developed during my studies in Hamburg. In this last chapter of my thesis I will try to demonstrate the use of narrative throughout the concert with the help of previously described techniques and other compositional tools. The narrativity of the various composition methods involved will be emphasized by explaining their purpose in relationship with the narration of my ideas. *Daily Choices* (subtitled *Multimedia Duets*) was a story-concert with five independent *chapters*. It took place in the Forum of the Academy for Music and Theatre in Hamburg on the 5th of June 2011. Although the five pieces did not share the same theme, there was a main concept of the concert, explained in the quoted text below. A programme was distributed to the audience, containing short texts to accompany the pieces. Even if these texts do not support the narrative of the pieces in the way program music does (e.g. "Fantastic Symphony" by Hector Berlioz), they do have two important roles: to stimulate the public's interest and attention (like the trailer of a film) and to provide some information about the technical and aesthetic issues approached. Though this might seem like a counterargument to the intrinsic narrative of the pieces, I believe that the narrativity lies somewhere between the composition, the artistic outcome and the perception of the public, while the texts, together with the titles of the pieces, are only an extra feature. Nonetheless, I will cite these texts for a better understanding of the whole experience of the concert and because they offer a reasonable starting point of discussion. I recommend watching the audio-video recordings of the concert, which can be accessed under the following link:

http://mmm.hfmt-hamburg.de/fileadmin/user_upload/L1/constantin_basica/index.html

It is significant to mention that the main programming part of composition for all the pieces was realized with the software Max/MSP/Jitter (Cycling '74). Other applications used in the process of composition/performance were Ableton Live with Max4Live, Apple Logic, Spear and JackTrip for audio and Adobe AfterEffects, Adobe Premiere Pro and Autodesk 3ds Max for videos.

3. Daily Choices – *narrativity in a concert*

Daily Choices

Multimedia Duets

The decisions we make reflect most upon our true selves. Whether it is embracing a profession or opting for what to eat every day, each decision has a smaller or greater impact on our lives and personalities. Some of the choices we make are a result of profound judgment, while many others do not seem of much importance.

At the same time, from the moment we are born, many aspects of our lives are already established by the background we inherit, while even more are determined by the rules and customs of our societies. This should raise the level of awareness in relation to the authenticity of our free will. We are in a perpetual struggle to drive our freedom around the pillars of the various systems we are expected to adapt to.

Our instinct of conservation pushes us to always choose the best thing for ourselves, but the complexity of the human consciousness takes us far beyond this predisposition. People have been constantly working on developing valuable laws for harmonious interactions between the environment and its cohabitants.

Each of the five pieces examines a different perspective on the relationship between the power of decision and the impact it has on ourselves, on others or on the world we share. Since our day-to-day lifestyle is usually very alert, it is sometimes comforting to slow down a bit and reflect upon the things we take for granted.

3.2 *Hide and Seek*

for geographically-displaced cello & guitar
+ live-electronics & stereoscopic-video

Computers, internet and video games are offering children nowadays a digital childhood. Besides the obvious benefits, there are also many dangers implied. The border between real and virtual becomes more and more transparent. Even the traditional outdoor entertainment is being replaced by immersive online games.

A guitarist plays “Hide and seek” with a cellist. However, the rules are a little bit changed: the Internet is the playground and they cannot see each other, because one is in Hamburg, while the other one is in Bucharest. You are invited to watch the game and try to find out, who is where.

3. Daily Choices – *narrativity in a concert*

In *Hide and Seek* I wanted to give the audience the feeling of a virtual game, except not as characters in it, but as spectators. They watch and hear how the narrative actually unfolds around them: the video requires anaglyph-glasses¹⁷ to be viewed and gives the impression of a 3D space, while sounds *travel* around the concert hall between 16 individually controlled loudspeakers¹⁸ (4 in the corners, 4 on stage and 8 spread in the public, under the seats). Being able to experience the game very closely, but not to actually play it, symbolizes the *remoteness* in online multiplayer gaming, where people feel like they interact with each other, even if it is an illusion. This isolation is also expressed by the fact that one of the players is performing live in a remote location. In *Daily Choices*, the cellist was playing in Bucharest, broadcasted over the Internet and consequently heard in Hamburg. The guitarist was also hidden behind the curtain and the sound from both instruments was audible only through the loudspeakers.

There were several reasons for hiding the musicians during the entire piece:

- as a parallel to the game of “Hide and seek”, in which the players do not see each other almost until the end of the game;
- to give the spectators the impression that they are involved in the game (although not directly) by inviting them to deduce the location of the players;
- for an immersive experience, in which only the images and the sounds are important, not the physical presence of the performers;
- as a metaphor for the absence of human-to-human interaction in the world of computer games, where people are replaced by avatars.

To support this metaphor, the two players/instruments are depicted in the video as distinct shape-based entities, in accordance to their sounds and not to their real appearances.

The game of “Hide and seek” becomes in this piece the actual story itself. The stages of the game are rigorously represented as events in the composition and illustrated by the video, while the two players (in both musical and non-musical senses) embody the two types of characters: the one who seeks and the ones who hide. The cello (the seeker) – audible in the

¹⁷ Anaglyph-glasses have two different lenses (usually red-cyan or red-green) for creating the effect of depth (3D) when watching specially rendered images or videos.

¹⁸ The sound spatialization was achieved with the help of *Ambisonics* (Max-external), as well as own algorithms.

3. Daily Choices – *narrativity in a concert*

front-right part of the stage – starts counting by repeating the same note for almost 40 seconds, in a gradual acceleration. In precise synchronization, its avatar grows bigger and bigger. At the end of the countdown, it stops for a second and then metaphorically *yells* “Ready or not, here I come!”, translated in a musical gesture (an imploding chromatic scale) that is also portrayed in the video: the object comes towards the public until it disappears from the screen. Immediately, a dense fog fills the screen, symbolizing the uncertainty of the seeker. For the next section, the focus turns on the guitar (the hiders), while the cello is still audible, *moving* on the stage, but not visible. The guitar characterizes the hiders by making soft noises (opposed to the chromatic interrupted melody of the cello), in different places far from the cello. The video avatar of the guitar is made of small particles (numerous hiders) that are gravitationally attracted and resemble a flock of birds. At some point, after *searching* on the stage, the cello sound moves towards the public, where the noises of the guitar are hiding, and simultaneously reappears on the screen. Eventually, the cello *finds* the guitar in a hidden spot behind the public (the rear-left loudspeaker) and, afterwards, each player *runs* to the starting point (the front-right loudspeaker) in a visible and audible opposite circular motion. As they approach the base, the cello reaches it first and hence wins. But the game is not over, because there are still more to be found. The guitar continues to represent the other players hiding all around in the concert hall: plucked chords jump from one loudspeaker to another. After a little time, the cello is again perceptible somewhere in the distance, while the focus in the video goes towards the starting point. Here, suddenly, one of the hiders succeeds to make its way without being noticed and *touches* the base, rescuing all other players and ending both the game and the piece.

Hide and Seek was performed again a month later at the *next_generation* Festival of the *Zentrum für Kunst und Medientechnologie* in Karlsruhe. For this second performance, under the advice of my professor, I mixed a video live-stream from Bucharest and a local one into the 3D-video. The instruments and the hands of the musicians could occasionally be seen as *ghosts* under the moving object-entities. Not only did this make the piece more self-explanatory, it also strengthened the idea that humans are somewhat overwhelmed by technology and it becomes harder to maintain an equilibrium between real and virtual.

3.3 *Autoimmune Disorder*

for violin and percussion

+ live-electronics & live-video

The human immune system is a complex network of cells and cell components that normally work to defend the body and eliminate infections. If a person has an autoimmune disorder, the immune system mistakenly attacks the cells, tissues, and organs of the person's own body. This type of abnormal behaviour is compared in this piece with the way human beings treat the environment nowadays. Mistakenly or not, our planet is being assaulted by its own inhabitants.

“Symptom 1” represents a short intro and gives the two players the freedom of improvising and playing with their instruments. Plastic bags wrapped around the instruments counteract the idea of freedom and suggest the impact these have on the environment. Between 500 billion and a trillion plastic grocery bags are consumed worldwide each year, and because most of them are not recycled, they produce massive waste.

“Symptom 2” is composed using a technique called “data visualization”, which involves translating raw data and statistics into artistic expressions. A list of all the countries in the world, sorted by their carbon dioxide emissions in 2006, was used algorithmically and converted into notes. The score was then written respecting the exact order of pitches, but with a personal choice of rhythms and form. This could be better defined as “data audiolization”. The same list was also used to generate the live-video: the flags of all countries are placed in a three-dimensional space, with different sizes and positions, in strict accordance to their CO2 emissions.

“Symptom 3” deals with different ways of land and air pollution. These are clearly illustrated by the six videos projected on the inner walls of a cube. Although the camera moves freely inside the cube, it cannot get out, symbolizing the walls that people build around themselves while isolating from nature.

“Symptom 4” describes the effects that toxic waste has on humans. The video is a live capture of the violin player, with black and white tones and distorted images, suggesting illness and contamination. The computer accompaniment was composed in the Bohlen-Pierce scale, which divides the perfect twelfth into 13 equal steps, as opposed to the octave into 12. This gives every step 146,3 cents instead of the 100 used in twelve-tone equal temperament. That is why the scale and its chords sound strange to our ear, almost like something deformed.

“Symptom 5” reminds of a classical sonata form, in which the two themes are “overbuilding” and “forest-cutting”. The marimba plays in equal

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temperament, while the computer-marimba is tuned in the Bohlen-Pierce scale. This last part is constructed with the help of elements from the other parts, almost like in a recycling process. Although it's still called a symptom and not a cure, the part finishes in a positive note, expressing the idea that things are already being done against the destruction of nature.

The text for *Autoimmune Disorder*, in comparison to the other piece, provides much more information about the technical and compositional methods employed in the piece and their connection to the main subject: pollution and the degradation of our planet. This is why I will directly examine the narrative aspects that arise during the five parts.

Here, as opposed to *Hide and Seek*, the two players act as musical narrators, controlling the timeline of the live-generated video. The piece has an overall dynamical structure that can be compared to Freytag's model of literary plot: the first part is the *introduction* where the main theme is presented, in the second and third part there is *raising action*, both musically and visually, the *climax* at the end of the third, then the fourth part represents *falling action* by doubting the end of the conflict, and the fifth part presents a final confrontation between human and nature, with a *resolution* coming at the very end. However, as stated in the quoted text, there is no ending to this story, because we all live it every day and even if some battles are won against the destruction of our own planet, things still appear to be going the wrong way.

In *Symptom 1* the musicians tell the story of the *plastic-bag-issue*, which is a symbol for pollution and its repercussions upon ourselves. There is no video, for a better focus on the plastic bags that impede the normal playing of the violin and the cymbal *con arco*. The choice of improvisation implies that we, people, are free to do whatever we want, up to the point where our actions have drastic consequences.

The use of data visualization and audio mapping in *Symptom 2* permits the transformation of raw statistic data into an audio-visual narrative. The fact that the public needs a clarification from the text to realize the correlation between statistics and the presented material does not reduce the narrativity of the audio-visual experience. Even if not explained, people can draw some conclusions based mostly on the images, but also from the context of the whole piece. Whereas every musical pitch was predetermined by the data source, using a simple

3. Daily Choices – *narrativity in a concert*

algorithm, the other parameters of sound (duration, intensity and timbre) were composed freely and arranged in a logical form. This is also valid for the video: though the size and position of the flags were obtained mathematically, the movement of camera through the three-dimensional space was established freely, according to the musical events. The sound of the vibraphone, together with the processed one of the violin, give an eerie feeling to the imagery projected on the screen.

Symptom 3 narrates more clearly about events and characters, because it shows real recordings of different methods invented by men to take advantage of the environment. Even if there is only one person appearing in the video (the tree cutter), the presence of man behind different machineries is intuited. The harshness of the various pollution sources is matched by the musical timbre: while the percussionist plays timpani and drum kit, the violin sound is distorted by audio effects like *flanger* and *comb filter*. Also, in the median section of the part, the violin player engages in a musical canon with pre-recorded samples, which eventually turns into a quartet of violins that enhances the visual madness. For the video I used different clips found on the Internet in a way that resembles the act of recycling: they were lying on different web pages, forgotten, rarely viewed and with a poor image quality for today's standards, so I extracted some parts and projected them under a new light on the sides of my 3D cube.

The black and white live-capture of the violin player in *Symptom 4* is split in four symmetric parts, which hover across the screen independently. The spectators cannot comprehend this in the beginning, because the four visual planes rotate in three dimensions and the video is distorted. The violin plays only pizzicato until, towards the middle of the part, the four pieces of video fly to the centre of the screen and unite in an image that shows the violin player, right when a melancholic melody begins. The glockenspiel, doubled by a virtual clone, counteracts the romantic flow of the violin with a static repetition of the same note. Particularly interesting for creating the sense of *contamination*, as noted in the text, are the synthesizer chords in Bohlen-Pierce scale, which accompany the pizzicato-section of the violin.

Symptom 5 recapitulates some musical ideas from the previous parts: the Bartok-scale from

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the third part, the Bohlen-Pierce from the fourth and the concept of an instrument playing with a virtual counterpart from the third and fourth parts. Both acoustic and electronic marimbas gradually build a repetitive musical cell, portraying a similarly gradual construction of buildings in the video. These structures are made of newspapers, preceding the second theme that is played as a cadenza by the violin: overcutting the forests. When the two instruments start playing together, the visual themes also overlap and the falling trees can be seen projected on the buildings' walls. At the end of the part, nature finds its way among the man-made structures and fills the screen with green trees, as the two instruments race each other to finish the piece.

Although the piece is very explicit at some points and seems to be a moralizing story, its intention is to reflect upon several undeniable facts in an artistic way. In other words, the organization of information in a subjective form represents the narration of my personal thoughts regarding the approached issues.

3.4 *I Could Have Chosen the Other Title*

for me and another Me from a parallel universe
+ electronics & video

The Theory of Multiverse states that there is an infinite number of other universes other than our own. These worlds coexist with ours simultaneously on a dimensional level and the realities in these universes differ from slightly to radically. It could be formulated like this: every action and decision we take in our life leads us on a certain path, which defines us as persons and shapes our reality. At the same time, we deviate from other paths, which could have taken us to other events. All these possibilities exist further in other dimensions.

I thought it was about time to make a piece together with another Me from such an universe. As sound material I have taken samples from my old acoustic pieces and processed them electronically. My other Me is very similar to me, but has more courage and, because he is a DJ and electronic music producer (something I also once wished for myself), he has more groove and sometimes uses samples from other artists as well. Also, our musical taste is alike, up to the point where, due to his life experiences and decisions, he just does things a little bit different than me.

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Communicating with yourself from a parallel universe can be very dangerous – please don't try this at home!

The placement of this piece in the middle of the concert had the purpose of balancing the strong messages between the first two pieces and the one afterwards. *I Could Have Chosen the Other Title* is still a piece with deep connotations, but has a *lighter* tactic that can be felt right from the title and the text: both are first-person micro-narratives, which send a colloquial feeling to the public. Also, the text arouses curiosity among the spectators by stating that a paranormal activity will take place – a gate to a parallel universe. However, the joke from the last sentence of the text assures the audience that everything is under control.

To raise the intrigue of the public and establish a narrative introduction, the piece starts with me alone, playing some samples of my old acoustic pieces. After about a minute, on the other side of the stage, a live projection of myself (controlling the devices on the table) slowly appears and disappears until it eventually stabilizes. Up to this point there is nothing strange going on, but as soon as I start playing a recording of my voice from when I was 7 years old (which sounds like an incantation, because it is reversed), the projection begins to diffuse and percussive noises generate glitches in the live broadcast of myself. When the *incantation* is over, my projection detaches from my images and becomes *another Me from a parallel universe*. He is almost a perfect replica of me, the only visual differences between us are the bow tie and, as seen later, the watch. On the music side though, he is more aggressive, starting off with a solo of electronic percussion. Just as my introduction was only audible from the loudspeaker behind me, his sounds are played only through the loudspeaker on the opposite side of the stage. I try to keep up with him by manipulating his sounds in real-time and after his solo is over, it is my turn again to present some samples of my previously recorded pieces. The friendly *match* goes on between us and ultimately we both end up playing the piano (keyboard) – our first childhood relation to music – in a tempestuous finale.

The entire piece is a parable of the DJ culture, where songs are usually only tied up together by subtly overlaying beginnings and ends of pieces, without developing the audio material. The harsh electronic beats of the piece, together with the glitches and the sampling of existing pieces, are further symbols of the DJ field. Although the other Me portrays the icon

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of the DJ in a slight ironical style, by exaggerating the movements of his body, it is actually my character who I am trying to satirize by juxtaposition: that of an *uptight* avant-garde composer.

The theme of this piece is in direct connection with that of the concert itself, narrating about our everyday decisions and their impact on our lives. Also, the antithesis between mundane (a party with DJs) and extraordinary (a glimpse into a parallel universe) evokes the great gap between our daily choices and the infinite results they could have led to. This concept is particularly interesting to me, because composition is an act of decision-making and each moment opens the path to an unlimited number of musical choices – but after one is made, the others remain possibly forever forgotten.

3.5 *Soulless*

for 2 Disklaviers
+ electronics & video

Animals have always been dear to me, even if I did not have any pets around as a child. However, it was not until recently that I have started to inform myself about their situation in relationship with people and to realize the various ways in which animals take part to our daily life.

Although it is easier not to pay attention to this issue, the manner in which humans treat the other creatures of this world has become more than heartless in the last century. In order to reach a natural balance, we should first ask ourselves, whether these beings have souls as well, or if they are simple bodies that we can manipulate freely.

More than 57 billion animals die each year globally to produce meat, eggs and dairy products.

The first part of the piece was entirely composed by translating recordings of different creatures, with the help of Georg Hajdu's software Macaque. I felt that the most suitable instrument to impersonate the incomprehensible shouts of our cohabitants was the Disklavier, which is also considered as having no soul, since no person is playing it.

In opposition, the second part is a contemplation, in which the two Disklaviers are one by one soloists and accompanists. With the risk of being

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considered an activist, the piece expresses my distress regarding the matter of animal abuse by means of factory farming, excessive hunting and fishing, clothing, experimenting and so on.

The word *soulless*, as pointed out in the text, has two meanings in the piece:

1. figurative – the merciless of some people towards animals;
2. literal – the absence of *soul* in a Disklavier¹⁹.

In a comparable mode to *Autoimmune Disorder*, this piece approaches a sensible subject. It is hard to talk to people about animal abuse, since it might look like you are trespassing their private rights (e.g. the choice of food). I am not a person who tries to convince everybody around to become vegetarians, nor am I convinced myself that every person on the planet should stop eating meat or wearing leather clothes. Nevertheless, I do believe that the recently developed methods used by industries to massively exploit animals are inhumane and people should be aware of that, in order to reduce or even eliminate them. So, I decided to compose a piece about this matter, because music does not offend people, on the contrary, it resonates with their sensibility.

The two Disklaviers were dressed in white sheets and transformed into video screens, using the technique *projection mapping*. This involves taking the picture of an object or a building and then, by making a virtual representation of it, being able to project images precisely on its surface.

Out of the five pieces of the concert, *Soulless* is the most quiet one, because I did not want it to be perceived as some sort of accusation, but rather as a sad story. It begins with electronically-altered recordings of nature sounds, spread between the 8 loudspeakers under the seats. Next, the buzzing sound of a bee swarm travels around the spectators and its musical translation is played by one of the Disklaviers. At the same time, a bee can be seen floating over the instrument, followed by the swarm. This event repeats a few times with different animals or avatars (two lizards, a snake, a fish-horse-object and a ball of fur) appearing and disappearing on the Disklaviers, while the piano music – generated algorithmically by the animal recordings – produces a neutral feeling. The *animals* seem to

¹⁹ A Disklavier is a mechanically-automated piano, produced by Yamaha Corporation, which can perform independently.

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be in their element, they move around undisturbed and peaceful. A series of animal skins are projected on the instruments with rapid transitions and the second part of the piece starts unannounced.

The music differs not only aesthetically from the first part, but also because of its continuous flow and lack of electronic sounds. The part starts with the drawing of two piano-shaped birds that are eventually deconstructed into a rain of feathers. Further on, the creatures (sheep and aquatic animals) in the video appear to be *trapped* inside the two Disklaviers, but they are not revolting. The same things happens in real life: nevermind how cruel animals are manipulated, it does not lie in their power to complain or put an end to the mistreatment – it is our responsibility.

3.6 *Tutorial 7*

for horn & iPad

+ live-electronics & live-video

Two of my favourite idioms I have learned about composition are that it is “an organised theft” and “a process of continuous decision-making”. In the past years since I have started studying it, I have come in contact with the music of many composers and learned about numerous techniques and ways of expression. However, it seems I cannot decide for a single style that suits me best (not yet, at least), which is quite obvious in my pieces.

The tutorial you’re about to watch is going to give a small glance in the abstract world of musical composition. Started as a personal experiment, it tries to deal with the attitude of the large public towards new music: “Is this music? A child could have done that as well...”

The written text provided does not give any clues about what the piece will be like, because the element of surprise is very important in the unwinding of the story. Analogous to the preceding piece, *Tutorial 7* has two parts: the actual tutorial and the demonstration of its application. It is subtitled *How to write a short piece for Horn, Live-Electronics and Video* and, during the first part, a computer-generated voice literally gives instructions and advices on how to accomplish such a composition. The entire verbal script is highly sarcastic, mainly towards experimental music, and mocks many aspects of *serious* composition. The

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voice is complemented by a fake PowerPoint presentation (with an actual theme from the program) made in Max/MSP/Jitter, which disintegrates in the second part of the piece into individual 3D fragments that float in space. While the computer-voice gives indications to the public, the horn player and, later on, an assistant enter the stage to demonstrate everything in practice.

Compared to the other pieces of the concert, *Tutorial 7* might seem the nearest to the term *narrative*, due to the fact that it has spoken text. However, the story resides not in the discourse of the narrator, but in the relationship between text, music, video and players. In turn, the narrativity of the piece is given mostly by the performance of the two players, whose role is to transpose the verbal irony into music, body movements and unexpected actions. The horn player, for example, interrupts his playing repeatedly to cough aggressively, which is actually a cue for the assistant. In spite of the rigorous instructions, the music progresses like an improvisation, often disturbed by paranoid musical or physical gestures of the horn player, which always attract laughter from the spectators. The assistant, whose task is to control the live-electronics with the help of an iPad²⁰, tries to counterbalance his colleague's *madness* by remaining calm and trying to follow the ridiculous instructions.

The finale of the piece, and hence of the concert, is an Apotheosis: the horn player engages into a fast gibberish cadenza that is tremendously enhanced by electronic effects and then, surprisingly, he suspends all sounds by shouting *Taci!* (Romanian for *Shut up!*). This outrage is a hyperbole of the attitude that most instrumentalists tend to have against contemporary music. After a few seconds of suspense, he releases the echo of the cadenza and silently waits until the video elements unify again into the two-dimensional PowerPoint image that now spells *Thank you for watching!*. As a last gag, the horn player starts applauding himself before the audience realizes that the piece is over.

²⁰ Multi-touch device produced by Apple Inc.

4. Conclusion

Much has been written about *narrativity* and, during my research, I have come to answer some of my questions, as well as raise new ones. When applied in art, narrativity becomes a flexible, but intriguing concept, which can label a wide range of qualities in an artwork. It is clearly more subjective than its counterpart from linguistics, as it can vary from one artwork to another and relies on the receiver's interpretation. Moreover, narrativity in abstract art is not a self-explainable notion and requires a deeper comprehension of human perception. The multimedia storyteller should familiarize himself both with the theory of communication in art and the technological techniques of expressing a message.

In this thesis I investigated the adaptability of narrative structure and different theories about narrativity in art and new media. Also, I examined several methods and tools of multimedia composition that are able to sustain or create narratives. By analysing the pieces of my concert from narratological, semiotical and compositional points of view, I exemplified how narrativity in multimedia can influence the perception of a story. However, the constant development in the digital art field demands frequent updates to the theories about narrativity in art and multimedia composition, as well as further research.

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