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MASS PARTICIPATION IN ART: PATTERNS AND UNPREDICTABILITY

Thesis submitted to the Portuguese Catholic University for the Doctoral
Degree in Science and Technologies of the Arts – Interactive Art

by

Luís Sarmento Ferreira

ESCOLA DAS ARTES

(June 2017)



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Supervised by Professora Doutora Cristina Fernandes Alves de Sá

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To Inês

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Abstract

A work of art's openness to participation is traditionally a focus for thought and debate on the artists' role and on the way the participants relate to the artistic process. A recent artistic development in participation art - a formal definition of a work that involves a massive number of participants – calls for a reassessment of participation strategies and the study of the effects of this change on practices where the involvement of *the other* is simultaneously a method of art making and a field of poetic potential.

In this thesis, current theoretical work on the broader context of participation has been critical to define mass participation within that field. However, a shift from views centred on the new status of the participant public and its impact on the social and political context of the artwork towards a view centred on the artists' options is needed to assess the particularities of this practice. This shift reflects our research position that mass participation follows a process of artists' gradual ceding of authorial control to external elements. This process, that we will argue to have its roots in ancient art, is further explored by the vanguards of the early twentieth century, and is part of current art practice and discourse. Such timeline has already been clearly described elsewhere. However, the distinctive trait of mass participation, in what relates to that agency transfer

is a set of form making strategies which have lately come together even if they have been individually sought throughout modern and contemporary artistic endeavour.

As such, the work here documented, involves the systematization of such strategies resorting to two main approaches: on one hand, through practice, dealing with the formal and poetical potential of working with the mass. The main conceptual and implementation themes of four projects, that are accounted for in the second half of this document, establishes the seeds for the proposition of a mass participation strategy; on the other hand, a theoretical generalization effort, that makes for the first half of this document, creates the abstract framework of such proposition. Along with its general technological, cultural and artistic context, mass participation is posited within a critical review of the notions of agency, participation, the mass, and complexity.

Keywords: *Mass participation, Art, Agency, Participation, Mass, Complexity.*

Resumo

A abertura de uma obra de arte à participação constitui tradicionalmente um foco de reflexão e debate sobre o papel do artista e sobre as maneiras dos participantes se relacionarem com o processo artístico. Um desenvolvimento recente na arte participativa – a definição formal de uma obra que envolve um número massivo de participantes – apela a uma reavaliação das estratégias participativas e ao estudo dos efeitos desta mudança sobre práticas em que o envolvimento d’o *outro* é simultaneamente um método para o *fazer* arte e o campo de um potencial poético.

Para esta tese, o trabalho teórico actual sobre o contexto alargado da participação foi crucial para aí inscrever a definição específica de participação em massa. Contudo, para avaliar as particularidades daquela prática é necessário deslocar as perspectivas centradas no público participante e no seu impacte na obra de arte em direcção a uma perspectiva centrada nas escolhas do artista. Esta deslocação reflecte a posição resultante da nossa investigação de que a participação de massa segue um processo de cedência gradual pelo artista do seu controlo autoral a elementos externos. Este processo, que, segundo nos propomos arguir, tem as suas raízes na arte mais antiga, é explorado de modo mais extensivo pelas

vanguardas artísticas do início do século XX e é parte do discurso e da prática actuais. Esta evolução temporal tem sido descrita na literatura relevante; contudo, o traço distintivo da participação de massa enquanto tal, no que respeita a transferência de agência, é conjunto das suas estratégias para a *produção de forma*, mesmo que tenham sido procuradas individualmente ao longo das experiências artísticas modernas e contemporâneas.

Assim, o trabalho que aqui documentamos envolve a sistematização destas estratégias recorrendo a uma dupla abordagem. Por um lado é mobilizada uma prática que recorre ao potencial formal e poético do trabalho com as massas: os principais temas conceptuais e de implementação presentes em quatro projectos, dos quais é dada conta na segunda parte deste documento, formam a raiz da proposta de uma estratégia de participação de massas. Por outro lado, o esforço de generalização teórica que constitui a primeira metade deste documento cria a moldura abstracta dessa proposta. Em consonância com o seu contexto geral no plano artístico, tecnológico e cultural, a participação de massa é postulada no âmbito de uma revisão crítica das noções de agência, participação, massa e complexidade.

Palavras-chave: *Participação em massa, Arte, Agência, Participação, Massa, Complexidade.*

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Introduction



Figure 1. Left: Peter Verbruggen I, detail from the confessionals of Saint Paul's Church in Antwerp (17th century). Photo by Hugo Mae, Copyright Lukas - Art in Flanders VZW; Right: Julien Dillens Monument Everard 't Serclaes (1902). Photo by KAZ2.0, (CC BY-SA 2.0).

Art loves people. Awareness of a relation of this sort between art and its lovers is surely not absent from any approach, whatever it may be, to the very notion of art. We address here a tangible sense of physical love between the work of art and people –a longing for touch and the marks of this desire. The roots of this work reach down to an ever-present feeling of amazement

brought about by the multifarious manifestations of such contacts – namely those that issue from a great number of small individual contacts, from which emerge formal patterns that go beyond any possible prediction by the artist. It is commonplace to find, especially in public art, the evidence for this irresistible yearning: while the traces of a single soft rubbing action on a bronze or wood statue are hardly perceptible, a large number of such strokes, concentrating in specific areas, will leave lasting marks (Figure 1). As far as this example extends, it is probable that the visual and tangible result of that longing is foreign, and indeed opposed, to the artist's will. Nevertheless, such a rich vein, shaped by the unpredictabilities and pattern-forming potential of external mass intervention on art, is worth exploring as artist's material and strategy of art making.

The general motivation for this work lies in our endeavour to explore such physical desires, along with art's longing for touch and, decisively, the manner in which the artist brings to her work the spoils of that love affair. Such is the context for mass participation: it is centred on an artist's strategies to deal with large scale human intervention on her work. Human behaviour, taking into account the diversity in our individual responses to the world, is a bewildering phenomenon. If we approach each of these individual responses, taken as a small part within a collection of innumerable interacting humans, we will find human behaviour unfathomable.

Even in a context that is markedly different from that of sculpture or public art, and is framed rather by contemporary art practices – namely those in which participation plays a central role – the type of intervention with which we are dealing in this work remains the same: form-altering intervention, potentially defiant of stated participation rules, acted by large numbers of

agents, characterized by emerging behaviour patterns, and leading to results that have not been determined in advance.

Mass participation is proposed as an artistic strategy to deal with that kind of intervention. When considering how to gather the potential inherent in the mass of participants, artists are faced with key options that relate to the effort required from and allowed to the participant; to the degree of awareness that the participant has of the participation process; to how and if participant contribution is filtered; to the possibility of participant identification; and to the time frame for the participation process to occur. All those options influence artists' poetic and formal exploration in the mass participation setting. Both the practice-led and the theoretical approach here documented converge in the systematization of such strategies.

Relevance and context

The digital art setting is so much a battleground for timeless art notions to be questioned and rethought as it is the fertile ground for new art notions to grow. In this document, we address art notions which, framed by participation practices in a post-internet context, call for arms – or alternatively for the watering can. There is a sense, running throughout this document, that most of the matters with which it is concerned have been relevant to artistic creation and its study since the early 20th century vanguards at least, and in some cases from much earlier times. As far as participation is concerned, we argue that its expansion to the masses does not lend itself to the definition of a point of rupture with traditional forms of participation. We consider, nevertheless, that the advent of digital technologies, and the Internet in particular – if it has provided in fact new matter for the discussion of contemporary and participative art (Bourriaud, 2002b; Groys, 2008) – is particularly relevant for a mass participation

proposition. This relevance stems both from its power to make it technically viable to expand participation possibilities into the innumerable and, on the other hand, from the way the feedback from participation has affected the present-day cultural context in which it is framed. These vectors underscore our confidence in the need for, and indeed the latency of, a mass participation aesthetics.

We propose mass participation as an artist's strategy for formal and poetic exploration. Such a proposal is not, as such, so grandiose as to aspire to a complete aesthetics for such a practice. Even so, we consider it to be a fundamental step in that direction. This stance follows from our belief that an artist's choice to deal with participation and participants in great number does not currently define a concrete art practice or genre, nor is it framed by a specific art theory. Nevertheless, we consider that there is a set of commonalities within contemporary artistic proposals, where such an artistic strategy is central, which makes such a definition and framing both useful and necessary for art makers and art theorists alike.

From the art-making perspective, we were unable to find a suitable, generally adopted designation that comprises current artists, and works of art, that make use of the participant mass. Such a practice is not yet established by a sizeable and coherent group or body of work that might be best characterized by that distinctive feature. Still, there are major contact points between both established and recent categorization attempts, as those represented by such terms as social practice, data visualization or crowdsource art, to name a few. These contact points allow us to place mass participation at the intersection of various practices and artistic strategies which share specific traits and are equally endowed with poetic potential.

From the theoretical viewpoint, we find that current discourse on participation falls short on delivering tools that can be used to consider

those commonalities. However, such a discourse, woven together with the various discourses on art practices that are closely related to the participatory phenomenon (where key words such as collaboration, community, relational or crowdsource can be found), as well as discourses on practices apparently not so close (with keywords as generative, a-life, post-production, chance or database, to refer to a few of those practices that appear along this document), makes up a fabric able to sustain and propel our mass-participation proposal.

We focused, then, on approaching mass participation as a strategy employed by the artist as she deals with others. In considering mass participation in this sense, we highlighted its independence from questions in the authorship and reception realm. However, we strongly believe that this document paves the way for a larger discussion of a mass-participation aesthetics and politics, which needs to be understood as fundamentally different from current views on participation. That discussion, however, while highly relevant for a foreseeable future, does not belong to the scope of the present document.

As such, the work reflected on this document assumes the nature of a seed for future theoretical and artistic work. While we consider its relevance to be contingent on future developments on those fronts, such work as we are undertaking is also necessary in allowing for this future and contributing for it to happen. There is in consequence a measure of risk, which must be accepted, arising from the anticipatory nature of this proposition. It can turn out that no such thing as a group of artists or works of art – where mass participation, understood as an aesthetics or politics of art production and reception, takes the central stage – will ever come into existence; in which case a theoretical frame for such practices would be pointless. However, considered purely as a strategy, we find mass participation already very

much present in a myriad of artistic proposals; and it follows closely, as we put forward, advancements which are very much noticeable in current art discourse. Accordingly, both the exploration of its poetic potential through practice, and the creation of general frameworks that allow it to be understood in its fundamentals and specifics – in which the two general approaches to mass participation in this document are grounded – provide an answer to a call for systematization, albeit of a very speculative sort.

Aims and objectives

When related to form, as well as when related to concept, scale is present at a fundamental level in artistic activity. As artists devise strategies to deal with it - be it the creation of tools, materials, production and presentation schemes, or of conceptual frameworks to explore the incomprehensible, immeasurably small or large - new problems and opportunities arise for them and art theorists alike. In this document, we aim to explore and systematize the formal and poetic potentials of an artistic strategy based on participation taken to the scale of the mass, and to provide for such a strategy's theoretical frameworks.

To accomplish this end, this research has the following operational objectives:

To explore the artistic context of the concepts that underlie formal strategies used in a personal practice setting, in order to establish key contact points between such concepts and strategies and mass-participation poetic potential.

To systematize artist's options, and their respective poetic potential, whenever they employ mass-participation strategies, into a proposed typology based on the classification of case study artistic projects.

To identify the main characteristics of the current cultural, technological, and artistic settings that foster and inform the use of mass-participation strategies.

To critically review relevant viewpoints occurring in current multidisciplinary discourse on the notions of agency, participation, mass and complexity, so as to clarify the operational frameworks upon which the proposal of mass participation is built.

Methodology

The work reflected in this document follows, in broad terms, a practice-led research approach to the main questions it raises. In this context, the term practice-led research relates to how our praxis suggested research paths, which have been subsequently documented, theorized and generalized (Smith & Dean, 2009).

The main research problems, that directly express our motivation for this work, can be reduced in simple terms to: *is there anything special about working with the mass of people as material?* and *how can such choice be framed in the contemporary art context?* We gave conceptual precedence, if not chronological, to tackling this question in practice. The practice side of the equation consists, thus, in four projects developed in the context of this PhD submission. While those projects were not intended to be a part of, or to stand for, an answer to our starting question, they became the setting for an exploration of the poetic potential implicit in its formulation. That

exploration corresponds to a process of critical reflection on the projects' conceptual contexts, implementation choices and results. This method was chosen so as to permit the abduction of potential guidelines for that answer from the very personal, specific interests manifested in the projects distinct particularities. Chapter 2 accounts for that process, which took place in an eclectic and serendipitous manner and opened up research paths which led in their turn to a concrete proposal for theoretical generalization. Those paths can be summarized by the notions of pattern and unpredictability; and the resulting proposition is informed by the very notion of mass participation.

It should be noted that our practice-led approach was not one-way, that is, a simple progression from practice to theory. On the contrary, we actively sought reciprocal contamination between practice and its theorization as research. By methodological choice, both types of work were conducted concurrently. This option allowed for a constant interchange between the role of the practitioner and that of the researcher. As a result, the work reflected in this document is a product of a cross-current navigation through existing practices and theories. It results from the setting brought about by that unique entanglement of practice and research which, in turn, works into this document a strong element of intermixture between the academic and the poetic discourse.

In tune with the critical and reflexive nature of their practice counterpart, the theorization and generalization efforts dealing with the proposition of mass participation were conducted, as suggested in the previous paragraph, in a dynamic fashion. Our framing of mass participation as an artistic strategy thus, coupled with the absence of prior attempts on such a task, dictated a comprehensive approach to the various levels on which the theorization and generalization of that strategy could and should take place.

A great expanse of ground had to be covered between exploring how mass participation is being used, as well as systematizing artists' choices in such a context, all the way to accounting for the general cultural, artistic and theoretical frameworks structuring its characterization within and along contemporary art practices. We present a typology of mass participation to tackle the latter proposition. This typology is followed by a discussion of case study projects, chosen not as to provide examples of supposedly perfect instances of mass participation practice, but instead of the main characteristic aspects of the proposed typology. Furthermore, the chosen projects aim at highlighting some of the points of contact between mass participation strategies and other areas or modalities of artistic intervention. At all other levels, the theorization and generalization process followed the same design: key texts on every problem that we address were subjected to critical review to provide for the threads and the framework used in weaving our analysis of the mass participation phenomenon. This brought about, more often than not, that the arguments in those texts were selected, not for their relevance in the specific context they were produced, or indeed because they might reflect our own position on any given subject, but for what we considered to be their usefulness in the creation of operational frameworks specific to this document's take on mass participation as a strategy.

Document structure

This document is divided into two main chapters: the first one deals with the general problematics of definition and contextualization of a mass participation proposition; the second discusses the four projects that make up the practical context from which the general outline of the proposition emerged.

This structure does not reflect the methodological progression –or, for that matter, the chronological one – of the research work this document stands for. The chronological ordering for the work done would be irrelevant, and in all cases, impossible, as major leaps, halts and overlaps across specific phases of research activity were not only a contingency but actually resulted from our methodological approach. Nevertheless, the practice-led approach suggests and allows for reading the document backwards. In the introduction and conclusion, the order in which the research is advanced follows that option.

Notwithstanding, the order of the two main chapters' contents follows a progressive move from the abstract context for the mass-participation proposal to its presence, even if just as a seed, in a specific and personal practice setting.

As such, chapter 1 opens up with a summary discussion of the notions of informationalism (Castells, 2004), remix culture (Bourriaud, 2002b) and open work aesthetics (Eco, 1989) so as to highlight the main characteristics of current technological, cultural and artistic contexts framing a mass-participation proposition. This proposition is based on the artist's choice to expand the control of a work of art' form to external agency. In *Form from people and form from systems*, the roots of the two main branches of artistic strategies in which that choice is central are reviewed as to introduce their relation with the notions of patterns and unpredictability that guide this document.

In *Frameworks*, the notions of agency, participation, mass and complexity and their use in current art discourses are critically reviewed. Abstract and comprehensive readings of such notions are argued as the operational frameworks of the mass-participation proposition. In *Agency*, this concept, as formulated in a archaeology of art and social sciences context (Gell, 1998;

Latour, 2005), informs a classification effort of distinct types of form-changing intervention upon the work of art. Those types are grouped into three classes – primary, secondary and tertiary agency. This classification corresponds to the artist’s agency, external agency sought by the artist, and external agency that manifests itself upon the work of art outside the conditions set by the artist. Within this agency model, a preliminary approach to the scope of our mass-participation proposition is made clear: this document deals, in the immediate, with the particular conditions set by the artist to gather and explore secondary agency in the context of her work.

In *Participation*, we further circumscribe our terms by focusing on secondary agency by humans, which we had labelled *form from people* in *Form from people and form from systems*. The comprehensive nature of what can constitute secondary agency as it is proposed in *Agency* leads a process where current views on participation (Bishop, 2004; Bishop, 2012; Kester, 2011; Adamson & Bryan-Wilson, 2016) and the classical notions of writer, reader, and text are abstracted from their relations to authorship and reception. This proposed level of abstraction makes for the clarification of terminology and concepts related to participation as they are of operative value for this document’s argument. As such, participation takes a more inclusive meaning, as participants are considered independently of their status or place within the hierarchies of authorship and reception.

In *Mass*, the concept of masses is approached in a similar manner: we follow the fluctuation in its meanings throughout the genealogy of participation practices (Groys, 2008), and propose its operative redefinition by highlighting the influence of technological advances in participation (Arns, 2004) and in the general current cultural setting (Bourriaud, 2002b). As such, the political consideration of the mass is abstracted from its original meaning as we propose a shift towards its understanding as an immense

pool of potential participants, of participation motives and attitudes, and of mechanisms and devices that allow for participation. Our third and final approach to the scope of this work sets of participation in a context that is related to this abstract and comprehensive notion of mass. In this document, then, and in this final sense, we posit mass participation as an artist's strategy that makes use of a new practical possibility: the possibility of comprising individual action, in all of its unpredictability and multiplied by the innumerable, within the limits of the single work of art.

In *Complexity*, this notion is presented as one of the background concepts through which mass is proposed as a special case in the context of participation. It is approached from a triple viewpoint: complexity science in the definition of complex systems' core characteristics (Holland, 1998); current art discourse on the convergence of art and science through complexity (Galanter, 2008); and complexity as mode of thought (Morin, 2008). Beyond the political and cultural context of the mass, we focus on how the notions of complexity and emergence can help us understand the intricacies of mass behaviour, its patterns and unpredictabilities. Complexity is addressed so as to find the core characteristics of mass behaviour that contribute for its attractiveness as material for art making. Mass participation is a strategy that reveals itself both in complex collective patterns and in unique individual choices.

The *Mass participation strategy* section accounts for a systematization of artist's choices and respective poetic potential when incorporating mass participation in their practice. The proposed typology, and subsequent classification of case study artistic projects, is the pivot that articulates the abstract frameworks of the previous sections with the work documented in the succeeding chapter. As such, each of the typology's criteria reflects a choice about how wide the scope should be in building those frameworks;

and how wide the range in exploring the specific concepts and strategies that ensued in the context of the projects discussed in chapter 2. To highlight this relation between, on the one hand, the concrete poetic potential of an artist's choices when using a mass-participation strategy and, on the other hand, its theorized abstract conditions, seven projects from diverse artistic contexts are discussed as case studies in the light of the typology criteria, and subsequently classified.

The second chapter accounts for of a process of critical reflection on four personal projects. These projects' conceptual contexts, implementation choices and results are thus reviewed; we highlight their mutual contact points, and point out their contribution to the definition of our mass-participation proposition. As such, the projects chapter presents an intricately woven account of their conceptual genesis and of the employed formal strategies. More relevantly, its contents reflect a practice-led exploration of their artistic context. As such, a broad range of such concepts and strategies, present in an equally broad range of artistic practices, was subjected to analysis. Those concepts and strategies are approached from the viewpoint of their poetic intentions and results; and are relevant, consequently, mainly to the discussion of the particular projects in hand. Nevertheless, it is their exploration that constitutes the methodological starting point for our mass-participation proposition; this is what makes possible a reverse reading of this document.

1 Mass participation

1.1 Proposition

Mass participation, regarded as a set of formal strategies of artistic creation, can be discussed in any context where a key condition is met: an artist's choice to expand part of the formal control over her work to a large number of people. As we will see, the present body of work advances the view that this transference process conforms to a trend in artistic practices whereby the transfer of formal control to elements outside pure authorial determination is central. The initial instant of this development can be placed – depending on the scope of the discussion – at practically any moment in the history of art, whether we look for the roots of algorithmic art in 70000 years old artefacts¹ or in the systematic use of chance in Modernism. Even considering the particular case of there being another person or persons involved, often the public itself, such instances can be

¹ As proposed by Philip Galanter (2003)

found in the combinatorial poetry of Optatianus Porfyrius in the 4th century² as well as in the Dada manifestations in the early Twenties of the 20th century. These roots will be dealt with along this document with a view to proposing the set of strategies suggested by the expression *mass participation* as one of the present branches of that line of evolution.

This document assumes a bias toward digital culture as the instance that will frame a proposal which, keeping within the general scope of contemporary art, particularly stresses the number of participants that are brought in to contribute to the work of art's form. This cultural frame will be explored, respecting its intersections with the discourse on contemporary art, along three main guidelines: i) the advent of informationalism and rapid technological development; ii) the remix culture; iii) open work aesthetics.

Informationalism and rapid technological development

The massification of digital technologies is bringing us, at least in the so-called developed countries, to the verge of an interconnected world. This is a world of immediate access to information, instant sharing and real-time collaboration – a world where virtual environments, manipulation, telepresence, enhanced reality, programming, sensors, big data, internet of things, interactive interfaces, instant copy, complex data manipulation, among so many other phenomena made massive, or even possible, by the network model and digital technologies have become ubiquitous. As far as

² Poem XXV in Optatianus Porfyrius' *Carmen series* will be referred to more than once throughout this document.

art is concerned, this new reality is part of a frame in which information and database play a central role as a mode of production and cultural context³.

In 1996, Manuel Castells (1996; 2004) proposed the term informationalism, which he later specified as an abbreviation of “electronic informational-communicationalism” (2004, p. 9), to denote the present technological paradigm that brings to date, and succeeds to, the centuries old but still present industrialism. This coinage reflects a perception of present-day technological developments as something with a historical impact similar to that of the Industrial Revolution. Geoff Cox (2010) followed Castells’ proposal in his historical approach to technological development in the general context of the study of software art:

[Cox position is] historical in scope, in order to situate the specific mode of production in the context of previous modes. The lines of continuity are easily overlooked in descriptions that rush to dramatise technological change and forget the lines of continuity.
(p. 84)

Cox’s (2010) position resonates with the line followed in this document, in the sense that the technological context of our approach to mass participation does not entail a radical change in the manner modern art relates to its classical concepts (as they have been explored for more than a century). In a critical review to Christiane Paul’s (2008) position on the

³ See João Cruz (2011, pp. 31-61) for a detailed literature review on the subject.

relevance of the disembodiment concept to digital age artists, Brett Stalbaum (2006) argued:

Disembodiment is not the difference making difference that the digital age brings. [...] "disembodiment" is not a new issue just because we have entered a digital era. [...] it is not the disembodiment of the referrer from the referent that creates the radical difference that the digital era has brought, but rather that it is the nature of distributed, high speed data processing that makes all the difference because it radically motorizes, automates and makes ubiquitous the potential for data and information to impinge on daily life.

Assuming as a context those artistic practices that are founded on the database, Stalbaum (2006) proposes database formalism as a "contra-disembodiment mode of production, which "allows aesthetic analysis to move toward and explore truly interesting, purely formal issues of database itself as a medium". We assume in this dissertation an approach parallel to Stalbaum's, albeit applied to the point of intersection where information and human behaviour relate to each other as the means and materials of artistic production – a relation that will be explored in further detail in *Complexity*. The main point of divergence between this relation and actual database art practices consists in the importance given to working with a more direct human contribution to the formal results of artistic production. The database as a model and repository of human actions provide artists with the inner patterns of those actions, but – from the perspective of action considered as a material itself, issuing from a process that approaches more closely a discourse on participation – the intrinsic value of human complexity is multiplied by the unpredictability specific to the relation between the individual participant and the artwork. Thus, the emphasis we

put on technologies in this document is due solely to the need to underline the amplification effect of those modes of production on the evolution of participative strategies in art.

A reservation should be made concerning those technologies whose transformative potential is yet to be proved, which in this context fuels our interest in human participation as a material. Cox (2010) has quoted Castells to name biotechnology on its own as a potential hotbed of technological revolution, and added nanotechnology to the factors of this latent revolution (p. 85). Artificial Intelligence, as well as the more or less realistic prognoses about the advent of the singularity⁴, can be added further to that range of embryonic technological revolutions, which inspire as a whole this document's assumption that humankind, along with its behaviours, organization and intelligence, considered both individually and in the collective, remains the phenomenon and mystery most interesting to ourselves. It is, moreover, from this belief that the need arises to explore present-day strategies to appropriate human participation as a material for artistic creation.

The remix culture

The new variable introduced by the present-day technological paradigm, based on the Internet, on digital processes, and on information, is the scale

⁴ See Paul G. Allen and Mark Greaves (2011) *The Singularity Isn't Near* and Ray Kurzweil (2011) *Kurzweil Responds: Don't Underestimate the Singularity* for a lively discussion on the topic

and depth in the access options to those complex material models⁵. As such, the digitalization of human production has resulted in something far beyond any one person's possibility of immediate access, sharing and collaboration. It has created a new cultural paradigm consisting in constant intervention on the production of our global neighbours. Digital items seem to attract meddling minds. Nicolas Bourriaud (2002b) addresses this paradigm shift brought about by the appearance of the Internet. He states the main problem: "How to find one's bearings in the cultural chaos and how to extract new modes of production from it" (p. 14). These digital, Internet inspired modes of production are defined by Bourriaud as perpetual *postproductions*, where "[t]he artwork is no longer an end point but a simple moment in an infinite chain of contributions" (p. 20).

Digital processes clearly point to this approach on production. In the heart of these processes there is one motive that is continuously repeated. In every stage of the process, the concept of *digital* comes in close association with the concept of *copy*. In the very core of computer operations, information is copied between the storage system, operational memory and processor. Along the road to its pre-determined use, digital items are copied into work versions and redundant file storage systems, and are copied further when they are distributed and shared among the intended recipients. A third copying wave comes with future derivative use of those items. It can be legitimate or abusive, as it takes the shape of reference, appropriation, plagiarism or even pure digital vandalism.

⁵ By scale we mean that the amount of available options to access such material. And by depth we mean that since information is hyperlinked we can search through an infinitude of layers for each content.

Both the call for constant intervention and the perpetual copy processes that are core features of a digital culture bring digital production to a condition of imminent reuse. The possibility and ease of future intervention precludes the possibility of declaring a final formal status for a digital item. This digital condition leads the way to a permanent collaboration world where one's production is projected into the future with its unforeseen uses (and misuses). Mass participation draws from that plasticity of the digital realm that is on the centre of our definition of the main characteristics of the mass, which we explore in detail in *Mass*.

The open work aesthetics

In art, the infinite recycling process brought about by the massification of digital production methods continues a paradigm shift that has its roots in the artistic vanguards of the twentieth century. For Ink Arns (2004) the concepts of participation, interaction and communication result in a series of opening-up movements “from the closed to the ‘open’ work of art, from the static object to the dynamic process, from contemplative reception to active participation” and stated that “the nineteenth century artist-genius had evolved into an initiator of communicative, and often also social and political, (exchange) processes”. A common direction in these movements is a change in the time of art. Past and present works of art are reshaped to include the future, and become what Umberto Eco (1989, p. 23) defined as work in progress.

As we progress to the end of the last century, the role of the digital advent in these movements turns out to be not a small one. Bourriaud (2002b) observed:

The remarkable thing in the nineties was that the notions of interactivity, environment, and ‘participation’ – classic art

historical notions – were being rethought through and through by artists according to a radically different point of view. (p. 9)

A great widening of the possible scope of participation, interaction and communications has been brought about by digital systems. The re-centring of the discussion taking place in the art world around those notions has resulted in part from the innovative ways artists have been exploring a constantly changing playground of possibilities, demanding a faster adaptation of the theoretical background.

That theoretical background on the opening up, for which Eco's open-work stands as a key example is generally related to questions of authorship and reception. This document's scope, however, calls for a different theoretical generalization work, one that favours the point of view of the artist in her art making process. As such, the theory and terminology related to those opening-up movements in art are critically and operationally reviewed for the mass participation proposition.

All these changes - fast technological advances, the remix culture, and open work aesthetics - paved the way for major developments in participation-based artworks. A specific manifestation of participation in art is the use by the artist of formal strategies based in a large-scale distribution of possibilities in artwork participation. Formally and conceptually, this mass of contributions is a rich and complex prime material that results simultaneously from the unpredictabilities that arise both from collective action's emergent patterns and from the diversity of individual human action. Mass participation is a strategy that translates into the collective patterns and simultaneously into the unique character of each individual choice in a large number of human contributions to a work of art. Throughout this chapter, this balance between pattern and unpredictability is the guideline to mass participation as a proposal.

1.2 Form from people and form from systems

The control mechanism over the formal definition of a work of art is traditionally associated to its author's agency. From that perspective, the perceptible manifestation of an artist's decisions and formal choices stems from a creation process that ends at the exact moment the artist has determined. In the next section, we put forward a notion of agency as a system that incorporates elements external to the artist as contributions to the formal result of the work. In the meantime, it is sufficient to note that this shift from singular agency to a system of agencies implies the premise, on the one hand, that external elements play a role in the artistic process and affect its resulting formal solution; and, on the other hand, that these perceived agencies are part of a process that does not end at the moment the artist defines as the conclusion of her creative process, but rather extends itself throughout the time of the work's existence. This double premise is central to our proposal of mass participation considered as a set of formal strategies.

In this section, we visit form making strategies as systems spread in time, in contradistinction to authorial agency in an art making process regarded as something that precedes contact between the artwork and the public. Such strategies are framed by the notions of pattern and unpredictability. These notions are the guidelines of our proposition, in the sense that we find in their interaction the lowest common denominator to the two great vectors of a line of evolution in art, in which the movement of opening up the formal control over the art object to external elements constitutes the core element of both formal and conceptual strategies. We will call the first of these vectors *form from systems* and the second *form from people*. Both vectors are to be understood in this context as comprehensive categories including all artistic strategies where such a movement takes place. Accordingly, when

we use the expression *form from systems* we will be dealing in general with artistic practices whose agency systems will include elements as diverse as those comprised in the various usages of generative and chance procedures⁶. Beyond these, systems that call upon the unconscious mind (such as Surrealist automatism) or upon Nature (such as land art) meet the conditions for being included. Likewise, *form from people* is to be construed comprehensively as something that deals not only with participation, if it were to be understood as the opening of a work of art to the actions of its public, but also, in a general context, as any practice that seeks any form of human contribution. In this sense, the proposed designation ought to comprise any practice where key-words such as collaboration, participation, relational, social, activism, interactivity, database or crowdsource, to name but some of the most common, might apply and appear related to artistic practice - to sum up, wherever *the other* is implied in a work of art, whether in its conception, materialization or presentation stages.

We will deal next with these vectors with the specific aim of showing them, notwithstanding their divergent directions, and in so far as they intersect, as the common root of mass participation strategies. For the moment, the notion of unpredictability associated to a distributed agency model does not

⁶ Philip Galanter's (2003; 2006; 2016b) work on generative art will be profusely referred to throughout this document. *Form from systems* ought to be construed as a notion comprehensive enough to comprise all the examples that Galanter (2006) used to illustrate the distinction between generative art and rules-based art. In a similar way, Margaret Iversen's (2010) work is taken as reference in so far as it refers to chance as a strategy; but our context comprises both the practices to which Iversen's work is restricted and those she refers as being outside its scope (p. 12).

make it necessary for us to dwell in too much detail. It will be sufficient to consider the notion that that distribution, whether the artist seeks *form from systems* or *form from people*, will bring about results that presuppose a certain level of unpredictability – in other words, that the form of a work of art cannot be predicted, in part or in the whole, before we become aware of the contribution of such agencies. It is nevertheless worth emphasizing that there is a relation between the notion of unpredictability, such as is useful to us in this document, and the extended timeline of the work in its contact with the public. Furthermore, unpredictability will acquire a different meaning as we draw closer to the intersection point mentioned above as it is discussed in *Mass* and in *Complexity*. The notion of pattern emerges, in its turn, as deserving of a more detailed approach. This notion of pattern can acquire, especially if it is simply understood as the repetition of a visual motif, a self-evident meaning in the context of some *form from systems* strategies, namely such as issue from rule-based strategies. Even so, the meaning we give in this document to the word pattern derives more closely from our comprehensive understanding of *form from people*, which serves as a foundation to our proposal of mass participation. This section is centred on the exploration of artistic practices where agency distribution from the artist to other human being or beings – an exploration that will serve to make explicit the path to the point where *form from people* and *form from systems* meet, not only as two mutually independent strategies for the distribution of agency, but conceptually united, and made interdependent, by the complementary notions of pattern and unpredictability.

The 20th century is a particularly fruitful period for continually reassessing artist's agency through the historical process during which the distribution of agency becomes increasingly central in the artistic practices of the time. Questions such as the work's final condition and its reception, authorship

and the relationship between the work and its context were revisited at an unprecedented pace as each vanguard positioned itself in relation, and almost always in opposition, to its forerunners.

As far as formal solutions are concerned, the guideline for these transformations corresponds to a movement of conscious and rational distribution of control from the artist to something external to her. It is this vector that gives direction to the continual redefinitions of the author's role that we can observe as well as redefinitions of the importance of context for the work of art, of the relation between the work and its space of legitimization, and of the relation of the work of art with people. Grant H. Kester (2011) has stated that “[i]n fact, one of the primary trajectories of modernist art involves the gradual erosion of the authoring conscious [...]. The history of modernism can be viewed from this perspective as enacting a relentless disavowal of agency (and the rational, calculating mind it was seen to represent): a surrendering of authorial power to the unconscious, chance, or desire” (p. 4). Magaret Iversen (2010), mentioned that trajectory in the context of artistic strategies in which chance plays a determinant role. She stated that the “gap between intension and outcome seems crucial to the meaning of chance in art”, and questioned “why should artists deliberately set up such a gap in their practice?” (p. 12). Claire Bishop (2006) identified an agency transfer of the same order, addressed this time to a collaborator or participant, as being central to the process of redefining authorship; this redefinition being one of the three motivating factors cited most often for the encouragement of participation in art since the 1960's (p. 12). Both Iversen and Bishop mentioned the unexpected and unpredictable nature of the result of such artistic strategies. Taking this trait into account may lead to an answer, however simplistic, to the question raised by Iversen, given the potential richness of a lode that lies hidden in a stratum of

possibilities unknown to the artist's conscious mind; and given the artist's inherent role in exploring those possibilities.

As we stated above, we analyse artistic strategies in the light of the influence of agency distribution on the formal definition of a work of art, keeping in mind that this distribution always results in a poetic choreography between the notions of unpredictability and pattern. In this sense, the point of departure for the exploration of artistic strategies based on this distribution of formal control is not to be found only in artistic practices arising from the early 20th century onwards. Following his definition of generative art, Philip Galanter (2016b) stated that “[t]he key element in generative art is then the system to which the artist cedes partial or total subsequent control” (p. 151). According to Galanter, this type of system, configured by iterative processes to obtain specific geometry and symmetry that is then translated into form, may be traced back to the oldest known (more than 70000 years old) art artefacts. This view allows him to present the case that generative art is as old as art itself (p. 153). The fact that artists resort to these systems, for which Galanter argues there is overwhelming evidence around the world and throughout history, signals that even early abstract geometric form is dependent of its maker's obedience to a set of rule-based procedures.

These processes may be the earliest examples of formal strategies based on the transfer from primary to secondary agencies. It should be noted that even if the notion of pattern seems more fitting to frame the discussion of these early examples, such a simple process can be discussed with reference to the notion of unpredictability in the sense that it is the rule that defines the form. Patterns emerge from the rules rather than from the artist's anticipatory vision of a desired formal result. The artist's plastic intervention becomes, therefore, a manifestation of an external agency that follows her will, in the shape of a rule definition. Nevertheless, the meaning

of pattern in the context of the proposed concept of mass participation is not so closely related to the meaning of spatial pattern amounting to visual adornment based on the repetition of a motif – that would bind the analyses of mass participation strategies to their results in the shape of an art *object* – as to the meaning of behavioural pattern, linked to the notions of method, structure, sequence and order that span the whole timeline of an work of art's conception, making process and contact with the public.

The example of poem XXV in Optatianus Porfyrius' *Carmen series*⁷ (a fourth century poem that permits several verses to be created through the permutation of the words in its original four-line stanza) can lead us to a further step in the exploration of how the notions of pattern and unpredictability relate to each other as frames of reference for the subject of this dissertation. In his work on pattern poetry, Dick Higgins (1987) referred to *Carmen XXV* as a predecessor of what he calls *proteus poems*. Higgins explained that “[t]he proteus poem takes its name from the mythical Proteus, who is always changing his shape”, and that “[a]lthough clearly not a visual form, its logic seems to partake more of geometrical thinking than of normative, linear reasoning”. Higgins further underlined this connection to *figure poems* stating that “proteus poems have been made by many of the same poets who made pattern poems” (p. 183). William Levitan (1985) noted that Optatianus Porfyrius' poems “make entirely unremarkable, even banal reading [...]. But it is not ‘reading’, as the word is commonly

⁷ The series comprises mainly pattern and *intexti* poems, from what *proteus poems XV* and *XXV* are exceptions. See Levitan (1985) and Edwards (2005) for an in depth analysis of Porfyrius' work and of poem XXV. This same poem is referred to in *ocidental sentimento dum o* and in *Babel's Monkeys* following permutation as concept and strategy in artistic practice.

understood, that the poems invite; rather ‘wonder’, to say the least, at the appalling genius responsible for them” (p. 246). This response results from the virtuosity in the arrangement of the words in the text, as well as from the reader’s action on the text. According to John S. Edwards (2005) “[t]he text itself invites the reader to rearrange the words to form new verses” and “[w]here the pattern poems ‘dazzle’ through the creation of an overall pattern or ‘picture,’ these latter poems instead ‘dazzle’ by displaying a proficiency at choosing words and arraying them so as to create subtle tricks and poetic devices”. These accounts of poem *XXV* lead us to the inextricably association of the reader’s agency to both the formal patterns and the unpredictability resulting from the author’s use of permutation techniques which he makes available to the reader. The reader navigates, by a process that pertains to reading as well as writing, through the poetic system created by Optatianus Porfyrius. This system of agencies, from which all possible configurations of the poem issue, extends in this manner throughout time, comprising every subsequent reading of *XXV*.

The examples of pre-historic artefacts and Optatianus Porfyrius’s poem illustrate the sources, respectively potential and arbitrary, of the *form from systems* and *form from people* vectors that inform our proposed line of evolution. In this line, the distribution of formal control over the work of art as an artistic strategy amounts to a core element.

On the one hand, if we approach the timeline from the vantage point of system-based strategies of *form making*, we will realize we have come a long way: from the use of rule-based procedures for the achievement of geometrical patterns, through chance-based systems at the beginning of the 20th century, to present-day artistic practices based on artificial life systems. While we intend this vector, defined by the achievement of *form from systems*, to be construed as comprehensive, we believe that Galanter’s

(2016b) work on generative art, in its historical context, already implies a relation, on the one hand, of pattern and unpredictability with, on the other hand, procedures of the *form from systems* type. It does so by supporting itself particularly on the all-important notion of complexity, which, as we will see in *Complexity*, where the particular relevance of generative and A-life-based art to this proposal will be reassessed, is one of the conceptual pillars of our mass participation proposal.

On the other hand, approaching distribution of agency from the perspective to which we gave the name of *form from people*, entails further clarification of scope and terminology. In the next section, the comprehensive nature of *form from people* is mapped directly into an operative definition of participation. The main focus is on following in greater detail how strategies of distribution of agency can be framed within current and traditional concepts and terms associated with the influence of *the other* on the work of art. The necessary exploration and clarification of this document's use of participation and its associated terminology precedes the advance to our discussion of the mass participation strategy framed as well by the notions of pattern and unpredictability.

In either case, a notion of agency as a network that incorporates elements external to the artist as contributions to the formal result of the work, calls for a clarification of concepts and terminology. The next section opens up with a proposition of a general agency model that frames both vectors of external formal intervention.

1.3 Frameworks

1.3.1 Agency

Mass participation, regarded as a set of strategies in artistic practice, has at its core the transfer to external agents of the power to act on the work of art. Artistic strategies grounded on such transfers are as old as art itself, as we argued in the previous section, and, in a general sense, this document regards them as inseparable from any sort of artistic practice. This approach to art postulates the premise that an art work, as an artefact, must be the product of a set of actions that shape it from its origin to the present instant. This set comprises not only the direct agency of the author over her working materials, but also, and not necessarily in a less direct way, the various agencies ascribable to a vast number of elements external to this relation. Three evidences lead us to this premise: i) that actions external to the artist contribute to the formal result of the work; ii) that the result may fall outside the artist's direct control; iii) that outside contributions may persist beyond the duration of the artist's contact with the work, in the making process. The aging or the restoration of an antique work of art are examples that come immediately to mind in respect to this, as they portray extreme cases where changes in the work of art form are completely independent from the artist.

Those points, self-evident as they are, argue for the proposition of an agency-based framework to deal with artistic strategies, in the core of which lie the deliberate use of any specific actions outside the artist's immediate scope. The purposeful character of this use implies the need to discriminate, among the actions from which the work arises in its present and actual form, those that just *happen* from those that are actively sought by the artist even if they don't depend on her. The work with which we deal in this section aims, accordingly, at providing an agency-based framework that allows our

exploration of the influence of those strategies upon the shape of the work of art as it is presented to the public. As we see in this section, a philosophical approach to agency is too restrictive for this exercise. A social-sciences-based approach to agency, as well as one that is based on an anthropology of art theory are better suited for this task.



Figure 2. Alexander Calder *The Tree* (1966). Foto: Mark Niedermann, copyright ProLitteris, Zürich.

A straightforward instance of multiple agencies at play at any given moment may be found in the way in which the form of an Alexander Calder's outdoor mobile, as the one pictured in Figure 2, results from his purpose in designing it to move with the forces of nature, but simultaneously from the shaping action of nature – of arguably equal importance – upon the mobile, which acquires in this manner different forms at different times.

There are at least two types of action in play upon the materials of the artwork: the artist's action and that of the wind. If the former action conforms to the notion of agency as generically postulated in the philosophy of action⁸, where action and intention are interconnected, the role of the latter appears more problematic. Indeed, the existence of a relation, however complex, between agency and some type of intentionality seems consensual in a philosophical context. Even so, the underlying framework for the assumption of multiple sources of formal change must be the one of *agency*, as no other is available for us to approach artistic strategies regarded as choices of shared action upon the artwork which result in formal solutions. Hence, the matter of intention turns out to be, on the one hand, a hindrance to the shared agency condition (the wind can not have, surely, a subjective intention), but also, on the other hand, a paramount consideration if we are to understand any process whereby an individual's initiative determines and regulates the potential for action (Calder chose to allow the intervention of the wind in his sculpture). Accordingly, we assume in this section the concept of *agency* in its broader meaning, approaching it from an understanding of an artwork's formal result which encompasses the possibility that the artist may purposefully transfer the acting out of the process to forces, whether or not capable of volition, external to her exclusive determination.

Markus Schlosser (2011) stated that “[a]gents are beings or systems that can bring about change in their environment by bringing about change in themselves [...]. Agency is an exercise of this ability” (p. 18). In this broad

⁸ See the Stanford Encyclopedia of Philosophy entry for *Agency* for a summary discussion on the subject (Schlosser, Agency, 2015)

sense, and to return to the example of Calder's outdoor mobiles, the wind can be considered an *agent* and its influence on the sculpture *agency*. Still, the problem raised by Calder's intentional transfer of agency to nature is not yet fully solved, in so far as a storm of unforeseen strength might as well become an agent of the work's destruction, which could presumably fall outside Calder intentions. In the stricter sense assumed in the particular discipline of the philosophy of action, intention would weight heavily indeed; but it would be absurd to seek intentionality in the wind or the storm; and the problem or contradiction mentioned in the previous sentence is more a concern of the artist than of the critic, who may legitimately – and indeed must - consider *agency* in its broader sense.

In recent times, the anthropology of art has been of use to this discussion. In this context, Roger Sansi (2015) resorted to examples from the 20th century artistic vanguards to discuss the matter of agency distribution. In his view, “agents emerge in complex scenarios that include the participation of radically different entities, human and non-human” (p. 84). In line with this view, Sansi stated that agency in the broader sense is

already present in Dadaist and surrealist notions of chance, situationist practices of psychogeography, and contemporary artistic devices; all of them consist in an active engagement with the event of encounter for the production of agents, bringing together all the elements at play, people and things. (p. 84)

Sansi (2015) refers to Bruno Latour's (2005) take on the definition of actors and agencies as opposed to the common definition in which action is limited a priori to what is 'intentional' or 'meaningful' in what humans do (Latour, p. 71). A previous attempt in Alfred Gell's (1998) anthropologic theory of art at acknowledging the distribution of agency was reduced by Sansi to Gell's argument of human recognition of intention in things, and was deemed by

Sansi as simplistic as opposed to the properly complex nature of Latour's proposal (Sansi, p. 84). Sansi's reference to a post-Heideggerian notion of *thing* as "not just an object of judgement, but 'some thing' that happens, an event where social relations emerge" (p. 84), could not be more pertinent to the matter at hand: both Gell and Latour argued for the need to include objects/ things within the scope of the definition of agent. But, as we intend to show, Latour's position is not sufficient to define agency, nor is Gell's reducible to Sansi's reading of it. As such, we intend to revisit and consider both Gell's and Latour's arguments as background for an agency based framework to participatory art making, as that reflects this document's view of mass participation.

Latour's (2005) notion of actor-stems from his understanding that the origin of a particular action is not to be sought within the limits of the immediate subject of an action (the agent), but in the full scope of a vast array of entities that participate in the action (agencies). In the context of the social sciences, Latour's *Introduction to Actor-Network-Theory* referred sequentially to five sources of uncertainty labelled: no group, only group formation; action is overtaken; objects too have agency; matters of fact vs. matters of concern; and writing down risky accounts. The second and third of these sources deal with the notion of multiple agencies from a perspective that is relevant to the context of this section, and will be detailed next.

Tracing the second source of uncertainty, Latour (2005) stated that "[a]ction is not done under the full control of consciousness; action should rather be felt as a node, a knot, and a conglomerate of many surprising sets of agencies that have to be slowly disentangled" (p. 44). By means of this concept, Latour brought into question the usual practice of the social sciences of aggregating sets of agencies such as these in other types of artificially constructed agencies, "society", 'culture', 'structure', 'fields',

‘individuals’, or whatever name they are given” (p. 45). According to Latour, this practice fails to take into account how complex a task it is to determine who and what is acting when ‘we’ act, replacing the required conceptual frame with notions that set arbitrary limitations to the “determination of action by society’, the ‘calculative abilities of individuals’, or the ‘power of the unconscious” (p. 45). Accordingly, for Latour, “[a]ction is borrowed, distributed, suggested, influenced, dominated, betrayed, translated” and its origin a focus of uncertainty (p. 46). Awareness of action as a web of agencies that can not be reduced to cultural and social constructions sets us in closer proximity to such a notion of artistic act that the possibility of action becomes necessarily shared between the artist and external elements; and this in whichever historical context art may appear.

Latour’s (2005) third source of uncertainty is specifically related to the possibility of attributing agency to things. He stated that “in addition to ‘determining’ and serving as a ‘back-drop for human action’, things might authorize, allow, afford, encourage, permit, suggest, influence, block, render possible, forbid, and so on” (p. 72). As we shall see, this sort of influence of things on human agency and the manner in which they make themselves felt in the object of an action is at the core of any notion of the work of art as something that results from a multiplicity of agencies. For Latour, “the question of who and what participates in the action [needs to be] first of all thoroughly explored, even though it might mean letting elements in which, for lack of a better term, we would call non-humans” (p. 72).

This need to look for the participants in a given action arises from the logical observation that two actions are different by definition if the participants in it are different, even if the actors’ intentions are the same. Also, different intentions may give rise to the same result, depending on the elements external to the actor that take part in the action. To use Latour’s (2005)

examples, boiling water with or without a kettle are two different modes of the task realization, where the object makes the difference; a car driver may slow down because street signs compel her to obey a moral law and another might do the same in a street with speed bumps as to not damage his car suspension (pp. 71, 77). Latour emphasized the need to explore the participants in an action in the context of a customary trend in the social sciences to play down the role of the object in a given action. His stand is that a division between what is social and what is material “is obfuscating any enquiry on how a *collective* action is possible” (p. 74). “Collective” means, for this purpose, “an action that collects different types of forces woven together because they are different” (p. 74).

The intersection of art with technology allows us to understand, as far as the influence of agents external to the artist is concerned, the prime role played by *things* in the definition of an act in the realm of art production. This can be seen clearly enough, whether we have in mind the influence that the availability of certain pigments has had in painting throughout the ages, or the shift from craft work to machine production in early Bauhaus pedagogic models for art teaching (Droste, 2002), or yet Roy Ascott’s (2000) predictions about the role of new technologies in artistic practice. Nevertheless, technological paraphernalia, understood within the scope of *material*, do not represent the full set of elements that must be included in the full range of agencies. Just as a division between what is social and what is material hinders the search for the agencies involved in an action, a division between the social and the immaterial brings about the same result. Latour (2005) allowed for the possibility that the immaterial may be included under the heading of agency in so far as he asserted that even references to entities outside the spectrum of reality ought to be understood for as long as possible, in the context of the social sciences, as agencies. Latour gave this example:

[W]hen a pilgrim says, 'I came to this monastery because I was called by the Virgin Mary.' How long should we resist smiling smugly, replacing at once the agency of the Virgin by the 'obvious' delusion of an actor 'finding pretext' in a religious icon to 'hide' one's own decision? [...] A sociologist of associations meanwhile must learn to say: 'As long as possible in order to seize the chance offered by the pilgrim to fathom the diversity of agencies acting at once in the world.' (p. 48)

The Surrealists' interest in automatism techniques is a paradigm of the search for the multiplicity of agencies referred above. It is certain, moreover, that at any moment, if an artist succeeds in finding a way of letting a supernatural entity guide her hand in the artistic act, we can count on her taking advantage of that opportunity as a formal strategy of her practice.

To acknowledge that a vast range of agencies is collected in the artistic act, as in any other action – from the artist herself as well as from many material and immaterial things – lies at the core of any understanding of the formal strategies grounded on the use, opportunistic or otherwise, of any such agencies. It is not in the scope of this section, however, to propose that all the agencies in every artistic act should be analysed, or to supply the tools for such an analysis (as Latour (2005) does within the scope of actor-network theory for social sciences). The notion of a multiplicity of agencies contributes to the point made in this section through the argument that, by assuming that multiplicity as a working hypothesis, we can explore the ways in which an artist is able to use the partial transfer of the agency that is traditionally attributed to her as a formal strategy – *agency* meaning, in this case, the possibility of action – to agencies, in the sense of active entities, that are external to her. It is thus necessary for us to revisit such notions as intention as central to this type of distribution. To this effect, Gell's (1998)

approach to that question provides invaluable assistance and we shall explore it next.

The anthropologic theory of art of Alfred Gell (1998) is helpful to set in context the generalization of this transfer process to all artistic practices. Gell's endeavour to devise a general theory of art in the field of anthropology is in accordance with his view of art "as a system of action, intended to change the world rather than encode symbolic propositions about it" (p. 6). Gell dismissed the artwork as a conveyor of meaning (a function which he attributes exclusively to language), or even the notion of art as language. His objections apply as well to those approaches that are grounded on a culturally defined aesthetic response to art or on the institutional definition of the conditions under which it is practiced (pp. 1-9). Consequently, Gell tries to avoid such terms as *artwork*, *art object* and *work of art*, which presuppose the passage of any such objects through the sieve of previous cultural constructions about their meaning and status as art. The name which he proposed as an alternative is *index*, defined in the terms put forward in Peirce's theory of semiotics: "An 'index' in Peircean semiotics is a 'natural sign', that is, an entity from which the observer can make a *causal inference* of some kind, or an inference about the intentions or capabilities of another person"; and proposed "that 'art-like situations' can be discriminated as those in which the material 'index' (the visible, physical, 'thing') permits a particular cognitive operation which I identify as the *abduction of agency*" (pp. 12-13). For Gell, the process referred to as abduction of agency is related to the possibility that an object may be considered an artefact, even if we need not start, to reach this conclusion, from any previous knowledge about what might have caused that condition, or analyse it from the point of view of any cultural convention. Gell gave an example:

let us suppose that, strolling along the beach, we encounter a stone which is chipped in a rather suggestive way. Is it perhaps a prehistoric handaxe? It has become an 'artefact' [...]. It is a tool, hence an index of agency; both the agency of its maker and of the man who used it. It may not be very 'interesting' as a candidate object for theoretical consideration in the 'anthropology of art' context, but it certainly may be said to possess the minimum qualifications, since we have no a priori means of distinguishing 'artefacts' from 'works of art' (p. 16)

This approach, grounded on the criterion of action, allows us to determine a context for the problem of how to define those artistic strategies that resort to, or even consist of, seeking external sources of formal control. This determination can take place independently from any implications on the definition of an aesthetics, or even, eventually, on the redefinition, whether normative or descriptive, of a contemporary artistic practice. In these terms, the discussion of such a transfer is just as suitable for ancient ornamental arts as well as for modern digital art. Gell (1998) defined agency as being

attributable to those persons (and things [...]) who/which are seen as initiating causal sequences of a particular type, that is, events caused by acts of mind or will or intention, rather than the mere concatenation of physical events. An agent is one who 'causes events to happen' in their vicinity. As a result of this exercise of agency, certain events transpire (not necessarily the specific events which were 'intended' by the agent). Whereas chains of physical/material cause-and-effect consist of 'happenings' which can be explained by physical laws which ultimately govern the universe as a whole, agents initiate 'actions' which are 'caused' by themselves, by their intentions, not by the physical laws of the

cosmos. An agent is the source, the origin, of causal events, independently of the state of the physical universe. (p. 16)

In Gell's (1998) view, in an art context the artist is an agent *upon* her work, which plays, in this interaction, the role of *patient*, regardless of the eventuality that the artwork may play the agent's role in other contexts – namely that of an exhibition, where the patient's role is given to the public. Gell provided an example to illustrate this relational approach to the concept of agency: “a picture painted by an artist as a 'patient' with respect to his agency as an artist, or the victim of a cruel caricature as a 'patient' with respect to the image (agent) which traduces him” (p. 22)⁹. Gell argues in depth for the proposal that it should be possible to attribute agency to things (devoid of intention) as well as to persons. He refers to “'social agents' who may be persons, things, animals, divinities - in fact, anything at all. All that is stipulated is that, with respect to any given transaction between 'agents', one agent is exercising 'agency' while the other is (momentarily) a 'patient'” (p. 22). The framing he proposes for agents of this sort is predicated on an initial moment of intentionality and on the way that intention is reflected on object agents. Thus, his argument addresses primarily the matter of intention, which he himself deems necessary to the notion of agency, and leads him to propose a division between primary and secondary agents in the sense that “objectification in artefact-form is how social agency

⁹ In this context, participation (of the public) could be defined as an art practice in which the work and its public play simultaneously the roles of agent and patient. However, it is not (only) in the sense of its meaning for public participatory art that we deal with the sharing of agency in this document. We return to Gell's (1998) relational approach to the concept of agency in *Participation*, when dealing with the very notion of participation and terminology options.

manifests and realizes itself, via the proliferation of fragments of 'primary' intentional agents in their 'secondary' artefactual forms" (p. 21).

Latour (2005), for whom the agency of things must be a part of a network of agencies where the relation between human accountability and that of material and immaterial things must be explored in parallel, opposed this notion of object agent as a means or go-between from an original human agency. Still, even if we are dealing with two conflicting notions of agency, we are now ready to define the operative notion of agency that will be used from now on in the context of this dissertation and derives both from Gell's (1998) and from Latour's approach.

Consequently, we will take agency as a potential that can be attributed to anything capable of action upon how things are. The manifestation of agency – which we will call *action* – occurs within the scope of a system; and this means that, from all that can have a role in the transformation of a state of affairs, a system of agencies consists of those that manifest themselves. Any manifestation of human agency, premised on some form of intentionality, is to be approached as a component of the system, in which we must include the agencies from its surroundings, and possibly other forms of human agency. If someone stumbles on a stairs because of a badly designed step, the system of interlocking agencies may be described from the starting point of the step's agency manifested in their fall; but the description may start as well from the stumbling person's agency, who falls despite her intention of walking on, and who creates in this process a show for bystanders; also from the agency of the floor that hurts the falling person and puts an end to her fall; from this person's intentional agency as she protects her head with her arms and so on into the innumerable. Curiously enough, among the agencies mentioned here, only the last one is related to an action issuing from a human mind or intention, and it is exactly this one

that turns out to be difficult to show in the final result – in what state would be the body of the falling person if she had not protected herself?

Within the scope of proposing artistic strategies based on the transfer of formal control over the work, with resource to an intentional opening up to external agencies of the possibility of action, it is of interest to us to emphasize three main levels of agency: i) primary agency of the artist, where, in Gell's (1998) terms, the abduction of agency process stops; ii) secondary agency, which manifests itself in the art object by the will of the artist, but over which she has no absolute control – the wind in Calder's mobiles; and iii) tertiary agency, which manifests itself in the work of art in spite of any intention of the artist – as in accidents, looting or vandalism. For the sake of simplicity, we will not look for external agency at the first of these levels, because any constraints in the shaping of a style, censorship, materials available to the artist, among many others, might, in the limit, constitute instances of secondary agency. However, as we will see shortly, wherever the manifestation of agency (i.e. formal result) brings about any difficulty in classifying it as primary or secondary, we will choose to treat it, by default, as secondary (ex. the decorative pattern on an ancient vase may result both from the following by its author of a set of algorithmic rules and simultaneously from her absolute determination). Accordingly, in the next section, we navigate through the use of formal strategies based on sharing between primary and secondary agency. We will consider, as the latter is concerned, in more detail, human participation.

1.3.2 Participation

We referred to *form from people* as one of the two great vectors of a line of evolution in art, in which opening formal control over the art object to external elements constitutes the core element of a formal strategy. We

propose in this section the term participation as a proxy for the artistic practices that integrate that vector. Thus, participation extends beyond artistic practices centred on an active relation between the public and the work of art; its scope includes all artistic practices that use the agency of *others* as a material. On the one hand, our mass participation proposal depends upon this comprehensive notion of what constitutes participation; on the other hand, it depends upon the specific frame of our analysis of the participation phenomenon. This analysis is confined to the artist's choices on how to establish the conditions for participant influence on the artwork, i.e. the strategies to which the artist resorts in order to gather that influence as her material and medium. Starting from three separate approaches to the role of the other as a secondary agent, this section explores two opposite trends: the conceptual widening of participation as a phenomenon and, on the other hand, the operative restriction of participation as a formal strategy. As we will see, this exploration goes hand in hand with a systematic process that aims at making these notions independent from any construction or proposal of an *aesthetics* of participation.

Poem XXV of Optatianus Porfyrius, referred to earlier in this document, is the product of permutational techniques both as a writing strategy and simultaneously as a reading process. The questions that arise from this simultaneity can be framed by a literal exploration of the relations of writer, reader and text. This terminology refers, both in this formulation and in the analogous one for the visual arts (artist, viewer and object), to a classic conception of the artistic phenomenon; although participation challenges this classic conception, we will use its terminology as a starting point to elucidate our own terminology as we use it throughout this document. From a less operative viewpoint, our exploration of the dynamics that govern the relation of writer, reader and text emerges in recurrent fashion as a subject of consideration and debate of the way we look at art since the

Impressionism at least ¹⁰. Ever since this period, the set of issues that results from the exploration of those relations has been at the core of the discourse on art in general, and even one of its classic subjects in its own right. In spite of the transversal character of those relations, their exploration becomes especially focused on artistic practices based upon participation and/or collaboration strategies. Keeping this in view, we will consider three distinctive accounts of the *other's* role in the art-making process: the first one relates to participation as a politics of spectatorship (Bishop, 2006; 2012); the second one to collaboration and participation as creative praxis (Kester, 2011); and the last to the participant status in the art making process (Adamson & Bryan-Wilson, 2016). The order in which we consider them parallels our own approach to the *other*. Our analysis of these accounts is predicated on the premise that any approach that issues from the notions of authorship and reception, while exceedingly useful for dealing with specific groups of artists who use participation in their practice, rules out any universal definition of participation, either as a phenomenon or as an artist's strategy, as will be discussed later on this section. As far as the scope of this document is concerned, such definitions require no condition to be present beyond intentionally resorting to human agents for the transformation of their actions into the artist's material.

Bishop (2006; 2012) put into question the traditional model of the relations between writer, reader and text and reassessed existing art theory from the participant's point of view. Bishop's (2012) proposals issue from an

¹⁰ The juxtaposition technique, characteristic of Impressionism, and its implications in bringing into question the relations between artist, work and public, is presented in a project context in *ocidental sentimento dum o*, particularly as far as its relevance for the definition of mass participation.

exploration of the politics of spectatorship from the vantage point of relations among agents (artist/actor/public) in the context of the theatre and performance. The chronology of this exploration starts at the beginning of the 20th century¹¹ and it is framed theoretically within the tradition of Marxist and post-Marxist writing on art. Bishop proposed in the following terms an updating of the traditional relation between the art object, the artist and the audience:

(...) the artist is conceived less as an individual producer of discrete objects than as a collaborator and producer of *situations*; the work of art as finite, portable, commodifiable product is reconceived as an ongoing or long-term *project* with an unclear beginning and end; while the audience, previously conceived as a 'viewer' or 'beholder', is now repositioned as a co-producer or *participant*. (2012, p. 2)

This updating reflects in a general fashion the consequences of an art-making model that construes the work of art, as shown before, as the manifestation of a system of agencies. As far as the notions of artist and of work of art are concerned, the updating reflects the model almost point by point: the author as an individual is set in contrast to a plurality of agents; and the distribution of all single manifestations of agency throughout the timeline of the work (from its inception to its shape at the moment of contact to its last visitor) implies an understanding of the work of art as a continuous process. However, it is clear from Bishop's (2012) proposal of a notion of

¹¹ Bishop (2012, p. 44) argued that Futurist *serates* that started in 1910 mark the introduction of the active/passive audience binary in the 20th century discourse of participation.

audience that the motives for any of the proposed updates are not directly mapped by those presented in this document.

For Bishop (2006), the transformation of *viewer* into *participant* follows a social dimension of participation. This dimension is understood to belong both to the sphere of reception, i.e. to the questions related to the public's intervention in the work of art as a way of experiencing participative art, and to the sphere of authorship, i.e. to the discussion of the politics of shared production. As we will see later, the transformation of viewer in participant finds no parallel in this document. We construe the condition of participant as being independent of the condition of viewer. This independence is predicated on a necessary approach to participative phenomena in which the conditions of viewer and participant may not coincide in the same person. As we will also see, neither our notion of artist, nor that of work of art actualize themselves in answer to a *social-turn* as understood by Bishop; nor will they be approached in the light of the issues raised by that turn in the spheres of authorship and reception.

In this section, we will define a participation range which is thus, on the one hand, more circumscribed than that which a complete transmutation of viewer to participant would entail as to the consequences of participation to a theory of art; but, on the other hand, more comprehensive as to the diverse modes of participation that overflow the limits set by the proposition of such a transformation.

A comprehensive view of participation, then, makes it necessary for us to distance ourselves from the limits set by a definition of participant as one who takes part in a work of art and is simultaneously a part of its public. Kester's (2011) contribution to a redefinition of the traditional model based on the writer/reader/text is particularly relevant because of its focus on participation and collaboration as creative praxis. This focus shifts from an

authorship/reception analysis of art to one that centres itself on the place and time where participation happens. Kester's effort follows the suggestion that in contemporary art "there is a movement toward participatory, process-based experience and away from a 'textual' mode of production in which the artist fashions an object or event that is subsequently presented to the viewer" (p. 8). Kester proposed that the aforementioned movement constitutes a paradigm shift from a classical textual mode of production to a contemporary one where both the textual and collaborative approaches depend ultimately on the "artist's relationship with the materiality of a given work and to the viewer" (p. 11).

Kester (2011) chose to analyse "site-specific collaborative projects (...) in which the process of participatory interaction itself is treated as a form of creative praxis" (p. 9). From all the shapes collaboration and participation can take, Kester's particular interest laid in the displacement of the locus of creative praxis from the artist studio - during an art-making period that precedes any contact of the work with the public - to the space and time during which collaboration and participation take place. From this perspective, the locus of participation constitutes the central node in the network of relations between all the elements at play in those participatory contexts. Kester's proposal of a shift away from textual production - a concept that, in his own terms, "refers to the status of authorship and reception" (p. 10), towards a collaborative one is aimed at dealing with this new centrality.

While highly relevant, an exhaustive discussion, in breadth and in depth, of Kester's (2011) contribution to the topic would fall outside the scope of this document, namely as far as a re-evaluation of the centre of aesthetic discourse is concerned - from "visual signification to [...] the generative experience of collective interaction" (p. 24) - brought about by the shift of

production paradigms. However, Kester's approach to participation, framed as it is by questions of creative labour, contributes at once to expanding the notion of participation, which is no longer centred on the public, and to a movement towards a view of participation as an artistic strategy centred on questions of mode, place and time of participation. Nevertheless, we argue for a notion of participation that should not be bound to any particular shift on the locus of the creative praxis (to keep using Kester's terms). While we agree that participation strategies are becoming central as a creative resource (a notion that underlies the main thrust of this document), participation in a broader sense can take place as well outside as within the traditional *textual* mode of production. In fact, for the moment and for the sake of the argument presented in this section, we set no conditions for participation except for those that derive from the proposed agency model and from the limits set by the form *from people* vector of agency transfer, as presented in the previous sections.

The notion of labour, in the sense of a force of production and transformation that manifests itself by bringing the work of art to the world, is present in Adamson and Bryan-Wilson's (2016) critical investigation on the making of art. Their account follows the progressive spread of the art-making site from artist's loft to factory floor to database and focuses on the questions around the *making*, which they take to be absent from the discourse on art. These questions include, namely, the importance, as well as the effects of the means employed and practical circumstances on artistic practice. The authors referred questions related to the artist's materials and tools, but also, as is particularly relevant in the context of the present document, to the human helpers involved in the artistic practice. Adamson and Bryan-Wilson emphasized three factors that allow for a practical approach to those questions: the first is mainly related to the reluctance of some artists to expose their production strategies, given that "[s]ensitivities

about authorship and economics have led to a situation in which narratives of making can be veiled, or hard to establish” (p. 15); the second factor is related to the conservative and academic character generally held to be linked to approaches centred on art making, in a context where “art has been principally valued for its conceptual merits, not for its physical qualities” (p. 16); the third factor is to be found in the gradual disappearance, in critical discourse dominated by matters of reception, of “accounts of art in its moments of becoming”.

Adamson and Bryan-Wilson (2016, p. 223) proposed the term *distributed authorship* to denote any means of production involving more than one person. They hold these means to be pervasive in contemporary art, and it is particularly worth emphasizing, in this respect, their analysis of this presence in the portions of their work dedicated to the notions of fabricating, digitizing and crowd-sourcing. Still, Adamson and Bryan-Wilson go a step further in so far as they find *distributed authorship* even in works seemingly made by one person but where, as in the case of fine-art painting, there are conditionings to be found which result in the last instance from the intervention of people involved in the making available of materials, tools, and institutional support. That proposal sets out from a social viewpoint to undertake the analysis of *making*. This analysis relies particularly on matters of authorship, which weigh heavily in the approach of Adamson and Bryan-Wilson.

In that comprehensive approach to the various instances of human and non-human influence in the art making process, we will find a context akin to the one that we propose in this document for our analysis of participation as a concept. The parallelism with our proposal of shared agency is, at this level, evident. The problem itself – namely, the problem raised by the difficulty in defining a limit for the search of external influence in the art process – was

explored in the previous section as we discussed our own proposition of shared agency; and this, namely, in what concerns the proposed categories of primary, secondary and tertiary agents. Still, the emphasis which Adamson and Bryan-Wilson (2016) place on the social aspect of art making and on the strain it puts on the questions of authorship is less than useful if balanced against the limits it sets to an understanding of participation as a formal strategy independent from any discourse in the sphere of art theory or art criticism. Indeed, participation as a call to external agency does not necessarily entail distributed *authorship*.

While heavily invested in rethinking authorship and reception through participation models, the three accounts to which we just referred are particularly useful for establishing the limits of the very notion of participation presented in this document. In sum: participant status isn't limited to the public; participatory modes of production are found, and are relevant, even within a traditional textual mode of production; participant contributions do not necessarily amount to actions of authorship. Accordingly, the three distinct approaches to the role of the *other* in artistic practices are ordered in the precedent paragraphs so as to make evident, as far as the analysis of that role is concerned, a shift in scope - from participation as experience (the public as participant) to locus of creative praxis (the collaboration and participation activity's centre) to authorship (the "hidden" multiple authors).

In the context of this document, that shift corresponds simultaneously, on the one hand, to a widening of what we take as included in the concept of participation; and, on the other hand, to a more restricted focus of our approach under the heading of participation as a formal strategy. We present, then, under this heading any and all artistic practices in which other human beings are called to get involved in, or become a part of, the

work of art. Collaboration among artists, activist or communal intervention, contracted work, an active public, the intervention of specialists, the resource to voluntary agents, the use or surveillance of databases constitute, in their variety, instances of participation. Participation as a formal strategy refers to the protocols, mechanisms and limits that the artist sets in place in an art making context to deal with the specific types of external human interventions that she seeks.

To put it simply, participation is any manifestation of human agency on a work of art that was rendered possible by an intentional call for agency set by the artist. Therefore, participation as a formal strategy means the medium or device set in place by the artist to foster, gather and explore the aforementioned manifestations as her work's material. The focus of this document, as far as it deals with participation, is on the artist's choices on how to establish the conditions for participant influence on the artwork. This proposal is predicated on its independence from the theoretical constructs underlying any discourse on art centred on defining the status of the artist, of the work of art, of the public or, in general, of what constitutes the art world. Accordingly, the notions of reader, writer and text, or of viewer, artist and object of art, as they are traditionally understood, are not the object, in this document, of a review based on the implications that participation may have on new concepts of authorship and reception. On the contrary – for the traditional notions of writer, reader and text to be useful to our argument in the context of this section, and indeed of this document – we must abstract from their relation to the concepts of authorship and reception, both in their traditional and their several new conceptions. This abstraction is necessary to avoid being tied up with the specificities of each manifestation of *the other* in the work of art. This exercise, which constitutes the bulk of the next section, aims at shedding light, on the one hand, on a terminological choice that revolves around the

notions of artist, participant, public, and work of art; and, on the other hand, on the scope of each of these terms in the context of this document.

... and its actors

The broad character of what we characterize as participation makes necessary a new approach as we explore the relations between the notions of writer, reader and text. From the very start, it must be an approach that is not premised on a break, either with the notion of individual authorship, or with that of a so-called *passive* reception. Such an approach does not issue from an intention of framing our analysis according to the traditional model of text production as defined by Kester (2011). Nor do we overlook the obvious limits of that model to deal with the participative phenomenon in general. Nevertheless, we aim at adjusting our terminology, both to participative practices to which the model may apply, and to those that fall outside it and imply the creation of new models. Beech's (2010) critique on the shortfalls of theories of art that deal with the opening up of the "three heroically singular elements to art: the artist, the art object and the viewer [...] to 'general social technique'" (p. 28) comes to mind. Thus, what Beech called social authorship and social cultural reception is not the framework for the following exploration and updating of the terms *writer*, *reader* and *text*. That is to say, this exploration and updating does not aim at proposing a new theory or a new *aesthetics* of participation any more than at framing such a hypothetical aesthetics in current theories. It is nevertheless one of the tools employed in bringing into play - starting from those terms and in the specific context of the relations, framed by the shared agency model that we propose, between primary and secondary agent - the notions that correspond in this document to the terms work of art, artist, participant and public. These are notions, then, as untainted as possible by cultural

constructions (of the political, aesthetical and even of the very status of art kind) based on the relation between authorship and reception.

Figure 3 illustrates the exercise proposed in the paragraph above: it represents two different mappings of the writer/reader notions – on the left column how it is being currently mapped on the authorship reception notions, and on the right column how it is mapped to our agency approach. In *Agency* of this document we proposed an organization of the potential agents in the formal result of a work of art into three categories (primary, secondary and tertiary agents). In the present section, we only address human contact with the work of art; we will keep these three categories to classify instances of that contact, but it becomes needful for us to consider a further category that will include, for the sake of simplicity, all human contact that is not a manifestation of agency – the public in its non-agent capacity.

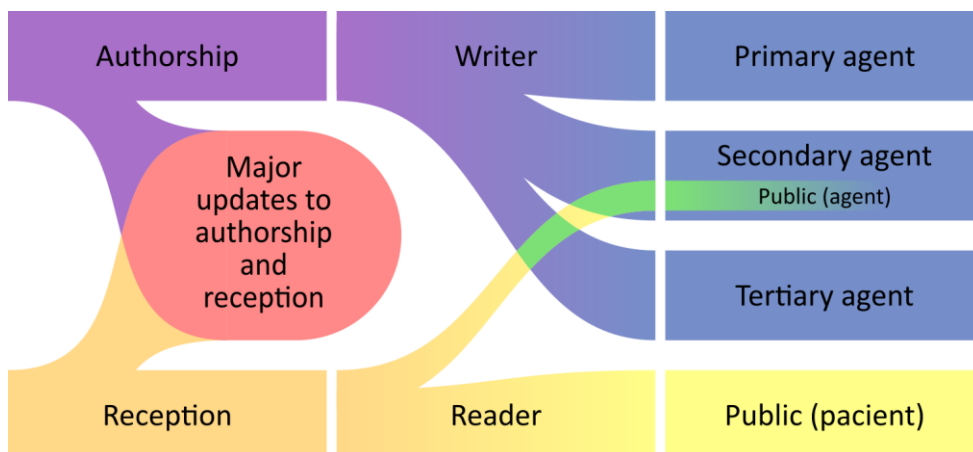


Figure 3. Mapping of the writer/reader notions to the authorship/reception model and to our proposed agency system's categories.

Theoretical work on shared agency, approached from the side of authorship and reception, resorts necessarily to a major update of these concepts. Undertaking that exercise, a first level of difficulty arises from the limited

lexicon available for dealing with the various roles that the *other* can play in the artistic process¹² within the current discourse on contemporary art - a constraint that is not unrelated to the powerful association of art-making, in any of its sundry manifestations, to individual authorship. In the context of most updated, contemporary uses of the authorship and reception concepts – in so far as they deal with participation¹³ - casting off the bondage of that association becomes a fundamental condition, on the one hand, for dealing with authorship outside the individual artist's sphere; and, on the other hand, for providing a model of reception based on the recipient's intervention in the work of art. However, the sheer amount and variety of all possible manifestations of the *other's* action precludes any progression, based on present available contributions to that major rethinking, that would result in theoretical models capable of responding with uniform effectiveness to all such manifestations.

From the vantage point of authorship, as well as from that of reception, any attempted approach to new arrangements of the inclusion of the *other* in the artistic process entails the creation of specific sets of theories or *aesthetics*. Accordingly, in the absence of a comprehensive theory, we consider that every such contribution is associated to a specific mode of

¹² The film industry is often referred to as an example of an area where this problem is better handled (Bishop, 2012; Adamson & Bryan-Wilson, 2016).

¹³ In this document we consider in finer detail the proposals of Bishop and Kester, as well as of Adamson & Bryan-Wilson (Bishop, 2006; 2012; Kester, 2004; 2011; Adamson & Bryan-Wilson, 2016). We will consider, later on, those of Bourriaud (2002a; 2002b) with greater emphasis on the concept of postproduction than on the concept of relational aesthetics. We also consider the critique of those proposals in Beech (2008; 2010).

participation, in all their various descriptions. This fragmentation sets severe limits to a general approach – considering, even at this early stage, the full scope of those artistic practices that are based on the sharing of agency with humans, and fall thus within the operative definition of participation used in this document.

Our previous proposition of an agency-based framework responds, then, to an operative purpose: to allow us to explore the relation between the terms writer, reader and text in a broad and comprehensive method, limited only by an approach that takes into account participation as the process by which a work acquires its form in an extended art-making process. In this sense, the aforesaid relations are brought into play with two ends in view: the former, the more direct and already mentioned, is linked to a clarification of the terminology used; the latter is related to the need to create an abstract model of participation. Participation is regarded as a strategy that correlates to the artist's choices as she resorts, in the process of formally defining her work, to one or several participants. These, in their turn, share, in their individual and collective relationship with the work of art, a measure of responsibility for its formal definition.

The work of art

Abstracted from any approach centred in authorship and reception, and framed by the model of agency that goes together with this document, the notion of *text* undergoes an updating. This updating sustains a degree of remoteness of the term from its connotation with the traditionally textual model of art production, on the one hand; and, on the other hand, from any relation to a conception of art by which it may be understood as a message or container conveying the intentions of its creator. In this sense, *text* relates to that which is, in every given instant of its existence, the result of all the manifestations, up to that instant, of an agency system. *Text* – a term that

is directly mapped, as we will see further on, in the notion of work of art – is all that which, on the one hand, is placed in a constant patient status relative to the writer and, on the other hand, constitutes itself as circumstantial agent relative to the reader. Thus, the duration of the interaction between reader and text constitutes itself as an actualization of the latter, which presents itself at that time, as an updated instance, in its most recent form.

The choice of using the term work of art in this document arises from two main starting points: one that concerns the notion itself of *work* in so far as it relates to its *workers*; and a second one that is to be found in the relation between *work* and the space and time of *working*. The tradition of Marxist writings on art is ubiquitous in the contemporary discourse on participation. In that regard, this document is not an exception. All the same, the social and political questions of participation are not the point of this document. The chief reason for this choice is to be found in the evidence that participation strategies, particularly when considered in so broad a manner as we do, do not correspond necessarily to a *better* mode of production if we observe them through the prisms of ethics, politics or social relations. The motivations and options that lead the artist to using these strategies are diverse to such a degree that our approach can not be set as a celebration of the presumed political advantages of participative strategies¹⁴. Even so, an echo of Marxist theory resonates in a notion of *form*

¹⁴ Following Beech (2010) statement that “it is not an adequate response to the current state of art to celebrate collaborations or participation in contemporary art” (p. 28) in his critique of the manner in which participation and collaboration were approached, namely by Bourriaud, Bishop and Kester (Bourriaud, 2002a; Bishop, 2004; Kester, 2004)

which does not relate so much to the art object as to a process of shared labour. The discussion that this sharing implies in terms of formal control constitutes itself as a dialectics between the possibility of construing it either as an abdication of authorship with a consequent participant empowerment, or, in opposition, as an extension of authorial power not only over the artistic object, but also over the participant's reception. In this document, participation is not viewed in the light of authorial power tensions; yet a work of art that makes use of participation cannot escape its most basic premise of being the result of an invitation to external formal intervention. Participation art is an art of *workers* as opposed to a politics of spectatorship.

As diverse as an artist's motives to use participation strategies are the space-time contexts in which the act of participation (secondary agency) takes place. Agency, conceived as a system outside the limits of time and place, is rooted in the concept of work of art as process rather than object. The timeline of this shift is well documented, from its roots in Wagnerian operas, futurist scandals, Fluxus Happenings or situationist events (Groys, 2008) to its contemporary displays. Notwithstanding this, and even from this point of view, the notion of art as situation is permeated with a political meaning that can take the shape of resistance to art's commoditization or of a defiance of institutional authority (Doherty, 2009). Our stance on the subject is that the bare fact that various artists resort to participation strategies as a material for artistic creation can not imply a commonality in their aims. An artist's choices – whether they fall, as analysed further on in the specific context of mass participation, upon mode, time or place of participation – are independent a priori from their eventual framing by the politics of artistic production. Indeed, in a comprehensive participation model, a necessary condition of *work* as a participatory process is its independence from pre-existing constraints on its locus. Participatory work

can take place at the work of art's conception, materialization or presentation stages; it may go on at the artist's atelier, in a factory, gallery, street, or in the public's own homes; in sum, in every point in time or space throughout its existence.



Figure 4. Francis Alÿs' *When Faith Moves Mountains* (2002). Retrieved from <http://francisalys.com/when-faith-moves-mountains/>.

The term *work of art* refers, in this context, to the sum total of agency manifestations affecting its shape in the time-space continuum. This close relation of the term *work of art* to the notion of form does not imply a classic formalist approach to the result of an artistic process. Indeed, the form of a work of art is to be understood as something apart from its materialization. We will turn, as an example, to Francis Alÿs' *When Faith Moves Mountains* (2002) (Figure 4), an action of five hundred volunteers with shovels moving a sand dune in Lima, Peru. Russell Ferguson (2008) stated that “[t]he

principle that drove *When Faith Moves Mountains* was ‘maximum effort, minimal result’” and that “[t]he action itself, as documented in photographs and video, is extraordinarily impressive, but in the end the ‘social allegory’ takes over from the work’s undeniable formal presence” (p. 114). Judging from Ferguson’s words, multiple options seem to qualify as the work’s form: One can argue that *When Faith Moves Mountains*’ form is the action itself, the documentation of the action, the *moved* sand dune or even the community and participants’ collective memory of *the day a mountain was moved*. However we look at it, the work of art’s *form*, as that that exists in its availability to the public, is always a result of a precedent time containing all combined manifestations of a network of agencies.

Artist and participants

The notion of *writer* allows, as long as it is understood without reference to the realm of authorship, a break with the need for an immediate correspondence between *writer* and *author*. This step permits a new correspondence to be established, which includes in its scope, under the designation *writer*, a whole system of agencies endowed with formal influence upon the work of art. Therefore, this inclusion is independent from any issues inherent to the determination of the way authorship is distributed among the agents of that system. In this context, *writer* is anyone or anything that may have a formal impact in a work of art and is directly reflected on any element of its agency system at work at any given moment or state. This document focuses on the artist’s choices – which define and provide the conditions for the intervention of secondary agents. Accordingly, the notion of writer is the starting point for shedding light on our understanding both of artist and of participant.

The artist

Artist is the term that refers directly to the notion of primary agent. As noted in *Agency*, she is the ultimate agent where the process of abduction of agency stops. The Wagnerian *artist of the future* embodies this fundamental role. Wagner (1993) stated that “the incitation to resolves in common can only issue from precisely that unit in whom the individuality speaks out so strongly that it determines the *free* voices of the rest” (p. 200). The artist is that unit, whether her individuality, as the necessary seed of the work of art, is immediately dissolved into the common work of the others – as Wagner would want it – or whether she prevails as the single identity linked, regardless of the work of others, to the authorship of the work of art, as it seems to be more common in the art world, holding on to the artist genius tradition (Kester, 2011). Thus, generally speaking, the artist is the person to whom the work of art is ascribed when someone looks for its source; that is, it is in the artist that the primal manifestation of agency upon the work of art is to be found; and from which emanate all other possible manifestations of agency.

However, for the argument of this section it is of little importance whether the artist presents herself individually or as part of a collective, or even if she is possessed of physical existence. Finding the artist’s authorial identity is not the ultimate goal of the abduction of agency enquiry. We propose that the term *artist* stands for the will to act and, in the context of participative practices, for the will enacted in each discrete participatory action. This will is the ultimate instance that defines each manifestation of agency upon the work of art as belonging to the secondary or the tertiary category. That is to say, the same action upon a work of art, even if it is viewed by its actor as transgressive (for instance the destruction of the art *object*), will be regarded

as participative if it happens through the participation devices set in place by the artist, or non-participative if it isn't an instance of that artist's will¹⁵.

The *third hand* concept, as proposed by Charles Green (2001) is useful as a frame for the notion of artist as proxy to a will. Green's concept issues from exploring the process by which the artist herself builds her authorial identity – a programme that Green assumes to be present and in evidence in the process itself of artistic creation, but whose analysis became fraught from the second half of the 20th century onwards, when this basic self-conscious intention mutated into a deliberate and careful construction of authorial alternatives. Green's focused on artists' collaborations and stated that:

Artistic collaboration is a special and obvious case of the manipulation of the figure of the artist, for at the very least collaboration involves a deliberately chosen alteration of artistic identity from individual to composite subjectivity. (p. x)

Green (2001) analysed that process of artistic identity alteration from instances of artists' couples working in collaboration¹⁶. He concluded that

¹⁵ For instance in Doouglas Davis' *The World's First Collaborative Sentence* (1994), discussed in 1.4.2, we have considered participative actions all those that take advantage of what is allowed by the interface even if not obviously declared (changing the font color, size or format). We also consider participative actions those that have the intention of breaking the stated rules, as long as they are performed through the interface. We would consider non participative an action taken directly on the server such as hacking and destroying the project.

¹⁶ Namely, Christo and Jeanne-Claude, Gilbert and George, and Marina Abramović and Ulay (Green, 2001, pp. 123-188)

collaboration, in those contexts, was responsible for the emergence of “a third artistic identity superimposed over and exceeding the individual artists” (p. 179). This extra identity manifested itself on the realm of the uncanny. There the individual artists’ self folded into their emergent and unexpected simulacra: “doubles, phantoms, specialized bodies” (p. 179). Green stated that “the double identity created in artistic collaboration could be described as a phantom extension of the artists’ joint will, rather like a phantom limb” (p. 186). Green’s beautiful illustration of the concept of the third artist, captures how the term *artist*, which in this document is related to the notion of primary agent, can take the form of a bodiless but public entity of will, where the abduction of agency enquiry is bound to stop.

The roots of collective art production can be found in an idealized view of the collective production of the medieval guild or lodge (Kester, 2011, p. 3) that extends itself throughout the pre-modern dominion of an academic art tradition. This tradition is romanticized in the figure of the master painter and his group of disciples. An idealized master’s studio as collective space of art production, that stands in opposition to the importance of its members’ individual identities, was referred to by Artists Anonymous¹⁷, whose members actively restrain from revealing their identities:

We were more interested in the Old Master workshops, where many people worked in one room, where people were taught and from an early age, all these things, like actually finding out how the artist did it. They were also working together; maybe one gave his name to be the Master and every painting was signed by this name. But there

¹⁷ Website of the collective: <http://artists-anonymous.net/>

was still a working process happening where everybody had to fulfil certain things in this process. Artists Anonymous as cited in (Coghlan, 2010, p. 36)

The label Artists Anonymous is the public proxy of the joint will of its members and thus serves the same purpose of the master's signature that stood for the public entity of the artist will, that numerous hands, collectively followed. Niamh Coghlan (2010) stated that Artists Anonymous "risk disappearing into the fabric of art history, as individuals (though not as a collective)" (p. 37). This statement highlights our notion that an abduction of agency enquiry can have its end on a bodiless *artist*. May it be a partnership of personally related couples as those referred by Green or in an artist collective of anonymous members like Artists Anonymous, the artists' individual or private authorial identity is dissolved into participant status. The individual artist becomes a secondary agent whose actions in a work of art reflect that bodiless artist's will.

The participant

A comprehensive notion of writer is adequate to our choice of dealing with participative strategies from the vantage point of the art-making process within the narrow scope of the relations between human primary and secondary agents. Accordingly, the secondary agent is analysed in this document, in the first instance, in function of her role as a writer.

A secondary agent issuing from the public is the specific instance in which the roles of reader and writer come together. This double role, as well as the preceding theoretical conception of which it is a literal manifestation (the theory that even a non-agency reading is active) lies at the roots of a significant share of theoretical frameworks, the ones that are most often brought to bear as the participative phenomenon is approached (Eco, 1989;

Rancière & Elliott, 2009; Barthes, 2006; Benjamin, 1983; Popper, 1993). Still, outside the contexts of authorship and reception, the notions of writer and reader don't need to be redefined by the consequences of their coincidence in one person. Gell's (1998) relational approach to the concept of agency, as we noted in *Agency*, supplies the notion of patient as a counterweight to agent. Gell proposes that a distinction is made between the roles of agent and patient, depending on what is to be analysed in any instance of their relation, although they may coincide in one person or object. His approach arises from his own need to establish an anthropological theory of art independent from culturally defined aesthetic responses to art and from the institutional definition of the conditions under which it is practiced (pp. 1-9). This is a need we share for the purposes of this document.

We put, thus, no special emphasis to the secondary agent as a writer who doubles as reader. The secondary agent's reader status is accessory for all purposes in the context of this document – in which, moreover, reception matters are approached only in those particular contexts where they are relevant for the definition of any historical background that may influence art-making strategies. This position, however, does not lead us to ignore the indivisible association between reception and formal contribution in the context of participation. In such instances as artistic practices whereby the public is invited to take part in the work of art formal solution, becoming in this manner secondary agent in this solution, the moments of reception and manifestation of agency coincide in time; however, we propose to address those moments as essentially distinct from each other. This choice stems from the fact that there is no valid reason to exclude from the secondary agent category those persons who have formal influence upon a work, and are thus a part of its agency system, but may be unaware of their influence; any more than those that may even, in the limit, be unaware of the work's

existence, and in respect to whom considerations of reception do not apply. Looking for secondary agency in unaware humans presupposes an understanding of them as participants in the writing process even they have never been, or are expected to become, readers¹⁸. In consequence, whether we consider collaborative processes (of people working together or of contracted work), or participation of the public, or yet unaware participation, our approach to artistic strategies that resort to calling upon secondary agents falls outside the scope of issues belonging to the sphere of reception.

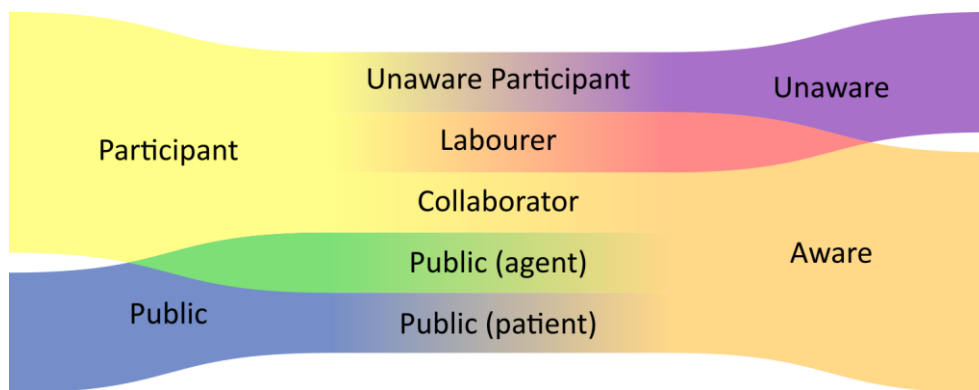


Figure 5. Types of human contact with the work of art.

Figure 5 illustrates how various types of human contact with the work of art stand in relation to one another, taking into account, on the one hand, the capacity (writer or reader) in which agency is exercised over it and, on the

¹⁸ In the proposed classification of mass participation strategies in *Classification*, the case of the unaware participant is mentioned. Mark Hansen and Ben Rubin's *Listening Post* (2001) shows clear examples of unaware participation in so far as it presents text collected from public Internet chatrooms and bulletin boards.

other hand, the participants' consciousness (aware or unaware) of its very existence.

In the light of the agent categories proposed in this document, the participant is characterized according to her action potential upon the work of art. This characterization results from the direct mapping of the notion of secondary agent in to the term *participant*. The unfolding of this map results in an extended notion of participant that develops along three vectors. The first one follows the shift towards independence from the notion of public, in so far as it isn't limited to those who intervene, as members of the public, in the work of art. The second vector is related to the inclusion of the unaware participant, one who exerts influence upon the work of art but ignores, in the limit, its very existence. The third vector reflects the comprehensiveness of our notion of participation, which we detailed in the previous section as we extended it to those that can be categorized, in a more specific manner, as collaborators, assistants, volunteers, community members, workers, specialists, and so on, regardless of any problem raised by what Beech (2010) calls the "*hierarchy of authorship, responsibility and control*" (pp. 26-28).

The public

In the context of a revision, such as we are undertaking, of the notions of reader, writer and text, *reading* may be defined, in the same way that *writing* is reduced to a manifestation of agency, by an inversion of the order of factors. That is, reader is anyone who plays the role of patient in relation to the agency of the work of art itself. As noted above, in a context characterized by a multiplicity of possible manifestations of agents and agencies, the issues of reception that arise from the relation between the work of art and someone who takes simultaneously the roles of reader and writer emerge in this document only in so far, on the one hand, as they

characterize a particular sort of secondary agent, and, on the other hand, as they influence the artist's strategies for working with such an agent. Accordingly, and to simplify, the role of reader is proposed for all those that contact the work of art, regardless of the quality and degree of the transformation that occurs in the reader due to the work of art; and regardless, on the other hand, of any transformation of the work of art as a result of parallel actions of the reader that may constitute her simultaneously as writer.

This understanding of the reader results in two categories of public: the agent and the patient, as outlined in Figures 3 and 5. Abstracting the matter of reception from the condition of public, the patient category of public becomes invisible in our approach to participation as an artistic strategy. In spite of this invisibility, we must remain aware of its ubiquitous presence in the participative process. In this process, the public (in either category) is the element where the agency process runs out. Every contact of the public with the work of art provides a definite snapshot of the system of agencies that gave rise to the form of the work of art in the respective instance. The public is the hand that updates, with each contact, the work of art; which at that moment becomes itself an agent upon the public itself.

The distinction between agent and patient public does not correlate to a distinction between active and passive public. We can refer in either case to a long tradition in the discourse on art that understands reception as a fundamentally active process. What we mean by agency, or lack thereof, is the existence or inexistence of consequences upon the form of the work of art as it presents itself from each moment of contact with the public. Accordingly, we will group under the designation of public (patient) all those who generate, throughout their contact with the work of art, no alteration in the state in which it presents itself to others. As this document

is focused on the contacts where a manifestation of agency is to be found, the public (agent) is treated as secondary agent or participant, whereby its condition of public is, as previously discussed, of secondary import. For simplicity's sake, any human contact with the work of art is viewed, thus, as corresponding to one of two symmetrical approaches: the one of participant – whether it is included in the public or not – and the one of public, which relates to the moment the work of art becomes actual, and is not premised on any type of agency.

In *Participation*, we set out to explore the definitions of participation and as well as those of its actors. The result is an abstract framework for participation that allows for a vast array of artistic production modes. Our approach to mass participation, paramount in this document, results from our premise that all modes of production liable to be framed by this abstract model may be analysed from the perspective of participation as strategy. That is to say, of the artist's use of media or devices that aim to foster, gather and explore participant agency upon her work as its material. In the remainder of this section, we will focus on the particular case of participation from the mass.

1.3.3 Mass

In the mainstream discourse on participative practices in art, the masses, as a notion, appear usually in the context of the status of the public. Like the notion itself of participation, mass belongs to the discourse on art in a capacity that tends to relate it to the politics and aesthetics both of artistic production and of spectatorship. For the purpose of our argument, the concept of mass diverges widely from its meaning in the context of an ideal of art as a vehicle of coherent change for or from the masses. We argue instead that in the contemporary setting – one of mass production and

consumption of art – mass corresponds more closely to a spectrum – or rather, a blend – of incoherent possibilities for change inherent to the art work itself. It denotes an amalgam of human actions characterized by an inextricable diversity in motivations and consequences.

Rethinking the artist, the public, and their relation through the work of art entails the framing of these nodes within a *hierarchical* structure polarized by *the unique* and *the same*, the individual and the collective, the elite and the folk. Groys (2008) summarized timeline of artists and groups, which contributed to that rethinking through the concept of the mass, starts from the Wagnerian ideal of dissolving the individual in the unity of a people; it proceeds through the Futurists' activation and exposure of the "concealed energies of the masses" (p. 26), Zurich Dadaists attack on individuality, authority, and authorship, the Russian avant-gardes of the 1920s and 30s that aimed at including the broader masses in artistic practice, all the way to 1960's common attempt, by collectives such as Fluxus and Guy Debord's Situationist International, to "surrender personal individuality and authorship to the commonality" (p. 28)¹⁹. Groys identifies a common goal throughout these trends: "to unite the artist and the audience at a particular location" (p. 28). This goal is framed by Jacques Rancière (2008) in the centenary framework of the critique of the spectacle. Rancière described the utopian theatre – giving as its most close realization the exemple of Emile Jaques-Dalcroze's and Adolphe Appia's 1913 staging of Glück's *Orpheus and*

¹⁹ See (Bishop, 2012) for critical and in depth account of these (and many others) artists and groups, as well has as the theoretical framing for the exploration of such historical timeline.

*Eurydice*²⁰ - as one “without any separation between the stage and the audience; the living community, expressing in its attitudes the law of its being together” and declared:

We purport to be far from such utopias. Our artists have learnt to use this form of hyper-theatre for the optimisation of the show rather than for the celebration of the revolutionary identity of art and life. But what remains vivid, both in their practice and in the criticism they undergo, is precisely the ‘critique of the spectacle’, the idea that art has to give us more than a spectacle, more than something dedicated to the delight of passive spectators, because it has to act in favour of a society where everybody should be active. The ‘critique of the spectacle’ often remains the alpha and the omega of the ‘politics of art’. (p. 7)

Echoes of this view of the *encounter* as a political and aesthetical battleground, as well as of a critique of the spectacle, are also undoubtedly to be heard in the aforementioned accounts of collaboration and participation (Bishop, 2012; Kester, 2011), as they are in Nicolas Bourriaud’s influential *Relational Aesthetics* (2002a) just to name a few of the most obvious instances. A political and aesthetic framing of participation – both from a diachronic viewpoint and one that is synchronic to our time – is not at all without precedent; it is, on the contrary rather well established. However, an element that provides for a better understanding of mass in the context of this document is that which takes into account, as noted in the beginning of this chapter, the major consequences to

²⁰ See (Rancière, 2013, pp. 171-190) for full description and in depth contextualization of this work.

participation of the shift in cultural and technological paradigms towards the digital culture.

The critique of the spectacle as *encounter* or *coming together* is particularly fraught in our Internet dominated era. Groys (2009) identified a shift on relevance of that critique in the contemporary setting and stated that:

throughout modernity we can identify this conflict between passive consumption of mass culture and an activist opposition to it— political, aesthetic, or a mixture of the two. [...] However, at the turn of the twenty-first century, art entered a new era - one of mass artistic production, and not only mass art consumption. (p. 9)

According to Groys (2009), the path into the “immeasurable quantity of artistic production”, made possible by Internet-based virtual networks, leads also to the impossibility of a globally informed spectator capable of aesthetic judgment, and stated that “[i]f contemporary society is, therefore, still a society of spectacle, then it seems to be a spectacle without spectators” (p. 10). For our argument, what’s particularly interesting in Groys’ (2008; 2009) questioning on how to understand the relevance of the encounter in a contemporary setting, is the presence of subtle shift from mass as something associated with the coherent political and aesthetical emancipation of a considerable sized group of people to a notion of mass associated with innumerable incoherent possibilities (both in art consumption and in artistic production).

In her account of the historical trajectory of artistic practices in which *the other* integrates the work of art’s form making process, Inke Arns (2004) clearly addressed the relevance of communication technologies for artistic production. Closing in on the contemporary setting for participation, within

her historical exploration of how those practices relate to the means by which the *other's* integration is accomplished, Arns stated:

With the advent of wide Internet access in the 1990s [...] Allan Kaprow's demand for the abolition of spectators could be met, in some degree, for the first time. On the Internet, the possibilities of participation are far greater than in the time in which the early telecommunications projects took place. In the 1990s, the open structure of the Net as well as the increasing affordability of Internet access and above all of computers and other <small media> made participation possible on an unprecedented scale. (p. 348)

What is made clear by both Groys' and Arns' (Groys, 2008; 2009; Arns, 2004) accounts is the impact on participation brought about by the virtualization of the encounter space, and by the transformation of the scale of participation possibilities. Thus, the distinctive difference of the mass concept in the contemporary art scenario, when compared to any one of the historical avant-gardes, lies in the concrete possibility or even inevitability of dealing with the heterogeneous innumerable within the limits of the single work of art.

This status conferred to the work of art entails the notion of art production and art consumption, not as an opposing binary – related to original creation and passive spectatorship – but as multidimensional overlapping moments of formal intervention. Mass, in a participation context, and framed meanwhile outside the questions of authorship and reception, politics and aesthetics, is related to the number of participants and to their diversity; and above all to the potential of their actions for the formal definition of the work of art. In the contemporary art context, beyond mass production and mass consumption, mass participation entails the need to deal with participants and their actions in the scale of the innumerable.

Accordingly the concept of mass departs largely, in this document, from its meaning in the context of an ideal of art for or from the masses, in so far as art production and art consumption are reread in the light of a cultural setting premised on the exponential growth of intervention possibilities, which Bourriaud (2002b) called “the proliferating chaos of global culture in the information age” (p. 13).

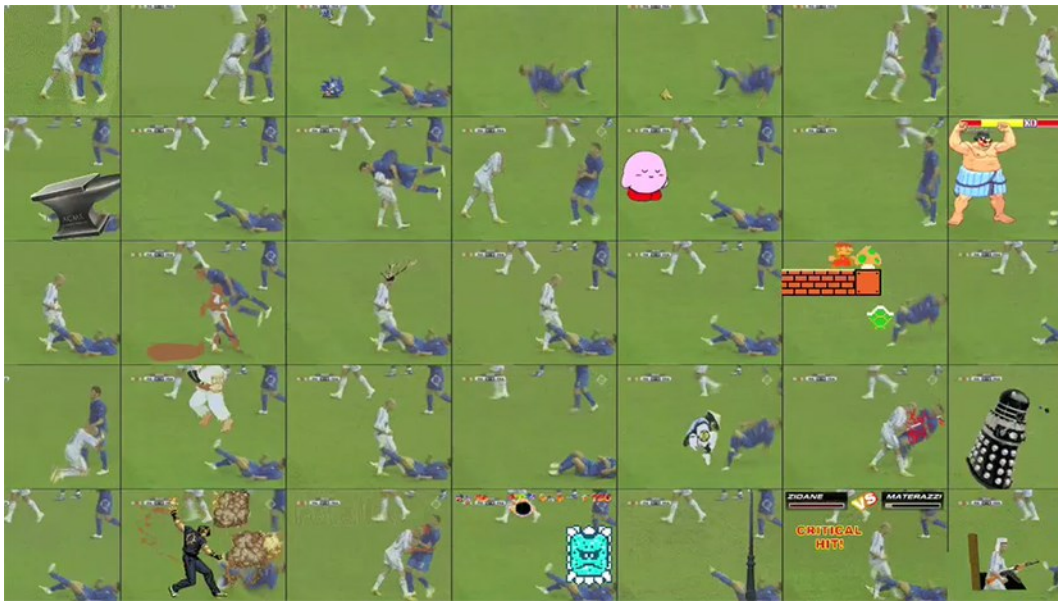


Figure 6. Oliver Laric *Versions* (2009). Screenshot from video, retrieved from <http://oliverlaric.com/versions.htm>.

Oliver Laric’s *Versions* (2009) (Figure 6) features the main themes of such cultural setting. Themes such as copy, manipulation, adulteration, appropriation, plagiarism, copyright, idolatry, collective memory, authenticity, identity and simulation are presented in compact form in its 6’30”. Laric’s works stands as a document about what we labelled in *Proposition* as *the remix culture*. The interventions upon the world made possible by technological advances operated a transformation of the cultural paradigm, turning action and production into its predominant traits. In *Versions*, it is the culture itself of unceasing intervention and action by the

global community that becomes an artistic object. Oliver Laric's *Versions* summarizes the current cultural chaos, caused by the advent of a digital world and the Internet, as we move towards a new global participation paradigm. In this context, the final character of any work is liable to be overridden by the mass.

Bourriaud (2002b) provided a theoretical framework for the aforementioned stipulation by invoking the concept of postproduction. He proposed *postproduction* – the evolution of a process that has its historical roots in appropriation – as a mode of production that responds to the cultural chaos brought about by the appearance of the Net. This mode of production explores the creative potential discernible in the blurred borderlines between consumption and production. Two ideas, ensuing respectively from the consumption and the production points of view, are central for Bourriaud's proposition: the first one, which he attributes to Michel de Certeau, is that each act of consumption is by itself an almost clandestine act of production; “[t]o read, to view, to envision a work is to know how to divert it: use is an act of micropirating that constitutes postproduction” (p. 24); the second one is that some artists elevate the consumer's anticipated defiance to the reign of the *object* to a form of creative praxis; consequently, “[p]ostproduction artists are [...] the specialized workers of cultural reappropriation” (p. 25).

For the mass participation argument, it is central to recognize the mass as a collection of potential *object-defiant micropirates*. The main shift that scale and virtualization bring to the participation action is creating a context where this attitude is the norm and unconstrained by nature. While a defiant, destructive, borderline mindless attitude is sure to be expected from participants, as Marina Abramović's *Rhythm 0* (1974) (Figure 7) six hours'

performance exemplifies perfectly, that of the contemporary mass of art's consumers/producers differs in kind.



Figure 7. Marina Abramović's *Rhythm 0* (1974) Studio Morra, Naples (Ward, 2010).

Standing in an empty room with Abramović and 72 objects - one of which, a loaded gun – the audience was given the following instructions: “There are 72 objects on the table that one can use on me as desired. [...] I am the object” (Abramović as cited in Ward, 2010, p. 135). What followed was an escalating state of aggressiveness towards Abramović, who later stated: “The experience I drew from this piece was that in your own performances you can go very far, but if you leave decisions to the public, you can get killed” (ibid, p.132). Having the performance lasted longer, that might just had happened. The same thing ought to be expected with the rise in number of participants. In fact, extending time and number of participants to the uncountable would turn such ending into an inevitability. But while the

destructive drive constitutes an important trait of the mass, what's particularly relevant in a digital, post-internet mass context is the emergence of a different kind of defiance, one that is closer to Bourriaud's (2002b) proposition. It is a defiance against the static and of the obvious, which manifests itself in transformative, limit-testing action. It is a default attitude towards things and it is embodied in the *hacker* figure.

McKenzie Wark (2004) described hackers as creators of possibilities, and omnipresent wherever the opportunity for the new is latent, "not willing to submerge [their] singularity in any collective", but a collective "based on an alignment of differences rather than a coercive unity" (p. 2). He stated:

The virtual is the true domain of the hacker. [...] To the hacker, what is represented as being real is always partial, limited, perhaps even false. To the hacker there is always a surplus of possibility expressed in what is actual, the surplus of the virtual. [...] It is in the interests of hackers to be free to hack for hacking's sake. The free and unlimited hacking of the new produces not just 'the' future, but an infinite possible array of futures, the future itself as virtuality.
(pp. 32-34)

Abramović's gun would, in all probability, have been fired, had the performance taken place in the context of mass participation. What the hacker attitude tells us about that shot is that a lot of other possibilities would have been explored besides killing Abramović. The *objects you can use on me* rule would, probably, be the first to be broken. Maybe that shot would be taken to destroy another object or in an effort to *rescue* the other objects from their proprietor and gallery confinement.

The hacker attitude transforms the notion of unpredictability in the participant individual behaviour, which we introduced in simple terms in

Form from people and form from systems. It now derives from a certainty, the certainty that all possible outcomes are bound to be explored. The unpredictability of individual action in the context of the mass is now extended to what is not stated in the participation rules and to what is not infallible in the participation medium and device. It is a matter of who will first take which unknown route. The mass is a liquid that expands all over the space of possibilities, that fills its every cavity and its hidden galleries, and that flows through the cracks of its set limits.

In the next section we explore, with complexity as a conceptual background, a notion of mass related to the patterns of behaviour that result from a large number of participants and modes of participation – albeit within the limits of what we have called human secondary agency or participation in the setting of the work of art.

1.3.4 Complexity

Complexity is the background concept through which the notion of the mass is presented as a special case in the context of participation. We propose to examine it to find the core characteristics that contribute to its attractiveness as a material for art making. The main proposition of this section is that the characteristics of the mass, as shown above, ready as they are to be explored by participation strategies, define it as a paradigm of complexity. Accordingly, complexity is approached from three points of view: the viewpoint of complexity science in the definition of complex systems' core characteristics; the one of current art discourse on the convergence of art and science through complexity; the viewpoint of complexity as mode of thought. The main objective of this triple viewpoint is to understand which links between complexity and mass participation are

the ones that contribute to the appeal of the mass as an element that can be used as material and medium of art making.

Participation *from the mass*, when sought by the artist, implies the creation of media and devices that allow for participation to happen. As we stated before, this document is centred on the artist's use of those media and devices that serve to gather participant agency as its material, to be explored and developed in her work. To find common ground between complex systems and mass participation strategies, we need first to establish correspondences between both domains. Neil F. Johnson (2009) tackled what he found to be the difficult task of defining complexity and stated:

Complexity Science can be seen as the *study of the phenomena which emerge from a collection of interacting objects* – and a crowd is a perfect example of such an *emergent phenomenon*, since it is a phenomenon which emerges from a collection of interacting people. (p. 3)

In fact, aggregations of human beings in all kinds of societal schemes are generally given as examples of complex adaptive systems (Gell-Mann, 2002; Holland, 1998) even if they “require better conjectures of the laws (if any) that govern their development” (Holland, 1998, p. 3) for a more precise application to such domains.

From N. F. Johnson's (2009) basic definition, we argue for a first general link between crowd behaviour and that of what we called the mass of participants. Despite the differences in settings, we propose that the characteristics of the mass allow for an analogy between crowd behaviour in the open world and participant agency in the context of the single work of

art, as both the crowd and the mass form the required collection of interacting objects and, as we will see, share behavioural patterns²¹.

The configuration of a work of art as a participative system in such a scale that a great number of interventions generates unpredicted formal patterns, bears a strong relationship with the notion of emergence. This notion has its roots in the 19th century with *System of Logic* (1843) by John Stuart Mill (McLaughlin, 2008). Emergence phenomena have been referred to since then in a vast array of disciplines to explain various human, animal, or even inanimate behaviours. In an introduction to the subject of emergence resorting to examples from biologic systems, city organization or neural nets in the human brain, Steven Johnson (2002), puts the question this way:

What features do all these systems share? In the simplest terms, they solve problems by drawing on masses of relatively stupid elements, rather than a single, intelligent ‘executive branch’. They are bottom-up systems, not top-down [...] they are complex adaptive systems that display emergent behavior. (p. 18)

S. Johnson (2002) brought into relief emergent adaptation processes and self-organization in the development of Internet communities. He described how the contents-filtering process in the *slashdot*²² community evolved until the time of his writing. Starting from this description, he brings into evidence the importance of rules in an information self-organization

²¹ Some of the cases mentioned in (cap. classification) are given as examples of aptly labelled crowdsourced art (Literat, 2012).

²² <https://slashdot.org/>

system. Beyond this, he points at a future where personalization, in whatever guise, of information reception will become as ubiquitous as its communal organization. In those communities, the difficulty in predicting and controlling mass movements, even when they are directed at common aims, leads naturally to the appearance of organization mechanisms operating from the bottom up, and independent from any administrative control. Changes in the operating rules in certain communities give rise to behaviour patterns that are, in some cases, utterly unforeseen. These phenomena are the feeding ground of an artistic production based on mass participation.²³

We resort to John H. Holland's (1998; 2002; 2014) work on complexity and emergence to further explore that link. Holland (2002) identified three distinguishing characteristics of complex adaptive systems (cas):

- (i) A *cas* consists of a large number of interacting components, usually called *agents*. [Each following a set of behavioural rules;]
- (ii) The agents in a *cas* interact in non-additive (non-linear) ways. [That is, an agent behaviour is conditionally dependent upon other agents' behaviours;]
- (iii) The agents in a *cas* adapt or learn. That is, they modify their rules as experience accumulates. (pp. 25-26)

Accordingly, and concerning such vectors as scale, interaction and adaptation, we consider that the mass, as a system of agents interacting *with* and *within* the work of art, and thus potentially exploring the full possibilities of the rules for that interaction, sets itself as an example of such

²³ See the discussion of *A Million Penguins* (2007) in 1.4.2 for an example.

complex systems²⁴. Rules and laws are of paramount importance when treating any system as complex. According to Holland (1998) in such sets, “a small number of rules and laws can generate systems of surprising complexity” (p. 3). He continues: “[t]he rules or laws *generate* the complexity, and the ever-changing flux of patterns that follows leads to *perpetual novelty* and emergence” (p. 4). We argue, for the time being, that the mass participation strategy is a set of artist’s choices that make the rules for the participation process, and as such, for the complex system it might generate.

Consequently, a specific set of behaviours is expected to be present in a mass participation context. We again turn to Holland to determine which main characteristics of complex behaviour make it worth exploring as an artistic strategy of form making. Holland (2014, pp. 5-6) stated that a complex system can be identified by five key behaviours: emergent behaviour where the aggregate exhibits properties not attained by summation of the parts own properties; self-organization into patterns; chaotic behaviour where small changes produce large later changes; ‘fat tailed’ behaviour where rare events occur more often than would be predicted by normal distribution; and adaptive interaction where interacting agents modify their strategies with experience. Each of these behaviours is part of a set that has been thoroughly discussed outside the realm of participation, namely in art practices that make use of A-life or generative systems. Accordingly, by assuming a notion of mass centred on humans in large number, and on the

²⁴ In the next section, when discussing particular projects, we look at how particular mass participation strategies take advantage of, or alternatively cancel out, such a behaviour.

diversity of their actions upon the work of art, we are brought to the convergence point of artistic strategies based on the contribution of humans and those that explore the potential of non-human secondary agency. This convergence of what we called *form from systems* and *form from people* was noted in *Form from people and form from systems* in the context of characterizing mass participation.

In his study on the role played in art by the development of artificial-life systems, Mitchell Whitelaw (2004) presents the notion of emergent as central in the disciplines that deal with artificial life and, consequently, equally central in the artistic production derived from it, and states:

More broadly, emergence refers to something novel or unanticipated, something extra; what makes a-life systems striking is the fact that made as they are from commonplace components, they yet manifest complex, subtle, unpredictable behavior. Put simply, they seem to deliver something more than the sum of their computational parts. (p. 207)

This idea that from simple rules, subjected to a large number of iterations, behaviours can arise not explained by the rules themselves is one of main factors behind the artist's intent when she endeavours to expand artistic production by means that largely exceed the power of random recombination or small-scale participation – that is, by resorting to a simple increase in communication capacity and digital processing, and to mass participation.

From the point of view of the creation of form from systems, Galanter's (2003; 2008; 2010; 2016b) work on complexity, encompassing longer than a decade, (as well as his research, as already noted in *Form from people and form from systems*, on its relation to art), covers in detail the most relevant

features of complex systems in the context of art. It sheds light on how complexity can be seen itself as framework for contemporary art, namely in what relates to generative art. Complexity theory, like his own proposals of complexity studies and complexism, belongs to his contribution to that framework. Complexism takes the form of an interdisciplinary “complexist manifesto” (2008, p. 311) and is later introduced as “an attempt to create a new synthesis between a science-based and a humanities-based outlook suggested by the attitudes and worldview that arises from the scientific study of complex systems” (2016a, p. 9). We consider that Galanter’s view can be readily extended so as to apply to a wider set of art practices: all those, indeed, that make use of any material or process that benefits from being treated as a complex system. The notion, then, stemming from Galanter’s own conclusions on the subject, that complexism brings about a rehabilitation of formalism – re-configured as a public process – is particularly relevant to our argument. Galanter (2016a) stated that:

[...] formalism is considered a public process where form is an understandable property created as part of a process-oriented ontology. Static form is no longer meaningless but rather serves as an icon for, and instantiation of, the systems from which it emerges. (p. 28)

So, true to his leaning towards generative art, Galanter (2016a) proposes it as creator of “dynamic icons by which complexism can become known and understood, and in doing so creates a new paradigmatic meeting place for the sciences and humanities” (p. 28). Matt Pearson (2011) concisely characterized generative art forms when introducing the complexity related section of *Generative Art*. He stated: “Generative art is about the organic, the emergent, the beautiful, the imprecise, and the unexpected” (p. xvi). Interestingly enough, all these traits could be used with perfect aptness to describe life itself; and are present in some measure in other accounts of

complexity, even outside the art discourse, in a diverse array of disciplines: whether psychology, mathematics, philosophy or biology²⁵. Making complexity the link between the sciences and humanities is, in this view, straightforward enough. Complexism, when it relates to the notion of form from complexity, suits our understanding of mass as we argue that the notion, on the one hand, of a process (by which the form of the work of art is abducted through complexity-science-informed methodologies) and, on the other hand, of form (as a gateway to the intricacies of the complex system) is also paramount when dealing with the human mass.

However, mass participation is not limited to the creation of science-informed models of complexity for form making. The convergence point of what we called the *form from systems* and *form from people* vectors brings about a special synergy as their core characteristics are mutually potentiated in result of the encounter. We argue that, by coupling what the notions of pattern and unpredictability stand for in both contexts, we obtain the key to understanding mass participation as a strategy that explores that synergic potential. In this view, working with patterns and unpredictability in a mass participation context constitutes for an artist, on the one hand, an exploration of form-making protocols – based on the unpredictable behaviour of emergent patterns in the context of science informed complex systems models – and, on the other hand, a gathering of the potential which is latent in current, culturally defined patterns of mass behaviour, as well as in the unpredictability of individual action in that context, which we characterized in the last section. Mass participation is thus a strategy of

²⁵ See (Johnson N. F., 2009) for a straightforward account of complexity ubiquity across disciplines.

form making, but also, of poetic exploration. The key difference lies on the human factor that lies in its centre.

In this view, complexity is better suited to frame our proposition if it is related more to a mode of thought than to its meaning on in the realm of complex systems models. Edgar Morin's (2008) definition of complexity, and his account of how humans deal with it, help us understand the appeal of mass participation as a strategy of poetic exploration:

What is complexity? At first glance, complexity is a fabric (complexus: that which is woven together), of heterogeneous constituents that are inseparably associated: complexity poses the paradox of the one and the many. Next, complexity is in fact the fabric of events, actions, interactions, retroactions, determinations, and chance that constitute our phenomenal world. But complexity presents itself with the disturbing traits of a mess, of the inextricable, of disorder, of ambiguity, of uncertainty. [...] Hence the necessity to put phenomena in order by repressing disorder, by pushing aside the uncertain. In other words, to select the elements of order and certainty, and to eliminate ambiguity, to clarify, distinguish, and hierarchize. But such operations, necessary for intelligibility, risk leading us to blindness if they eliminate other characteristics of the complexus. And in fact, as I have argued, they have made us blind. (p. 5)

To understand, predict and control emergent phenomena is, as stated by N. F. Johnson (2009, p. 5), the Holy Grail of complexity science. Its particular ability to dwell on the intricacies of such phenomena is part of the reason why science benefits from treating a system as complex (Holland, 2014, p. 5). Models of complex systems are science's tools in that regard, and that explains why, while often cited as examples of complexity, such systems –

Holland (1998, p. 3) gave as examples ethical systems, the evolution of nations, and the spread of ideas – which most clearly require a thorough understanding of the laws that govern their development are the least likely to be found in the literature subjected to such modelling efforts. These systems have simply too many variables to be modelled from prime principles. The evolution of complex system models is a quest that starts in complexity and ends in control; but for now, at least, systems modelling must enter this quest *in media res*, and, as such, eliminate much of richness in all that that science has not yet found a way to model.

Complexity-science-informed art practices, like those which favour the use of generative a a-life systems, are reliant on one particular characteristic of complex systems: surprising complexity can be generated from simple rules. In such practices, the transition from the manageable unit to emergent behaviour, through the interaction of those units, is a tool for the simulation of life-like behaviour. The mess, the inextricable, disorder, ambiguity, and uncertainty are not there to begin with, they are sought for, and instantiated in form. That is, disorder is simulated for order to emerge. In every successive moment, from the initial definition of the system rules, and forward until a form is produced, form-making is to be found, self-encapsulated in a complex system model. The path followed by such practices starts in control, travels through complexity and comes back to control, although preferably in a different and unexpected place.

We state above that the mass participation strategy is a set of artist's choices that make the rules for the participation process, and as such, for the complex system it might generate. However, such strategy is not conceived to *create* complexity. More important to the point is the fact that mass participation is a strategy to deal with pre-existing complexity: the complexity of the mass. As such, even if it is in the nature of a science-

informed strategy, the appeal of mass participation lies in the possibilities (chaos is the realm of infinite possibility) that arise from the actual impossibility of understanding the laws and rules of mass behaviour. It is this complexity that is the source of material for poetic and formal exploration. In a way, mass participation is a strategy to handle such uncontrolled and uncontrollable material. As it relates to form-making, it is a strategy for order, but, in so far as it relates to form change during the work of art's future, it stands as a disorder generator. The artist's strategy is to create the conditions for order and disorder to interact. In his foreword to Morin's *On Complexity*, Alfonso Montuori (2008) summarized Morin's view of the complex relation between order and disorder through the concept of *organization*:

Organization without disorder leads to a sterile, homogenous system where no change and innovation is possible. Complete Disorder without Order precludes Organization. Only with the interaction of Order and Disorder, is an organization possible that remains open to change, growth, and possibilities. (Morin as cited in Montuori, 2008, p. xxxiii)

In this view, the work of art positions itself not as a complexity model which its form instantiates, but as a direct bridge to its source material. This is so, especially, because it doesn't search for order in the mass. Dealing with complexity in this manner does not entail an intent to understand, predict, or sort out the mess at its centre – operations which, to use Morin's (2008) terms, make us blind to some of its characteristics. On the contrary, it aims at making the most out of the strands of disorder. The work of art becomes a place of organization in its current and momentary form, only in so far as latent new trails of disorder come to be within its array of future possibilities. A mass participation strategy creates a different kind of path,

one that is continual and iterative, between complexity and control. It is this balance – which takes place within the work of art's extended timeline, and in which formal change results from the participation of the mass – that accounts for the poetic potential of such a strategy.

The three viewpoints on complexity in this section enable us to state that the mass of participants and its agency upon the work of art is a paramount source of complexity, one to be explored formally and poetically. It is complexity in human terms, as the mass is a collection of people. As a strategy, mass participation gathers people as the work of art material. Its appeal lies in its potential to include in the work of art the characteristics of the mass that cannot be modelled. It is a strategy that establishes a direct connection to human life, seeking its ever-changing patterns and unpredictabilities.

The next section accounts for a systematization of artists' choices and their respective poetic potential when artists incorporate mass participation in their practice. The proposed typology, and subsequent classification of case study artistic projects, is the pivot that articulates the abstract frameworks of the previous sections with the work documented in the following chapter.

1.4 Mass participation strategy

As a strategy of art making, mass participation is related to the benefits that artists sought to obtain both from complex pattern behaviours that result from the sheer number and variety of participating human's actions and from the unpredictability of each individual input. Thus, an artist becomes a present-day alchemist, using participants as the base material and aiming at something more than what could be expected from the melting pot of their individual actions. For this document, it becomes fundamental to

understand in which way artists' options influence the emergence of those patterns and unpredictability and to what extent those options can be framed as specific strategies of mass participation. It's the artists' fertile explorations of those options and benefits that make necessary a systematic study that relate them to the resulting imports to the work when opening it to the contributions of other humans. Moreover, the results of that study are organized as formal commonalities and their contributions for the definition of mass participation as a strategy.

1.4.1 Typology

The diversity in artists' uses of mass participation strategies calls for the creation of a typology that addresses this particular form of participation. This typology is built on a multivariate analysis consisting in five criteria chosen so as to identify commonalities and divergences in concrete instances of mass participation use. The typology's criteria – participant commitment, participant awareness, participation filtering, participant identification and participation end condition - reflect the key options of the artist when dealing with mass participation. For each criterion, we present and discuss a set of possible categories.

Participant commitment

The participant commitment criterion relates to the effort that an artist requires and allows from and to the participant. Participation is usually not too demanding and less so when a large number of participants is intended by the artist. The formal advantages of large number of simple contributions relate to the potential of emergent behaviours. Mitchell Whitelaw (2004) identifies the remarkable characteristics of a-life artworks to be their “complex, subtle, unpredictable behavior” (p. 207) that derives from an

emergent bottom-up approach. Mass participation draws the same emergent potential from the sheer number of individual contributions. As Artificial Artificial Life²⁶ systems, mass participation brings into the equation the complexity, subtleness and unpredictability of human action itself. Works that allow a greater personal commitment can get more of the human uniqueness and entail more formal control risks. The categories of this criterion are: **Low**, for works that allow and require small individual contributions (normally a task or action that can be done easily in seconds or just a few minutes); **Open**, when only a small and easy task is required but time consuming and complex contributions are allowed; **High**, when time consuming and complex contributions are required.

Participant awareness

Traditionally participation in art assumes an active role of the audience on the materialization of the artwork. In this mass participation study the active or passive role of those audiences, understood as social and political views of space and community in art, is not discussed. Instead we propose that the artists' choice to open up the formal definition of a work to the masses has in its core a common formal approach, either in case the participants are fully aware of their contribution to the artwork, or instead if they are not aware of their role in the work of art or even participating willingly.

²⁶ In reference to Amazon's Mechanical Turk, a crowdsourcing market place that uses Artificial Artificial Intelligence as its tagline, used by Aaron Koblin in *Ten Thousand Cents* (2008) as discussed further along.

The categories of this criterion deal with the implications of participation awareness to the common formal features created by the patterns and unpredictabilities of mass human participation. The **unaware** category refers to works that normally fit into the artistic data visualization genre. When the data relates to human behaviour, while it can be gathered from people's submissions, it is often the case that they are collected from databases that store every kind of information about what humans do. Real-time scanning of human activity also belongs in this category. When using this kind of data the artist turns the data providing individuals into a large pool of unaware participants. The **unaware of end result** category relates to works where the artist uses intentional participant contributions that are specifically intended for the work of art but does not make explicit to participants how their contributions will be ultimately used. The **aware** category is chosen when participants are willingly participating and aware of the expected results of their contributions.

Participation filtering

The categories of this criterion define how participant's contributions are integrated in the formal definition of the work of art. The degree of the agency shared by the artist to the participant is a key consideration in the opening up of possibilities of the work, in line with Bishop's (2006, p. 12) observation of greater risk and unpredictability as aesthetic benefits of participatory art. It is our understanding that mass participation as a formal strategy is normally very open to any contribution within the set of rules defined by the artist (and often even to the ones that defy those rules). The artist can reserve for herself the task of filtering the contributions (**author filtered** category), leave that task for the community, thus creating another form of participation (**community filtered**), or open the work to everything that can be produced in the participation interface (**interface**

filtered). While in the first category a more defensive stance by the author is presumed, an interface filtered participation means that everything that is possible to be done within a participation context is both acceptable and pursued.

Participant identification

Following Marshall McLuhan's (1962) indication that human characteristics are altered by the conditions of present technology, the greatest changes brought about by the appearance of the Internet are in how we deal with anonymity and the rescaling of the time-frame for our communication moments. For participation in web based art work this new Internet time allows simultaneously for more immediate contact and for a longer term contact period with the work of art, as it can be always accessible. These changes have provided some shelter for potential participants who would otherwise feel reluctant to participate. Another consequence is a wider scope for a full examination kind of participation, where the whole participation setup and its rules can be explored. An anonymous discovery process, away from prying eyes and misuse responsibility, can be the artist's silent invitation to those participants who actively take pleasure in finding the loopholes in the rules and exploiting them, adding another layer of unpredictability to the work. On the other hand, the identification of the participant can result in a more accountable participation. This should attract more diligent participants interested in getting the piece working as intended by the artist. This criterion is split in two sub-sets: **anonymous** - for works that allow anonymous contributions - and **traceable** - for those that require traceable identification.

Participation end condition

As has been pointed out before, one characteristic of the mass participation strategy is that the declaration of a final form is suspended. Long participation time-frames facilitate the gathering of a large number of participants. They aim to provide as much difference in individual contribution as possible and foster the emergence of collective patterns. This can lead artists as Douglas Davies – whose *The World's First Collaborative Sentence* (1994) is discussed below - to keep the call for participation open '*forever, or at least until a superior force or the limitations of web technology calls a halt to it*' (Davis, 2000). In this case works are classified as **endless. Time limited** participation, on the other hand, often leads to a posterior exhibition or takes place during the exhibition itself. **Number of contributions** is the category for works where the participation period ends as soon as a predetermined number of participants or of valid contributions is met.

1.4.2 Classification

The works presented for this classification have been chosen considering different aspects. It was necessary to find works that could exemplify all the categories of the typology. While focusing on more recent work, we have sought to refer to some seminal work on the field. The works presented have also been chosen for their points of contact with related artistic activity, namely in the fields of generative and a-life art, collaborative art, database art, and crowdsource art. In relation to crowdsource art, Ioana Literat's (Literat, 2012) research, with its own typology and examples, was a crucial reference for this work. We start by discussing seven works, highlighting their relevant aspects to the classification process. Afterwards we classify the works using the categories described above.

In 1994, Douglas Davies presented *The World's First Collaborative Sentence* (1994) (Figure 8). This work results from multiple individual text contributions that continue to be made through a *web* interface, each one adding to all the previous entries. These contributions vary between the most respectful to the literal interpretation of the project instructions and the most subversive interpretation of those same instructions – the most meaningful is implemented by the participation interface, that does not allow the use of a full-stop.

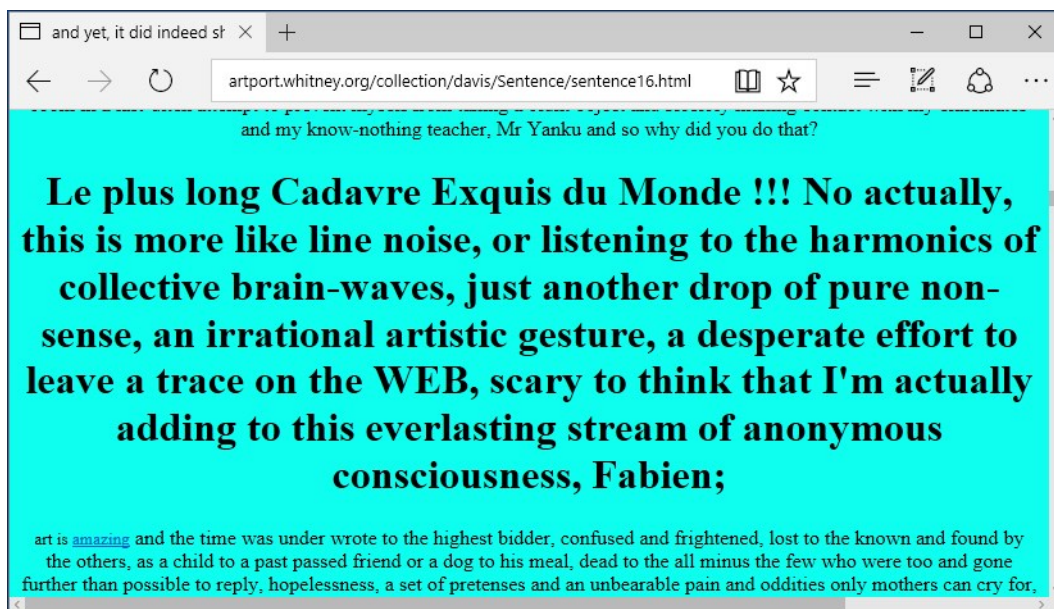


Figure 8. Douglas Davies *The World's First Collaborative Sentence* (1994). Detail from page 16. Screenshot from <http://artport.whitney.org/collection/davis/Sentence/sentence16.html>.

After the first participations of meaningful black text over a white background, participants soon started to experiment with words, colors, text size and even images by including HTML formatting in their text. With time these varying approaches originate a pulsing and continuously expanding work. Davies relinquished the formal control over the work, transferring it to a very large number of participants protected by anonymity

of the Internet and free from exhibition space and time constrains to participation. The main factors in the formal results of this work, which are relevant for our classification purposes, are the anonymous participation method and the intended endless period of participation.

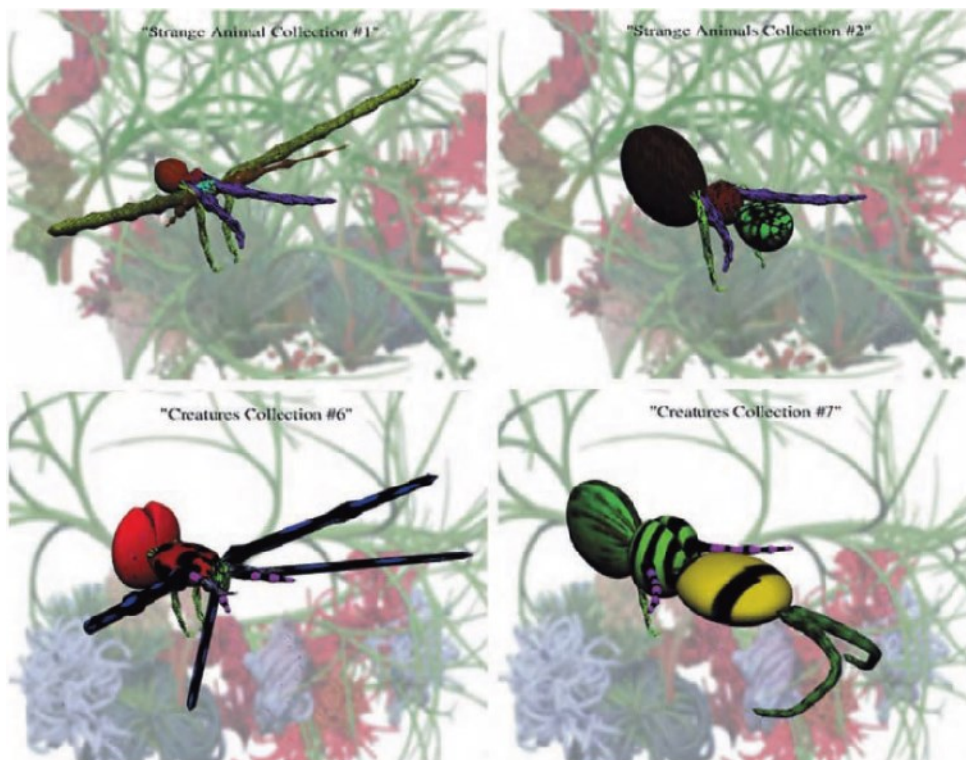


Figure 9. Christa Sommerer and Laurent Mignonneau *Life Species* (1997) screenshots (Stocker, Sommerer, & Mignonneau, 2009).

In *Life Species* (1997) (Figure 9) Christa Sommerer and Laurent Mignonneau use artificial life algorithms to develop an installation with a computer graphics 3D habitat of digital creatures. The overall development of that habitat was dependent on biological rules such as species grouping, predation, fitness, reproduction and evolution, but also of local and *virtual* public participation. The appearance and behaviour of each creature was originated by the decoding of a unique digital *genetic code*, which in its turn was the result of the transformation of a text mailed by anyone willing to

participate to the project's e-mail address. The authors state that '*one cannot really predict how the work will evolve and what kind of creatures will emerge*' (Sommerer & Mignonneau, 1998). Sommerer and Mignonneau make a direct relation between the participants and the work's *biodiversity*. By using the participants' text as some kind of genetic code they aimed to trigger an emergent behaviour out of the human-digital relation.

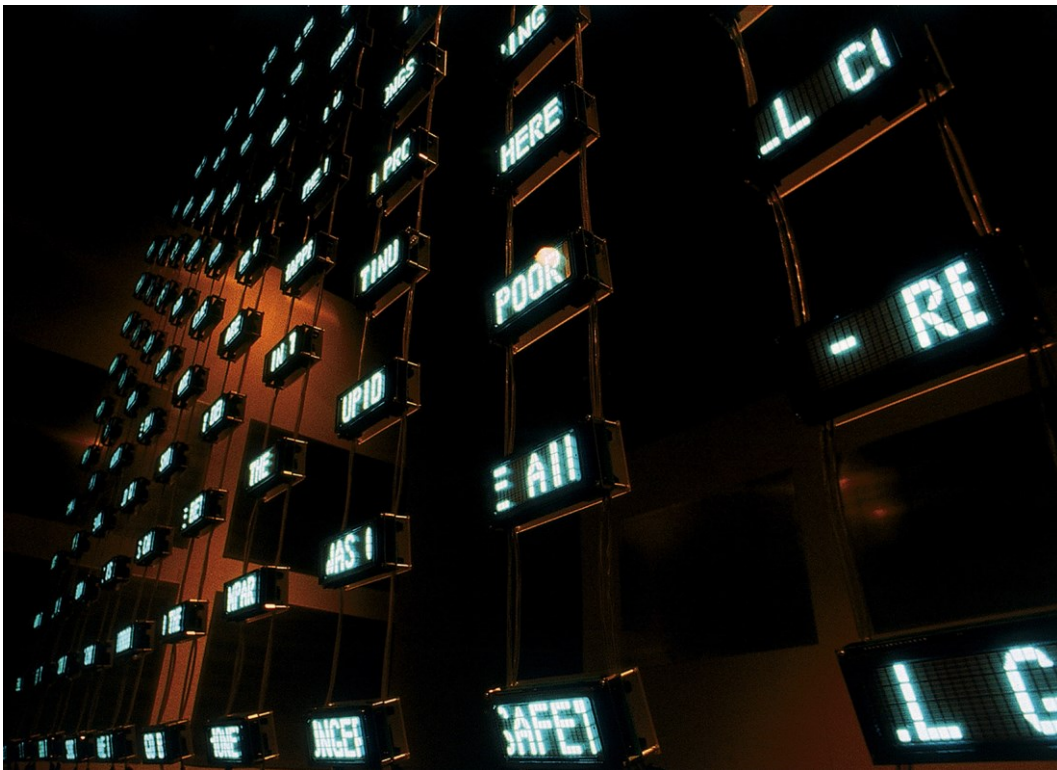


Figure 10. Mark Hansen and Ben Rubin *Listening Post* (2001) display grid (Hansen & Rubin, 2002).

With *Listening Post* (2001) Mark Hansen and Ben Rubin created an installation space that renders text messages gathered from tens of thousands of people both visually and in an audio synthesis format. Using a monitoring system of a large number of chat rooms, bulletin boards and forums, *Listening Post* brings to exhibition space a real-time feedback on what is being *said* online. For the authors, "Listening Post' is an attempt to

understand the patterns that emerge from thousands of simultaneous conversations and the dynamics that govern their shifting topics” (Hansen & Rubin, 2002). For this classification, the main aspect to be considered is the participants’ unaware status. In *Listening Post*, the eavesdropping feeling created by that unawareness is in itself a generator of surprise in each monitored sentence. This unpredictability factor adds to the works’ emergent behaviour, as referred by the authors, to form both main vectors of mass participation.

A Million Penguins (2007) was an online project by Penguin Books and De Montfort University (now offline). The main goal of the project was to answer the question “Can a community write a novel?” (Mason & Sue, 2008). The project was opened to global participation in 2007 using a Wiki platform to allow anyone to join the task of writing a collaborative novel. During the five weeks period the experiment lasted there were close to fifteen hundred participants with more than eleven thousand edits to the text. However, it was only a small number of participants that contributed to most of the edits to the text, failing to create a true community writing process; and the end result was nothing that resembled a novel. Jeremy Ettinghausen from Penguin Books stated that “as the project evolved I think I stopped thinking about it as a literary experiment and started thinking about it more as a social experiment” (Mason & Sue, 2008). This experiment on the way an online community self-organizes reflects the unpredictability of the collective behaviour that emerges from anonymous participation systems. These often attract disrupting, extraneous and provocative behaviour that in the *A Million Penguins* case transformed a novel attempt in a carnival like, barely controllable party (Mason & Sue, 2008).

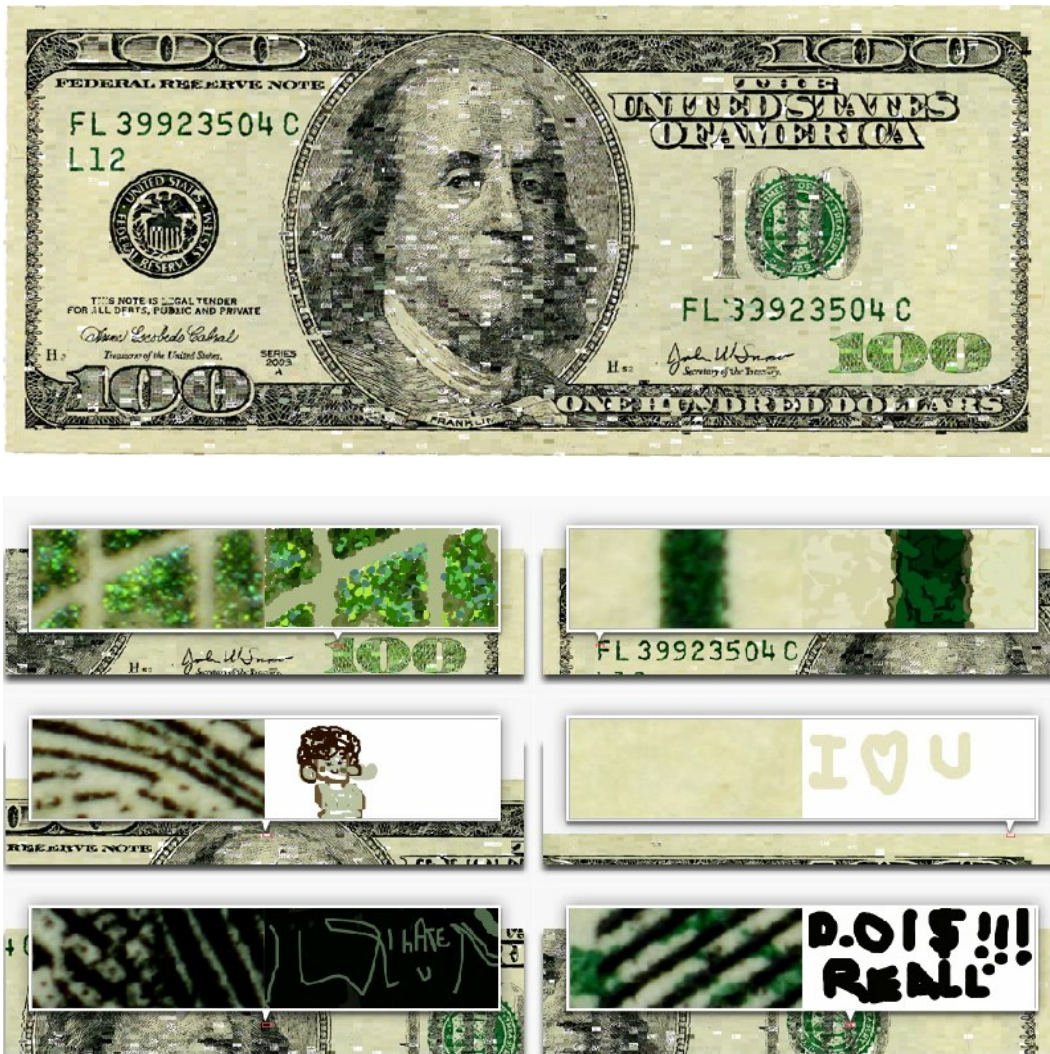


Figure 11. Aaron Koblin and Takashi Kawashima *Ten Thousand Cents* (2008). Top: full bill, Bottom: detail of six (out of ten thousand) participant responses. Screenshots from <http://www.tenthousandcents.com/top.html>.

Aaron Koblin and Takashi Kawashima's *Ten Thousand Cents* (2008) addresses the themes of distributed labour and digital economy through a process of paid mass participation. Amazon's *Mechanical Turk* was used to have a one hundred dollar bill reproduced by the drawings of ten thousand people. This Amazon service uses crowdsourced labour where a large number of people are usually available to do simple or repetitive tasks that

computers may have a hard time accomplishing or where the human factor is needed. The task proposed by Koblin and Kawashima for each worker – at the time unaware of the global project - was to duplicate a ten-thousandth part of the hundred dollar bill using an online drawing software developed for the project. A cent of a dollar was paid for each drawing adding to a total of one hundred dollars spent on external labour. The animations of the drawing process of each participant were collected on a single animation that shows the complete bill appear from a white screen background. Unlike previous and later work that explore mass participation drawing by Aaron Koblin - *The Sheep Market* (2006) and *The Single Lane Superhighway* (2011), (the latter discussed below) – in *Ten Thousand Cents* drawings were not filtered. A wide range of responses can be seen in the individual drawings. These range from the very detailed and accurate drawings to those that show the indignation for such a low payment for the task (Figure 11). Others just use the drawing to make a joke or pass a message. The formal outcome of this multiplicity of responses is nevertheless a coherent image that arises from the complexity that originates it.

In *The Johnny Cash Project* (2010) (Figure 12), Chris Milk presents a music video for Johnny Cash's *Ain't No Grave*. The particular aspect of this video is that it is continuously being redefined by participants of the project. Participants are invited to draw one frame of the video, freely interpreting a guide image for that frame. They are also invited to collectively choose the best drawing from all the alternatives for each frame. The collective drawn animation for the music video is in constant change. The classification of this work is not straightforward, as it offers the public different modes of viewing (e. g. most voted frames, director curated frames and random frames to name a few). The option was to classify it taking into account the most voted frames mode of the project as it involves the full spectrum of participation possible – drawing and voting - and is the default mode for

viewing it. In this mode the high commitment needed to make a drawing worth of top rated status, thus being part of the video, makes it the only classified in the high category for the participant commitment criterion. The interest of this classification is in the relation between high participant commitment and very few changes in the video when in top rated frames mode. Top rated drawings are not easily dethroned, obstructing the author's claim of "virtually never [to be] the same video twice" (Milk, 2010b).

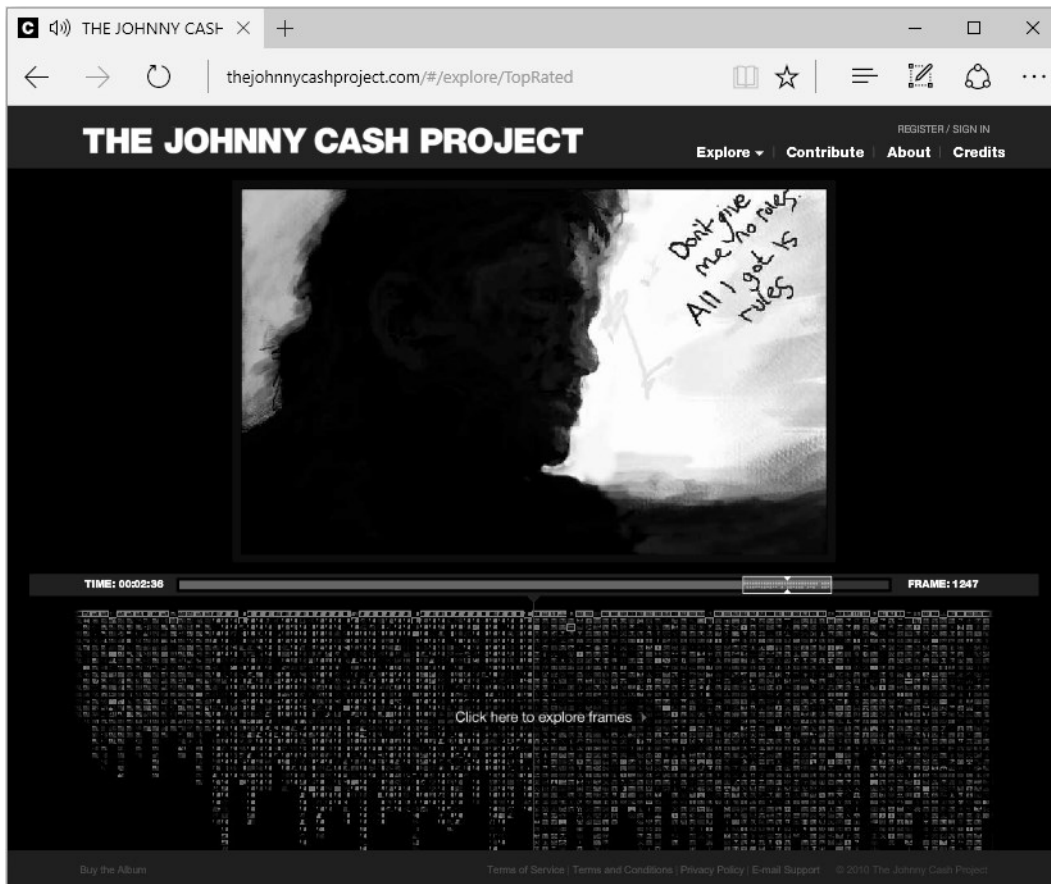


Figure 12. Chris Milk *The Johnny Cash Project* (2010a). Screenshot of highest rated drawing for frame 1247 in 2017/04/16 from <http://www.thejohnnycashproject.com/#/explore/TopRated>.

The Single Lane Superhighway (2011) is the result of a commission by Progressive – a car insurance company – to Nesnadny + Schwartz Design

Team that in turn partnered up with Aaron Koblin to create an artwork for the company's annual report. The theme of personalization, which the company wanted to be reflected in the work, was literally interpreted by Koblin. By creating a tool for drawing a car in the Web, Koblin opened the artwork for participation and invited the community to draw cars facing right. The final work consists in a website displaying the unceasing passing of fifty thousand different hand drawn cars.

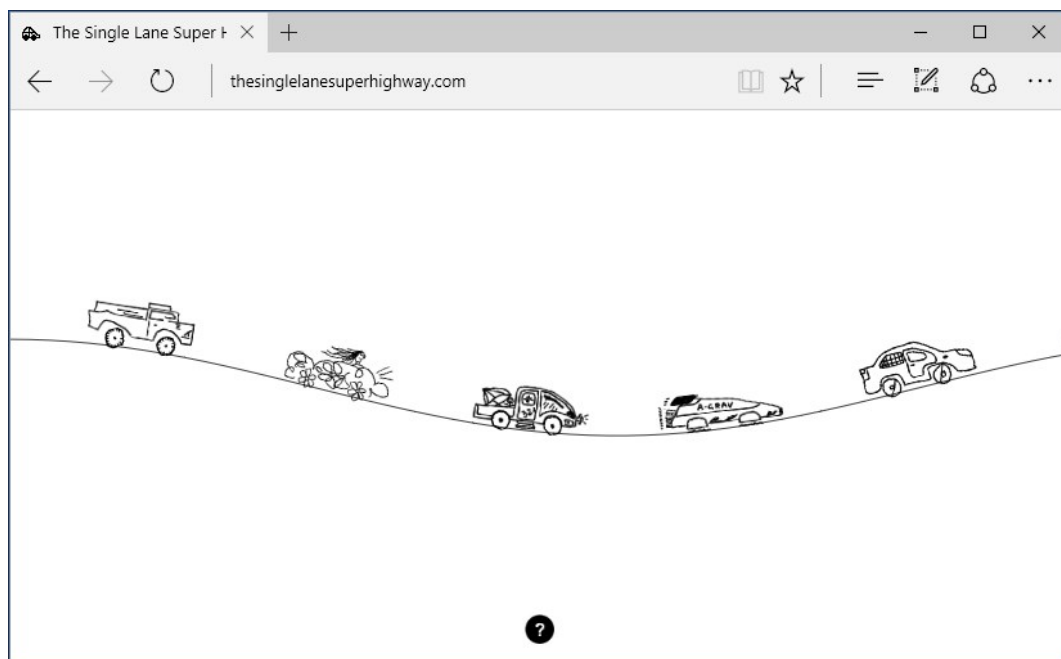


Figure 13. *The Single Lane Superhighway* (2011). Screenshot from <http://www.thesinglelanesuperhighway.com/>.

According to Nesnadny + Schwartz's (2012) own case study of *The Single Lane Superhighway*, 126,786 drawings were submitted and it took 65 days to reach the 50,000 selected drawings, adding up to an average of 81 drawing submitted every hour. These numbers echo the extensive work needed in the selection of drawings to be part of the work. This author filtered mass participation project, with an amazing 76,786 contributions left out of the final work, suggests the need for a better filtering process right

on the drawing interface. As an alternative, a community filtering approach would allow all participants to be part of the work while transferring the huge task of selection to the participants.

The projects discussed above are classified for the categories of each of the typology criteria in the following table:

Table 1. Typology of mass participation strategies

Criteria	Categories	Examples
Participant commitment	Low	<i>Listening Post, Life Species</i>
	Open	<i>The World's First Collaborative Sentence, A Million Penguins, Ten Thousand Cents, The Single Lane Superhighway</i>
	High	<i>The Johnny Cash Project</i>
Participant awareness	Unaware	<i>Listening Post</i>
	Unaware of end result	<i>Ten Thousand Cents, Life Species, The Single Lane Superhighway</i>
	Aware	<i>The World's First Collaborative Sentence, A Million Penguins, The Johnny Cash Project</i>
Participation filtering	Author filtered	<i>The Single Lane Superhighway</i>
	Community filtered	<i>A Million Penguins, The Johnny Cash Project</i>
	Interface filtered	<i>The World's First Collaborative Sentence, Listening Post, Ten Thousand Cents, Life Species</i>
Participant identification	Anonymous	<i>The World's First Collaborative Sentence, Listening Post, A Million Penguins</i>

	Traceable	<i>Ten Thousand Cents, The Single Lane Superhighway, Life Species, The Johnny Cash Project</i>
End condition	Time limited	<i>A Million Penguins, Life Species</i>
	Endless	<i>The World's First Collaborative Sentence, The Johnny Cash Project, Listening Post</i>
	Number of contributions	<i>Ten Thousand Cents, The Single Lane Superhighway</i>

The typology and classification efforts presented on this section point to a clear advantage in handling mass participation from the viewpoint of the artist's options when opening up her work to participation. This approach sets a direct and clear relation between working with *people as a material* and the common formal results of that choice. What can be seen in these projects is a propensity to exploit a broader range of individual participation possibilities (including in some cases abusive or provocative contributions) even when facing participants with very simple participation options. This tendency is made possible by a participation interface that allows the participant to be less accountable for the outcome of the artwork. The result is an increased sense of unpredictability and surprise in each individual contribution. Another common trait of these projects is the pursuit of patterns that can emerge from the actions of the masses. This leads to a tendency to explore participation techniques that allow for more and more contributions.

It is the innovative ways artists have been exploring these options that reflect, as illustrated by the examples presented, solid and on target contributions in the changing context of contemporary art. This work

systematizes artists' strategic options when using mass participation strategies and the implications of those choices for the work of art form.

2 Projects

2.1 ocidental sentimento dum o

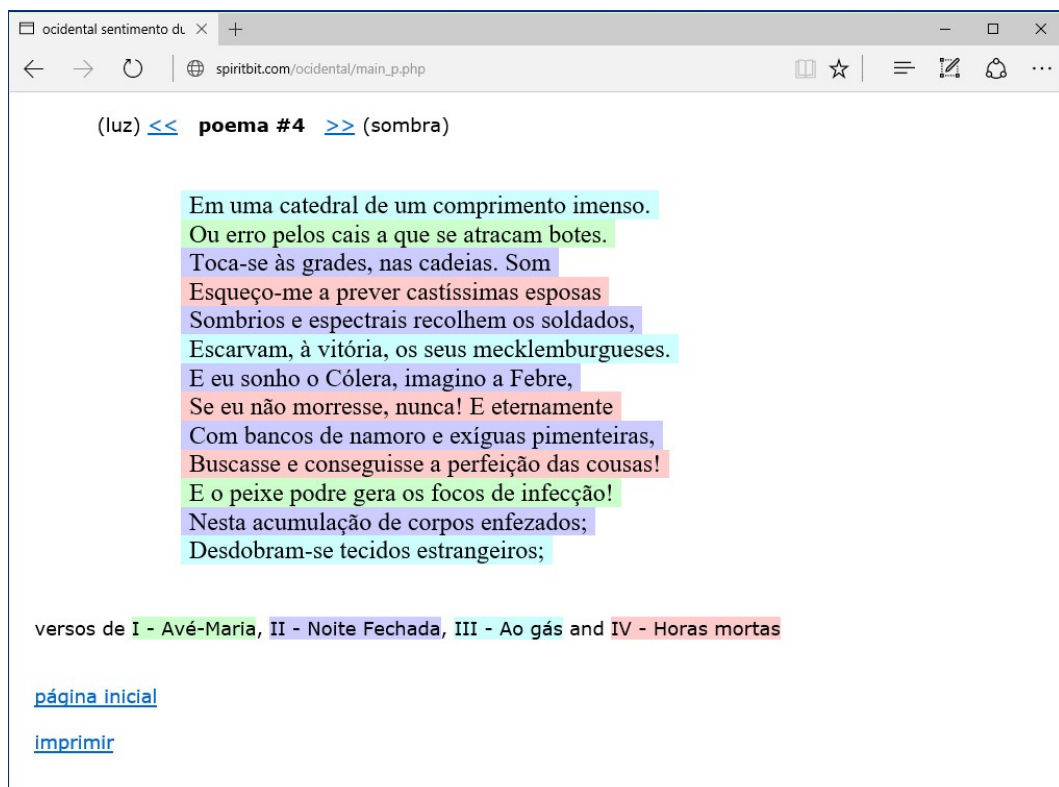


Figure 14. *ocidental sentimento dum o* (2015). Screenshot of its configuration on 7/9/2016.

*ocidental sentimento dum o*²⁷ is a project for the web inspired by experiments in combinatory writing by artistic vanguards during the early 20th century. This project uses a 1880's poem, *O Sentimento dum Ocidental*, by Cesário Verde (2001). The poem is divided in four parts (*ave-marias, noite fechada, ao gás, horas mortas*). In its initial configuration, *ocidental sentimento dum o* consisted of four different pages or "poems", ordered by number (poem #1, #2, #3, e #4) each one corresponding to the original poem's parts. Also, each line of verse works as a poetic unit corresponding to every line in the original poem. A visitor that is presented with a random page of the project, can interact with these lines by clicking a button of her mouse; each click is read by the system as an increase in popularity for the chosen line; and the system reacts by moving the chosen line to a position nearer to the top, thereby reconfiguring the poem of the current page. This new configuration is persistent and becomes the version shown to the next visitor. The lines of Cesário Verde's poem were thus shown in their original order only at the moment that came immediately before the first interaction; this order undergoes successive changes from then on.

As time passes, those lines that receive repeated attention from visitors are rewarded by promotion from the page or "poem" where they are to be found to the immediately precedent page (for instance, from poem #2 to poem #1). If the visitor chooses to promote every line of one poem, the poem eventually disappears. In the opposite direction, a line that doesn't receive any clicks eventually migrates down to the last pages, which tend accordingly to be made up of the lines that visitors have ignored. The least popular lines of the last poem can in addition originate a new poem, thereby increasing the total

²⁷ Project webpage at <http://spiritbit.com/ocidental/>

number of poems. Each click by a visitor helps thereby reorganize the order in which the lines are presented in each poem. Furthermore, those clicks will organize the distribution of lines among the poems as well. A colour code is used to identify each line origin from the original poem's four sections. The promotion/relegation of lines results in an indefinite number of lines in each poem. In the same manner, the formation/deletion of poems results in an indefinite number of poems, which were four, as mentioned, when the process started.

The sequence and the resulting number of poems are presented in the project in a symbolical scale of light and shadow. Light meaning poems with popular lines and dark meaning poems with consistently ignored lines. The poems appear at random on the page. Visitors are allowed only to choose whether they want to navigate towards lighter or darker poems. In both cases, the poem is chosen at random among what is possible at the moment (ex. if the system consists at a given moment in six poems, and a visitor is viewing the darkest, navigating towards the light side will lead randomly to one of the remaining five poems).

A visitor can print at any moment a poem they are viewing and thus keep physical possession of a duly dated version of the poem, with the lines configured according to that specific moment. Future repetition of that particular poem is unlikely for two reasons: the collective and cumulative nature of the project, which is permanently altered with each click by each visitor; and, on the other hand, the non-linear rearrangement of the poems, in reaction to the visitors' intervention, which will be presented later on in more detail.

Conceptual context

ocidental sentimento dum o brings to date *bio.dada poetry* from 2009. Both projects establish a direct link to the creative strategies of permutational poetry and Dada poetry in particular. In *ocidental sentimento dum o* that context is revisited and expanded. The poem chosen this time around and its Impressionist roots led to an exploration of the Impressionist strategies of fragmentation and juxtaposition. This exploration aimed to contribute to a better understanding of the concept of poetic image, linked to Dadaism and Surrealism.

In 1920, Tristan Tzara presents, as part of his several manifestoes related to the Dada movement, a list of instructions for the production of poetry.

Take a newspaper.

Take some scissors.

Choose from this paper an article the length you want to make your poem.

Cut out the article.

Next carefully cut out each of the words that make up this article and put them all in a bag.

Shake gently.

Next take out each cutting one after the other.

Copy conscientiously in the order in which they left the bag.

The poem will resemble you.

And there you are - an infinitely original author of charming sensibility, even though unappreciated by the vulgar herd.

(Tzara, 1977).

The provocative and playful character of Tzara's approach to using chance based procedures in Dada art reflects an aesthetic program, which involved

an exploration of the irrational. It involved as well a search for mechanisms capable of automatically scanning the whole field of possibility, most of which is beyond the scope of the artist's own internal and subjective exploration. Hopkins (2004) noted that this approach is unified in the Dada period and extended to Surrealism by means of the poetic image concept. Despite differences in the writing process in German and French Dadaist poetry, these streams will converge later on, with Surrealism, to become automatism. The formation of that poetic image, seen as the aim of such creative strategies, was founded on the juxtaposition of disconnected images and on the surprise potential inbuilt in the new composition. Hopkins remarked that "Again and again (André) Breton invoked the electrical metaphor of a spark to evoke the inspirational jolt produced as unrelated images collided" (pp. 65-66).

It is useful in this context to explore the notion of juxtaposition, which we understand here as a combination of parts not immediately associated, or associable, to one another. As a formal strategy, its origins can be traced back to permutational poetry, of which the fourth century poem XXV of the *Carmen* series by Optatianus Porfyrius is an example. But it had its most profound impact to art in the last quarter of the 19th century with the impressionist artists' interest in researching perception. The art of that period – painting at first, but then also music and literature - increasingly understood the scientific advances brought about by the study of the relation between perception and cognition (Stewart, 2003; Eisenman, 2007; Pasler, 2008). Among the implications of this evolution, three vectors or moments are especially relevant: the formal strategy of deconstruction of reality in its sensorial elements; the techniques of juxtaposition of those elements in the act of making art; and the subsequent perceptive and cognitive recombination of the parts by the public.

Concerning an Impressionist strain in the literature of that time, Stewart (2003) stated it “deals with the raw material and sensory data of life; [...] it is an art of nuances and suggestion” (p. 194). This statement refers primarily to the former of the moments mentioned above: deconstruction results in the first instance from an immediate contact between an artist and the object of his or her work. This contact involves a sensitivity which favoured immediate experience of reality over knowledge about it – a process that disconnected the object from its space-time context. The object turned into an immediate suggestion of transience, brought about by the individual perception of a unique moment. Eisenman (2007, p. 150), referring to Théodore Duret and Jules Castagnary’s work, described this individual vision as the first of two foremost traits of Impressionist painting - the second trait being directly related to a painting technique that employs discreet rather than blended brushstrokes.

The second moment, juxtaposition, deals with the materialization of the subject - stripped of all externalities, fragmented and reduced to isolated sensations - in a new art object. This process is pushed to the limit in Impressionist painting. The technique employed conveyed onto the canvas a massive amount of minute pictorial conflicts. Contrasting colours were deliberately juxtaposed in order to bring dynamic moments onto the space of the canvas. This juxtaposition of the constitutive elements of colours on the canvas transferred to the viewer the task of reconstructing the image, “animating the act of seeing” (Stewart, 2003, p. 194). Stewart (2003) defined a parallel process in literature:

While impressionist painters convey the dance of light, writers pursue the inner-most flickerings of perception. Character is no longer conceived as a solid object to be grasped and presented; it is

irradiated by the stream of consciousness, destructed, pulverized into scintilla to be reassembled by the reader. (p. 195)

The role of the public in this reconstruction process constitutes the last of the three moments mentioned above. Pasler (2008) ascribed to the Impressionists a belief that sensations (impressions), as far as any art based on them is concerned, constitute “means to new experiences of reality” (p. 83). It is not clear whether Pasler means the artist’s or the public’s experience; he probably means both. In the latter’s perspective, the process of recombination is the key factor in that new experience. In this course, the public is faced with an activation of the senses which follows immediately from their initial contact with the work. The raw state of the elements requires a subsequent, slower adaptation of the senses – as far as painting is concerned, this may even require taking a few steps back or forward in order to get the image *in focus*. The subsequent individual task of recombining the sensitive elements amounts to the construction of a meaning that emerges from that which Eisenman (2007), in his analysis of Manet’s style, called a “purposeful cultivation of visual ambiguity” by the artist (p. 156).

The last of the three moments – recombination - is explored in *Georges Seurat's afternoon at the movies* (Ferreira, 2016)²⁸, an homage to both John Hughes on *Ferris Bueller's Day Off* 30th anniversary and Georges Seurat on *Un dimanche après-midi à l'Île de la Grande Jatte* exhibition's 130th anniversary. This project resorts to shots of the museum scene from *Ferris Bueller's Day Off*, which shows the contact of Cameron, one of the

²⁸ Project webpage at <http://spiritbit.com/gsaatm>

characters in the film, with the canvas by Seurat. Hughes's beautiful rendering of this contact is subjected to a new edition, in which the shots are alternately presented in their original sequence and in inverse order in a continuous loop. The original scene's context, where the Cameron character is defined through his identification with a girl represented in the painting, is absent in *Georges Seurat's afternoon at the movies*. The project addresses in this manner the abstract and dynamic contact of the public with the work of art. It addresses the search for meaning and simultaneous loss of meaning in the perceptual swing between the resolution of the sensorial conflicts present in the detail – a primary trait of juxtaposition as a formal strategy – and, on the other hand, new reality arising from the aggregate.

In *occidental sentimento dum o*, the use of Cesário Verde's poem addresses the conceptual space of the deconstruction, juxtaposition and recombination moments. Coincidentally, Jorge Luiz Antonio (1999) examined the relation of Impressionist painting and Impressionist literature, both thematically and from the point of view of the technique, precisely with Cesário Verde's poem as a starting point. Antonio pointed out the fragmentary structure of the poem, based on quick, short sentences and its power to generate miniature images in juxtaposition. *occidental sentimento dum o* explores the poet's formal strategy to the limit, into the absurd. In it, the poetic constraints of metric, rhyme, and composition in line and stanza are further fragmented. What is in action in this project is a constant search for Breton's spark, a core element of our understanding of mass participation.

Implementation

At an early stage of the project's conception, the behaviour of lines in response to visitor's actions was inspired in the biological processes of

natural selection. The foremost analogy linking that behaviour to these models put forward each line as a part or a genetic trait of an organism. Every click by a user on a line represented their preference for that trait. In time, the more popular traits would form organisms – poems – better adapted to contact with humans. In the opposite direction, overlooked lines would become mutant monsters doomed to darkness.

The web pages that constitute *ocidental sentimento dum o* are dynamically created with each visit to the project. Each line in Cesário Verde's original poem is saved in a database. This database saves as well, for each line, the section to which it belongs in the original configuration. In addition to this information, each line is given a value representing its popularity and a number corresponding to the page in which it is to be included in the online project. These two latter values result from the visitors' actions and are modified in the database according to three rules: when a visitor clicks on a line, its popularity value increases; the popularity value decreases for all other lines present in the same page at the moment; if the popularity value of any line becomes lower or higher in respect to a constant interval, the value of the page in which it is placed is updated respectively to the previous or next page and its popularity value is also updated to an average within the pre-defined threshold.

The development phase of the algorithm described above was inspired, in turn, by content self-organization systems in online communities. These systems balance between the poles of extreme personalization and utter

standardization²⁹. As far as online communities are concerned, the study of that balance arises from a need to put in place community-driven mechanisms to filter and organize content more efficiently (Massa & Avesani, 2007). The main consequences of approaching any of these poles – loss of surprise and utter predictability – are contrary in all respects to the logic of *ocidental sentimento dum o*. The setting in place of the project's algorithms results from the view that those poles are not inherent, either to the medium or even to the notion of self-organization. On the contrary: falling in the trap of loss of surprise and predictability or setting off a behaviour in a directly opposite direction depends solely on the definition of the rules (algorithms) that govern visitor's participation. Accordingly, while individual reconfiguration of the poem is allowed in *ocidental sentimento dum o*, and the visitor is even encouraged to print the momentary state of that configuration, the rules of the project do not allow complete control to the visitor.

From the single visitor's viewpoint, the system continually generates small surprises from the way the lines are organized. The reasons for this are threefold: every change starts from the result of the previous visitors' collective actions; there is no assurance that simultaneous changes by other visitors will not take place; and the actual response of the system to the visitors' actions is neither explicit nor predictable. The way the project works may be immediate to the visitor, but it is extremely difficult to extract the actual rules that govern it in spite of their simplicity. In the presentation of the project to the visitor is implicit the notion of a collective construction.

²⁹ Opposites allegorized in Nicholas Negroponte's (1995) *Daily Me* and Alexis de Tocqueville's (2002) concept of the *tyranny of the majority*.

This construction is assumed to aim at a perfect poem, where each click shifts a line towards the light. Nevertheless, from the viewpoint of the collective action, the implementation does not reflect that notion.

The aim – at least the direct aim - is not to seek a collective creativity process in order to attain an ideal result, growing out from the behaviour of the masses. The organization of the lines is not carried out, then, resorting to average values calculated from the visitors' "votes" (i.e. a given line doesn't need to arouse the interest of a great number of visitors to be popular). It is rather the result of a persistent, sequential accumulation of visitors' actions, who are free at any instant to radically transform the text (for instance, a visitor's repeated interest in a given line may turn the least popular verse into the most popular in the course of a single session, requiring only a modicum of persistence). This choice rewards individual action, even when it is potentially disruptive of the concept presented to the visitor. It is a matter of allowing each visitor to completely alter the project text. As such, the resulting pattern in the interventions as a whole is not patent through an average or any other form of controlled processing of individual actions, but rather through the potential of every individual approach to transform the whole.

Results

The values that were defined to update the popularity of the lines lead to a state of equilibrium in the system where the number of poems tends to eleven. The poems tend, in their turn, to consist of 16 lines. Nevertheless, this state of equilibrium would be reached only if visitors in general chose a type of intervention defined by two main characteristics: a uniform distribution throughout the whole set of poems and an absence of concentration in specific lines. Observation of the project's development revealed the predictable influence of participations defined by traits

opposite to these. The total number of visits to the project (217 in 14 months) is relevant to this analysis. On the one hand, the swift mixture of lines belonging to several parts the original poem and the presence of lines from the last part in the first pages, considered in the context of the limited amount of visits, suggests that in some visits a conscious effort was made to migrate specific lines to the first pages. On the other hand, both the increasing number of lines in the first pages and the absence of lines from the first parts of the original poem in the last pages show a concentration of activity on the first pages and especially on the first. The distribution of lines per poem shown in Figure 15 shows this pattern.

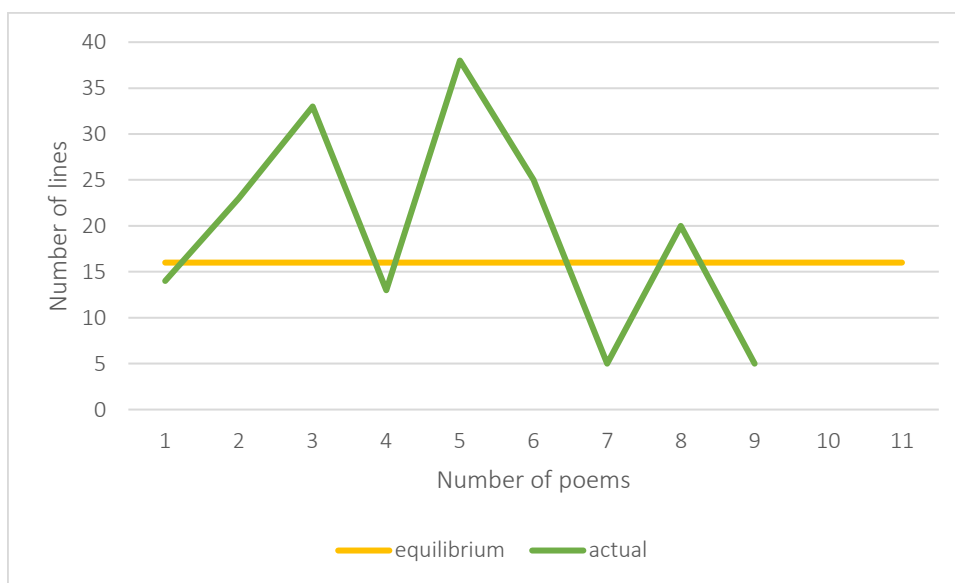


Figure 15. Number of lines per poem on 7/9/2016 versus system equilibrium.

A visitor to the project, a few months after the project had been placed online, is worth mentioning. This visitor whose behaviour deviated the farthest from what was expected invested what must have been a considerable amount of time in an attempt to reorganize the lines into the order of Cesário Verde's original poem. The manner in which the organizing algorithm functions, as well as the fact that the system tends to a state of

equilibrium that does not correspond to the original poem, make this task very difficult, if not impossible. What is noteworthy is the visitor's persistence in this task, which in retrospect seems clearly to be expected and bound to happen sooner or later, but wasn't even considered as a possibility until it had happened. Beyond this, up to this time there seems to have been no other participation aiming at anything but putting single lines forward. As the number of visitors increases, though, it is to be expected that new attempted patterns in will emerge (as for instance an attempt to invert the order of the lines of the original text or to create 176 one-line poems). The juxtapositions of meaning and the living and mutant character desired for this project will always result from the convergence of such individual choices.

Contacts with mass participation

Juxtaposition processes may be regarded, from the artist's viewpoint, as the spark that lights the uncanny. In the public, juxtaposition processes bring about an increased need to create frames of meaning to support their relation with the unexpected³⁰. In *ocidental sentimento dum o*, both processes are explored as it enables each visitor to recombine juxtaposed elements in order to create meaning individually as well as to create new juxtapositions for herself and other visitors. The project proposes to set these processes in two opposite senses. On the one hand, by centring them in the activity of the visitors to the page: *ocidental sentimento dum o* is placed online as an integral copy of Cesário Verde's poem; control over the permanent decomposition of this object, and consequent juxtaposition of

³⁰ As studied in psychology. See: (Proulx, Heine, & Vohs, 2010)

the lines, is transferred to each visitor. On the other hand, the notionally individual process of building a meaning ceases to be a purely mental process confined to a single mind and resides instead in real actions – the result of scattered actions of line reorganization by the whole of the visitors to the page. As a formal strategy, the project makes use of collective action materialized in the formation of new poems and the micro-juxtapositions of their component parts. These are present in the contact between non-related lines and are the product of the visitors' individual actions. Bringing up to date the way juxtaposition processes are understood is thus relevant to a definition of mass participation as a formal strategy. This updating makes it necessary for the process of creation of meanings through juxtaposition strategies to be taken in a wider sense. Such a widening, starting in the traditional manner from the artist's intention and the observer's mental process, will turn the participant's actions, understood both in their individual and collective dimensions, into a part of that process of creation of meanings.

2.2 net art

*net art*³¹ is a project that has been present in the web since 2010. It consists in a blank web page which shows only an information box about the project itself. The available pieces of information are the title of the project, its author, the year of its creation and data about access to the page from its creation onwards. The information box resembles the small information plaques placed next to works of art in exhibitions. It is thus placed in the bottom right corner of the page as if it referred to something in the centre.

³¹ Webpage of the project: <http://spiritbit.com/netart2010>

The space that is usually dedicated to information about techniques and materials in exhibition plaques is filled by the number of unique web interfaces that have been used for access to the project and the number of different places, grouped by city, where the project has been accessed. This behaviour will be explained in detail later on in this section. That information is persistent and cumulative and saved in a data base which is updated with each new access. The title shown in the web page is dynamically built as a fraction, related to the real-time interface count, is prepended to the project's title (*net art*). This new title denotes that only a fraction of the whole project is being viewed at any given time.

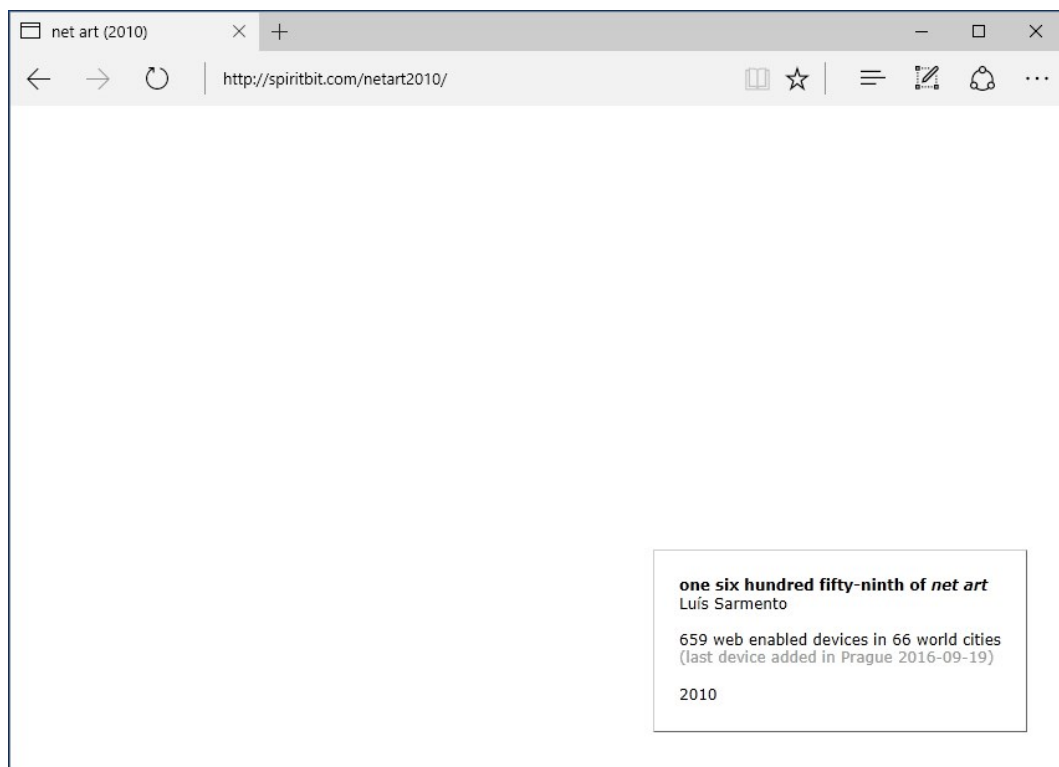


Figure 16. *net art* (2010) screenshot taken on 25/09/2016.

net art is an artistic object of conceptual formalization. Its materialization as an object consists in the total set of technological components used to access the web page. In spite of its absolutely material nature, the hardware

set needed for this access (from individual web access devices to the hardware infrastructure that makes it possible) can only be imagined. At the limit, an exhibition of this project in an art gallery context would have to consist in a space containing each and every one of the constituting devices including computers, tablets and mobile phones, routers, cables, wireless distributors, servers, communication towers, intercontinental undersea fibre optic cables and even satellites. With each new access, this set – the sum total of whatever made it possible for a large number of people to see a blank page in their browsers – has grown far beyond what would be possible to contain within the walls of an exhibition room.

Conceptual context

The question of where to place an internet art event is central to its very definition and results from a conflict situation peculiar to that practice, at least at its very beginning. Paul (2008) stated, referring to the evolution of the Internet and the web, that “art on the Internet is in many ways characterized by the tension between the philosophy of the free information space and the proximity to a commercial context” (p. 112). As a matter of fact, since the birth of the Internet itself, this tension reflects the conflict between the net conceived as a space of freedom and the net conceived as a corporate space. Amplified by massive adherence to the Web during the last decade of the 20th century, this conflict remains actual. It is thus not surprising that artists who pioneered the use of the Internet in their practice saw their art shot through with echoes of that conflict. Josephine Bosma (2003), mentioned, looking in retrospect at the phenomenon referred to as net.art, “a certain kind of political ideology, a quest for freedom and change” which, according to her, is associated to that period. Julian Stallabrass (2003, p. 10) established the link from art in the Internet and matters related to the development of the Internet itself to the spirit of vanguard in

Modernism. In this sense, it was also relevant the role of critics and theoreticians who found in internet art a resonance chamber for that conflict and were quick to predict its relevant role in the transformation of art at large. Accordingly, artists and members of the internet art community took upon themselves the task of replicating the original conflict, related as it was to the development of the Internet itself, in a series of other, more specific tensions related to art as a system. internet art became the ground where the art system was once again brought in question. Once again, anti-art was set against art, the public against the private, the ephemeral against the material, the community against the institution, the dynamic against the static and, as far as the relation between a work and the public is concerned, the direct against the mediated, among other tensions that were revisited from the tradition of the Modernist artistic movements.

Charlie Gere (Gere, *Digital Culture*, 2008) stated that “practically every trope or strategy of the post-war avant-garde has found new expression through net.art” (p. 115) and, in the same vein, Domenico Quaranta (2011) made reference, in a text originally written in 2005, to the roots of Net Art “in Dadaism, passing through Fluxus, Situationism, the Neo Avant.garde movements of the 60s and Conceptual Art” (p. 22), noting its deep potential for the transformation of the artistic landscape. It is during this seminal period and conjuncture that net art establishes its own art world with online galleries, communities and agents/authors, an art world parallel to and scarcely recognized by the institutional art world (Paul, 2008, pp. 112-113). At the close of the 20th century, this relationship between internet art and art in general was still steeped in a spirit of opposition and conflict, well depicted by Rachel Greene (2004) in *Internet Art*, notwithstanding her own recognition of the change it is undergoing in the transition to the new century. The responsibility for transformation and the opposition spirit of internet art began at that time to be understood as excessive. This

understanding reflected a disenchantment about the present transformative potential of net art and at the same time the imminent convergence of two art worlds which had until then constituted themselves as parallel (Bosma, 2003; Greene, 2004, p. 14). About a decade later, Paul (2015) referring to the evolution of Internet-centred artistic practices, explained that net art no longer even exists if we understand it as a *pure* mode of expression exclusive to the Internet context. From this perspective she pointed to the term post-internet, which seems to comprehend the changes in that evolution. A “pure” understanding of art in the Internet is, nevertheless, the context in which the project discussed in this section is placed. In this context, the relation of internet art to its conceptual roots is also paramount to any reading of the project.

There is a recognizable link between internet art and some sort of conceptual art. The evident, and sometimes superficial reason for this direct link lies in the dematerialization inherent to a practice that manifests itself in a virtual space. Navas (2012, pp. 150-155) also recognized this link, especially in the net.art period. Nevertheless, he throws light on the necessary steps of this relation in a way that is relevant to the analysis of the project discussed in this section and brings about in this manner a better understanding of the gradual fading of the spirit of opposition referred to in the previous paragraph. By restricting his understanding of conceptual art to its New York origins, Navas makes it practically irrelevant for new media practices in general. The reasons he presents for his position are threefold: the notion of materialization, to which conceptualism is a reaction, had already been explored and deconstructed in other media (photography and cinema) and is therefore common knowledge for present day public; it is commonly accepted and natural that in a digital context an art object should be materialized in different ways; the immaterial nature of these practices is a trait of the media, and the focus on the idea and not the object is always

present by default. In this sense, the relation to conceptual art cannot be understood as inherent to the medium and Navas concluded by stating “This does not mean that new media artists following the tradition of conceptualism are not critical; it just means that such practice is actually a choice” (p. 154).

The *net art* project is, accordingly, conceptual by choice in its constitution. It is also reminiscent of the development period of internet art, its “heroic period”³² when “it seemed that exhibiting net art in a physical space was an anomaly, something contradictory to the nature and background of the attitude from which net art sprung” (Bosma, 2002). It results from a production spirit that is explorative and reflective about the public quality of the web and the private object, the dematerialization of art and the art object, and the role of the public as consumer and participant in the tradition of the first net artworks.

Where is the net art object? was *net art*’s working title for the period leading up to its online debut. Greene (2004) gave a hypothetical answer to this question by means of a comparison with grand public art:

(...) like the great works of art that decorated public areas and buildings in pre-nineteenth century cultures, internet art resides in a largely open zone - cyberspace - manifesting itself on computer

³² “Heroic period” is now a common term that refers to the most mediatic artists of internet art’s early years. It has its probable origin in the *Miniatures of the heroic period* exhibition in 1999 featuring projects by Alexei Shulgin, Heath Bunting, JODI, Olia Lialina and Vuk Cosic (<http://art.teleportacia.org/exhibition/miniatures/index.html>).

desktops anywhere in the world but rarely in museum halls and white cube galleries, where the past two centuries have suggested we look for art. (p. 8)

Accordingly, in the context of the *net art* project, the relation between conventional exhibition venues and cyberspace – the main dwelling of internet art – is appears as the project's first reading. This is given by the symbolic shape of the information label contained in the page. Moreover, *net art* states the profound materiality of an inexistent art object (inexistent not because it is online, but because it is a blank page), by appropriating the devices used to access it and turning them into the substance of the work itself. From this standpoint, it is at once conceptual – in so far as it is a dematerialized work – and its opposite in so far as it claims the centrality of the object in the appropriation proposal. The public/private dichotomy is deconstructed as well by this proposal. *net art* is publicly accessible by way of the web but it is, as an object, privately owned; its property rights are distributed among the owners of the devices that access it. The consequence of this appropriation is the increased relevance given to the role of the public as a participant in the construction of the object. This relevance will be presented in finer detail at the end of this section; and it is the main point of contact with mass participation.

Implementation

net art is a HTML web page with server side PHP programing to deliver and update its database stored dynamic data. This information consists in the approximate number of devices used to visit the page, and in the number of different geographical locations (grouped by city) from which it has been acceded. Visits to the web page are filtered so only first time visits from each device are counted. The algorithm put in place to count the number of devices filters the number of visits by installing a cookie in the browser of

customer device at the moment of the first visit. This cookie marks previous visits so as to ensure that only new visits are counted and new ones from the same browser are ignored. Access locations are determined by using the IP lookup API from ipinfo.io³³ which provides the visit's geolocation given the IP. Those locations are grouped according to city and each new city is added to the database. This addition is subjected to the cookie filter as well so as to exclude the access of non-human visits to the page (ex. search engines' indexing robots). The number of cities rendered in the page is a database count of the cities list.

This filter has four major limitations in providing absolutely accurate numbers for number of visits and number of locations as listed below. The first two relate to the number of visits and the others to access locations:

1. Accesses from one device after the browser has been reset or after cookies' manual removal or from different browsers, will be counted.
2. By design, visits from browsers with disabled cookies will not be counted so as to prevent the number of visits from being overestimated.
3. The retrieval of the real IP address of the visitor is not trivial and they are more often than not masked by proxy use or by the ISP IP. There is also no assurance that ISPs share request information to the server in the same manner. The IP retrieval algorithm used on *net art*³⁴ tries to get closer to the real client machine IP but in doing this it resorts to IP information that can be easily spoofed. This choice was made in

³³ <http://ipinfo.io/developers>

³⁴ Adapted from the IP retrieval example in Chong Lip Phang's *Web Coding Bible*

order to secure more detailed location, at the risk of data being inaccurate following deliberate malicious access to the page.

4. the database of IP geolocations from ipinfo.io, despite being one of the largest and more often updated, is always incomplete. This is due to the very nature of Internet's dynamic IP system. The result is having all locations of access that cannot be retrieved being stored in the database under three different "unknown" denominations.

An external class of PHP was used to render the dynamic project's title. The title shown at the page is built dynamically taking into account the number of devices estimated by the process described above. Onwards from the second device added to the database, the project title starts with wording purporting to the fraction $1/n$, in which n refers to the number of devices. As the second device is counted, the title becomes *one half of net art*, as the third is counted *one third of net art*, and so on. The external class of PHP³⁵ permits that word based visualization of fractions.

Results

As discussed above, *net art* defines itself, conceptually at least, as a project present exclusively in the Web. It is reactive to the exhibition context mediated by the common agents of the art world. With this in view, no effort was made to submit it, either to online project aggregators, or to "physical" exhibition spaces. The page itself is practically devoid of content and has no optimization for search engines, which makes it practically impossible to

³⁵ Cornell Campbell's Fractions To Words PHP class:
<https://github.com/cornellsteven/fractions-to-words>

find. These options aim at making the *net art* visitors' experience near to that of the first visitors to artistic projects in the Web. This experience, often based on randomness and surprise, was described by Kenta Murakami (2013) as a consequence of the basic mode of access and of organizing content in the early Web. Murakami continued:

In a reversal of Duchamp's famous assertion of the power of art-signifying frames (the idea that a ready-made object can be transformed into an art object simply by referring to it as one), visitors were allowed to stumble upon net.art sites without knowing they were viewing an artwork at all. (para. 4)



Figure 17. map of the geographical distribution of the devices used to access *net art*.

Considering the option for these strategies, the number of individual devices used to access the project is surprising (659 on September 25th 2016). Surprising, as well, is the number of originating cities, which was 63 at the same date (a number rounded up to 66 for the reason already mentioned in the description of the technical implementation of the project). Figure 17 is a map of the geographical distribution of the devices used to access *net art*.

Contacts with mass participation

As mentioned before, the cumulative nature of the project, which grows with every added device, places its own public at the centre of its building process. It is paramount in that process the position taken in relation to the way the project can be seen and found. This option, already mentioned in the preceding paragraphs, was made with a view to making the contact with *net art* as similar as possible to a context of private and personal viewing. This contact will probably be made from home, on a personal computer or any other web enabled device that is owned by the visitor. Each visitor, represented by the personal device used to access the project, is used as a material constituent of the project. Participation is not solicited; it exists, without warning or possibility of refusal, by virtue and from the moment of the first visit. The construction of the object also operates in this abusive manner as each device used to access the project is appropriated and becomes part of the material constitution of *net art*. In exchange, the visitor becomes a co-proprietor of an object that can never be brought together and appreciated in its entirety.

Formally (i.e., considering the shape in which the project appears to the visitor), and from the point of view of a point of contact with mass participation strategies, the most relevant notes are twofold: the project consists in an aggregation of several objects spread over physical space; the anonymous visitors have contributed individually to that aggregation by adding their own personal device. The former note is more immediate and results from the very information contained in the page. Visitors are told they are seeing only a part of the project, which is constituted by many other parts scattered over the world. The latter note springs from the option not to seek an exhibition context and shared devices setups for the project

exhibition. A personal, disseminated relation to the project prevails in this way over one that might be circumstantial and concentrated in space.

2.3 Babel's Monkeys



Figure 18. *Babel's Monkeys* (2012).

In *Babel's Monkeys*, the biblical episode of The Tower of Babel text (Genesis 11:1-9 – King James Version) is cyclically *rewritten* in the project's screen. The work is presented on a wooden plinth with a built-in monitor on its top face. The object evokes both the shape of a pulpit or lectern and the one of a reading table with a book rack. This relates to the religious nature of The Tower of Babel's text and to the influence of Jorge Luis Borges' *The Library of Babel* (2009) to this work. The *writing* processes a continual flux of words and sentences collected, as nearly as possible in real time, from what is being written at any given moment in the public listings of the Twitter

Internet platform³⁶. At any given moment the screen shows a text equivalent to the episode in the Bible in number of words and organization in verses. However, each word of the *to be written* text is shown on the screen only when it is found in the Twitter text stream. Words not yet found are replaced by words from that stream, which are continually updated.

Figure 19 is composed of two screen captures of the project's text in different moments of the *writing* process (words from twitter in grey and words from The Tower of Babel in black). Details of this process will be detailed further in this section. The text is shown on a white background. Temporary words (from twitter) are shown in grey in the regular weight of the font employed. Fixed words (from genesis 11:1-9) are shown in black and emphasized in bold. Blue is temporarily employed at the moment a temporary word replaces another; in the next few moments, a blue word fades gradually into grey and remains of this shade until it is replaced in its turn.

As time progresses, the number of words originated in twitter decreases as the words of the text that is being *written* slowly replace them. At the instant the last word is found, the Genesis' text, in the imminence of being completed, disappears and is replaced by a new amalgam of twitter sentences that restarts the process of text construction. Consequently, the complete biblical passage is never shown. *Babel's Monkeys* reproduces the Tower of Babel narrative approximately twice a day, in an infinite cycle.

³⁶ <https://twitter.com/>

<p>cosas que sé perfectamente que</p> <p>no And the whole van was of a pasar, and of pero imagin...</p> <p>エフェクト大事だよ...うん... And it Steve to Allen as - Letter from the from that my heart a - in the ngomongnya of mati and mulu. Iya kamu</p> <p>itu And they lucu one to another, cantik to, manis us make asin and asem them pait semuanya ada had dikamu for World War A line of for Jeeps</p> <p>bonzão, n sei como tem to, gnt q build n a gosta... Tudo a mundo ama , mas uma hora cansa and Tvl us ja se a name, unudim we be k smrti Tom the face of the Brady has</p>	<p>5 And the been in down to see the the and the games which the since returning</p> <p>from And the his said, suspension. the people is one, and they have all Felt like and this the opposite to do; of now Christmas will be this from week. which they have to to do.</p> <p>wake up to, tomorrow us and see and which markets their were that sl... ممكن not understand تسوولي فولو&سيورت؟ Sometimes</p> <p>the So the most important life lessons from are the the ones of all the we and they left off to end the up</p> <p>learning the is the hard of it called way. Llega the la did there noche the y of all the solo and from me did the sale pensar en vos, en the nosotros, of all the en</p>
<p>that's how King James you</p> <p>1 And the whole know was of one they and of one real.</p> <p>Урожай And it came to собран as they - from the еды! that they found a Ты in the тоже of проверь and they свои there.</p> <p>3 And they said one to another, Go to, грядки! us make NÃO and FAZ them ASSIM And they had COMIGO for Taq and slime had : for "</p> <p>4 And et said, Go to, y'a us build us a quel and a âge : top "Bha comme moi nan and merde us make us a name, lest we be j'ai أيها يا the face of the الذين earth.</p>	<p>5 And the أخذوا أمنوا down to see the city and the حذرکم which the فانفروا built.</p> <p>6 And the ثبات said, أو the people is one, and they have all one انفروا and this they جميعا to do; and now nothing will be منكم from them, which they have – to do.</p> <p>النساء Go to, let us go down, and there Lourd their le that son de not understand one sur «iPhone extremeño» So the que en them realidad from era Xiaomi the face of all the para and they left off to ser the city.</p> <p>felices !!! is the When of it called a because the person did there is the there of all the for and from you did the through your them ups and the face of all the downs</p>

Figure 19. Two stages of the writing process. In the top screenshot only common words were found. Later, as shown in the bottom screenshot, not so common words start to appear, until only uncommon words are missing.

Conceptual context

The conceptual context of this project is central in two ways to the general thrust of the work presented in this document: on the one hand, it fed into a piece of research on artistic creative strategies based on combinatory processes; on the other hand, the formal solution of the project was influenced by the exploration of the various dichotomies parallel to the relation between order and chaos which permeate this document and are present as well in this context.

In *The Library of Babel*, a short story by Borges (2009), a library is imagined which consists of books containing all possible combinations of twenty-five symbols (a twenty-two-letter alphabet, the space, the comma and the stop) “namely, all which it is given to us to express: in all languages” (p.71). This whole comprehends everything that is possible: every historical fact and fiction; every prediction of the future, including the correct one; everything written in extinct or still to be invented languages as well as their translations. Borges alluded to the origins of a combinatorial mode of thought, which in its turn cannot be dissociated from a timeless mode of thought about the origins of all things.

Borges’ choice of Babel as the setting for a space with its limits in infinity is very probably related to the biblical episode The Tower of Babel (Genesis 11:1-9). This narrative tells of a human attempt to build a place where humans could be gathered, united and secure. This effort was of course contrary to God’s desire of having humans spreading all over the earth and seen as an act of vanity. God’s reaction to this human enterprise takes the form of attributing different languages to the people, punishing their sin and compelling their dispersion over the whole span of the Earth.

An increasing portion of our time is spent nowadays clicking on digital devices' keyboards, which continually generates a huge amount of short texts. This reminds us of the 'infinite monkey' theorem, which, in one of its many formulations, states that an immortal monkey pressing a typewriter's keys at random would eventually produce Shakespeare's complete works. The probability of achieving a significant text through a random combination of characters is so low as to be considered impossible by human standards. However, as one or more of the variables is made to approach infinity, the probability of obtaining such a text not only increases, but tends to inevitability. *Babel's Monkeys* was driven by the parallel between infinite typewriter keystrokes and contemporary massive text production that feeds into a collective human memory, built of scattered fragments, lacking an index and often left unread: a memory of Babel, stored not in a library but in Internet servers.

Borges' *The Library of Babel* is a perfect instance of the way mathematics, metaphysics, linguistics and art are interlocked in this context. As imagined and described by Borges, the library is an apt allegory for the feeling of mystery and amazement that streams from the pure exercise of imagining its materialization: all the possible books with all the possible combinations of 25 characters. William Bloch (2008) explored *The Library of Babel* from a mathematical point of view, highlighting how difficult a task it is even to imagine the scale of Borges' proposal. Bloch attempted to illustrate creatively its magnitude, in terms that would be closer to human understanding, by explaining the mathematical concepts that apply and calling for their visualization. In his critical essay on Bloch's book, Curtis Tuckey (2010) approached in depth this particular point and noted that, although the conceptual premise of a total library is quite old, from a mathematical standpoint it was not until the seventeenth century, with modern combinatorics, that the instruments needed to gauge the vast

potentialities of such a concept became available. Working out the total number of books in *The Library of Babel* becomes, then, an exercise in the combinatorics branch of mathematics. This exercise results in a total of $25^{1312000}$ books in the library (assuming we simplify the process described by Borges in that which it omits or leaves unclear)³⁷. However, comprehending this scale goes beyond a simple mathematical understanding of the exercise.

Borges' poetic approach to his Library reflects the philosophical implications arising from that hypothetical setup. In 1939's *The Total Library* Borges (1999) himself traced back *The Library of Babel's* theme to philosophical and metaphysical thought of Leucippus, a fifth century B.C. philosopher. As Mary-Jane Rubenstein (2014) noted, the ancient atomist theory, of which Leucippus is credited with being the founder (Graham, 1999), attributes the creation of order to the random collision and combination of atoms moving in a boundless void "which, given enough time and material, eventually generated the earth, sky, sea, and their inhabitants by the sheer force of accident" (Rubenstein, 2014, p. 48).

³⁷ This number does not arise from a straightforward combination of characters. In mathematics, combinations of finite numbers of elements do not take into account the order of elements in the final set. When this order matters (i.e. [a,b] is different from [b,a]), we generally speak of permutation rather than combination. Different nomenclatures could be employed as to the particular case of *The Library of Babel*: arrangements with repetition (Bronshtein, Semendyayev, Musiol, & Muehlig, 2007); n -tuples of m -sets (Berge, 1971); variations as in Bloch's book and k -permutations of n with repetition (Charalambides, 2002)

This theory can be read in the light of the concept of emergence, in which the interactions of a mass of agents acting upon an uncomplicated set of rules can eventually give rise to a complex order. The 'infinite monkey' theorem, to which Borges also makes allusion in *The Total Library*, applies precisely to this process, by which the random combination of the characters (atoms) in a typewriter's keyboard will give rise, given enough time, to a literary work (world). In *The Library of Babel*, the system imposed on the process of combining the letters of the alphabet is the element that gives rise to all that can be written, without even the need to account for a time dimension tending to the infinite. However, the emergent quality of Borges' creation comes out, at its most compelling, specifically in his description of the dynamics among the librarians, organized in various sects and beliefs. The whole ecosystem of the library emerges from human perplexity before its complexity. The limits to the human ability to understand the complex result of a simple premise are the factor that poetizes *The Library of Babel*. The conceptual leap we find in Borges, from a combination of atoms to a combination of characters, stems from the very workings of language, which Steven Pinker (2007) referred to as an instance of a "discrete combinatorial system", as in the example:

A finite number of discrete elements (in this case, words) are sampled, combined, and permuted to create larger structures (in this case, sentences) with properties that are quite distinct from those of their elements. For example, the meaning of Man bites dog is different from the meaning of any of the three words inside it, and different from the meaning of the same words combined in the reverse order. (p. 75).

This combinational character of language itself is present in Florian Cramer's (2000) description of his own project *permutationen* (1996). In

that text, Cramer ascribed to this character the difficulty of telling combinational literature from other types of literature. The project addresses the use of permutational strategies in poetry. The oldest permutational text quoted in *permutationen* is poem XXV in Optatianus Porfyrius' *Carmen series*. This fourth century poem permits several verses to be created through the permutation of the words in the original 4 lines. Cramer calculates the number of possible permutations as "1.62 billion". William Levitan (1985) refers to Optatian's conception of the atomistic nature of language but by applying more restrictive rules of metric, calculates the number of possibilities to be 1792 (pp. 249-251). Cramer resorted to this example to show that permutational strategies precede by far computer poetry and even Modernist currents where extensive use is made of them (Tzara's Dada poetry or William S. Burroughs' cut-ups).

As mentioned before, on the one hand an exploration of combinatory and permutational strategies was needful in the general context of this document in order to assess the creative potential arising from the choreography of never-ending encounters of autonomous units; on the other hand, the influence of themes related to emergence and complexity (equally present in this conceptual context and explored in *Complexity*) on the formal setup of *Babel's Monkeys* shows itself in the light of a reading of Genesis 11:1-9. This influence and its consequent formal choices will be shown next. Both the text from Genesis 11.1-9 and the *The Library of Babel's* librarians will be used at the end of this section to detail the specific points of contact of this project with the general subject of mass participation.

Implementation

Formally (i.e. as it presents itself to the public), *Babel's Monkeys* mirrors, in the first instance, the perpetual balance between chaos and order. The Tower of Babel (Genesis 11:1-9) is a parable whose moral content promotes

altruistic behaviour in the harmony with God's designs (the spreading of humankind over the whole world) as opposed to self-serving concentration (safety in numbers). *Babel's Monkeys* follows the cue of a reading of this episode that balances the need for a dynamic, unforeseeable disorder (Twitter feeds) as opposed to a stable and controlled order (the text of Genesis 11:1-9 itself). This opposition explores the paradoxical character of the Biblical text, which is fixed and doctrinal and, as such, inherently cohesive; while, on the other hand, its message seems to promote the scattering and fragmentation of Mankind. Accordingly, the screen of *Babel's Monkeys* shows at any given moment a text whose structure (number of words and division in verses) is the same as in Genesis 11:1-9 (King James Version). This text reflects the aforementioned dichotomy and paradox by opposing words from the Twitter public feed, continually changing, and words belonging to the Genesis text itself, which become fixed little by little as they are found in the Twitter feed. The implementation of the project and the main algorithm employed in order to obtain this behaviour will be presented next, in parallel with the formal choices that shaped it.

As noted at the beginning of this section, *Babel's Monkeys* is presented on a plinth whose shape refers equally to a pulpit (sacred character of Genesis 11:1-9) and to a reading desk (remitting to the influence of *The Library of Babel*). In its original configuration, *Babel's Monkeys* employs a computer in the plinth and a built-in monitor facing the top. Constraints in the latest setting where it was exhibited brought about an update to the original configuration. As such, to enable the use of a tablet instead of the computer/monitor set, the program of *Babel's Monkeys* was ported to

Processing³⁸ and exported as an android application, from its original code written in ActionScript.

Babel's Monkeys program gets its input from twitter sentences that may be written in any language. It proceeds to replace, one by one and continually, the displayed words of the text with the ones in newly collected twitter sentences. Whenever a word appears in this universe that is also contained in the Genesis 11:1-9's text, three things happen: that word takes the place of the provisional one in the order it appears in the original text; the word is highlighted; it becomes unchangeable on subsequent iterations of the algorithm. The "unfound" words remain in constant mutation.

In detail, the basic algorithm of the project works this way: new sentences from the twitter public feed³⁹ are added in real time to a limited buffer of temporary words; with every iteration (about 60 iterations a second), a word from the text that is being shown at the moment is tested; if the word placed in the same position in Genesis 11:1-9 is found in the buffer of temporary words, it is removed from the buffer, replaces the word being tested and is not tested again in subsequent iterations (i.e. is not replaced again); if the word is not found, the first word in the buffer is removed from it to replace the word that has been tested ; each word in the text is tested in sequence (if it hasn't been tested before) in the following iterations; after the last word from the text is tested, the process goes on starting again from the first word. The visible result of this process is this: any word appearing on the screen

³⁸ <https://processing.org/>

³⁹ using Yusuke Yamamoto's *Twitter4j* Java library
(<https://github.com/yusuke/twitter4j>)

which isn't yet the one from Genesis 11:1-9 is changed sequentially and one at a time. As time progresses, and more words from Genesis 11:1-9 are fixed on the screen, fewer and fewer words are left to be tested. In the moment the last word needed to complete the Biblical text is found, the restriction that prevented these words from being tested is lifted and all words can once again be replaced by words from the twitter buffer. The process of finding words in common between the buffer and Genesis 11:1-9 is restarted.

To sum up: to illustrate the opposition between Order and Chaos in general, and in particular the paradox contained in Genesis 11:1-9, the paramount formal choices guiding this implementation have been threefold: juxtaposing the Biblical text itself to a fragmented text source, heterogeneous in language and subject; causing changes in the former to be very slow (by making its meaning contingent on completion) and changes in the latter to be disorderly and subject to rapid and constant mutation (with new meanings created by each fragmentary reading); not allowing the Biblical text to stand complete by cyclically destroying it at the exact moment of completion (which works, moreover, as a metaphor of the divine reaction to the construction process in Genesis 11:1-9).

Results

Babel's Monkeys has been presented in two distinct venues. At xCoAx 2014⁴⁰, it was shown in poster format and in exhibition context. It was presented from the 25th to the 28th of June 2014 at the AXA Building in

⁴⁰ Second International Conference on Computation, Communication, Aesthetics and X

Oporto. More recently the project was part of the *No Legacy || Literatura Electrónica* exhibition from March 11 to September 2, 2016 at Bernice Layne Brown Gallery, Doe Library, UC Berkeley and from February 23 to May 5, 2017 at the California College of the Arts' Simpson Library in San Francisco.

The spirit of xCoAx showed itself in the unconventional programme of the conference, which included, beside the traditional presentation of articles, an exhibition, a number of audio-visual performances and a algorave, where live coding performances met dance party. The heterogeneity of the xCoAx proposals was reflected as well in the specific context of the exhibition. Artworks, prototypes, tools and procedures were presented in a relational dynamic setting between authors and the public. In the conference proceedings (Carvalhais & Verdicchio, 2014) the event was stated to be “aimed to explore computation, communication and aesthetics but also, and perhaps chiefly, the X – standing for the unknown, the impossibility, but also intersection and convergence” (p. 13). Submission of *Babel's Monkeys* answered this notion of ‘X’ referred to in the conference call for works, as the project appeared to embody ‘X’ in so far as a parallel can be established between this notion and the project’s own conceptual dichotomies.

Olga Goriunova (2014) stated that “[d]igital cultural production oscillates between singular instances and massive scale occurrences, the individual and the collective, unique and generic, where such tensions are constitutive, as paradoxes, of modes of production and operation of subjectivity today” (p. 213)⁴¹. This idea, stemming from the very first line of the conference

⁴¹ Goriunova keynote’s subjects are further explored in her book chapter with the same title, previously referred to when contextualizing mass participation.

keynote address' abstract, added to the framing of the conference within digital culture. It turned out to substantiate the match between *Babel's Monkeys* and its exhibition context but also proved valuable to the discussion of mass participation in general as discussed in 1.3.3 and 1.3.4.

In the *No Legacy || Literatura Electrónica* exhibition *Babel's Monkeys* found its ideal setting. The exhibition, curated by Alex Saum--Pascual and Élika Ortega, was on display on two libraries where works of electronic literature were put into dialogue with print works of the 20th century avant-garde and contemporary post-digital experimentalism. The digital collection of the exhibition was organized into four different sections: Page-Screen-Page, The endless labyrinth; The folds of time; Letter-image-movement-sound. *Babel's Monkeys* is included on the second of those sections along with Stuart Moulthrop's *Victory Garden* (1992), David Hirmes' *The Aleph: Infinite Wonder / Infinite Pity* (2013) and Jim Andrew's *Globebop* (2015). In the description for that section of the exhibition its relation with the infinite and with the movement towards endlessness was highlighted and it was stated that "[t]hrough [those] works, we grapple with the poetics of the infinite, its fascinating rhetorical mechanisms, the hypothetical worlds it suggests, and its technical and human impossibility" (Saum-Pascual & Ortega, 2016). It's worthwhile to mention that the exhibition curators related those works with the writing of Borges, albeit, in the case of *Babel's Monkeys* not with *The Library of Babel* but with the endless flowing stream of pages from *The Book of Sand*.

Contacts with mass participation

The perspectives from which *Babel's Monkeys* is analysed and described in this section are threefold: a conceptual context, a formal definition and its exhibition context. Any one of these approaches places the project in the eye of a hurricane of tensions and dichotomies referring to the notions of

pattern and unpredictability. From the viewpoint of mass participation strategies, *Babel's Monkeys* explores specifically the poetic potential of employing text produced in real time by a massive number of twitter users. This potential is derived from the specific traits of the textual stratum being mined – as this stratum consists in short sentences, taken out of context and in several idioms, everlastingly steeped in the unpredictability of the present instant and, as such, deeply human.

The Library of Babel aptly illustrates the human need to find meaning in the nonsensical. Although the notion of a systematic combination of characters, along with the notion that all that can be written (past, present and future and all their alternatives) will arise from the result of such a combination, are entrancing and overwhelming in themselves, the dynamics of human interaction played by Borges' librarians is the factor that poetizes the whole process. As a formal strategy, mass participation calls upon the public to dwell in the librarian's stead in the realm of the artwork; yet it goes further and uses human action in the writing process itself, endowing the work with poetic meaning. This option distances itself in this manner both from pure systematic combinatory processes (like the one depicted as the origin of the books in *The Library of Babel*) and from chance based combinatory processes (as in the infinite monkey theorem). The former are predictable (ex. an algorithm can be devised to write any book from the whole library given its assumed position); the latter are gibberish in nature even if some arbitrary sort of meaning can be extracted from random fragments; the use of human action replaces both predictability and randomness with precisely the kind of unpredictability that is pregnant with meaning in human terms.

The paradox rooted in Genesis 11:1-9 stands for this approach. God's reaction to the coming together of all humans, united in a single language,

was to undo the possibility of this union by bestowing new and disparate tongues upon them. This process of evolution through difference, so clear, for instance, when we consider the realms of biology and genetics, could not have stemmed from an impossibility of making sense from different languages, but, on the contrary, from the potential creation of new meanings from their hits and misses in relation to one another; and this within a unified system of human speech. *Babel's Monkeys* are human; and they build Babel using their own human hands.

2.4 I feel sea

i feel sea is a project framed by the boundaries of dynamic data visualization and, in more general terms, by database art practices. This project consists in a digital image in permanent reconfiguration, shown as a picture in motion. It was conceived as an alternative visualization of the data from *We Feel Fine* (2006) by Jonathan Harris and Sep Kamvar that was inspired by Salman Rushdie's *Haroun and the Sea of Stories* (1993). The colour of each pixel in the image represents a feeling shared in the web. Those feelings are collected by processing sentences from the Twitter public stream that include the phrases "i feel" or "i'm feeling"⁴². Every newly collected feeling is included in the image in real time, replacing the colour of a pixel by the colour that corresponds to that feeling. At any given moment, the colours that make up the image reflect the world's state of mind (or rather the state

⁴² In an earlier version of the project, data was collected directly from the database of *We Feel Fine*. This database ceased to be updated in 2013, which led to the creation of our own data collection process. This was based on the methodology applied by Harris and Kamvar, adapted to the use of Twitter feeds.

of mind of Twitter users who share their feelings publicly and in English through this platform).



Figure 20. *i feel sea* (2012) screenshot.

The colours are distributed through a constant self-organizing process, by which the colour value of each individual pixel changes in response to the colours of its neighbouring pixels. This brings about a slow, fluid colour clustering movement in the image. The interaction of the colours in *i feel sea*, visually akin to the slow, soothing motions of a lava lamp, work out as an interpretation of Rushdie's ocean. Both the process of collecting feelings and the parallel process of organizing the image chromatically will be detailed further on in this section.

Conceptual context

Salman Rushdie's *Haroun and the Sea of Stories* was the starting inspiration of *i feel sea*. In this children's book, Rushdie imagines an ocean

that is the largest library in the Universe, whose currents stand for all the stories ever told and those that are in the process of being invented:

Haroun looked into the water and saw that it was made up of a thousand thousand thousand and one different currents, each one a different color, weaving in and out of one another like a liquid tapestry of breathtaking complexity; and [the Water Genie] explained that these were the Streams of Story, that each colored strand represented and contained a single tale. Different parts of the Ocean contained different sorts of stories, and as all the stories that had ever been told and many that were still in the process of being invented could be found here, the Ocean of the Streams of Story was in fact the biggest library in the universe. And because the stories were held here in fluid form, they retained the ability to change, to become new versions of themselves, to join up with other stories and so become yet other stories; so that unlike a library of books, the Ocean of the Streams of Story was much more than a storeroom of yarns. It was not dead but alive. (Rushdie, 1993, p. 72)

The influence of *the sea of stories* on this project was, in the first instance, formal. However, as with the influence of Jorge Luis Borges' *The Library of Babel* on *Babel's Monkeys*⁴³, Rushdie's vision is distinctive in that it has enabled and guided our reflection on artistic practices in the field of data visualization.

⁴³ The reading *The Library of Babel* and *Haroun and the Sea of Stories* was simultaneous as we followed their thematic contact points.

Grahame Weinbren (2007) analysed the database concept in the context of cinematographic narrative, employing, as it happened, *Haroun and the Sea of Stories* as a setting. Simply put, Rushdie's ocean/library seems to point, in Weinbren's text, at a database model; its currents/stories at the data; and the interactions among the currents that create new stories at arrangement processes leading to narratives. The way leading from the database to the data arrangement process will guide this contextualization of *i feel sea*.

Accordingly, the main vectors of contextualization of *i feel sea* are twofold: on the one hand, from a more general point of view, the project is contextualized, in the culture and timeline of artistic practices, by a change in the technological paradigm that sets information as a core element of our time. This shift is referred to in *Proposition* and in *Mass*. On the other hand, in the more specific context of artistic formal strategies related to the use of information, the main driving force of this project and its influence on the study of those strategies will be dealt with as this section progresses. These two vectors guide the study of several contemporary artistic practices as they relate to information as form and substance of artistic exploration; and, as such, play a very relevant role in the context of this body of work.

Lev Manovich (2001a) made use of the term *informationalism*⁴⁴ in an art context to denote the contrast between form and information – a shift from Modernism to Informationalism, from the fixed object to a dynamic one. The main question he raises in this passage is how to determine the “ways to translate information into form which are intrinsic rather than alien to this information” (p. 3). Every new direction in contemporary art finds a

⁴⁴ Attributable to Manuel Castells, as referred to in *Proposition*

parallel in the vanguards of Modernism. It is therefore not surprising that Manovich himself, reflecting about that shift in his Info-Aesthetics manifesto (2001b), called for an approach to the information society analogous to the reaction by the Modernist artists of the early 20th Century to the industrial society – keeping in mind that “information can be translated into form, but this form itself is quite different from the old forms of [modern] art” (2001a, p. 5). This proposal mirrors the magnitude of this paradigm shift from the final decades of the 20th century onwards. And a new answer is given to each question dissected in Modernism – concept, process, matter or object - in the light of information as a core element.

It was of interest, starting from this context, to trace the path by which information translates into form, exploring the formal strategies employed in artistic practices that literally operate this translation. In contrast to the complex array of implications for artistic practice comprised in Manovich’s appeal, Fernanda B. Viégas e Martin Wattenberg (2007), pointed out two factors which they deem relevant to an artist’s interest in working with information: on the one hand, the increasing ease in manipulating and recombining data in digital format; on the other hand, the increase in the availability and social relevance of stored data (p. 184). However, what is important for artistic purposes is that those two factors create a new horizon for formal and poetic potentialities.

The complexity of expressive solutions that can be released by formal strategies in the field of dynamic data visualization, and the purpose of exploring a process of data poetization were central factors in the development of *i feel sea*. Although they arguably over-simplify artists’ motivations, the factors presented by Viégas e Wattenberg (2007) do point out two main concepts pertaining to the use of information as formal matter: relational potential and scale. Paul (2008) referred to the relation

between these two concepts stating, on the one hand, that massive storage of data as discrete units, while at present essential to the organization of culture and memory, is in itself a “fairly dull affair”; but, on the other hand, that the inter-data relational potential that arises from that scale, and from the ease with which data from different sources can be manipulated, lies at the core of digital art (p. 178).

Warren Sack (2011) mentioned these poles – in the context of techniques for extracting meaning and clarity from data – as primarily related to the question of how to visualize information. This position recalls the origins of information visualisation as an area of research and development in science and engineering. Sack proceeds to question, not the *how*, but the *why* of it – a question which he regards as fundamental for the understanding of projects for the visualization of information undertaken as artistic research. He emphasizes in this way the possibility of formulating an aesthetics of information visualization. Twelve years before, and in a more intuitive fashion, Victoria Vesna (1999) alluded to the creation of a new aesthetics as the overriding concern of artists active in the Internet (as a venue for information overload). In her view, this aesthetics would involve “not only a visual representation, but invisible aspects of organisation, retrieval, and navigation as well” (para. 58).

This shift from the technological and cultural towards the aesthetic – or, to use Manovich’s terms (closer to the context of this dissertation) from information translation into form – has influenced our task of defining mass participation, particularly in what concerns the notions of scale and complexity. This task is inseparable both from artistic work resorting to information and from mass participations strategies.

In the context of *i feel sea*, the part related to form in the pair information/form is explored in the light of the data arrangement processes

employed in the project, following Vesna and Sack's emphasis on questions relative to data organization and processing. These questions are of paramount relevance in a dynamic data visualization discourse. The concept of arrangement is here explored, as we will see, in its close relation to the concept of narrative.

Referring to the distinction between artistic models based on the narrativistic tradition of the 20th century and those in which databases play a central role, Manovich (1999) stated:

Many new media objects do not tell stories; they don't have beginning or end; in fact, they don't have any development, thematically, formally or otherwise which would organize their elements into a sequence. Instead, they are collections of individual items, where every item has the same significance as any other (p. 80).

Manovich (1999) made this statement keeping in mind both the active role played by the users of those objects, who explore them to create their own organization of contents, and the evolutive nature of the contents themselves as individual items that add up, and are removed or updated into a dynamic collection – (the database). Manovich concluded that a narrative cannot be maintained in such a context that its constitutive elements are changing continually (p. 82). The database is thus unordered in such a way that any casuistic sequence is made to depend on the interface created to collect and present the data. Manovich's point is that there is no reason to assume such a sequence will generate any type of narrative and “there is nothing in the logic of the medium itself which would foster its generation” (pp. 87-88). In his terms (in 1999), the expression “narrative” was used to denote any type of data sequence for the sole reason that no language had been developed to deal with those “[new media] strange new objects” (p.

87). Accordingly, database and narrative should be polar opposites reflecting two distinctive models for a cultural mediation with the world.

Weinbren (2007) criticized Manovich's binary opposition between database and narrative on the grounds that they belong to different categories. In Weinbren's view, the unordered character of the database is not relevant to this process because in itself it cannot have meaning. This is supported by the fact that our relation to the database must always be mediated by a process of visualization, navigation or search which confers order upon it – "even if it is formless, vague, or chaotic" (p. 64). Weinbren calls this process arrangement, or the factor that gives meaning to data. The narrative, which, as both authors agree, obeys specific rules of composition, does not appear, according to Weinbren, as bankrupt in the context of the new media on the contrary, the advent of the latter brings the opportunity to rethink the narrative instead of shutting it out (p. 63). The reason for this is the fact that the narrative is more complex than the database and, on the other hand, the fact that the richer a database is, the larger the number of independent narrative lines it can contain; it can, accordingly, potentiate the creation of new narratives (p. 64).

The arguments of both authors resonate in Paul's (2008) notion of dull database and underline the importance of retrieval, organisation and presentation processes in data based artistic practices. However, in both of them can be found clues for a bringing up to date of their respective views of the database. On the one hand, Weinbren's (2007) questioning of the possibility that a database can have a meaning amounts to an answer to Manovich's (1999, p. 81) idea that it presents a model of what a world is like. On the other hand, the lack of order that is, according to Manovich, a fundamental trait of the database seems to be surmounted, in Weinbren's view, by the notion that the items belonging to the database are themselves,

as discrete elements, necessarily ordered by our relation to it; and besides they can contain their own internal order. These oppositions will be revisited at the end of this section in order to make clear, on the one hand, the relation of *i feel sea* with the data it uses and, on the other hand, the means by which this relation leads to our idea of mass participation. We will next focus on the specific process of data arrangement as a formal strategy in *i feel sea*.

Implementation

The area of data visualization is commonly associated to the retrieval of meaning and clarity from the data employed. Harris and Kamvar's project *We Feel Fine* can be understood in this frame. Its authors define it as "an emotional search engine and web-based artwork whose mission is to collect the world's emotions to help people better understand themselves and others" (Kamvar & Harris, 2011). The conception of *i feel sea* as a visualization alternative to *We Feel Fine* does not share this mission statement. Actually, *i feel sea* has no mission and does not aspire to be a visualization in the sense that it might present information derived from the exploration of its data. We do not mean by this that the idea that we are dealing with a real time snapshot of the state of emotions in the world is not implied at a first reading of the project; we mean only that this is not our aim as far as the formalization of the project is concerned. As a further alternative, the data of *i feel sea* (which until 2013 were the same as those of *We Feel Fine*) are used as a part of a formal strategy that privileges in particular the patterns that result from human behaviour in so far as they are qualitatively different from any other material of artistic exploration. Thus, and despite the fact that the visual relationship between *i feel sea* and the data employed is patent (the colours we use, as well as the title itself, invoke Harris and Kamvar's project), the data are used chiefly as an object

of formal exploration. Thus, the arrangement process of the data brings primarily into play its inspiration in Rushdie's ocean.

The implementation of the project referred to in this section calls upon that notion of an ocean where currents in continual flow meet and interact. With a view to a visual behaviour that might appeal to that notion, we explored several strategies of chromatic organization based in algorithmic self-organization processes. In *i feel sea*, there were two main sources of inspiration for the exploration of algorithms leading to the project's formal result: cellular automata mathematical systems and self-organizing maps in the context of artificial neural network implementations. Although we did not seek to develop specifically any of those implementations to deal with the data of the projects and generate their visual representation, the development of the algorithms of *i feel sea* is influenced by some of its characteristics.

Cellular automata are defined by Stephen Wolfram (1984) as "examples of mathematical systems which may [...] exhibit 'self-organizing' behaviour. Even starting from complete disorder, their irreversible evolution can spontaneously generate ordered structure" (p. 15). Wolfram proceeded to describe "a one dimensional cellular automaton [as consisting] of a line of sites, with each site taking on a finite set of possible values, updated in discrete time steps according to a deterministic rule involving a local neighbourhood of sites around it" (p. 16). For two dimensional cellular automata the line is replaced by a lattice with the same characteristics, as

in the popular John Conway's *Game of Life*⁴⁵. In *i feel sea*, the lattice is a toroidal arrangement of sites represented as pixels in a screen, making its resolution irrelevant. The value of each site (pixel) is the set of RGB values that define its colour. The use of colour values represented by a three-dimensional vector for a two-dimensional organization led to the study of algorithms in the area of self-organizing maps. The self-organizing map (SOM) is the most common algorithm for the creation of topographic maps of high-dimensional data. These data are organized so as to obtain a meaningful coordinate system for multiple input features in a two-dimensional representation (Van Hulle, 2002, p. 586; Haykin, 2009, p. 454). In *i feel sea*, the rules for pixel colour arrangement are based on the three processes essential to the formation of SOM – competition, cooperation and adaptation. The rules implemented by the algorithms of *i feel sea* are based on comparisons of colour that result from the technique associated to the first of those processes: competition. The Euclidian distance between the colour vectors of neighbouring pixels is used for the change in value (colour) of each pixel.

As mentioned above, we did not seek to implement an SOM, whose result is a static image, or a classic cellular automaton in order to organize the colours of *i feel sea*. That organization derives instead from a set of algorithms that work as several asynchronous cellular automata running in tandem. Our reference to SOM and cellular automata is thus only inspirational, in so far as alterations in pixel colours are determined by the colours in their neighbourhoods. In the whole, the applied algorithms

⁴⁵ See Martin Gardner (1970) for a contemporary description of Conway's *Game of Life*

originate, starting from an initial state where there is no chromatic organization of the system's input data, an organization that follows chromatic zones in continual transmutation.

The colours of *i feel sea* are associated to emotions harvested from the public twitter feed. The list of emotions sought in twitter sentences including the phrases “i feel” or “i'm feeling”, as well as the colours matching these emotions, are defined according to the original table employed in *I Feel Fine*⁴⁶. At the moment the program of *i feel sea* is initialized, the colours from this table are distributed at random on the screen. Starting from that instant, the colours of the pixels in the image are replaced by colours that match the emotions found in real time in the text from Twitter. As time progresses, the colours in the image start to crudely convey the emotions that were found the latest.

The algorithms for the introduction of colours follow loosely the behaviour of an SOM, mimicking the competitive, cooperative and adaptive processes in a neighbourhood of excited neurons. For each new colour to be introduced, several pixels from the image are picked at random to enter a competition where this colour is the prize. The neighbouring pixels of each competitor cooperate with their central pixel by a process that compares the difference between the new colour and that of each pixel in each neighbourhood. The winning pixel (i.e. the one that gets hold of the new

⁴⁶ The authors of the project assigned specific colours to the most common feelings among thousands identified, attempting to establish a connection between a feeling and the colour chosen to represent it (Kamvar & Harris, 2011). In *i feel sea, We Feel Fine*'s list of 2178 feelings is maintained, but the original palette of 108 colours was extended to 2178, one colour for each feeling.

colour) is the one where the aggregate colours of the neighbouring pixels present the least difference from the new colour. The neighbourhood of the winner pixel becomes fitter, in this manner, to get hold of a similar colour in the future. There are two algorithms that follow this process, albeit with different implementations, running in tandem. The working of these rules results in the slow formation of chromatic areas that evolve to accept only similar colours near themselves as they grow in size and become fixed in space. Figure 21 presents the results of each algorithm individually.

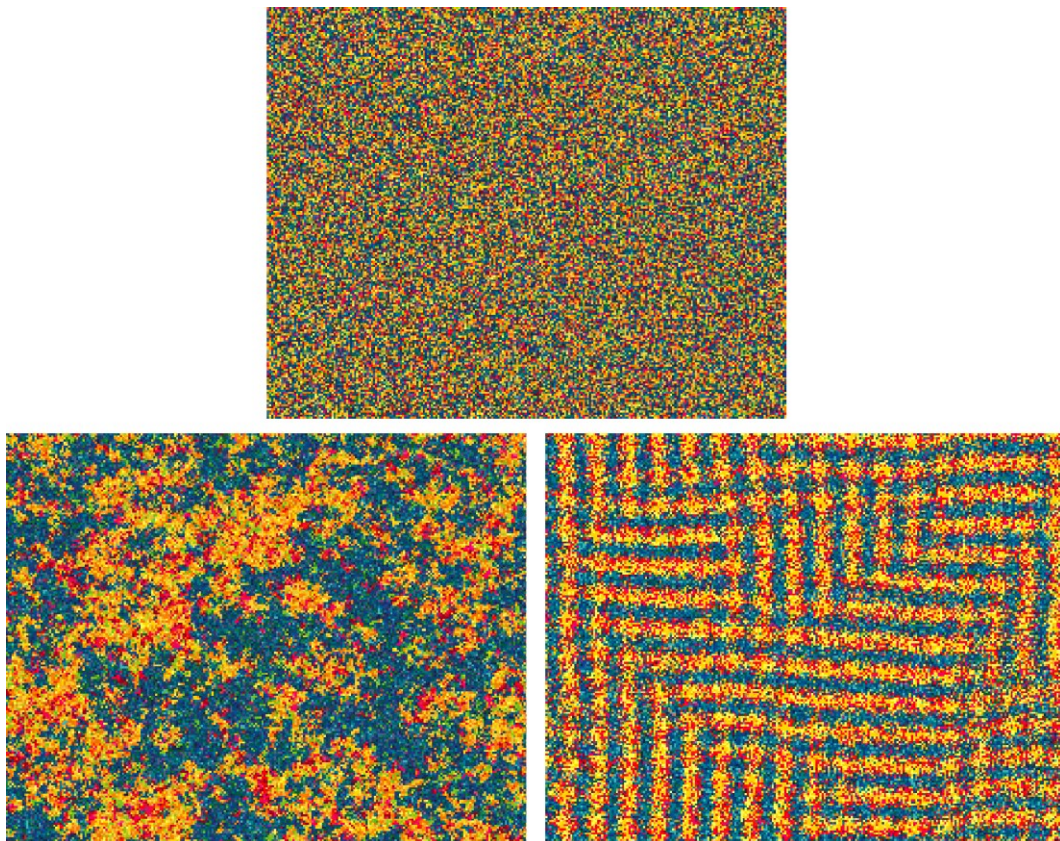


Figure 21. Magnified details of the insert new colors algorithms - from random color placement (*top*) to organization (*bottom*) - each color square is one pixel.

A second line of algorithms runs simultaneously, but has no influence in new colour inputs. Each of these applies different rules for colour alteration

in the context of a neighbourhood of pixels. The neighbourhood used in these algorithms is an extended Moore Neighbourhood with a two-pixel radius⁴⁷. These algorithms simulate various behaviours that can be grouped in two main types: colour exchanges among neighbouring pixels and colour expansion to neighbouring pixels. To the former type belong expulsion or attraction behaviours; in relation to the central pixel the most different coloured pixel in its immediate neighbourhood is expelled to the extended neighbourhood, conversely the most similar colour in the extended neighbourhood is attracted to the central pixel. Expansion algorithms, in their turn, follow different rules and replace different colours in a neighbourhood by others that are also present in it. In this case, in order to ensure the system remains closed (i.e. that the proportion of distinctive colours on the screen corresponds to the latest feelings that were collected), a system for the management of duplicate and removed colours is activated. Differences in the degree of influence in the final image allowed to any of these functions originate distinct representations (Figure 22).

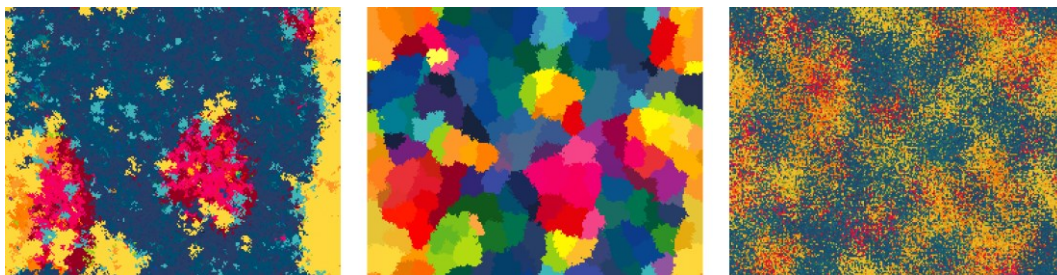


Figure 22. Examples of different weights of algorithm influence on the final image.

⁴⁷ See Weisstein, Eric W. "Moore Neighborhood." From MathWorld--A Wolfram Web Resource. <http://mathworld.wolfram.com/MooreNeighborhood.html>

The behaviour of the patches of colour depends, in the first instance, from the combination of algorithms used and the weight given to each of them in the formal organization. Nevertheless, it is important to mention that subjacent to the consequent behaviours lie organization phenomena that derive from local rules (i.e. those that govern how the colour of each pixel relates to the colour of the neighbouring pixels). Thus, the final fluidity came as the result of a trial-and-error process in which small changes in local rules translated into unexpected behaviours. Another, even less controlled level of factors contributing to those behaviours derives from our palette itself: the fact that the colours follow a human choice, and consequently do not obey a linear distribution by which each colour would differ from the next ones by the same value, brings about instability in the whole system. This instability affects the motion of the patches of colour throughout the image in such a way that they obey an incontrollable pattern in the way certain colours relate to others as they expand and retract. This is a wholly bottom-up process that does not lend itself to any pre-determined rule that might control it.

Results

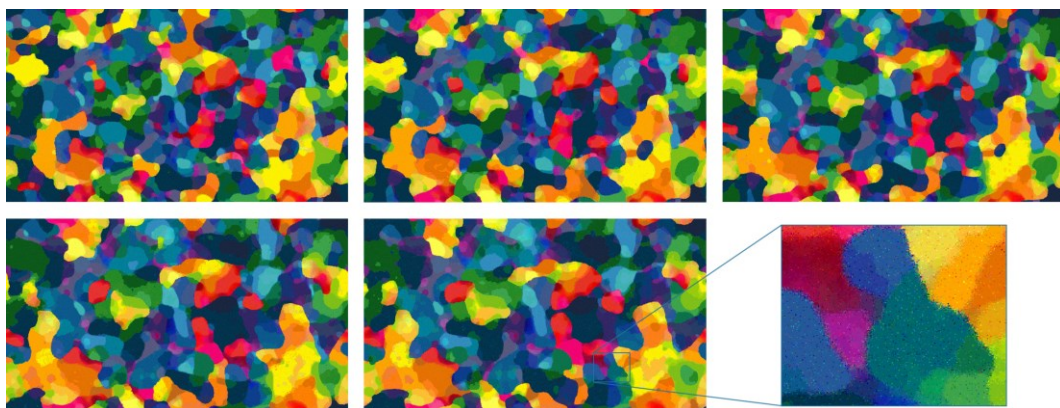


Figure 23. Results of the final algorithm (changes in color organization during a five hours interval).

i feel sea is made available in the web as software (savesaver application) to be downloaded freely. Figure 23 represents the evolution of an image during a five-hour period, enough time to make subtle changes visible in the placing of the main colour patches and also in the relations among colours.

Contacts with mass participation

The chief point of contact of *i feel sea* with mass participation strategies derives its importance from the relevance of human behaviour data to the formal solution of the project. The type of data arrangement that is employed, as well as the choice of the same data as a material of artistic work, contributes in parallel to that solution. While, as far as the former line is concerned, the idea of self-organization and emergence is conceptually related to the spirit of mass participation strategies, the latter line is where the importance of the human factor in the context of those strategies is reflected to the best advantage.

In abstract, the data base is a container of discrete elements in continual transformation. This transformation appears as a dynamic updating of those elements and/or in the myriad sequences that may configure a retrieval and arrangement process leading to visualization. Nevertheless, the database is absolutely structured. It conforms to a structure that reflects whatever potentialities may be desired for later use. To revisit the dialogue between Manovich (1999) and Weinbren (2007), the database is, in that sense, a model of the way the world functions – as the former author refers and the latter objects. Indeed, Manovich's notion of an unordered database is paradoxical in this respect. It is the fundamental structure itself of the database that presents, from the ground up, a diverse and complex, albeit finite and predefined, range of ordering possibilities. A human will to organize the world is inherent from the beginning to those models of the world represented by databases. From this perspective, the database is

designed to multiply a user's ability to extract patterns from the data it contains, but, on the other hand, it limits that same ability by its highly structured nature.

As to database contents, both Manovich and Weinbren suggest a characterization that brings forward their attribute of appearing in the database as discrete elements. Although this is obviously the case, it is worth noting that the database has this peculiarity: on the one hand, it organizes its elements according to common traits; on the other hand, it brings out the differences that make each of them unique. In Weinbren's terms, those differences would consist in potential narratives, open to arrangement processes and resulting thus in new narratives. These twin aspects – repetition and difference – of the data in the database are closely interlinked and precede any process of data retrieval, organization or presentation. The database turns out not to be such a dull affair after all. It is used not only to store discrete and independent data, but also to establish relationships among them. Its importance in data transformation is, thus, at the same level as that of the arrangement process itself.

In *i feel sea*, the use originally made of the *We Feel Fine* database was limited to a very simple set, selected from the various data properties used in that project: feelings ordered by date and the assignment to each one of a colour. However, both this original use and its later adaptation to the collection of data in real time stem from an understanding of the relevant data in the context of a model of, and a metaphor for, human behaviour. The choice of data obeys, thus, a need to consider the human element in them as we formulate their organizing model, on the one hand, and on the other hand, from the perspective of that to which the data refer. This choice was as relevant to the formalization of *i feel sea* as the later process of retrieval, organisation and presentation.

The most relevant consideration in the context of mass participation is, beyond the process of data arrangement on a monitor screen, in *i feel sea* it is the contribution of every feeling shared in the web that drives the growth or disappearance of chromatic areas on the screen – thereby making form inseparable from human actions.

Conclusion

The four projects discussed in the final chapter of this document result from the spellbinding power of human behaviour towards and within the world. Human behaviour, as shown in the diversity of our individual responses to the world, is a bewildering phenomenon. If we start by focusing on each of these individual responses, taken as a unit within a collection of innumerable interacting humans, we will find human behaviour unfathomable. Human experience is larger than life. In view of this, the common thread running through those four projects is a deep interest in working, both formally and conceptually, and keeping in view a full spectrum of human life, from the individual to the mass – or, in more abstract terms, from the single to the innumerable. This general thread is revealed in those projects in different guises: in *ocidental sentimento de um o*, it relates to the gulf between form-making as an internal individual affair and form-making as a collection of external actions; *net art* explores the object impossible to produce; *Babel's Monkeys* opposes the instant order of the text to the chaos of its words' continual arrangement; in *i feel sea*, the fixed structure for the mass aggregation of human data is set against its potential organic arrangement.

From the viewpoint of conception and implementation, making those projects was a process of creating conditions for formal change – conditions that reflect a will, which is projected in its turn into the projects' present form and into the multiple parallel possibilities of their future formal configurations. As it was, the *making* setting of these projects comprised the opposing ends of a scale ranging from the instant and the all-embracing past-future time span.

This document's body of work was organized around two fundamental ideas. The first one was a consequence of expanding certain of our existent intellectual interests into a more general and abstract level; it resulted as well from a parallel process by which certain of our practices, originally intended as elements of specific self-standing projects, set a challenge for us to develop theoretical frameworks in which they could be contextualized. The synergies arising from these processes of generalization, abstraction, development and contextualization strongly suggested, once they were in place, the possibility of a coherent set of artists' choices for work that would employ human behaviour as its material. The term *human* covers, in this context, the full range of humanity from the individual to the mass: that is, the full range of human conceivable behaviour, including both its patterns and its unpredictabilities. We labelled the choices in this set a *mass participation strategy*. As for the second organizing idea, it stems not so much from the intellectual curiosity behind those projects, or from the *a priori* abstract conditions that governed their devising, as from a constant evaluation – both *a fortiori* and *a posteriori* – of the concrete implementation strategies that were employed and their respective exploration in the context of this document.

Both initial conditions described in the previous paragraph – an already existing intellectual interest and an already existing practice – would make

for poor tools indeed if we used them for building a practice-based, systematic approach to the general theme of this document. Quite simply, no such conception or intention was behind our motives for the making of those projects; nor did any such intention direct or constrain their making. This is not to say, of course, that implementing those projects and producing this document were reciprocally impermeable processes. On the contrary, mutual contamination is the basis for most of the methodological choices that we made on how to conduct our work in this document. Concurrently, the major influence of this work in the direction taken by those and other personal projects is as invaluable as it is undeniable. If no other contribution to the world were to result from this document, the contributions provided by present and future projects would stand as its proxy.

Methodologically, then, those projects were selected for their ability to be explored beyond their boundaries, which required a continual updating of our approach to the research foundations for this dissertation. Accordingly, the projects chapter presents an intricately woven account of their conceptual genesis and of their formal strategies. More relevantly, that chapter's contents reflect a practice-led exploration of their artistic context. As such, a broad range of such concepts and strategies, present in an equally broad range of artistic practices, was subjected to analysis: combinatorics and permutation, rooted in the atomist philosophy of the ancient Greece, and their incidence in poetry; fragmentation, juxtaposition and recombination in impressionism, related to the surrealist concept of the poetic image; chance, encounter and shock in Dadaism; dematerialization in conceptual art and its relation to virtualization in Internet art; *form from information* and database art's processes of data transformation and arrangement; algorithms for the computational modelling of complex systems and the concept of self-organization and emergence – which can, curiously enough, and with only a small step, place us back among the

atomists in ancient Greece or in the company of seventeenth century mathematicians, such as Leibniz, who brought together ancient atomism and modern combinatorics.

From the themes mentioned above, heterogeneous as they are, and from the wandering, fortuitous exploration of them (choosing other projects, or just as much a different approach to reviewing those that were chosen, would create all sorts of alternative paths), arose the second of the two organizing ideas for our work. It can be summarized by the expression *strategies for externally lead formal emergence*. From permutation strategies to the use of computer models of complex adaptive systems, our search for form, driven by external forces (in contrast to the artist's purely rational formal choices) stands as the least common denominator.

The interaction between both organizing ideas – strategies of mass participation and strategies for externally lead formal emergence – is approached from their poetic intentions and from their results; and they are, as such, chiefly relevant for the discussion of the particular projects at hand. Nevertheless, conclusions of a more general kind were inferred from the intersection of the two ideas. The fragmentation, juxtaposition and recombination stages, reflecting the classic triad of artist, object and viewer, were reread as central nodes of a continual form-changing process in a stage where artist, work of art and participant play their various roles. The debate on the virtual network's battleground of freedom and control – a locus for strategies of collaboration and subversion in internet art – lingers over the notion of mass in the digital context. We considered, on the one hand, a notion of mass centred on the simultaneous growth of modes of participation and potential number of participants; on the other hand, we took the digital background into account as source of defiance; and this, in equal measure, in contexts where the artist uses human data gathered from

a different context, thus creating participants *by force*, as well as in contexts where participants, protected by a virtual shield of unaccountability, explore the full potential of subversion within the rules, and respective loopholes, set for participation. Human behaviour is treated as a source of complexity and, as such, a pivotal point in the changing nature of combinatorics and permutation strategies, seen either as a systematic or a chance-based process. Similarly, the importance of dealing with data from the realm of human life was highlighted, both by dealing with database-rooted processes and by using computer modelling and simulation strategies for form making. It is our conviction, in sum, that strategies for working with the human mass as material create variances to artistic practice, both timeless and recent, significant enough to be considered on their own.

The limits set by a context-dependent approach to the commonalities and peculiarities in varying artistic endeavours require a general approach to the subject; and they set us the future task of undertaking a methodical review of artistic strategies centred on externalizing formal control, of their purposes and significances throughout art history – a valuable exercise on its own – and the analysis of both how they influence and are updated by mass participation.

In this document, mass participation is proposed as a set of strategies by which an artist gathers into her work form-inducing input from a large number of participants. In the context of this proposal, the *Mass participation* chapter offers a measure of counterbalance to *Projects*. Whereas in the latter the idea of mass participation grows out of the specificities of each project, mass participation is posited in the former within our operational theorization of the general notions of agency, participation, mass and complexity. To these approaches correspond two aspects of the notion of strategy. In discussing the four projects, we did not

attempt to establish a clear distinction between what constitutes an artistic strategy in the terms of *how to do* and, on the other hand, *why to do it*. What we call *strategy* relates so much to the tool – as in *using random numbers* – as to its use within a concrete art movement, *aesthetic* framing or artistic field - as in *Dadaism* or *generative art*, where *random* acquires a whole new meaning. This is a result of our free exploration of influences on the projects. In chapter 1, our approach to the notion of strategy is slightly distinct. It relates to artist's choices when dealing with the mass – choices that we argued would be best studied independently of their framing within current aesthetic or political positions on modes of production.

In this respect, the first chapter used the context-neutral notions of patterns and unpredictability as guidelines for our mass participation proposal considered as a strategy for form-making. A spectrum of artists' options concerning the establishment of conditions for mass participation was arranged, so as we could understand in which way those options influenced the emergence of those patterns and that unpredictability. The proposed typology and classification of those options aims at organizing the specific traits that arise both from the work on the projects and from a conceptual generalization of mass-participation – the two motifs which, in combination, define the two guidelines that direct this document. The typology criteria and respective categories reflect this purpose. We proposed five criteria that related, respectively, to: i) *participant* commitment - how much personal involvement and depth of contribution the artist expects from participants; ii) *participant awareness* – how consciously the participants relate to the work of art; iii) *participation filtering* – which devices are set in place for controlling contributions; iv) *participant identification* – how traceable to participants are their contributions; v) *participation end condition* – when does the participation process take

place within the timeline of the work of art's conception, implementation and presentation.

Each of these criteria reflects a key artist's option which, while not of a kind exclusive to participation practices that deal with the mass, acquire major relevance when considered in aggregate in a context of mass participation. The consequences on the work of art that derive from artists' choices were introduced in our proposal regarding the typology criteria and categories. They were contextualized by the patterns and unpredictability created in each process. Those consequences were further explored as we classified specific projects by which the proposed typology is validated. Douglas Davies' *The World's First Collaborative Sentence* continues, to this day, to grow in a vibrant fashion, taking advantage of the participants' determination to fully explore the projects possibilities. Christa Sommerer and Laurent Mignonneau's *Life Spacies* uses an artificial life system and human contribution for the creation of the organisms that inhabit it – both elements being essential for its emergent behaviour. Mark Hansen and Ben Rubin's *Listening Post* explores unaware participants' writing over the Internet for unpredictable configurations. Penguin Books and De Montfort University's *A Million Penguins* experiment on self-organized, cooperative, and online writing brought to light the carnival-like character of collective behaviour in anonymous participation systems. Aaron Koblin and Takashi Kawashima's *Ten Thousand Cents* ponders the crowds' individual responses to participatory labour, which range from the most insubordinate to the overzealous, in collective image making. Finally, in Chris Milk's *The Johnny Cash Project* different modes of participation and display allow for the exploration, within a single project, of many of the options the typology refers to.

The heterogeneity of those projects allows us to position mass participation, at least and for the moment, as a cross-practices set of strategies. Along with the discussion of the projects, the resulting structured layout of the strategies employed contribute to the systematization of mass participation strategies. Future research following this typology should be conducted in two fronts: on the one hand, on the analysis of categories that benefit from a combinational approach – that is, dealing with the influence that options based one criterion exert on options based on any other; on the other hand, on the inclusion and discussion of criteria and respective categories that relate to the locus of the participation process (for instance, studio, gallery or participant home) and to the interface of participation (for instance, the work of art itself, a specially device or medium made to that effect).

The proposed typology, and subsequent classification of case study artistic projects, stands out as the axis that articulates chapter 2 and the conceptual generalization of mass-participation discussed in chapter 1.

Mass participation opens up, as it progresses to the *Mass participation strategy* section, with a summary discussion of the notions of informationalism, remix culture, and open-work aesthetics. This discussion highlights the main characteristics of current technological, cultural and theoretical contexts that frame a mass-participation proposition. The specific traits of those contexts will pave the way, it is hoped, for major developments in participation-based art, specifically in what concerns strategies based on a very wide sharing of participation opportunities. A mass-participation proposition requires awareness of major changes in the technological paradigm; of how those changes are reflected culturally on our relation with the art object; and of how all this relates to theoretical lines of thought that approach the work of art as *work in progress* by inherence.

Such a proposition is approached from the presumed artist's choice to expand the control of a work of art's form beyond her single and internal determination. We follow the two great vectors of a line of evolution in art, in which the movement of opening formal control over the art object to external elements constitutes the core element of both formal and conceptual strategies. We called the first of these vectors *form from systems* and the second *form from people*. Those strategies, and the vectors at their core, are discussed under the general guidelines of the notions of patterns and unpredictability. These notions constitute, in their turn, the guidelines for our proposition, in the sense that we find in their interaction the lowest common denominator to the proposed vectors. The two vectors are thus construed as comprehensive categories comprising all artistic strategies where such an opening up movement takes place. Accordingly, when we use the expression *form from systems* we deal in general with artistic practices in whose agency systems will take part elements as diverse as those comprised in the various usages of generative and chance procedures. Beyond these, systems that call upon the unconscious mind (such as Surrealist automatism) or upon Nature (such as land art) are liable to be included. Likewise, *form from people* is construed comprehensively as something that deals not only with participation, if it were to be understood as the opening of a work of art to the actions of its public, but also, in a general context, as any practice that seeks any form of human contribution. In this sense, the proposed designation ought to comprise any practice where key-words such as collaboration, participation, relational, social, activism, interactivity, database or crowdsource, to name but some of the most common, might apply and appear related to artistic practice – to sum up, wherever *the other* is implied in a work of art. The *form from systems* vector, and its relation to the concept of complexity, is summed up in *Complexity*; the *form from people* vector had been mapped directly into an operative definition of participation in *Participation*.

The notions of agency, participation, mass and complexity, and their use in current art discourses, were reviewed critically. Abstract and comprehensive readings of such notions were argued as the operational frameworks of the mass-participation proposition.

The concept of *agency* presided over an attempt at classifying distinct types of intervention upon the work of art. Those types are grouped into three classes – primary, secondary and tertiary agency, corresponding respectively to the artist's agency, external agency sought by the artist, and external agency that manifests itself upon the work of art outside the conditions set by the artist. Within this agency model, a preliminary approach to the scope of our mass-participation proposition is made clear: this document deals, in the immediate, with the particular conditions set by the artist to gather and explore secondary agency in the context of her work.

As our argument develops, we further circumscribe our terms by focusing on secondary agency by humans, which we had labelled *form from people*. The comprehensive nature of what can constitute secondary agency sets in motion a process whereby current views on participation, and the classical notions of writer, reader and text are abstracted from their relations to authorship and reception. This proposed level of abstraction makes for the clarification of the operative terms employed in this document. Participation takes a more inclusive meaning, as participants are considered independently of their status or place within the hierarchies of authorship and reception. Participation is the heading for all artistic practices in which human beings other than the artist are summoned to get involved in, or become a part of, the work of art. Collaboration among artists, activist or communal intervention, contracted work, an active public, the intervention of specialists, the resource to voluntary agents, the use or surveillance of databases constitute, in their variety, instances of participation. Such

instances of participation as we mentioned by name make up a diverse, albeit not an exhaustive, list: participation as a formal strategy refers to protocols, mechanisms and limits, and in general to the innumerable tools, that the artist sets in place in an art making context to deal with the unpredictable types of external human interventions that she seeks.

Furthermore, the notions of work of art, artist, participant and public are reviewed in the light of the agency model proposed in *Agency*. In that context, we posit the work of art as a constantly changing manifestation of the system of agents that act upon it. The notion of artist – the primary agent - is mapped to a public entity that embodies an original will, where the abduction of agency enquiry is bound to stop. The participant relates to what we call the secondary agent, whose agency is bound to the original will of the artist, independently of any relation to the notion of public. Finally, the notion of public stands for those whose, in its relation to the work of art, are patients of the work of art's own agency.

We go on to trace the fluctuation in the concept of masses throughout the genealogy of participation practices, and propose its operative redefinition by highlighting the influence of technological advances in participation and in the general current cultural setting. A political consideration of the mass is irrelevant to our purpose, which requires rather that we understand it as an immense pool of potential participants, of participation motives and attitudes, and of mechanisms and devices that allow for participation. Our third and final approach to the subject of this work sets participation in a context that is related to this abstract and comprehensive notion of mass. In this document, then, and in this final sense, we posit mass participation as an artist's strategy that makes use of a new practical possibility: the possibility of comprising individual action, in all its unpredictability and multiplied by the innumerable, within the limits of the single work of art.

The notion of unpredictability in the participant individual behaviour, which we introduced in simple terms in *Form from people and form from systems*, is updated further on: it now derives from the certainty that in a sufficiently massive context all possible outcomes are bound to be explored. The unpredictability of individual action in the context of the mass is now extended to that which is not stated in the participation rules, and to that which can not be seen as infallible by any *a priori* approach to the participation media and devices. It is in every instance a matter of who will first take which unknown route. The mass expands all over the universe of possibility, fills its every cavity and its hidden galleries, and flows through the cracks of whatever limits are set to it.

This notion is presented as one of the background concepts through which mass is proposed as a special case within the broader context of participation. It is approached from a triple viewpoint: complexity science in the definition of complex systems' core characteristics; current art discourse on the convergence of art and science through complexity; and complexity as mode of thought. Beyond the political and cultural context of the mass, we focus on how the notions of complexity and emergence can help us understand the intricacies of the mass behaviour, its patterns and unpredictabilities. Complexity is addressed so as to find the core characteristics of mass behaviour that contribute for its attractiveness as material for art making. Mass participation is a strategy that relates both to the complexity of collective patterns and to the uniqueness of individual choices comprised in the multifarious human contributions to a work of art. In this view, the work of art does not search for order in the mass. On the contrary, it aims at making the most out of disorder. The work of art organizes mass disorder into its current form, but only in so far as new tendrils of disorder shoot out from its inherent array of future possibilities. A mass participation strategy creates a balance between order and disorder.

It is this balance – which takes place within the work of art's extended timeline, and in which formal change results from the participation of the mass – that accounts for the poetic potential of such a strategy.

In short, *Frameworks* accounts for our operational theorization of such notions as agency, participation, mass and complexity. This generalization effort ranges from the most abstract proposition of an agency model – through which the relation of agents upon the work of art's form is settled for the mass participation proposition – to the relevance of complex thinking in highlighting the particular characteristics of the mass participation strategy. At its every step, this section progresses towards establishing operative frameworks in which to set our mass participation proposition; from the general context and conditions that govern the totality of this document ensues as well a general incidence on the art discourse about participatory practices. Such a discourse, and its generally adopted theoretical framework, relates more to questions of reception and of politics of art than to questions of *form* making and existence, which we find absent from it as a rule. That is to say: while the former questions are centred on the public and/or on the mode of production, the latter are centred on the artist's tools and materials and on the work of art's way of presenting itself. The fact that this work deals with mass participation as strategy places it more in this latter sphere. Accordingly, we offer a perspective on participation that is agnostic in the matter of authorship/reception. But the consequent lack of mediation creates friction in some key turning points, contributing thereby to an environment where a new discourse on participation can thrive. This indirect contribution, which is a result of the limitations of the current work brought about by that agnostic perspective, is a proposed key that may prove crucial to future work on the subject. While centred specifically on mass participation as an artist's strategy for formal and poetic exploration, our proposition contained in this document sets

itself as a step towards a complete aesthetics of mass participation. That is, the practice it conveys still needs to be framed within a theoretical proposition that considers its aesthetic and political implications, as well as those within the authorship and reception scope.

In *Introduction*, we highlighted a measure of risk in our mass participation proposition, as it can turn out that no such thing as a group of artists, or a coherent body of art works that would be better framed by an aesthetics of mass participation, will ever come into existence. Accordingly, immediate research should be conducted in the form of an extensive survey of works and artists where the mass participation strategy is relevant as an artistic practice. This research work should aim to establish the existence – or otherwise – of a coherent group or body of work that might be best characterized by that distinctive feature, and be thus better understood as further developments in the theoretical front take place.

Contingent on the findings of such research, further work in the path towards an aesthetics of mass participation should be approached from two complementary perspectives: on the one hand, the definition of a concrete mass participation art practice or genre should follow research work on the definition of its boundaries with respect to other categorization attempts, both established and recent, as for instance those labelled as generative and a-life art, participation and collaborative art, database art, crowdsource art, and post-internet art. The projects mentioned in *Mass participation strategy* were also chosen for their points of contact to artistic activity to which these labels might apply. It is hoped that these interactions will create synergies for future work on better ways of defining commonalities – and differences – in those fields; and, as such, contribute for this recommended approach. On the other hand, a step forward should be taken in the abstraction and generalization efforts incident upon mass participation

strategies. In this regard, the research paths which led the work presented in this document, summarized by the notions of pattern and unpredictability, are liable to be explored in their metaphysical readings. A possible starting point for this effort is an approach to patterns and unpredictability through their hypothetical contact points with Gilles Deleuze's (1994) work on the concepts of *difference* and *repetition*.

Finally, concerning future research paths, a new question arises, even if just a self-provocative one, that relates to the deliberate absence of the interactive adjective in this document (excepting the cover page). As we conclude this portion of the research on mass participation, the question arises of what we would have found if we had approached such strategies from the notion of mass interactive art

We sought in this document to explore in a systematic manner the formal and poetic potentials of an artistic strategy: one that is based on a scale of participation that takes to the level of the mass. We sought as well to provide for such a strategy's theoretical framework. Accordingly, our practice-based exploration of its poetic potential, together with the theoretical framework that brackets both general approaches to mass participation in this document, and through which we understand mass participation in its fundamentals and specifics, provide a fresh answer, albeit tentative, to a perceived need for systematization. For artists, this work may suggest new options resulting in new ways of dealing with mass participation – an inexhaustible material consisting of human actions and behaviours, so incredibly complex that unceasing experimentation by artists using it is sure to produce ever evolving, surprising and vibrant art, forever and compellingly calling upon the mass to become the artist's favourite material.

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