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*Paper:* **Should generative art be political?**

***Topic: Visual Art***

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***Abstract:***

The history of generative art began long ago. Over time, it has come to encompass a great variety of techniques and products. Despite this diversity, today generative art is strongly associated with a very restricted category of works, mainly abstract images produced using computer software and evolutionary algorithms. On the one hand, application of generative art to computer graphics, the movie and gaming industries, electronic music and architecture has helped to develop the form both conceptually and commercially; on the other hand, within the world of contemporary art – and, more specifically, new media art – generative art seems to be largely ignored or misunderstood as an artistic production. Its specificity, as demonstrated through its recent evolution, is partly to blame for its exclusion from important venues on the contemporary art circuit, such as the numerous biennale and other exhibitions in major museums. Moreover, some art historians have pointed out that generative art is largely "retinal" or even conventional from an aesthetic point of view, and thus lacking in narrative and ideas. Because of its nature, generative art appears unable to address relevant societal issues, which may be why it has failed to seduce art critics and historians, not to mention the broader public.
In my contribution to the 2012 edition of the Generative Art Conferences, I would like to emphasize the variety of generative art throughout its history and in particular works that have tackled topics relating to contemporary politics and society. Although these works are usually considered outside the scope of generative art – a scope which the Generative Art Conferences have substantially contributed to establish and discuss since its first occurrence in 1998 - they do satisfy the common and accepted definitions of the genre. In addition, their topical breadth serves to exemplify the presence and success of generative art in the more traditional contemporary art world. I would also like to raise a few questions regarding the future and evolution of generative art. Must generative art become political to be accepted by the public and the traditional contemporary art field? If so, will this art be fundamentally altered, and will it lose its appeal for its original audience? What are the opportunities and challenges confronting generative art in the future? Historical works such as *MEART* by the SymbioticA Research Group and *Wrong Browser* by Jodi, along with more recent works, will provide examples for discussion of these questions.

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# Should generative art be political?

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## Abstract

The history of generative art began long ago. Over time, it has come to encompass a great variety of techniques and products. Despite this diversity, today generative art is strongly associated with a very restricted category of works, mainly abstract images produced using computer software and evolutionary algorithms. On the one hand, application of generative art to computer graphics, the movie and gaming industries, electronic music and architecture has helped to develop the form both conceptually and commercially; on the other hand, within the world of contemporary art – and, more specifically, new media art – generative art seems to be largely ignored or misunderstood as an artistic production. Its specificity, as demonstrated through its recent evolution, is partly to blame for its exclusion from important venues on the contemporary art circuit, such as the numerous biennale and other exhibitions in major museums. Moreover, some art historians have pointed out that generative art is largely "retinal" or even conventional from an aesthetic point of view, and thus lacking in narrative and ideas. Because of its nature, generative art appears unable to address relevant societal issues, which may be why it has failed to seduce art critics and historians, not to mention the broader public.
In my contribution to the 2012 edition of the Generative Art Conferences, I would like to emphasize the variety of generative art throughout its history and in particular works that have tackled topics relating to contemporary politics and society. Although these works are usually considered outside the scope of generative art – a scope which the Generative Art Conferences have substantially contributed to establish and discuss since its first occurrence in 1998 - they do satisfy the common and accepted definitions of the genre. In addition, their topical breadth serves to exemplify the presence and success of generative art in the more traditional contemporary art world. I would also like to raise a few questions regarding the future and evolution of generative art. Must generative art become political to be accepted by the public and the traditional contemporary art field? If so, will this art be fundamentally altered, and will it lose its appeal for its original audience? What are the opportunities and challenges confronting generative art in the future? Historical works such as *MEART* by the SymbioticA Research Group and *Wrong Browser* by Jodi, along with more recent works, will provide examples for discussion of these questions.

## Some considerations regarding generative art and its definition

The production and reception of generative art, that is to say, art created using procedural and autonomous systems, have changed over the years. Generative art has been successfully implemented in the film and gaming industries, for example, and is currently increasingly being employed in architecture and design. With respect

to the fine arts, some works of generative art have occasionally appeared in exhibitions, festivals and museums mostly dedicated to new media art. Examples include Ars Electronica in Linz, Transmediale in Berlin, VIDA in Madrid, the International Symposium on Electronic Art and, of course, the Generative Art Conferences, the first and still one of the few international events dedicated exclusively to generative art. Artists such as Karl Sims, Scott Draves and William Latham are frequently cited in publications that cover generative art and are credited with having gained international recognition for the genre. Even in the domain of fine arts, generative art is commonly associated with works produced through the use of computing devices and evolutionary algorithms, with abstract results, whether in printed form or video screening.

However, the commonly accepted definition of generative art leaves room for a greater variety of approaches, of procedural systems and, in the end, of works produced. As already asserted by Celestino Soddu, who in collaboration with Enrica Colabella and their students of the Generative Design Lab at Milan Polytechnic University organised the first Generative Art Conferences in 1998: “The Generative Art is a way to think and to design. Following this approach we can find, united by the same enthusiasm, architects and mathematicians, poets and musicians, physicists and semiothics, philosophers and painters, engineers and designers”[1]. The multiplicity of approaches and applications that Soddu points out are reflected in the variety of international works—ranging from visual art to architecture, from design to music—that have throughout the years contributed to the conferences. In describing his research in architecture and urban design, which he had already started in the eighties, Soddu explains the possibilities in adopting procedural methods and generative algorithms to create unpredictable results beyond the restrictions of traditional and artistic production. Soddu offers us the following definition: “Generative Art is the idea realized as genetic code of artificial events, as construction of dynamic complex systems able to generate endless variations”[2]. On the other hand, he also explains that generative art should not be seen only as a tool, but rather: “It is a philosophy with a strong and humanistic imprinting: each generative project can be implemented only starting from a hypothesis, like all scientific discovery paths, from a subjective vision of possible worlds, of possible rules, of possible increasing complexity”[3]. This visionary conception, which complements his technical definition of generative art, is supported by the argument proposed by Enrica Colabella, who considers that: “We can define Generative approach as a run from idea to shapes, from shadows to light”[4].

Since the first occurrence of the Generative Art Conferences, many artists and researchers have proposed their visions and definition of this particular artistic practice. A recurring definitions among those widely discussed in the context of generative art is that proposed by Philip Galanter: “Generative art refers to any art practice where the artist uses a system, such as a set of natural language rules, a computer program, a machine, or other procedural invention, which is set into motion with some degree of autonomy contributing to or resulting in a completed work of art”[5]. The reality of artistic production is, of course, much more complex then a definition: Indeed, the current trends and representation of generative art in the field of new media art can be attributed to a variety of factors that are difficult to examine objectively. Nevertheless, the definitions proposed during the Generative Art Conferences by Soddu or by Galanter are today a standard and are frequently cited by artists and historians. What is worth calling attention to in these definitions is that they credit generative art with encompassing a far greater range of artistic practices

and works than has typically been recognized over the last decade. For example, poems and texts created using the cut-up technique from Tristan Tzara or from William Burroughs, some of John Cage's musical compositions, installations by Hans Haacke and works of artificial life by Christa Sommerer and Laurent Mignonneau all satisfy these commonly accepted definitions of generative art.
Many other attempts to define generative art have been made, and it is not my intention today to present all of them. I would like to add, however, one definition that I find interesting and that will allow me to introduce the examples of artworks that I wish to discuss. In his guide to generative art, artist Matt Pearson expresses his dissatisfaction with Galanter's definition, although he does not reject it, because, "although this is accurate and descriptive—and a long sentence with all the right words—a single phrase like this isn't enough. I don't think it quite captures the essence of generative art (GenArt), which is much more nebulous. In my mind, GenArt is just another byproduct of the eternal titanic battle between the forces of chaos and order trying to work out their natural harmony, as expressed in a ballet of light and pixels"[6]. Pearson seems willing to try a less technical definition and sufficiently interested in grasping the hidden forces behind generative art to venture a few more aesthetic and philosophical considerations. The definition that he offers is quite audacious, indeed: "Generative art is neither programming nor art, in their conventional sense. It's both and neither of these things. Programming is an interface between man and machine; it's a clean, logical discipline, with clearly defined aims. Art is an emotional subject, highly subjective and defying definition. Generative art is the meeting place between the two; it's the discipline of taking strict, cold, logical processes and subverting them into creating illogical, unpredictable, and expressive results"[7]. What is extremely interesting in this definition is that, for the author, the artistic and poetic qualities of a work of generative art reside in the act of subversion of the mechanical and rational properties of the system used. In this case, Pearson certainly has the computer in mind, and thus is principally addressing works that are commonly and currently associated with generative art. We could ask, however, in what sense and how these works display the act of subversion that Pearson seems to value so much in his appreciation of generative art. Is it the case that generative art is flirting with more subversive strategies? Before proposing a few answers, I will briefly present some problems that generative art has faced in recent times, especially in its critical reception within the new media art world. Subsequently, I will present examples that might offer some interesting food for thought concerning the debate about generative art. I will also compare these works with the previously discussed definitions.

## The critical reception

Although artists and researchers working in generative art usually find common ground for discussing their visions, work and ideas, the genre is not always accepted, understood or appreciated by the artists, curators and historians within the larger field of contemporary art. In fact, generative art – and new media art in general, to which generative art belongs – is mostly ignored by contemporary art world professionals. International events such as the Venice Biennale or Documenta, in Kassel, Germany, basically neglect the most remarkable artists working with digital media and new technologies or, at best, shunt them off to the side. In fact, new media art is relegated

to a very specialized group of festivals, museums and publications, such as Ars Electronica, Transmediale, ISEA and the journal *Leonardo*. It is in this subfield of contemporary art – which only rarely offers access to the most traditional world of gallery and museums dedicated to contemporary art in general – that generative art found space to present itself and to evolve. Some of the most important generative artists have been recognized, shown and awarded during these events. What exactly is the position of generative art within new media art? How is it appreciated and described by the professionals who work in this field?

Invited to discuss generative art at the Generator.x Festival in Oslo in 2005, Susanne Jaschko, who co-directed the Transmediale Festival between 2001 and 2004, characterized generative art as being retinal. She also made clear that her appreciation of generative art concerned a very restricted collection of works that are commonly associated with the genre. “Is generative art retinal? I would summarise my observations on the aesthetics of generative art by answering: yes, it is strongly retinal in its best sense, but not solely. (...) Unfortunately, the emphasis on sensory perception continues to keep it out of the core of the media art discourse”[8]. Although Jaschko acknowledges that generative art is retinal in an aesthetically appealing way, she also suggests that it lacks the conceptual and contextual qualities needed to contribute in a substantial way to the core debates developing within the new media art scene. Undoubtedly, the interest of generative art is not limited to output, product or aesthetic qualities. Another important aspect is the system itself, created by the artist, which consists mostly of codes in a variety of programming languages. This, too, is acknowledged by Jaschko, although, as she correctly points out, in most cases, the underlying code and its conceptual qualities are hard for the public to appreciate. In their influential book covering the most recent trends in new media art, Joline Blais and Jon Ippolit dedicate a few pages to generative art. In a chapter on artificial life, they present the work of Philip Galanter, William Latham and Joseph Nechvatal, about which they are somewhat sceptical. They conclude that “what is more striking than the stylistic differences, however, are their similarities – a fact that calls into question Latham’s claim that artificial life can extend art ‘beyond the human imagination’. (...) these end-products of artificial life look surprisingly conventional from an aesthetic point of view, given how revolutionary their process are from a scientific one”[9]. Here, again, the critique of generative art mostly considers the aesthetic qualities of the visual product rather then the entire process.

These critiques should nonetheless be taken seriously because they come from specialists working in the new media art field. It is therefore important to now briefly consider the term new media art. Innumerable articles have been written questioning and debating the relevance and pertinence of the term. Although new media art may have been a useful and practical term during the first decades of the emergence of this specific form of artistic production, critics later found it increasingly dubious, in particular because of the uncertain meaning of the term “new” itself. Indeed, considering how many devices and software have become obsolete, and how quickly, it is somewhat amusing to think that a very recent trend in the new media art scene is the development of theories regarding media archaeology. Hence, the rush of curators and historians to urge that the word “new” be left out of “new media art” also signals their wish to emphasize the significance of media and art in the description of their field of curatorial and critical practice. For sure, media art is an artistic production that relies on and uses communication technologies. Consequently, it is only natural that it is appreciated by the community as an art that may deal with questions related to communication technologies and how they are

implemented in society. The inclination of media art to comment on society and technology is something that has been stressed by many cultural theorists, some of whom even consider it to be the defining characteristic of the field. Christiane Paul, for example, affirms that “new media art often critically investigates its underlying technologies and their encoded cultural and commercial agenda, automatically, as a result shifting focus to the medium itself”[10]. In the same vein, Anke Hoffmann and Yvonne Volkart affirm that “we interpret media art as the art form investigating the world and subjectivity with the means of technical progress and its dispersive affects”[11]. In Italy, commenting on a selection of prominent works that exploit and adopt new technologies, Mario Costa in turn affirms that these works invite spectators to enter the field of communication technology but then teach them how to subvert the practical function of these technologies. In this sense, says Costa, the artists are assuming an ethical function: “Essi insomma delineano una fenomenologia del 'blocco comunicante' e ne seguono la logica, ma la fanno lavorare a vuoto ottenendo così un doppio risultato: da un lato sottraggono 'il blocco' alla dimensione della prassi e, per ciò stesso, lo introducono in quella dell'estetico; dall'altro lato sollecitandoci ad entrare in vario modo nel 'blocco' stesso, ci indicano e ci addestrano ad una performatività legata al tecnologico, ben diversa da quella che ci viene quotidianamente richiesta, svolgendo così una funzione che non esitiamo a definire etica”[12].

If we accept the considerations put forward by the critics, historians and curators working in the field of new media art, we must recognize that it is not the fascination of the new or experimenting with technologies that defines or, at the very least, explains the interest of this specific artistic form. Shifting the focus to the medium itself, subverting technologies, commenting on the world and society – this, in fact, is what is expected from artists who develop and use new technologies, especially media technologies, in their work. Of course, these are just a few examples, but they nonetheless serve as a gauge of the current trend. If this is the current critical approach to media art, one might think that little space is left to artists who work with technologies instead of working against them. As an artistic production that is culturally situated within new media art, generative art traditionally represents dialogue and symbiosis between art and technology. It is thus not surprising that many leading researchers in the field have produced innovative artworks or that many artists who started experimenting with generative art have developed some extremely interesting projects and publications for scientific research. Could it be that what appears to be the very driving force of generative art – an art form that has evolved out of a fascination for technology, rather then a critical position – is what keeps it from being successful in the exclusive field of new media and contemporary art? To put the question another way, does generative art need to be political to be accepted and presented by critics and curators currently working in new media art? What possibilities exist for artists engaging in generative processes? Before attempting to answer these questions, I would like to present and discuss a selection of artworks that are generative and yet address political, economic and social issues.

## A selection of prominent but atypical works

The project originally called *Fish and Chips* and later renamed *MEART – The Semi Living Artist* is exemplary of a collaborative work. Many actors were engaged in this

project, which was developed by the SymbioticA Research Group at the SymbioticA laboratory of the University of Western Australia in collaboration with the Georgia Institute of Technology in Atlanta. Among the actors, Oron Catts, Ionat Zurr and Guy Ben Ary, who previously founded the Tissue Culture & Art project, played a significant role in its early development. As defined on the website dedicated to this work: "*MEART – The Semi Living Artist* is a geographically detached, bio-cybernetic research and development project exploring aspects of creativity and artistry in the age of new biological technologies"[13]. The work was a complex installation, distributed in two far-distant locations. Cultured nerve cells in the neuroengineering lab of the Georgia institute of Technology served as the "brain" of the work, while a robotic arm at the SemioticA laboratory constituted the body communicating with the brain through the Internet. In the room where the robotic arm was at work, a camera recorded images of spectators and compared them to the ongoing drawing produced by the robotic arm. The recorded image was then transmitted to the brain and transformed into a stimulation frequency that fed a neuron culture dish which was composed of neurons distributed on a multi-electrode array. The neurons spontaneously grew and interacted to form a biological neural network. Finally, a computer program analyzed the signals from 60 areas of the neuron dish and sent a message back to the robot arm to instruct it to move and produce an image. The brain and body thus communicated in a loop, mutually influencing each other. Alternatively, music was produced instead or together with the drawing. The focus of this work, which combines elements of biotechnologies with computing machines, was explicitly on creativity. The purpose of the artists was "to create an entity that will evolve, learn and become conditioned to express its growth experiences through art activity"[14]. In fact, this was a work of generative art with all the traditional generative ingredients, although the biotechnology involved was probably innovative at that time. A system was set in motion to create a result, a drawing or music, which could not be predicted by the creators of the system. Moreover, the system had the possibility to evolve and adapt in response to the environment. It is not surprising that the focus of the artists was on creativity, which is considered as a distinctive human feature and thus is quite often explored by artists and researchers engaging in artificial intelligence, artificial life and robotics. Yet, the artists involved in this project seemed to have other objectives besides investigating new possibilities for producing autonomous and artificial creativity. In the text of the catalogue presenting the work for the first time at Ars Electronica in 2001, the artists state that "biology is evolving from a phase of discovery into a phase of creativity and utilization. The effects on society will be profound. Hands on wet biological art is starting to be seen as valid means of expressing cultural and artistic perceptions as well as exploring neglected areas in biological research. It explores the nature of contestable futures that may arise"[15]. In another publication, they went further, affirming that "this approach can be, and has been, utilized by artists who are working with biology; for the non-scientist, the 'wet' experience in the laboratory involving some degree of life manipulation can be seen not only as an ethical conduct but also as a political act. A political act that goes beyond the democratization of the technology, to the act of breaking down dominant discourses, dogmas, and metaphores to reveal new understandings of life and power structures it operates within"[16]. In my opinion, *MEART* is a significant work in the history of generative art particularly because of its twofold qualities: On the one hand, it is a complex and collaborative work that exploits technologies in pursuit of the goal of creating emerging behaviours; on the other hand, it states explicitly, at least in the articles that publicly presented the

project, the aim to question, on an ethical and political level, the very technologies used in the work.

The second work I would like to discuss is *Wrong Browser* by artist duo Jodi (Joan Heemskerk and Dirk Paesmans). It consists of a series of browsers that have been made available as software on CD-ROMs or as a free download from the artists' website. Because the work functions as a browser, it connects to the Internet and displays the results of searches on the screen of the user. It is an interactive work intended to be experienced on one's own computer. Yet, as the title suggests, the browser doesn't function as a conventional one, and the experience is quite frustrating for the spectator. The program loads automatically random elements from the web, displaying both text and source code. And although the user has the possibility to enter his or her own IP address on the browser, the program has been conceived to prevent users from employing it in a practical and useful way. Moreover, the experience is complicated by the graphical appearance of the browser, which generally mixes and overlaps the search windows to further complicate navigation. The artists have described the work as being a very simple program, consisting of ten lines of code. *Wrong Browser* is not a work of generative art in the traditional sense. It doesn't look like one, it has not been produced as one, and the artists would probably not even call it a work of generative art, although they have stated quite clearly that they did not intend to be net artists either. *Wrong Browser* is the opposite of *MEART*: It is a very simple work, created by two artists who are not deeply involved in working with new technologies. Moreover, from a thematic point of view, *Wrong Browser* has very little to do with generative art, as it doesn't try to produce emergent behaviour in the historical sense associated with research in artificial intelligence. Nevertheless, *Wrong Browser* is a work of generative art according to the commonly accepted definition of it: The artists have written code meant to be run on a system that will generate unpredictable graphical output. It is not surprising that this trait has been pointed out by other historians. Florian Cramer, for example, affirms that "alluding costantly to the popular cultural semiotics of software interfaces, jodi manage to make software art - and thus also generative art - even where they don't employ algorithmic programming, a conceit that challenges the whole conceptual grounds of both art genres"[17]. The output is unpredictable because the system exploits the information on the Internet to generate the output, and furthermore because there is a degree of interactivity. Of course, one might argue that any software or process that allows interactivity and unpredictable results could be considered generative, for example a real browser. One should not forget, however, that *Wrong Browser* is an artwork and has been conceived as such. Furthermore, the graphical output plays an essential role in the significance of the work; that is to say, the artists desire that users experience the work not only on a conceptual level but also on an aesthetic one, and more particularly that they question their expectations concerning the graphical qualities of a common tool like a browser. This, in fact, is where *Wrong Browser* reveals a political impulse. In an interview with Tilman Baumgaertel, the artists affirm: "From the very beginning on, it has been the most important task for JODI to do everything wrong on the internet that can be done wrong. That's the core of all our work"[18]. In a previous interview, they claimed that: "Wir machen diese Sachen, weil wir wütend sind. (...) Es ist offensichtlich, dass sich unsere Arbeit gegen High Tech richtet. Und wir kämpfen auch auf graphischer Ebene gegen den Computer"[19]. It is clear that Jodi's work doesn't stem from fascination with the technologies and products that they exploit and hack such as computers, browsers and video games. Rather, the work evolves

from a critical approach to these technologies. By creating interactive, generative works to be individually experienced on personal computers and laptops, the artists invite users to question their attitude to and dependence on these technologies as well as the corporations that produce and control them.
The works I have already mentioned are very well known historical examples. What I wish most to emphasize is that they promote different perspectives on generative art, in particular by abandoning the tradition of purely abstract and conceptual production to embrace other, more critical areas of discourse. Those are not isolated examples; other recent works have a similar character, offering a variety of approaches, methods and results. For instance, *OneTree(s)* by Natalie Jeremijenko, *Translator II: Grower* by Sabrina Raaf or *Fifty Sisters* by Jon McCormack all employ generative processes to tackle ecological, cultural and political issues.

## What future for generative art?

These examples enable interesting perspectives for generative art as a production rooted in the new media art field. They also illustrate Matt Pearson's plea for generative art to satisfy a more subversive drive. They also affirm that, as an artistic practice, generative art possesses the tools to address issues relevant to contemporary society beyond its conceptual and aesthetic tradition. In so doing, generative art has the opportunity to build a stronger presence in the new media art scene where those topics are frequently debated. However, should generative art in fact become more political to be accepted and presented by the critics and curators currently working in new media art? It is no mystery that the world of contemporary art functions according to rules that, though complex, are not much different from those regulating other areas of production. Since demand for political art in new media art seems to be growing, it is natural for artists to respond by producing work that satisfies this demand. On the other hand, work that is created only through an opportunist desire to succeed might not be as emotionally moving or innovative as work driven by passion. Joline Blais and Jon Ippolit pose the following question: "If programming is an art, is any programmer with high standards an artist? No. As we shall see, software artists deliberately misuse code. Like the immune system's polymorphous antibody production, this perverse practice lends code art a quirky and prophetic vision that is unlikely to emerge from a purely utilitarian approach"[20]. If a purely utilitarian approach will not make generative art interesting from a creative point of view, then neither will a political approach, although it might, in the short run, make it more accessible to a larger group of curators. It is not my intention to propose a list of do's and don'ts for artists. Nevertheless, we are seeing some signs calling for art that can address relevant social issues. Generative art is capable both of producing astonishing graphical images and developing commercial applications, for example in the digital film and gaming industries. It can also produce conceptual works that challenge our understanding of creativity, intelligence and natural evolution. Nevertheless, it is obvious that generative art can also be used, or even abused, to address social, political and ecological issues. This is something that, more then anything, should at long last be acknowledged by critics and curators who deal with new media art and who, because of lack of information, curiosity or perseverance, have been unable or unwilling to follow the evolution of specific artistic productions. Indeed, artists who are willing to engage in this direction should be aware that curators, critics and historians are unreliable partners. Within the

exclusive world of contemporary art and the even narrower world of new media art, trends come and go as the wind blows. I believe that every artistic activity should be carried out following one's own passions and according to one's own experience and research. After all, contributions to society are not only achieved through confrontation. The long history of generative art provides a multiplicity of concrete examples and useful applications. In this sense, I would like to conclude by returning to a seminal text by Lucy Lippars, who lucidly analyzed activist art during the eighties. "As many have discovered, it is impossible just to drop into a 'community' and make good activist art. The task is specialized (though not in the same ways high art is) and it demands discipline and dedication (as high art does). To be out of touch, unanalytical, or uninformed is disastrous"[21]. This appears to me to be a very simple but sound recommendation for any artist, not only those involved in political themes. In the end we should always keep in mind that regardless of whether the issue is generative art, new media art, or contemporary art, what matters most is the art itself and the ways it challenges our vision of life and society.

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