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Internet-art and its Medium: Exploring Hypermedia Structure and Multimedia Environment of the World Wide Web through Net-art Projects

A Master's Thesis for the Degree *Master of Arts* (Two Years) in Visual Culture

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Abstract

The work examines the problem of interrelation between Internet-based art and its medium – the World Wide Web. It elucidates the ways of how net-artists employ and reconsider the basic qualities of the Internet-medium in their virtual projects. All the net-art works are subjected to the terms of the Web-environment, which drastically differs from the context of real exhibition space or traditional artistic media. Net-art, however, does not only accept the rules of its Medium, but also builds a specific strategy to reflect upon them – it forms its own critical standpoint.

The research is centered around two crucial conditions imposed by the Web-medium on practices of net-art: first, - functioning in hypermedia environment, second, - necessity to deal with multimedia content. The both hypermedia and multimedia are essential features of the Internet: they define the ways of how virtual information is processed, structured and, finally, displayed. Likewise, the notions of hypermedia and multimedia establish specific rules for art, existing in the Global Network. What the net-artists do, in this respect, is that they take hypermedia and multimedia as thematic subject of their works, considering these two conditions from their own perspective. Thus, net-art enacts as powerful tool for critical reflection upon the World Wide Web.

The general argumentation of the work is supported by 5 particular examples of Internet-art, which are incorporated into the course of the discussion. These are the projects by single internet-artists -Lisa Jevbratt, Mark Napier and artistic groups such as "Jodi", "I/O/D", "0100101110101101.org". Each of the case studies is directly related to one of the two Internet-aspects – either hypermedia or multimedia.

In general, the work investigates the self-reflective character of Internet-art and identifies the impact which is, due to this self-reflective quality, exerted on the Web-medium. Different modes of self-reflexivity are revealed. One of them is, for instance, how net-art reconsiders hypermedia components of the Web such as data, graphic interface etc., while the other is critical reevaluation of multimedia contents. The self-reflexivity and self-reference is the primary focus of current analysis, which brings to a new understanding of the Internet-based art.

Contents

1. Introduction

1.1 Introductory Outline of the Problem

Existing within the period of approximately 20 years, net-art acquired the status of a valuable artistic form, recognized by majority of contemporary academic institutions. Nowadays it became a widely accepted cultural notion, formed at the intersection of two distinct spheres, that is of visual culture (artistic realm) and digital technology (technical domain). These two different sectors specified the duality of its nature, which is, on the one hand, graphical and aestheticized, while on the other, pragmatic and technologically-determined. "Net-art is art that is created from awareness of, or deep involvement, in a world transformed and affected by elaborate technical ensembles, which are, in turn, established or enhanced through the Net'[1]. Due to the two factors – visual and technological – net-art grew into unique phenomenon, exceeding the limits of traditional artistic practices. One of its key characteristics is its ability to affect the virtual reality, i.e. the realm of the Net, and reflect upon different conceptual problems. Within the last two decades net-art evolved from simplistic naïve representations on the Web into a highly developed analytical instrument, by means of which it is possible to explore various types of issues, including philosophical, ideological, aesthetical, political, social and other. Today it can be understood as not only artistic, but also reflective practice and a research tool, existing in the sphere of the World Wide Web.

The general success and efficiency of net-art projects is, mostly, conditioned by the type of medium it deals with: the latter refers to the category of the new digital media, which are drastically different from the traditional ones. The Internet, as artistic medium, grants much freedom to artists and enacts as a profitable creative space for a number of reasons. The basic are: easy distribution and the worldwide access to the products of art, no need for conventional museum institutions, integration of art with the other spheres of life activity etc.

However, the Web is a relatively new medium, and, as stated above, it has much dissemblance in form, organization and structure with the regular artistic means and communicative agents. Although it is being extensively used nowadays, majority of its internal functions and processes remain obscure for a general viewer - in this sense, the Web still remains unexplored. As for contemporary artists, working in digital domain,

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[1] J Bosma, *Nettitudes: Let's Talk Net Art*, NAi Publishers, Rotterdam, 2011, p. 25

they attempt to make their own investigation of the Internet-environment and represent it in their virtual projects. Net-art, in this regard, serves as one of the possible tools for critical examination of the World Wide Web.

1.2 Research Objective

The basic intention of current work is to explore the material, ideological and graphic potential of the Internet environment through studying of particular examples of the internet-based art. Net-art as specific aesthetical phenomenon will be examined in close connection to its medium, the World Wide Web, the digital dematerialized form of which imposes its own conditions upon contemporary artistic practices. It is the problem of double-sided impact: net-art appears as artistic phenomenon, following the logic and rules of its medium, as well as, the Internet itself is being largely influenced by net-art, for the latter critically reexamines and reassess the entire Web-organization. The relationship between the internet-art and the Web, thereby, will enact as a primary underlying question, giving the tone of "mediality" to the whole discussion.

Existing solely within the realm of Global Net, internet-art serves as a powerful tool for reflection upon the state, functions and ideological meaning of its own medium. This relatively new form of art explores the Web in terms of visual presentment, i.e. through images, which are intrinsic components of the Internet culture. In its graphical representations net-art provides a new way of understanding of both Internet's structure and content, of its inner parts and formal organization, what as a matter of fact classifies this artistic practice as "net specific"[2] or "medium-focused". In this manner, net-art tends to play with different characteristics of the Web and present its basic elements through graphical depictions. The latter effectively operate within the Internet-realm – it is essential property of these virtual projects to become a part of networking environment.

Finding its place among other important constituents of the Internet, net-art works perform the role of analytical agents, which do not only provide the artistic portrayals of the Web, but also reaffirm and question its inherent qualities and notions. This form of art is characterized by some scholars as "self-referential"[3], for its ability to, at first,

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[2] T Baumgaertel, *Net. Art 2.0: New Materials towards Net Art*, Bild-Kunst, Bonn, 2001, p. 24
[3] Ibid

penetrate into the structure of its medium (the Internet) and, subsequently, put under doubt all the material and dematerialized components of its architecture. Thus, all the net-art experiments result into a new understanding of sophisticated foundation of the digital medium, what is particularly explored in current work.

General course of the discussion is centered around two crucial conditions imposed by the Web-medium on practices of net-art: first, - functioning in hypermedia environment, second, - necessity to deal with hybrid multimedia content. The both hypermedia and multimedia are essential qualities of the Internet, which determine its operation, organization and self-presentation. As a general rule, the notion of hypermedia means the structure of the Web: it brings to understanding of the entire networking functioning. The term of multimedia is more related to the content, presented on the Web. It deals with multitude of formats encompassed by one digital medium. Together these two notions define the ways of how virtual information is processed, modified, structured and, finally, displayed. Due to these two factors the existence, further expansion and efficient exploitation of the World Wide Web became possible, so that today the latter appears as one of the most popular means of communication among different social groups.

In a similar way, the notions of hypermedia and multimedia establish specific rules for art, functioning in the Global Network. All the net-art projects are subjected to the terms of the Internet environment, which drastically differs from the context of real exhibition space or traditional artistic media. Net-art does not only accept the rules of its Medium, but also builds a specific strategy of aesthetical reflection upon them, presenting it, as is mentioned above, in graphical images.

Thus, the research goal is to investigate the self-reflective character of internet-art and to identify the impact which is, due to this self-reflective quality, exerted on the Web-medium. Different modes of self-reflexivity will be revealed. One of them is, for instance, how net-art reconsiders hypermedia components of the Web such as data, graphic interface etc., while the other is critical reevaluation of multimedia contents. The self-reflexivity and self-reference is the primary focus of current analysis, which should bring to a new understanding of the internet-based art.

1.3 Theoretical Framework and Methodology

The focus on the relation between net-art and the Web determines the choice of the theory and academic base: in order to investigate this interconnection, it is necessary to address to the relevant branch of studies. Such field of studies is the so-called "new media theories", which, due to their interdisciplinary character, investigate the Internet-structure, function, meaning and visual organization in the totality. The new media theories grant the conceptual support to the primary understanding of net-art as "medium-reshaping and –re-evaluating" artistic practice.

Two certain types of new media concepts constitute the theoretical part of current research- one of them is the "The Language of the New Media" by Lev Manovich and the other- "Remediation: Understanding the New Media" by D. Bolter and R. Grusin. Both the "Language…" developed by Manovich and "Remediation.." by Bolter and R. Grusin are highly acknowledged in the new media sciences; both of them can be successfully adapted to the analysis of new media means (e.g. the Internet) and new media objects (e.g. net-art works). These two theories seem to be most relevant to the subject and general tone of current discussion, since they consider the new media from the two perspectives – one is the perspective of visual culture, while the other is more technologically-determined. The books give a clear standpoint on how to approach the new media artifacts. They, likewise, characterize the new media objects in both aesthetical and computer-related terms.

The new media theories form a new branch of knowledge, a new scientific paradigm, which "replaces the old media-discourses"[4] and complies with the standards of contemporary digital culture. It is a present –day system of arguments and notions, describing a huge range of media products –everything from computer games and digital video to web-applications and Internet-based art. It is one of the possible ways to interpret the recent artistic forms, that started to appear in the early 1990s.

The actual artistic trends of net-art, virtual- or software-art result from the up-to-day social, cultural and technological spheres of human activity. They are a part of modernity, and they should be described in appropriate terms. (Bourriaud, 2002) As a solution, the relevant terminology and principles can be adopted from the new media theories, which by now, have a highly cultivated "language".

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[4] L Manovich, 'Post-media Aesthetics', 2001, retrieved 5 April 2012, <http://manovich.net/DOCS/Post_media_aesthetics1.doc>

As for the methodology of current research, one will adapt the interdisciplinary approach most typical for modern cultural studies. Such interdisciplinary method implies, that terms, concepts and tools are equally borrowed from different sciences: in the framework of current research these are the disciplines of art criticism, visual (graphical) analysis, aesthetics, new media studies, and in a lesser degree information science. The choice of this methodology is primarily dependent upon the empirical material, i.e. net-art works, which by its nature is rather dissimilar.

1.4 Structure of Work

The structure of the work is elaborated in accordance with the research intention, which is to test the self-reflective ability of Internet-art. All the parts of analysis unfold in a manner to prove the assumption of this self-reflexivity and display various forms that it takes. The sections expose interconnection of net-art and its medium with a distinct focus on the reflective role of net-art projects. The three basic chapters represent net-art as self-reflective artistic practice, pointing at different aspects of its reference to the Web- medium.

The 2nd chapter named "Net-art and the Web: Internet as artistic Medium" indicates the direct relation of net-art to the Internet. It compares net-art with the other artistic trends (e.g. formalism), which are similarly preoccupied with the possibilities of employed material. It also sets the linkage between the Internet-art and the new media theories: the latter are extensively used as theoretical base of current research. On the whole, the 2nd chapter is meant to introduce the self-reflective and self-referential qualities of net-art, while correlating it with the nature of its digital medium.

The 3rd and the 4th chapters demonstrate the practical use of self-reflectivity inherent to the net-art works. This means, that they incorporate particular illustrations of how the Internet environment becomes explored and reviewed through net-art projects. All the empirical material is included into argumentation of these two parts. The chapters deal with the most striking examples and show different strategies, which are used for artistic reconsideration of the Internet-features. Thus, the 3rd chapter ("Unraveling Hypermedia Structure of the Web and its Basic Components through Graphic Representations of Net-art") presents the idea of how net-artists reflect upon hypermedia structure of the World Wide Web. On this purpose they implement different techniques and methods

(e.g. data visualization, graphical simulations, alternative software), what is particularly discussed in the section.

The 4th chapter ("Media Hybrids: Investigating the Multimedia Character of the Web through Net-art") is centered on the other feature, i.e. on multimedia contents, which is the second important aspect of the Internet. It is the problem of multimedia or media-mixing on the Web, that provoked the reaction among internet-artists. They developed their critical viewpoint on this issue and presented it in on-line works. This critical perspective on multimedia is described as part of the chapter.

2. Net-art and the Web: Internet as artistic Medium

2.1   Addressing its own Medium: Internet Art as "Net specific" artistic Practice (self-referential quality of net-art)

Contemporary scholars (Tilman Baumgaertel, for example) characterize internet-art as "net specific"[5] phenomenon, for they assume that the main focus of this artistic practice is the Internet itself. Once emerged within the confines of the electronic network, net-art refers to its own medium, the Web, considering the latter as the most significant subject for aesthetical exploration. The Global Medium becomes the basic topic or the key objective of research for net-artists, who seek to unveil the core, function and latent structure of the World Wide Web by artistic means. In their projects they test the limits of the digital medium, thus finding new ways of utilization of technical codes, programming languages, IP-protocols, pixels and other components inherent to the Web-architecture. In this regard, net-art can be treated as self-referential or even formalistic, for "it only has any meaning at all within its medium, the Internet"[6].

The formalistic tone of Internet- art, apparently, originates from modernist or avant-garde directions: "sensing the limitations of contemporary art on the web, a number of artists have created sites which incorporate more sophisticated strategies which fall under the nevertheless modernist rubric of formalism"[7]. In a certain sense Internet-art repurposed and revitalized the trend of pictorial formalism, although subjecting it to significant changes and appropriating it in its own way. The most crucial distinction between the modernist and the web formalism is determined by the difference of media: if modernist painters operated with traditional means of expression (oil and canvas), contemporary artists on the Web have to deal with a complex digital and in a manner dematerialized medium, all the creative possibilities of which have not been fully explored. To a certain extent, the Internet can be regarded as more powerful agent for artistic practice; it is a result of technological progress, of the computing processes, which for majority of common users remain unclear.

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[5] Baumgaertel, op. cit., p. 24

[6] Ibid

[7] B Stalbaum, 'Conjuring Post-Worthlessness: Contemporary Web Art and the Postmodern Condition', retrieved 15 March 2012, <http://switch.sjsu.edu/web/art.online2/brett.links/conjuring.html>

However, the problem of net-art "medium-concernment" should not be reduced only to one particular tradition (e.g. formalism), for this is quite an arguable question. It would be more appropriate to discuss the self-referential quality in context of several artistic trends, which in a certain way contributed to the development of Internet-based art. Below the "self-referential" aspect of net-art will be considered from the two opposite standpoints, that is of formalism and conceptualism. Although the formalist and conceptualist movements are commonly viewed as antipodes, they both have a sort of influence with the net-art practices. One should not label net-art as purely formalistic or conceptualist, since it obviously adopts the analytical tools from both of them, making use of those methods, which suit it best.

Thus, current section will draw a slight parallel between the formalist, conceptualist trends and the internet-art, putting an emphasis on self-referential or self-reflective character of the net-art projects. It will set the general discussion into a wider art-critical context, display the connections between the artistic movements, and reveal the way of how net-art borrows some of its analytical tools.

The self-referential character of internet art indicates its direct connection to the tradition of modernist painting, highly concerned with the specific qualities of the working material – canvas and oil, what at the turn of the XIX-XX century signified the beginning of the pictorial formalism. Such artists as, for instance, Cezanne, Van Gogh, Gauguin, later Pollock, and Rothko are among the most known modernist, avant-garde or post avant-garde painters who were deeply focused upon the artistic potential of the paint - the medium, they had to deal with. But if modernist masters worked with analogue tangible material, contemporary net-artists had to accept the logic and conditions of entirely new medium, resulted from the development of digital technologies.

The modernist formalistic trends in art were strongly supported by the American art historian Clement Greenberg, who in the essay "Modernist Painting" proposed the idea of "pure"[8] formal art or art "per se". As for the main argument in favor of formalism, he stated that art should be detached from other areas of human activity (e..g science or politics) and thus remain uninfluenced by political, social or religious factors. Only in case of independent existence, the field of art can be preserved and further expanded. In Greenberg's account, artistic practice stays apart from other vital spheres, since it bears the most importance and excels the realms of history, economy, science, philosophy,

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[8] C Greenberg, 'Modernist Painting', *Art & Literature*, no. 4, Spring 1965, p. 194

politics etc. Thus, artistic domain should be restricted from other spheres or sectors, what will result into the "purity" of art, into its self-concentration or self-focusing. Putting it simply, the "pure" state means that art is addressed to its own nature and inherent properties. No matter what kind of art it is, each type has to define its own point of uniqueness, it has to "determine through its own operations and works, the effects exclusive to itself"[9].

If the political, social, religious, scientific, philosophical or economic factors are neglected, what will be the primary focus of art? what is the core and inseparable part of any artistic form? what is the concentration of all intrinsic artistic qualities? According to Clement Greenberg, the answer to all this questions should be the medium: the "pure" art is self-critical, insofar as it orients itself to its own medium – the substance and irreducible compound. The mission of "pure" art is to acknowledge and manifest the specific features of the medium, exposing its texture, form, structure and the graphic potential, thereby accepting all the conditions of this artistic material and treating them as positive sides. This is what was implemented in the Modernist paining, which, as Greenberg assumes, did not mask the limits of the medium (canvas and oil), but deliberately accentuated them.

As an example of the true Modernist artists Greenberg refers to Manet and Cezanne, who attempted to draw their artistic methods in reliance with the capacity of incorporated medium. The both were concerned with exploration of the primary artistic means – oil and canvas, the basic agents of painting. Testing pictorial limits of canvas, the painters found the one specific property of the material, which, as they believed, had to be emphasized in painting – this property was the "flatness" of canvas. Manet and Cezanne were particularly fascinated with the flat surface of the medium, for they considered it as " the only one condition painting shared with no other art"[10]. In their works, the artists tried to escape from naturalistic three-dimensional representation, which was a common norm for the traditional academic painting. Instead, they sacrificed the realistic depiction to the true essence of the medium and its formal quality i.e. the flatness.

The idea of formalism, developed by Greenberg, finds its reflection in contemporary practices of net-art, which, like the Modernist painting, attempt to explore the structure and inseparable components of the employed Medium. If modernist painters were highly concerned with the materials of canvas and oil, nowadays net-artists have to deal

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[9] Ibid
[10] Ibid, p. 195

with a more sophisticated medium and its rather hybrid nature. Similarly to Manet or Cezanne, internet-artists make an aesthetic investigation of what might be "irreducible" or inseparable to the medium, of what can be "unique" and "exclusive"(Baumgaertel, 2001).

In this connection, several important aspects should be specified, as long as they are widely appropriated and exposed by net-art projects as intrinsic qualities of the Internet: these are its immaterial nature, hypermedia structure and multimedia contents. Like modernist painters, who proclaimed "the flatness "of canvas and the texture of oil in their works, so do the net-artist manifest such essential properties of their own medium as immateriality, hypermedia organization and media-convergence. All these features will be closely reviewed in the III and IV chapters of current research, for they present a subject of great discussion, which has to be developed in a more detailed way. Here, however, these qualities are briefly mentioned on purpose to show the close interrelation between net-art and its medium, as well as in order to draw the parallel between the formalistic implications of modernist art and art in the Web.

Net-art shares and adopts the basic features of the Web, what is in a sense similar to the tradition of formalism. However, unlike the formalists, net-artists do not simply follow the logic of the medium, but build their own critique of its formal qualities - they reconceptualize the integral parts of the Internet. Further, one will particularly see, how, for example, net-art plays with the concept of materiality/immateriality of the Web, with its hypermedia elements (such as data, interface and hyperlinks) and the capacity to mix all known media-modes in one digital form. In this case, Internet-art shows more resemblance with the conceptual art, emerged in the late 1960s: net-art does not only refer to its own medium, but puts it under question. This is a self-critical or self-reflective approach, elaborated from the conceptualist tradition.

Conceptualism was one of the most "reflective" artistic trends, which invented its own critical methodology to challenge different aspects of art in the second part of the XX. It questioned almost all the intrinsic artistic notions, including the form and object of art, the role of artist and engaged audience, as well as the general meaning of an artwork. What is also important, conceptual artists put under doubt materiality of an artistic object, trying to refute it by any possible means. Putting it simply, they aspired for total dematerialization of an item. Stating that idea or "concept" should be the main part of an artwork, conceptualists neglected the physical forms of representation and majority of traditional artistic media. Instead, they selected unconventional means of

expression, ranging from performing practices (performances) to linguistic elements (language as a medium).

Non-material object and dematerialized medium is in a way close to what contemporary Internet-art has to deal with: " there is no actual action or object in their (net-artists) work, just pure information configured to represent the allegorical concept of a performance"[11]. The shift from object to data results into the fact, that net-artists "develop work using a materialist approach following the parameters of conceptualism while not worrying about objecthood"[12]. This seemingly complicated argument can be interpreted in a more simple manner: indeed, net-art adopts the critical methods of conceptualism, but applies them to a different kind of artistic object and to a new medium.

Using both the principles of formalism and critical methods of conceptualism, net-artists developed their own form of criticism. It is a sort of self-criticism or self-reflection, and it benefits to understanding of the hybrid nature of the Web-medium.

2.2 Internet and New Media Theories

As an up-to -date artistic form net-art has to deal with rather sophisticated medium, which is in its essence a hybrid dynamic system, expanding in consequence of both technological and cultural development. The Internet media-phenomenon is being closely examined by the net-art groups, what, is, however, mostly the aesthetical investigation. This artistic research requires additional support - a sort of developed theoretical base, that can give a deeper insight into the issue of the Internet internal qualities, of its technical architecture and visual organization. Due to its digital ground and immaterial essence the World Wide Web is related to the category of the "new media", that is the actual media based on modern computational processes. In order to understand, how this new medium functions, how it is organized and structured, one will address to the so-called "new media theories", providing a complex analysis of contemporary digital means. The reference to the new media theories should broaden

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[11] E Navas, 'Reflections on Conceptual Art and its Relation to New Media, a Month long Conversation at Empyre', November 15, 2005, retrieved 10 March 2012,
<http://www.noemalab.org/sections/ideas/ideas_articles/pdf/navas_conceptual_art.pdf>
[12] Ibid

the understanding of the general problem of current research, i.e. how the hypermedia structure and multimedia environment of the Web become reconsidered through net-art.

Describing the "new media" theories in general, one can conclude, that it is a recently shaped branch of theories, emerged in the latter part of the XX century, and it is entirely concerned with the issues of digital media. Originating from multifarious range of disciplines, such as information science, art-history, cultural, humanitarian and communication studies, these theories are aimed to explore the forms, functions and appropriation of the new digital medium, as well as to define its key distinctions from the analogue predecessors. New media theorists employ interdisciplinary approach to their research, as long as they attempt to consider all the heterogeneous parts of the digital world, including technological, sociological, cultural and aesthetical aspects. As for the research subject, they examine various forms of digital contents, e.g. computer multimedia, World Wide Web, video, mobile devices etc.

The Internet is, however, the main focus of all the new media studies, since it presents the most divergent media-phenomena, being capable to substitute all the traditional media formats. According to some recent theoretical assumptions, it can even be granted the definition of "meta-medium" for its ability to "encompass simulations of all reproducible media" (O'Neil, 2006). "On the level of aesthetics, the Web has established a *multimedia* document (i.e., something which *combines* and mixes different media of text, photography, video, graphics, sound) as a new communication standard"[13]. The Internet bears heterogeneous, all-inclusive character and enacts as rather chaotic and versatile public forum. Not surprisingly, that the World Wide Web is being actively investigated as part of the new media studies.

As it is stated in introduction, there are two certain types of new media theories, which are widely employed in the current analysis: the one, developed by Lev Manovich in the work "The Language of New Media" and the other – the so-called "remediation" theory, described by D. Bolter and J. Grusin in the book "Remediation: Understanding New Media". The two concepts will facilitate in consideration of the basic research-problem, indicated above, that is namely of how the net-art and the Web become ideologically, aesthetically, formally and structurally interdependent. These theories will provide all the necessary tools for examination of technological, conceptual and visual parts of those net-art projects, which test the limits of their own medium.

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[13] L Manovich 'Post-media Aesthetics', 2001, retrieved 5 April 2012,
<http://manovich.net/DOCS/Post_media_aesthetics1.doc>

The media research conducted by Manovich turns out to be especially important, since it coherently proves that the new media are being affected by technological sphere (computerization processes) and cultural domain to equal extent. As the author himself assumes, he "analyzes the language of new media by placing it within the history of modern visual and media cultures"[14]. Manovich positions the new media into a vast socio-cultural context, showing how cultural and technological trends interact with each other, as well as how they produce new types of media-cultural objects (meaning the media art forms, computer games, digital video etc.) In a similar manner, he points at the effect of computerization, exerted upon the new media art forms, including contemporary net-art practices, media installations, data-art etc. Art is being greatly influenced by new technologies: it is recontextualized and extended through the means of computer programming, global networking, media-convergence, appearing interfaces and hypermedia systems. Generally speaking, Manovich's theory reveals the mutual interplay between the visual and "information" cultures.

In order to explore this broad subject, Manovich addresses to different sciences, such as mathematics, cultural studies, programming, art history, from where he adopts methodological tools for his own research. This is how he draws the "language" or creates the framework for analysis of new media forms (digital media) and interpretation of new media objects (media art, films, digital images, installations). The intersection of cultural and technologically-related branches of knowledge results into emergence of a new discourse, with the proper terms for description of the new media phenomena. What Manovich develops and promotes in his theory is a conceptual apparatus, a system of terms and notions, that can be easily applied to almost any kind of digital objects (e.g. art, computer/ video games, images) or new media forms (e.g.computer, the Internet, cinema). Thus, for instance, while differentiating the new media from the traditional ones, Manovich provides the latter with 5 basic characteristics. They look as follows. 1) *numerical representation*, which, in particular, means that all new media objects are composed of digital code; 2) *modularity*, i.e. the fractal or modular structure of all media elements; 3) *automation* – the process of media creation became automatic; 4) *variability* – potential for constant modifications and alterations; 5) *transcoding* – translation of media from cultural (comprehensible) into computer-based (informational) format and other way round. The 5 principles are closely interconnected with each other and can be regarded as general tendencies of

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[14] L Manovich, *the Language of New Media*, the MIT Press, Cambridge, 2001, p. 34

digitalization process. All of them to certain extent fit into the analysis of the Internet-environment and characterize its nature. One can see that the qualities of the World Wide Web- medium correspond with majority of the above named parameters – just to mention a few: the Net is created through the use of mathematical function and, consequently, is completely programmable (code principle); it is entirely modular, for each web page consists of separate media elements -sounds, images, texts, which, in turn, are composed out of smaller discrete units, such as pixels, voxels, scripts etc; finally, the Web is variable, what becomes obvious from the way how different version of identical web-pages get constructed through standard templates. (Manovich, 2001)

The intention of current analysis, is, however, to borrow only a few notions from Manovich's "language" and correlate them with certain examples of the Internet-based art. Incorporation of the new media concepts is especially relevant to the subject of the third chapter, dealing with problem of how net-art investigates the hypermedia organization of the Web and exposes its immaterial components. In the context of the third chapter this argument will be supported by Manovich's media vocabulary, and namely the notions of digital data, code, hypermedia and interface.   One will, particularly, see, how these fundamental compounds become repurposed and reconsidered through the projects of net-art.

The second important theory, which complements the artistic investigations of the Internet-medium, is the concept of "remediation", also widely acknowledged in the new media theories. As for the basic argument, "remediation" states, that the new media borrow and refashion the content of older media, while constantly improving it and putting into a new form. The theory demonstrates advantage of the new digital means over the traditional, for it shows how the former modifies, enriches and provides the older media-contents with new properties. Under the new digital media Bolter and Grusin, primarily, mean computer-based visual technologies and objects, such as games, graphics, animation, digital art, virtual environment and the World Wide Web. "What is new about new media comes from particular ways in which they refashion older media and the ways in which older media refashion themselves to answer the challenges of new media"[15].

 "Remediation" theory becomes particularly effective in visual analysis of the media-means and media-objects: it indicates the ways of how different media- contents are simultaneously represented though one form. It deals with the problem of

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[15]JD Bolter, & R Grusin , *Remediation: Understanding the New Media*, the MIT Press, Cambridge, 2000, p. 15

"multimediacy" in graphical terms, focusing on visual impact or visual experience, provided by the present-day media. The concept, in particular, states, that the act of remediation is based on two opposed visual strategies, that is of "immediacy" and "hypermediacy". These are the two contradictory trends, the two extremes, which, however, claim their simultaneous existence in contemporary digital culture. The both define the grade of manifestation of the medium: if the "immediacy" implies invisibility or transparency of the medium, the "hypermediacy", on the opposite indicates its presence, its explicit functioning and inevitable role in the media-event (media-object). The new media constantly shift between these two drives, what constitutes the essence of the remediation process (Bolter, Grusin, 2000)

In the context of current research, "remediation" theory enacts as appropriate instrument for studying of multimedia content of the Web. It puts an emphasis on the hybridity of Internet environment and provides the methods, suitable for studying of its visual language. Web combines "remediations" of all possible media –textual, graphical, audio and video, putting them into the new condition, which is the virtual realm. Further, the Web's capacity to remediate all the known media-formats will be regarded in close relation to the graphical style of its organization, and the way how this style is reconsidered through net-art.

One can't deny the fact, that functionality of the Web depends, to a large extent, on graphic design of its user-interface and, consequently, on the manner of how this single interface arranges representations of various media-forms. In this connection, it is important to consider the issue of visual mixing of different media in one unified graphical space, of their mutual coexistence or rivalry in the framework of web-page. This principle of "media-multiplicity" is essential to the Internet environment: "the ultimate ambition of the Web designer seems to be to integrate and absorb all other media"[16]. This principle, accordingly, turns into the separate explorative subject for those artists, who investigate the complex character of the Internet. They interpret the multimedia feature of the Web in their own way, experimenting with the mixed media-contents and testing the graphical organization of the web-interface. This problem will receive a closer review in the IV chapter of current research, describing particular net-art projects, concerned with multimedia aspect of the Web. The theoretical framework of the IV chapter will be drawn out of "remediation" concept, which gives a full explanation of the Internet- media-multiplicity. It elucidates the questions of Web's

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[16] Ibid, p. 208

"hybridity", namely, how the latter fashions the older media-types, how it situates them into the digital realm and, subsequently, forms its heterogeneous graphic language.

2.3   Hypermediacy" as Predominant Strategy of Visual Organization in the Web

As it is stated above, the current analysis is centered around the distinct type of net-art works, and namely those, which are preoccupied with the intrinsic qualities of the Internet-medium. Generally, such projects are aimed at critical reassessment of the Web and manifestation of its basic properties, including some aspects of inner organization, contents and functioning. In order to achieve the goal of Web-exploration, these net-specific works appropriate a number of common methods or strategies. Thus, for instance the net-art projects might be similar in a form or thematic contents, in a way they exploit the material (e.g. different Internet-compounds) or in their technical structure.

Likewise, these projects can utilize the same representational strategies or visual language, by means of which they demonstrate the uniqueness or specificity of the Internet-medium. In other words, this is how net-artists arrange their sites on graphical level, how they draw the viewer's attention to heterogeneous environment of the Web, as well as how they expose all tangible and intangible elements of the Internet structure. One of such graphical styles, the style of "hypermediacy"[17] will be discussed as a part of this section, for it predominates in the projects, devoted to aesthetical examination of the Global Net.

The term "hypermediacy" is borrowed from "remediation" theory, developed by Jay David Bolter and Richard Grusin. In the work "Remediation: understanding the new media", Bolter and Grusin define "hypermediacy" as "a style of visual representation whose goal is to remind the viewer of the medium"[18]. It is certain sort of visual organization, which makes the user aware of the medium's presence. The effect of hypermediacy is most obvious in the heterogeneous environment of the Internet, where the electronic medium represents itself through the browser and interlinked web-pages, arranged in a distinct "Windows- style". Thus, through "showing" of the medium enables the user to interact with the interface and search through multiple digital

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[17]JD Bolter, & R Grusin, op. cit., p. 20
[18] Ibid, p. 34

contents (texts, images, sounds, animation). The hypermediacy is a strategy, that dominates over the Web "attaining the real by filling each window with widgets and filling the screen with windows", therefore "the web interface can never be completely transparent"[19].

Putting it simply, the concept of "hypermediacy", deals with graphical arrangement of the material in the World Wide Web. The employment of this particular form of visual organization is, mostly, conditioned by the structure of the Internet itself. The latter is "furnished" with different interfaces and software applications, facilitating the navigation over the contents of the Global Networking. In this regard, the browser with its ability to keep several "windows" opened one and the same time, enacts as a typical and the most obvious component of Web's architecture. On visual level, each window of the browser presents a hybrid form composed out of various range of data - textual, graphical, video, animated – and visible navigation tools, such as frames, menus, scroll bars etc. Moreover, each window exists independently from the others, thus "competing for the user's attention"[20] and "defining its own point of view"[21], what denies any chances for unification of such heterogeneous environment. As a result, the user is enforced to constantly switch his attention from the actual information, he is looking for in the Web, to the browser's graphical architecture. This multitude of visual signs, dissimilar in their nature, constitutes the essence of "hypermediacy", the main purpose of which is to acknowledge the medium through abundance of representations. "Contemporary hypermediacy offers a heterogeneous space, in which representation is conceived of not as the window on to the world, but rather as "windowed" itself with windows that open on to other representations or other media"[22].

Internet-artists appropriate this "hypermediacy-effect" and convert it into their own graphical method, which helps them to reveal the hidden or invisible structure of the Internet. The influence of "hypermediacy" becomes particularly evident in a range of works, that "confront" the viewer with intangible qualities of the electronic medium: these are the projects, that mainly deal with the questions of data visualization, remapping of virtual space, code-"drawing", unusual browsing etc. Thus, the net-art sites might be overfilled with depictions of formal Internet-features, such as hypertext elements, HTTP protocols, source-codes, as well as with different compounds of the

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[19] Ibid, p. 210
[20] Ibid, p. 32
[21] Ibid, p. 33
[22] Ibid, p. 34

web- interface, i.e. buttons, scrollbars and menus. They exuberate with a mixture of visual signs and icons, inherent to the nature of the Web, so that the latter becomes graphically exposed. Net-artists employ "hypermediacy" as practical tool, as means to acknowledge the digital medium, to demonstrate its form and functions or to manifest its inherent qualities.

3. Unraveling Hypermedia Structure of the Web and its Basic Components through Graphic Representations of Net-art

3.1 Key Features of Hypermedia Organization and Net-art

The World Wide Web enacts as a complex hypermedia system with its own rules of functioning, graphical presentment and underlying structure. It is a vast information-oriented universe, organized with a purpose to provide the access to different types of data-materials – everything from images to film clips and textual files. Any sort of graphical or audio/ video information becomes available in the Global Networking, due to its highly elaborate architecture consisting of both technical (hidden) elements and visible pictorial compounds. Although practical implementation of hypermedia in technical terms is quite a complicated process, its general organization might be easily explained by virtue of three basic notions: database, interface and a system of hyperlinking. All of them will be briefly characterized within this section, whereupon one will conclude about their aesthetical and ideological significance for the practices of net-art.

As for the ground, the hypermedia structure of the Web rests upon a huge digital database, which is a collection of information-units or sets, organized for a quick user-navigation. Each part of the Web might be treated as an assemblage of different media-items i.e. textual fragments, sound-samples, photographs, graphic details etc.: each single web-page represents itself a "sequential list of separate elements – text blocks, images, digital video clips, and links to other pages.[23]"

The form of database turns out to be crucial for the whole digital environment and, according to Lev Manovich (2001), has already become a "metaphor" for contemporary media culture. Where the database has the most significant value is the Internet, for as a matter of fact the latter presents a large multimedia database, where all the data is positioned in accordance with hypermedia structure. The distinctive quality of this database is constant expansion, what is mostly conditioned by the character of the Internet – medium: due to multiplication of its pages the Web remains in the state of permanent grow and development. The web-sites with all the included media-

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[23] L Manovich, *the Language of New Media*, the MIT Press, Cambridge, 2001, p. 195

compounds are subjected to continuous updating and, thus, extension. It is always possible to supplement them with new parts and modify something, that already exists.

In order to navigate the database one requires an interactive visible tool, which is today known under the general term of "interface". It is a special mechanism or instrument, facilitating in viewing and operating with multifarious media-contents, stored in the Web. The browser serves as the most typical interface for the Internet environment. The notion of interface emblematizes the core and designation of all digital media, which is to provide access to the information or to present the encoded collections of data in apprehensible form. Thus, through the new media's interface the database is transformed into the subject for user's manipulations – viewing, navigation, searching etc. It is pointless to discuss here the other formal functions of the Web-interface, for they are all quite apparent (any average Internet-user is aware of them), instead one can mention the cultural or symbolical role of this technical tool.

Although the main design purpose of this application lies in granting of transparent navigation, such task can't be totally implemented in practice. Despite the expected qualities of "neutrality" and "user-friendliness", the interface can never be completely invisible, - on the contrary, it obviously stands between the user and the digital realm. It symbolizes the point, where "the hidden technological dimension of the computer meets human perception, interpretation and interaction"[24]. In this connection, the interface affects the comprehension of the Web: it defines the ways of how the viewer perceives the virtual environment and any relating to this environment objects. The device (web-browser, in case of the Internet) sets its own rules for displaying of media-items and thus gives a specific representation of the whole Internet-domain. The user has to accept these conditions, as long as, only in this case, he becomes able to access the contents of the Global Networking. The same as the database the interface might be understood as another "metaphor" of the present-day digital culture.

The interface connects decentralized parts of the Web through hyperlinks – the system of hyperlinking, is hence the third important element of hypermedia structure. These links set associations between data and enable the user to navigate around the Internet, while he searches for information. The key distinction of hyperlinking is its non-linearity and non-hierarchical organization. By virtue of them it becomes possible

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[24] S Pold, 'Interface Realisms: The Interface as Aesthetic Form', University of Aarhus, 2005, retrieved 3 April 2012, <http://pmc.iath.virginia.edu/text-only/issue.105/15.2pold.txt>

to traverse from one media object to another in a random way. Such non-hierarchical structure implies the equality of all the data-objects found in the Web, as well as it manifests the freedom of option: it's up to the user to choose where to go next.

Since all the above mentioned elements are inherent to the Internet-medium, they become, in a sense, predominant in the conceptual, formal and thematic content of the Internet-art. Net-art provides its own critique: it converts all these pragmatic features into aesthetic forms and complements them with additional meanings. On the one hand, net-art reveals the forms of database, interface and hyperlinking, showing their role and functioning as a single hypermedia system. On the other, it transforms them into cultural phenomena or symbolical objects, which play the aesthetical, rather than practical part. Net-artists deliberately sacrifice traditional functionality of hypermedia to the aesthetical, graphical and representational aspects. It is both an exploration of the hidden hypermedia structure and, simultaneously, an attempt to provide a new experience of the habitual medium, to question its nature or test its limits.

3.2 Data and Code as Essential Ground of Hypermedia Environment

The fact that hypermedia environment of the Web is information-based seems to be self-evident. The Internet, as a "new medium", belongs to the digital realm where everything is operated through codes and data. However, upon studying the complex structure of the Web it is important to develop a more profound understanding of how the notions of data and code relate to each other, which part they play in the entire hypermedia organization and what kind of cultural discourses form. It is equally significant for current analysis to define the place of these technical notions in the practices of net-art and identify the ways of how such seemingly pragmatic phenomena turn into the focus of aesthetical exploration.

While specifying the key tendencies of the new media, and accordingly hypermedia, Manovich intentionally stresses the first and the most significant principle, i.e. their code-structure or informational ground. What all the digital media (the Internet including) have in their foundation is discrete data, which is "sampled", "quantified" and, after all, organized into the structure of database.

It is the phenomenon of data which turned into the subject for aesthetical reflection and critical reconsideration in the multiple practices of net-art. It appears as conceptual subject-matter over the whole period of net-art development – from the middle of 1990s

to present day. During this time the artistic investigation of data and database' notion resulted into formation of a separate internet-art field known as "data visualization". Appropriating Manovich's understanding of the database as "predominant new media form", net-artists aspire to create their own information spaces, which are supposed to challenge conventional apprehension of digital media. For instance, they produce dynamic internet-maps or alternative web-browsers on purpose to call the user's attention to usually intangible or invisible media-components (scripts, codes, pixels and other informational elements). Among the most prominent net-art projects, in this connection, are the project "1:1" by Lisa Jevbratt, some works by artistic group "Jodi", which will receive a closer examination in current analysis.

The new media domain requires the data to be presented in particular structure and form, which is the form of code. All the informational flows constituting the ground of hypermedia exist solely as encoded units, subjected to the same rules of the digital realm. The notion of code or the problem of coding in hypermedia environment, thus, appears as an alternate side of the same informational aspect and the other important question of the Web functioning. Code and data are found in close connection with each other, they enact as inseparable parts of the same process and the same organization, therefore their meaning and appropriation might be occasionally confused. However, there is a conceptual difference between the two, which as part of current research should be emphasized. If the data is usually understood as a set of certain structures or portions of information, code is mostly associated with the issue of how these particular data-sets are created. In its absolute literal appearance the computing code is constituted by "zeros" and "ones", which become operated via different programming methods. The act of coding, in this regard, is assimilated with the processes of production, modification and conversion of data through application of mathematical algorithms or functions.

In the context of net-art practices, the code-phenomena, in general, and the coding-process, in particular, acquired a number of additional meanings and connotations. While creating their works through technical means of programming, net-artists became fascinated with aesthetical and symbolical qualities of the coding-process as such. Thus, some of them (Lisa Jevbratt, for example) equal the act of coding to the act of "creating reality"[25], meaning under "reality" the hypermedia environment of the Internet. To write code means to alter, modify or extend the hypermedia architecture of the Web;

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[25] L Jevbratt, *The Infome – the Ontology and Expressions of Code and Protocols*, Crash, London, 2005, p. 1

figuratively speaking, coding is "sculpting or designing with the hypermedia material, experiencing the ways of how the latter folds and falls."[26]

Coding is the act of building the environment, to "move" the environment and a way of moving in the environment. Even if this environment is written by us, the whole (the network), made up of its parts, (the layers of languages and protocols, the packets, viruses, etc) might have reach a level of complexity and richness high enough to make it interesting to consider it as an organism. (Lisa Jevbratt, 2005)

As a tool for construction of hypermedia, coding turns into the subject of philosophical and creative exploration in multifarious projects of net-art. They attempt to explore its inherent qualities, as well as all complex ways of its functioning.

Dealing with code and data-elements is one of predominant features of the Internet-art: one can see that net-art pieces are especially concerned with re-interpretation, re-appropriation and aesthetical reflection upon the subject of programming (coding) and data. They feature essential characteristics of hypermedia, including, for instance, such aspects as Internet Protocols, HyperText Markup Language, XML, Internet addresses etc. What the net-artists in particular do is that they incorporate the data-cod-phenomenon as simultaneously aesthetical subject, creative material and philosophical concept into their works.

Due to the focus on rather formal aspects of its medium (the Web), net-art is attributed by some scholars (e.g. Brett Stalbaum[27]) to the category of formalistic arts and related to the tradition of European formalism (as it was stated in the II chapter of current research). This point of view proves its correctness only to some extent: it wouldn't be right to call net-art absolutely formalistic, since it exposes all the formal criteria of the medium to great reassessment and reconsideration. One of the most important qualities of this artistic practice is its critical distance from the Internet subject-matter, what implies the constant reevaluation, questioning, misinterpreting and even criticizing of the hypermedia. Putting it simply, net-art does not accept all the formal components of the Web-organization as they are, but considers them from a critical perspective.

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[26] Ibid

[27] Stalbaum, B, 'Conjuring Post-Worthlessness: Contemporary Web Art and the Postmodern Condition', retrieved 15 March 2012, <http://switch.sjsu.edu/web/art.online2/brett.links/conjuring.html>

3.3 The Trend of Data Visualization in Net-art

While reflecting upon the grounds of why contemporary net-artists choose data-visualization as one of the strategies for creation of their works, one should take into consideration the inherent and the most basic quality of digital information - i.e. its dematerialized or "disembodied"[28] nature. The data in hypermedia environment seems "to have lost its body"[29] and become fully abstract or intangible, leaving no chances to experience it directly through the senses. Such flows of data operate on virtual level, where immediate representation of the digital matter (code or algorithm) is impossible. As a result, the informational foundation of the medium remains totally invisible or incomprehensible for the user. One of the possible ways to overcome such "disembodied" state of digital data is to produce its visual model or, putting it simply, visualization, which would expose particular data-sets, supposedly lying beneath "the surface".

Visualization method becomes highly usable among net- artists: they employ it as an instrument for research and experimentation with the digital field. In some of particular projects they manifest the informational basis of hypermedia, which, as a general rule, is hidden from the viewer. By means of visualization, net-artists manage to put the abstract data into the concrete shape and "transform the informational chaos of data - packets moving through the network into clear and orderly forms"[30]. The visual models of net-art enact as aesthetical means for reforming, reshaping, restructuring and reordering of information flows. This enables the onlooker to see the clear patterns or elements lying "behind the vast and seemingly random data sets"[31]. In this case, net-art enacts as a kind of agent between the impenetrable numerical base of the Internet-medium and user's senses: it converts the highly abstract notion of digital data into something perceivable – graphic depiction.

In the article "The Anti-Sublime Ideal of Data Art" Lev Manovich characterizes this specific capacity to transform the intangible phenomenon into comprehensible representation as "anti-sublime" aesthetics of data art. He invents the term "anti-sublime" after comparing the data-visualization projects with the art of Romantic epoch, the ideology of which was basically centered around the ideas of the sublime. Drawing

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[28] C Paul, *Digital Art*, Thames & Hudson, London, 2008, p. 174

[29] Ibid

[30] L Manovich, 'The Anti-Sublime Ideal in Data Art', retrieved 14 February 2012, <www.manovich.net/DOCS/**data_art**.doc>

[31] Ibid

the parallel between the Romantic and the Internet-based art, Manovich concludes that the latter directly opposes the former. if the Romantic artists believed in existence of inapprehensible and, thus, non-representable things, the net-artists, on the contrary, aspire to visualize and "embody" something inconceivable and dematerialized – i.e. various aspects of virtual data.

One of the most striking examples, in this regard, was made by the Swedish born artist Lisa Jevbratt, who in her project "1:1" presented 5 different visualizations of a large IP-database. From formal point of view the work appears as a set of 5 separate interfaces "Migration", "Hierarchical", "Every", "Random", "Excursion". Each of them enables the navigation over the database of IP-addresses – that is of actual labels indicating the location of web-pages in the Global Network. These 5 visualizations contain multitudes of colorful representations, by clicking of which the user gets a transfer to one or the other of IP-addresses. The initial intention of the work was to gather the addresses of all existing Web-sites and store them in this database, but due to the rapid growth of the Web such ambitious idea was not put into practice. The latest update of the project was done in 2002.

However, it is not one of the interfaces, but the database itself, that is supposed to provide the access to the Internet and display the latter in a way much different from the common layout. According to Lisa Jevbratt, the project is aimed to grant a new experience of the Internet-organization, presenting the Web as a purely "numerical space"[32] with an abundance of usually hidden from the viewer Information: IP-numbers, "undeveloped sites and cryptic messages"[33]. As the artist assumes, the regular interface of the Web, implying the navigation through portals and search engines, does not give an adequate representation of the Net infrastructure. On the contrary, it conceals the inner Informational ground of the Web under "the colorful wallpaper"[34], which the user is forced to deal with. "1:1" provides an opportunity to look beyond this visible surface and take a view of the technical foundation of the Internet, with the intentional focus on the subject of IP-addresses.

Jevbratt regards the project as simultaneously a piece of art and analytical means for investigation of immaterial properties and technical functions of the Internet-medium. The "1:1" project serves as a clear example of self-referential quality of net-art: it puts

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[32] Paul, op. cit., p. 181

[33] L Jevbratt, '1:1', 1992-2002, retrieved 11 May 2012, <http://128.111.69.4/~jevbratt/1_to_1/index_ng.html>

[34] Baumgaertel, op. cit., p. 192

the thematic, graphic and conceptual emphasis on the Web per se. In general, the "1:1" work might be evaluated as an artistic attempt to "embody" or "materialize" the hidden structure of the Internet, deliberately emphasizing the aspect of the Internet Protocols. It is not only representation or graphical depiction of concealed elements, but a way of direct exploration, interaction and experimenting with them.

Considering the method of data-visualizing as an instrument for analysis of hypermedia components, it is important to stress a number of key-points. First of all, this method has a truly scientific background, for it emerged on the intersection of both aesthetical subjects (arts, design, visual culture) and technical disciplines, such as engineering, computing, mathematics etc. The need to visualize data first appeared in natural and technical sciences, when the researches encountered the problem of handling with huge volumes of information. In terms of practical use, it was quite logical from their part to put abstract data into visual forms, i.e. in form of images. Employment of images into numerical sphere resolved the problem of how the vast amounts of data should be processed: the visual aspect provided the scientists with the ability to make a proper navigation among multiple data-sets.

The above mentioned aspect implies, that "data-visualization" projects of the net-art exceed the limits of simple graphical depictions or digital "representation", since they deal with the actual "working" data from the Internet (as for example, such data might be the IP and URL-addresses). These visualizations of data are meant for direct experience, for active exploration, not just for passive observing. Such net-art pieces as, above described "1:1" by Lisa Jevbratt, are intended to bring the onlooker as close to the Web-data as possible; they reduce the distance between the user and the informational ground of hypermedia environment, interpreting the latter through graphical metaphors. They break down the prevalent idea, that virtual data is inaccessible, unreachable, intangible and exists beyond human understanding, by contrast, exposing its "materiality" and relevant functioning.

Some of visualizations, as a matter of fact, present artistically constructed interfaces, by means of which a user can interact with the actual Internet-databases. In this sense data-visualizations perform both aesthetical and pragmatic function – importance of the latter, however, is usually minimized, for the usability-level of such interfaces is generally low. Net-artists do not aspire to create the customary graphical tools for informational navigating (like, for instance, the habitual Internet search-engines or commercial portals), but intend to provide the user with a different experience of the hypermedia data-sources. Their data-visualizations "offer the possibility of fundamental

new insights, a moment of understanding that reveals hidden processes or complex relationships, break through existing barriers and sharpen the focus on the research"[35].The aesthetical quality, on the opposite, can be amplified or deliberately accentuated due to the artists' concern with production of beautiful, visually appealing metaphors, through which the data-sets become manifested.

It is still an arguable question of whether the artistic data-visualizations should be strictly differentiated from the scientific ones and if the distinct border between the two should be drawn. However, it is quite obvious that the one differs from the other in the conceptual, philosophical ground and general appropriation, while on the formal level they might share a number of similarities.

3.4 Testing the Graphic Potential of the Source Code: Case Study "wwwwwwwww.jodi.org"

Another important strategy to test the concealed intangible components of the Web-Medium can be found in internet works by "Jodi", the Dutch/ Belgian group of net-artists (Joan Heemskerk and Dirk Paesmans) who base their projects on graphic simulations of digital code. Highly visual pieces by "Jodi" look like artistic play with various aspects of source code: their sites are composed of rapidly changing depictions of ASCII-, HTML-,XML-,XSL, CSS – and other popular in the computer programming coding systems.

Commenting upon the graphic experiments with codes and algorithms, the artists from "Jodi" state, that the main purpose of their projects is to question conventional norms and functions of the Internet, "to turn the software inside-out, through bringing the coding that normally operates the web pages to the surface of the work"[36]. Though its artistic practice the group intends to undermine the idea of smooth and convenient Internet-surfing, by means of which under normal conditions the user gets an access to the necessary content. They attempt to confront the viewer with unfamiliar structure and unnatural design of the Web-interface, where the traditional hypertext system no longer works. On that purpose "Jodi" create their weird strange-looking sites exuberating with

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[35] S Diamond, 'Lenticular Galaxies: The Polyvalent Aesthetics of Data Visualization', Code Drift: Essays in Critical Digital Studies, 2010, retrieved 6 April 2012, <http://www.ctheory.net/articles.aspx?id=651>

[36] J Stallabrass, *Internet Art: the Online Clash of Culture and Commerce*, Tate Publishing, London, 2003, p. 38

multiple representations of cryptic signs, glyphs and coded messages. All the visual components and their unusual behavior (blinking, redirecting, chaotic movement) are meant to simulate either a casual Web's dysfunction or deliberate failure of the whole Networking system. As Micele White in his article "The aesthetics of failure: net art gone wrong" argues, the online works such as "wwwwwwww.jodi.org" intentionally incorporate the aesthetics of failure. "This aesthetic of failure can be defined as the ways net artists reflexively quote and misuse the programmed aspects of the computer"[37]. It is not just demonstration of the inner structure "lying beyond the surface", but an aggressive critique of the entire hypermedia organization, that is manifested through Jodi's works.

Thus, for instance, on visiting the "wwwwwwww.jodi.org" site, the user faces a line of flickering unclear ciphers, imitating either a kind of programming error or corruption of code, what brings the viewer to the state of confusion and uncertainty about the Web's rational working. The further the user browsers the site, the more he becomes assured in the system breakdown, for the majority of the pages display a mixture of coding, images, inscriptions and textual fragments, randomly hyperlinked with each other.

The fuzziness of linkages and obscurity in connections between different types of visual material, is, however, designful method, used by "Jodi" with a specific aim to disorient the viewer, and at the same time, to provide him with opportunity to examine the Net on his own. The lack of adequate mapping and clear indications on the site encourage the user "to take an independent trip" around the project's space, which itself resembles a labyrinth with a multitude of false tracks and dead-ends. As the result the viewer gains a totally different experience of hypermedia environment: if the traditional web-interface is supposed to be "user-friendly", i.e. practical and transparent, the one designed by "Jodi" plays, on the contrary, a misleading part. This makes the user believe that the system "gone wrong"[38]. The onlooker is placed into a vague context, perplexed situation, forcing him to draw the conclusions and take the decisions on his own: should he continue the exploration of inner workings of hypermedia? or should he move away from the site, because the latter is crashed? It might be, on the one hand, understood as a kind of trap created for the regular user, while on the other, a way to

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[37]   M White, 'The Aesthetics of Failure: Net Art Gone Wrong', *Angelaki: Journal of Theoretical Humanities*, vol. 7, no. 1, 2002, p. 173

[38] White, op. cit., p. 173

break the rules of familiar hypermedia exploitation. It is one and the same time the means to trick and to enlarge viewer's comprehension of hypermediated organization.

As for the tool of subversion the hypermedia, "Jodi" (as was already indicated) chooses the source-code, creatively incorporating different aspects of coding as both conceptual base of their works and means of artistic expression. Code simulations, adapted by "Jodi", turn into unique explorative subject-matter: "Jodi" managed to transform these elements into aesthetically valuable artifacts. They can be as such considered from various perspectives, including media-oriented, aesthetical, philosophical, linguistic and all related positions. "Jodi"'s artistic experiments resulted into aesthetical reevaluation of the ordinary technical notion, attaching the latter with additional meanings and characteristics.

One of them is the graphical or pictorial quality, which under normal conditions is inherent to artistic works or to the field of visual culture. In "Jodi" s project the commonly unseen hidden source-code becomes a highly visual phenomenon. "The source code comes up as a text document, and what is revealed is that there is a whole layer of pictorial, ASCII text art below the surface of "wwwwwwwww.jodi.org"[39].

3.5 Questioning the Rules of Hypermedia Organization through "Anti-browsers" (on the example of "Web Stalker")

As it is already noted in the beginning of current chapter, the complex hypermedia organization of the Web should be regarded as communicative means, enabling access to various types of data and multimedia contents. It implies a visible graphical interface, through which all the heterogeneous information of the Global Net can be viewed, navigated and manipulated in a variety of ways. Likewise, it requires a particular method to connect the dispersed parts of the Web's material – this is the system of hyperlinks. Hypermedia enacts as logical development of the hypertext structure: but if the latter was originally implemented for linking of a singular type of information - i.e. text, the former - is capable to intertwine multifarious sets of data, including images (pictures, photos, graphics), audio-, video- materials and, assuredly, textual fragments.

Positioned in accordance with decentralized or non-linear manner, the informational units of hypermedia environment can be read, searched or operated solely via specific

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[39] Jodi, 'Location', retrieved 11 May 2012, < http://wwwwwwww.jodi.org>

tools or applications designedly created for the Web-navigation. Browser, in this regard, serves as the most typical software program, enabling Internet-surfing. The browser enacts as mediator between the user and enormous information flows overfilling the constantly growing Internet-space: it frames the Web, fashioning the abstract virtual elements with appropriate graphical form.

Symbolically, browser might be considered as a "window", opening the view into the content of the World Wide Web; literally, it is appropriated for displaying and traversing the data-resources of the Net. Thus, the main intention of this software program lies within the matter of making the Web-information quickly accessible and truly presentable within the framework of the hypermedia structure. Contemporary net-artists, however, found the way to doubt the general meaning of web-browser and various modes of its use. As part of their work they started to create alternative programs or the so-called "artistic browsers", designed rather to explore the qualities of the Internet-medium than to view the content of web-pages.

The most prominent example of alternative browsers (e.g. "Webstalker") will be considered as part of the following section. The discussion will be focused around the primary question of how artistic browsers contribute to exploration of the Internet architecture and challenge conventions of hypermedia functioning.

No matter which particular type of artistic browsers is taken into consideration, they all share a number of similar aesthetic qualities and have approximately the same meaning, that is to criticize the familiar way of web-navigation or to break with the standards of the Internet-usability. All of them can be understood as a sort of artistic provocation or challenge to what a regular user is accustomed to. Thus, due to their provocative nature such browsers might also be called as "anti-browsers" similarly to "anti-art" or "anti-aesthetics".

The first and the most disputed artistic browser, the so-called " Web Stalker" was invented by the British net-art trio "I/O/D", whose members were Matthew Fuller, Colin Green, Simon Pope. They were aspired to create an artistic substitute to the popular at that time (late 90s) browsing software, namely, the "Internet Explorer" and the "Netscape Navigator". To some extent, "the Web Stalker" enacted as an opponent to the whole browsing software industry: it challenged the on-going processes of commodification, commercialization and standardization of the Internet, which at that date was mostly employed as communicative means for promotion and distribution of goods (services as well). What Matthew Fuller and Colin Green decided to create as the

opposite to "Explorer" or the " Netscape Navigator" was a special application, designed to reverse the habitual ways of how the Web should be used, represented and perceived.

The artists supposed, that the main component of the Web is nothing but various streams of data, being transmitted to different computer machines connected to the Network. According to their assumptions, entire digital environment of the Web is constituted by the information flows which are encoded data-units, highly abstract and immaterial. In order to attach these information streams with comprehensible meaning, one requires a special software tool, the device-interpreter, which would enable the processing of the encrypted signals into the visible contents. The Web-browser, in this regard, enacts as the most powerful software instrument, so far as it translates digital codes into the data-material accessible for human senses. Depending on browser's organization, functions and graphical arrangement, the user gets one or another type of information (the latter, however can be presented in multiple formats, e.g. textual, graphical, audio-video etc), as well as he comes to a certain understanding of the Web-architecture. Thus, metaphorically speaking, the browser becomes capable to "impose its own point of view" and present the hypermedia environment in a certain perspective.

The fact, that the browser, constructs its own representation of the Web, inspired the artists from "I/O/D' group to create an alternative application of "Web Stalker", the basic purpose of which was to confront the Internet-user with totally new unfamiliar portrayal of the Internet structure. "The Web Stalker performs an inextricably technical, aesthetic and ethical operation on the HTML stream that at once refines it, produces new methods of use, ignores much of the data linked to or embedded within it, and provides a mechanism through which the deeper structure of the web can be explored and used"[40].

The functional and representational aspects of "The Web Stalker" bear much contrast with the ones of the standardized commercial browsers: the anti-browser disclaims the regular visual style of the page layout, including the graphical elements of "frames", "scroll bars" etc. It deliberately draws the user's attention to the other, more valuable "underlying" components of the Web, which are HTML- data streams and their inter-linkages. Likewise, the browser discards majority of other typical Internet-contents – images, animation, sounds, in behalf of its main intention to "reveal the armature of the

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[40] M Fuller, 'A Means of Mutation, notes on I/O/D 4: The Web Stalker', retrieved 3 May 2012, < http://www.variant.org.uk/6texts/Matthew_Fuller.html>

Web and to provide its stark, skeletal view.[41]" Source-codes and links between the sites become the main visual elements of the "Web Stalker", they form a depiction or visual model of the Global Networking, with the exposed data.

Such, seemingly, pragmatic approach of data-presentment, however, resulted into a new aesthetical perspective upon the digital medium, i.e. the Internet. Being viewed through the " Stalker"-browser, the Web turned into a new visualized phenomenon deprived from its ordinary functions and regular appropriation. In this case, the anti-browser software is incorporated as artistic means, transforming the hypermedia environment into the piece of art, or, at least, into the object of aesthetical reflection. The whole project is a clear illustration of how the artistic methods might be implemented in the sphere of digital. It shows the ability of art to penetrate and effectively operate within immaterial space, which is created through programming.

The inventors of the "Web Stalker" refer their creation to both the practices of contemporary art and the sphere of software production: it is quite obvious that they attempt to put the "anti-browser" into the broad socio-cultural context with multitude of possible connotations. Trying to define their project, "I/O/D' oscillates between the notions of "anti-art" or "non-art", eventually coming with the idea of "not-just-art"[42]. Such an ambitious term proves the pervasive character of the net-art in general, and the "artistic browser" in particular, for the latter is meant to enter another fields of human life, besides the artistic.

The emergence of the "Web Stalker" provoked a great debate among art historians and new media scholars, as well as it exerted considerable influence upon both programming engineers and common users. In general, it put under doubt familiar modes of hypermedia-usage: "it drove a wedge between passively consuming images or web content, and using them and their constituent text and HTML links to compose other kinds of visual structures[43].

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[41] Stallabrass, op. cit., p. 21
[42] Fuller, op. cit.
[43] Ibid

4. Media Hybrids: Investigating the Multimedia Character of the Web through Net-art

4.1 Multimedia and Net-art

Unlike the previous section, dealing with the issue of inner or "hidden" structure of the Internet, the current chapter will examine the problem of "media –mixing" or "media-combining" in the hybrid environment of the Web. The chapter will be devoted to the question of the Internet content, rather than its organization or function. It is an attempt to discuss the subject of how net-art works exploit and reconsider the multimedia quality of the Web.

Heterogeneous environment of the World Wide Web has always been a subject of huge debate among media theorists, who proposed different hypothesis about the Net's ability to remediate all existing media in one virtual mode. In this way, some scholars invented their own definitions and classifications, describing the Internet as "hybrid" -, "super"-, or "meta-medium", thus stressing its inherent quality of media- multiplicity. Majority of these theoreticians concluded, that the Web should be regarded as a complex communicative platform, bringing together all the possible media, which can be manipulated in a range of ways. Thus, for instance, besides general viewing, the hybrid content of the Web-page might be edited, mixed, copied, sent to different servers etc.

The Global Networking combines separate media-forms, putting their contents into different sorts of relation i.e. mixing, remixing, converging and juxtaposing them. Such practice of media-blending becomes possible due to intangible nature of the World Wide Web: these are not physical analogue media, but their simulations, which get involved into cooperation on the base of the Net. The virtual environment of the Internet encompasses the mimicking forms of graphical, sound, textual and video media, forcing them to work in a new way. These simulations appear as improved versions of their material predecessors; they acquire new properties and modifications, impracticable for their hard prototypes. The Web-structure does not imitate, but transforms and "extends the creative potential"[44] of incorporated media, attributing them with the new expressive and communicative features. One of the most obvious examples of such improvements is the system of hyperlinking, that is how different media- components of the Web got

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[44] D Preziosi, 'Afterword: Artifice and Interactivity', *Media-N: the Online Journal of the New Media Causus*, vol. 02, no. 03, fall 2006, p. 75

connected to each other: this automatically turns the notion of multimedia into hypermedia. The other notable properties are on-line editing and dynamic search, which became inseparable tools for handling with information on the Net. The Web provides the user with multiple opportunities for manipulation with media-contents: he can navigate, access or share already produced materials, as well as create, post and publish his own data in different ways.

Virtual simulations, encompassed by the Web, prove considerable advantage over material media, as long as their features are subjected to permanent modifications and extensions. They remain in a state of constant change and development, which implies the enhancement of tools for editing, searching, navigating, viewing, composing and other. As was already stated in the current analysis, the World Wide Web refers to the category of "new media" and this "newness" proclaims itself primarily in new qualities, that might be easily added and improved (e.g. updating of hardware and software). Thus, the complex multimedia environment of the Internet is not aimed at simple representation of older media or emulation of their properties: it is rather meant for repurposing or refashioning of all existing forms, as well as for the enhancement of their expressive functions. This is perpetual process of updating or renewal: "if the development of material media requires modifying of their physical substance, the properties of the new media can be transformed by simply changing of the existing or writing the new software"[45].

It is important to note, that over the period of its existence the Internet-medium underwent through a number of drastic changes. Nowadays the Web presents itself as a complex hypermedia structure with the ability to support various graphical, audio, video and communicative modes, whereas in the beginning it was a solely text-based platform, designed for the needs of small professional groups. Addition of the visual component in the early 1990s accelerated the Web-development, so that by the turn of the XX-XXI centuries the Internet was already transformed into the vast multidimensional phenomenon, widely used by all social classes. Currently, it includes all the invented means for communication - e.g. telephone, television, radio, publishing, messaging programs, electronic mails; tools for displaying and editing of various media contents – that is audio-video players, images-viewers and texts-readers, as well as it has great possibilities for information storage and data placement. As a rule, all these instruments appear in close intersection or combination with each other, for they

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[45] L Manovich, 'Understanding Hybid Media', 2007, retrieved 17 February 2012, <http://manovich.net/DOCS/ae_with_artists.doc >

might relate and be used in the context of the same portal, site or a web-page. For example, a web-site can one and the same time incorporate media-player, msn-messenger, discussion forum and the "bridge" to Skype.

As one can see, the World Wide Web presents a new, rather complex form of remediation: on the one hand, it adopts the elements of different visual and verbal media, on the other - , it exposes the features and characteristics of these media to substantial changes and modifications. Moreover, such combination and adaptation of "older" media to the digital environment results into creation of new media-means and tools, which can only exist and operate in the virtual realm. The Web, in this regard, enacts as global, constantly expanding hybrid, attempting to transfer all the material formats into the sphere of digital. It is both the medium ("metamedium") and an instrument for development of new media-genres and variations.

What the Internet borrows from the older media-forms is, mainly, their contents (in case of visual media) and key-functions (in case of verbal media), which become reorganized, repurposed and refashioned to the new digital space. The Web arranges various types of information (e.g. graphical, textual, audio, animation) in accordance with its own structure and order, putting the contents of other media into the context of hypermedia organization. The Internet provides a fresh standpoint on the familiar contents (photographs, pictures, text etc.) and subjects all media formats to new rules of coexistence. It manipulates with data in a number of ways i.e. mixing, remixing, merging or prioritizing one particular type over another, what provokes the appearance of new relations among diversified media-contents.

In this regard, the two most evident kinds of interaction between multifarious media-types in the Web can be described by concepts of convergence and remixability. Both convergence and remixability reaffirm the heterogeneous nature of the Internet: the two notions illustrate "the simultaneous appearance of multiple media within the same frame"[46]. In accordance with their logic the media can combine, juxtapose, complement each other or find another way of interconnection, which however is always grounded on the fact of their (different media) coexistence in the same virtual space. The concepts form a part of the "new hybrid language"[47], which today is highly employed in

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[46] L Manovich, 'Remixability', 2005, retrieved 5 April 2012,
<http://manovich.net/DOCS/Remix_modular.doc>
[47] L Manovich, 'Understanding Hybid Media', 2007, retrieved 17 February 2012,
<http://manovich.net/DOCS/ae_with_artists.doc >

the field of contemporary digital culture, especially while describing such phenomena as video-, computer- and internet- art, cinema, modern mass media, advertising etc.

Convergence relates to a certain kind of technical terms, and, in particular, means integration of various media-forms on the base of a singular technological platform (e.g. computer, Internet, current smartphones, iphones etc.). According to D. Bolter, convergence can be regarded as one of remediation strategies. It indicates a special type of media-repurposing, that is when different communication means mutually refashion each other. Thus, the author identifies convergence as reciprocal "remediation of at least three important technologies – telephone, television, and computer"[48]. However, this point of view seems to be restricted by formal criteria; Bolter provides technologically-determined approach to understanding of the convergence-culture, which, in his opinion, is only centered around technical properties of certain devices.

If understood in a broader sense, convergence can indicate the global merging of media companies, services, professional cultures or industries by means of telecommunications. The general trend of convergence is evident: there is a distinct aspiration to incorporate all the existing formats into a single universal medium or meta-medium which would have the digital configuration in its ground. Convergence is a key-concept and the milestone in the entire development of media-culture, signifying, that different media-formats no longer remain separated, but, on the contrary - they coexist in one digital domain. Due to on-going digitalization process, nowadays media might be united in a number of multiple ways and methods, majority of which are demonstrated through the Global Network.

The simplest definition of "remix" implies, that the contents of several media are blended or fused in one form. However, in the Internet environment remixability operates on a larger scale: the Web can remix almost each component, technique, visual language, expressive or representative function performed by different media. It is a total or the so-called "deep remixability"[49], which becomes possible on the basis of the Internet. Informational ground and communicative character of the Web enable remixing of various types of digital material, everything- from textual documents to motion graphics and visual templates can be remixed.   These are two crucial factors – information and communication, that facilitate the processes of media-remixing in the Internet environment. Saying it in other words, different media contents can be, at first,

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[48] Bolter & Grusin, op. cit., p. 224

[49] L Manovich, 'Remixability', 2005, retrieved 5 April 2012, <http://manovich.net/DOCS/Remix_modular.doc>

segmented into small informational units and then transferred to thousands of Web-domains. The form of data-sets (bits) and immaterial way of its transmission simplifies the remixing of media-compounds, hence all sorts of media-components (either a message, gif- image or mp3-sound) might be remixed and easily distributed among Internet-users. The digital form allows to split and reassemble media-parts as many times as necessary, what results into unlimited number of combinations or remixes.

A form of remix or "remixability presents a transformative process in which the information and media we've organized and shared can be recombined and built on to create new forms, concepts, ideas, mashups and services"[50]. Aforecited quotation puts an emphasis on two distinct qualities of the remix-phenomena: that is its perpetual activity (dynamic, rather than static force) and the ability to generate new media-types. Remix enacts as perfect means of "processing" the media, for it "transforms them from the passive-distribution media into an active-creative media"[51].

During the fourth quarter of the XX century the concept of "remix" underwent through a number of transformations, which provoked its development out of specific music-composing term into cultural epistemology. Today the notion of "remix" acquired a broader comprehensive meaning, covering majority of aspects in modern culture: it can be related both to the sphere of digital graphic design and contemporary textual analysis. All the visual, audio or textual cultural forms of current epoch are, to certain extend, influenced by the notion of remix, for the latter has already been converted into predominant notion of contemporary creative process.

The problem of "mixed" media-contents and different forms of their manifestation in the Web constitute a specific explorative subject for contemporary internet-artists. Like the new media theorists or the Internet-researches, net-artists attempt to make their own investigation of the "multimedia-feature" intrinsic to the environment of the World Wide Web. They critically reflect upon the common trend of "Internet-hybridization", including the particular aspects of permanent contents' growth, media convergence, material-coping and -re-use etc.

These questions, are, however, supported by more general far-reaching problem, that is namely of the material/non-material nature of the Internet multimedia. As soon as the multimedia principle became integral to the Internet, it caused a certain response among the artists working on-line. They started to put reasonable questions of whether the digital media contain more tangible or intangible properties and wondered how these

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[50] Ibid
[51] Ibid

properties might be utilized. Majority of net-artists were particularly concerned with the issue of intersection of these simulative media forms on the territory of the Global Net. Their projects were primarily intended for exploration of how the media-types cooperate with each other within the digital field: do the media compete, confront or beneficially coexist in the Internet-environment? In which way can they be manipulated or how should they be put into practice?

Likewise, the artists began to compare the digital media simulations to their hard physical master copies, trying to find the crucial distinctions between the two and indentify the one, which is more beneficial for artistic creation. To a certain extent, the new media simulations of the Web were adopted as a kind of artistic material and, thus, treated in a way much similar to traditional artistic means, e.g. canvas or oil. In this regard, the Web-medium was considered in terms of "physicality" or "materiality" as if opposed to its obviously dematerialized nature: it was a kind of artistic test aimed to explore the representational and creative possibilities of the Net.

4.2 "Media Hybrids" by Art-group "0100101110101101.org"

One of the Internet-projects, exploring the question of multimedia and aesthetics of "remixability", is "Media Hybrids", developed by net-art group "0100101110101101.org" in the late 90s. While publishing the work on their official site, members of the group state, that the "Hybrids" "are done through remixing of 'stolen" works of net-art together with web-pages randomly chosen from the Internet"[52].

From formal point of view, "Hybrids" appear as digital collages, produced out of different media-materials found in the Net: links, frames, tags, icons, images and banners are mixed in a single web-page, opening in a new window. These are visually appealing items with amplitude of graphic elements, borrowed from various sites. The incorporated collage technique is, in turn, adopted from the practice of avant-garde movements, such as Cubist, Dadaist or Surrealist styles, where it was widely exploited as both creative method and philosophical concept.

Taking "hybridity" as central subject of their artwork, the group presents its own evaluation of the Web, portraying the latter as a space of permanent media- re-using, -replicating and "visual recycling"[53]. The project provides a metaphor for the whole

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[52] 0100101110101101.ORG, 'Media Hybrids', retrieved 11 May 2012, <http://www.0100101110101101.org/home/hybrids/index.html>
[53] Baumgaertel, op. cit., p. 184

Internet culture, which in consequence of inevitable media-converging and – mixing is turning into pervasive, constantly expanding hybrid. In this regard, "Media hybrids" emblematize essential development of the Web, its gradual "hybridization" and tendency to encompass all possible media-forms, while creating the new ones. "Hybrids are no aberration, they're part of the natural evolution of all things digital"[54].

It is a kind of digital plagiarism, which is employed by 0100101110101101.org as one of predominant artistic strategies. Majority of their works are done through copying, re-using, re-posting of already existing in the Web material. The "stolen" works might be re-appropriated by 0100101110101101.org in different ways, they can either be "remixed" and recomposed (as in case with "Media Hybrids"), or just re-published in their initial form, i.e. remain unchanged (once they "stole" and republished a net-art gallery "Hell.com").

The tactics of "stealing" and processing of finished pieces is chosen intentionally: by means of digital plagiarism the group draws attention to several important for the Internet-culture issues. These are the problem of authorship and copyright in the Web, the question of the original and its copy in virtual environment, as well as some other.

One of such problems, namely the contradiction of the original and reproduction finds its particular reflection in "Media Hybrids". The latter, as was mentioned above, present a blend of copied pieces, a mixture of works created by other artists. "Media Hybrids" question the idea of originality in the Web: through mixing, recycling and recombining of already existing net-pieces they subvert the traditional understanding of the original. Thus, they, apparently, show that the concept loses its comprehensive meaning in digital realm. Simulative nature of media refutes any possible sense of authenticity, clearly illustrating the absence of the original in the Internet environment. What is supposed to be original and authentic either does not exist or been replaced by its virtual simulation – these are the basic conditions of the Internet, which can generate unlimited number of media-copies. These copies, in turn, are highly variable and reproducible, what multiplies the chances to get dozens of different versions out of the same media-components. The high reproducibility of digital data allows to generate thousands of copies and distribute them around the Network: all the replicas will be completely identical to their original, thus, having the same form, structure, technical parameters and representation. It is not mere a question of authenticity, but the fact, that

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[54] 0100101110101101.ORG, op. cit.

the original and the copy in the Internet became indistinguishable, since the two have the same code-structure or algorithm in the ground.

4.3 The Theme of Content- "remixing", "recycling" and -"shredding" in Internet projects of Mark Napier (case studies "Digital Landfill", "Shredder")

The fact, that the Global Network is overflowed with heaps of unnecessary multimedia contents forced the artists to search for alternative solutions of "processing" this useless media-data. According to the assumptions of several net-artists, the Web, reminds a sort of digital chaos with abundance of mixed media components such as pictures, animation, textual fragments, audio-,video-pieces etc.

As an American internet- artist Mark Napier states, all media parts of the Net can be treated in a sense of physical objects and, thus, subjected to rather physical processes of shredding, slicing, grinding, destructing or recycling. Despite immaterial nature, they all provide an opportunity of "secondary use" and might be appropriated as "raw material" [55] for artistic practice. In two particular projects "Shredder" and "Digital Landfill" Napier attempts to expose intangible contents to a number of physical operations: the data got either shredded ("Shredder") or decomposed ("Digital Landfill") as if it were a part of organic waste.

Design of the "Shredder"-work implies deconstruction or disintegration of any particular web-page to its basic media components, which will after be used as raw data for digital composition. It restructures and reorganizes the initial site into entirely new navigational space, graphically reminding of abstract painting. After remixing and rearrangement of the input html –data, "shredder" generates a fresh, aesthetically-valuable artistic piece with still functioning web-links (they are still capable to provide the connection to other Internet addresses). As a result various media content becomes displayed in its distorted shape, it is visually and architecturally altered, conveying the wrong portrayal of the Web.

Similarly to "Shredder", "Digital Landfill" is meant to process the data by way of its virtual decomposing and subsequent recycling into a digital artwork. In order to emphasize the "recycling" purpose of the project, Napier metaphorically assimilates it to a compost heap, where all Internet-users are expected to dispose their digital garbage.

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[55] Baumgaertel, op. cit., p. 182

"Landfill" incorporates similar methods of data-remixing/–restructuring as the "Shredder", and is designed to transform "wasted" texts, images, codes and animations into a piece of art. After virtual recycling the dumped "digital trash" shows up in different layers; the parallel between natural and digital environment becomes evident: "as if you were combing through dumping grounds layer by layer, you dig deeper and deeper into overripe information.[56]"

The projects appeared as artistic reflection upon the problemsof constantly increasing media-contents. In this instance, to take active actions of "shredding" or "decomposing" in the Internet, means to develop a new critical standpoint, a new angle from which the Web can be perceived. These are not corrosive measures, aimed at its literal destruction or breakdown, but a special aesthetical experience of a familiar medium, that is granted through the on-line pieces of Napier. The resulted representations of the Web, though, might cause a sense of confusion or alienation, for they undermine the habitual idea of what the visual organization of the page should look like. Upon visiting the "Shredder" or the "Landfill" – virtual projects, a user is faced with alternative, distorted and graphically modified portrayal of the Global Net.

From aesthetical perspective the both works bear resemblance with artistic tradition of modernist painting of the XX century. The graphical representations of "Shredder" and "Digital Landfill" remind of expressionist pieces, created by prominent figures of Mark Rothko or Jackson Pollock. They, in Napier's own words, "allowed the paint to show up as physical material in the work"[57]. The artist intentionally demonstrates his interest in abstract expressionism: the style of the latter is primarily dependent upon the means of employed media, i.e. paint and canvas. The general tendency of the movement was to cause a high emotional impact through "physicality of oil", through use of its tangible properties and intense application. The same as abstractionist artists, Napier draws the attention to graphical texture of the works, which, however, unlike physical paintings, are made by virtue of digital media-recycling. Instead of paint, expressive means of "Shredder" and "Digital Landfill" are constituted by broken links, textual fragments, distorted images, and parts of the source-code.

While treating informational units as natural trash, the artist puts the question of Web's materiality, exploring both its tangible and intangible qualities, which are usually taken for granted. It is a sort of artistic experiment, set up by Napier on purpose of

[56] M Napier, 'Digital Landfill', retrieved 12 May 2012,
<http://www.medienkunstnetz.de/works/digital-landfill>
[57] Baumgaertel, op. cit., p. 184

testing the Web's "physical" properties and, equally, questioning its immaterial nature. He reflects upon the meaning of digital content, its significance for the Networking culture, as well as the problem of how this content might be utilized in unnatural, unfamiliar to the Internet environment manner.

The two opposed concepts – material and immaterial – form the basis for exploration of the Web's creative possibilities. The Web becomes critically reassessed due to unusual appropriation of its contents. In other words, creative repurposing of regular multimedia data results into repurposing of the whole Internet organization. If the Net's content gets employed as creative material, the entire Web figuratively turns into artistic substance, which can be "molded" and "shaped" through modifications of its data-structure. It permits to attribute the Web to the class of artistic mediums, endowed with the tangible and intangible qualities one and the same time. The two projects illustrate the Web's capacity to accommodate visual arts, what works primarily on a graphical level and exploits all the expressive possibilities of the medium.

5. Conclusion

As one can see, the above discussion contains five different examples of the Internet-based art, each of which is concerned with particular aspect of the Web. Although they look quite dissimilar in their form and technical organization, they all can be related to the category of "net-specific" projects or projects, that reflect upon the state of the Internet-medium. The artists, created these works, had a general aspiration to explain the complex organization of the Web in their own graphical metaphors. They were captivated by the visible and invisible capabilities of the Global medium while studying of what is "above" and "under" the surface of the web-page.

All the reviewed works are associated with the subject of the World Wide Web, therefore they apparently share a number of common features, concerning the way of how this subject is represented and reassessed. The most distinct aspects should be generalized. It is necessary to identify the most typical tendencies in artistic appropriation of the Web. As part of conclusion, these tendencies are structured by way of listed key-points.

1. Regardless the general meaning, each project enacts as a sort of artistic experiment with the Global Medium. Net-artists are like the scientists, who make an independent research of the Networking environment, even though such tests result into creation of aesthetical objects. They can experiment either with real components of the Web (e.g. actual IP-addresses in "1:1" by Lisa Jevbratt) or just with graphical simulations (e.g. code-representations in the works by Jodi). They can, in the same manner, appropriate or re-use already existing sites – examples of "Media Hybrids" by "0100101110101101.org" and "Shredder" by Mark Napier. In any case, it is experimentation "with the Net" and "on the Net".

2. In a metaphorical sense, all these net-art works might be understood as different "portraits" of the Web, presenting it from unusual and sometimes obscure perspectives. It is especially obvious in case with the "Web Stalker", artistic browser, which reverses the habitual idea of the Internet layout. The main purpose of such projects, in this regard, lies not only within unusual depicting of the Web, but within providing of alternative experience of the Medium, which everybody is accustomed to. Net-art works drastically differ from regular images for their intention to interact with the viewer and introduce him into the environment of "alternative" Web.

3. The third aspect follows from the second: particular examples of net-art can be attributed to the category of "subversive" in a sense, that they undermine the

traditional understanding of the Global Net. In their works net-artists challenge the typical notions and rules of the Web-functioning. Thus for instance, both the "Web Stalker" by "I/O/D" and the project by "Jodi" are imbued with a radical spirit to break with the common norms and standards of the Net. "I/O/D" does it by means of alternative software –the browser, "Jodi" – through the fake coding. "Code and software can act as profound, invasive, deconstructive or viral artistic method within the larger hybrid space"[58]. The general tone of such artistic statements varies from subtle irony to rigorous critique of the Net.

4. From formal point of view, the works, created by net-artists look like actual web-sites or web-applications (browsers, as a rule). They prove their independent existence in the Net along with the other structural elements. This is why they might be misrecognized or misinterpreted by someone, who occasionally encounters them. The net-art projects are integrated into the structure of the Internet-medium, therefore they enact as its inseparable parts.

5. All the works are visually appealing: they incorporate multitude of graphical signs and visible elements, so that they become similar to traditional painting. It is one of the net-art strategies to exert the visual impact upon the onlooker and, thus, to create an aesthetic effect. Graphical side proves its significance in all the five considered examples of the Internet-art. Both "Jodi" and "I/O/D", Lisa Jevbratt and Mark Napier emphasize the visual aspect in their works, what brings the question about aesthetical qualities of the Internet-medium.

Current analysis resulted into description of complex interrelation between Internet-art and the Global Medium. It became clear, that they equally affect each other in terms of form, concept, ideology and even functionality. The Web provides a favorable environment for art-existence: it offers the necessary tools for creation of such specific phenomena as net-art. The net-art, in turn, responses with own aesthetical means, in consequence of which the Web receives its critical reconsideration.

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[58] J Bosma, *Nettitudes: Let's Talk Net Art*, NAi Publishers, Rotterdam, 2011, p. 77

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