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Onlife Drama: Towards a Reference Framework for Hyper-Connected Activity

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Abstract

An important aspect of ICT, identified 25 years ago within the user interface design community, is dramatic interaction: The deep engagement promoted by digital technologies that can be better explored by adopting a conceptual framework traditionally used to describe and study theater. This framework offers a wider perspective that demonstrates a deep connection between the qualities of our hyper-connected era and drama as an art of representing action. These concepts transcend the prevailing technical mentality when addressing ICT. They imply that we all participate as "interactors" on the "onlife stage" where other agents (either humans or computer-controlled) are also present. By promoting deep experiences, the hyper-connected environment in which we live in, changes our metaphysics and self-conception. A dramatic framework can explain the power of ICT and help us work towards the development of an equilibrium both personally and collectively: When used to enrich our experiences and extend our agencies, ICT can be considered as an enhancement of reality. When, on the other side, they are used to promote a false reality experience, they should be rectified. Important ethical and anthropological concerns are framed on the same philosophical ground as ancient drama. Ancient drama was a major pillar of Ancient Democracy and served the need to educate citizens with empathy in order to participate as responsible actors in decision making processes.

Keywords: performative turn, computers as theater, onlife manifesto, dramatic interaction, hyper-connectivity

1. Introduction

The Onlife Manifesto [1] emphasizes the need to reengineer key concepts in our societies in order to enable a deeper understanding of the hyper-connected reality in which we all live today. This chapter addresses this need for new conceptual frameworks to guide our minds and our actions in appropriating and governing ICT starting from an important aspect of computing identified 28 years ago within the user interface design community: The dramatic nature of the interaction between humans and computer agents, either software agents or more tangible ones such as robots and AI-enabled machines and devices. To better understand the dramatic nature of these interactions a conceptual framework traditionally used to describe

and study theater is really illuminating and opens up an interesting exploration of important implications on issues identified by The Onlife Initiative [1]. This framework has special focus on the so called whole action, i.e. human activity that is complete in terms of goals pursued, loaded with meaning and can be logically justified and interpreted. Whole action in theater is related to the concept of plot and subsumes notions of form and genre and the patterns that define them. In the case of dramatic interactions between humans and computer agents, whole action is collaboratively shaped by the designer of the computer agents and the interacting humans, thus varying in each interactive session.

Decades ago scholars and researchers in social sciences have argued that people act towards things based on the meaning that they attribute to these things and to the relation of themselves with these things [2]. These meanings are grounded in social interaction and modified through interpretation [3]. These symbolic interactions are transformed, through the use of ICT, into dramatic interactions employing concepts and approaches that have initially emerged within the context of theater. In particular, in a seminal book within the Human Computer Interaction domain that was initially published in 1993, Brenda Laurel [4] argues that a model based in Aristotelian Poetics can explain the deep engagement promoted by digital technologies and the emotional experiences triggered by computer agents [5].

Laurel's book has received much attention in the last years. This is related to the fact that her ideas, although quite futuristic when initially introduced, are very well suited with the advances of input and output devices in Human Computer Interaction: Nowadays we often interact with a computer through devices other than the usual screen, keyboard and mouse. These new modalities including mobile devices, voice-operated assistants etc., make it more evident for us to understand today what Brenda Laurel first tried to show in the early '90s: That digital technologies are better understood and better designed if we adopt a conceptual framework that is based on theater where we frame ourselves as "interactors" in relation to "agents" that could be either humans behind the software we use or fully automated agents based on sophisticated algorithms. These "agents" can take forms that resemble living entities, thanks to the plethora of sensors, actuators and more complex input/output devices, thus blurring the distinction between human, machine and nature, as underlined by The Onlife Initiative [1].

This blurring of the living and the non-living is in a way the result of the human tendency to anthropomorphizing whatever things or entities we interact with especially if we attribute to these things or entities the qualities that are found in theatrical characters: capability to think and pursue goals. From the one hand this could be considered as a threatening situation. From another point of view, it is a way by which we humans can find meaning in our interactions and orient ourselves more effectively in complex situations involving multiple acting agents. The key to distinguish between these two extremes is more or less related to the awareness we humans have when we do such anthropomorphizing, i.e. if it is a mindful or mindless act [6].

The blurring between the virtual and the real [1] is complementary with the above and can be explained within the conceptual framework of dramatic interactions enabled with ICT by employing the key concept of engagement: the capability of ICT to establish frameworks governed by causal relationships that can be explored, understood and exploited in order to make decisions and initiate actions. This should be managed in an effective way giving to the human interactor as much control as possible to decide when, where and how she/he will be engaged with the virtual and when, where and how she/he will detach from it, or more accurately where and how she/he will move from one virtual context to another. Consider for example a situation that one suspends a Skype meeting to use a car to go to another

place and continue the meeting face-to-face. Using a car entails a number of embedded systems such as the ones that control the function of the engine of the car, the flow of fuel, the brakes and the steering of the car. Consequently, the drive to another place is an experience that is in many aspects equally technology-powered as a Skype conference. Consequently, hyper-connected experiences call for a new conceptual interpretation of humans as actors in multiple stages each one with its unique characteristics and affordances.

Laurel is not the first to identify the power of theater as a model for mindful human-computer activity. After a short summary of her ideas, this chapter traces back the influence theater has in social sciences and humanities. A common route is found in the ideas of Nietzsche in one of his first works, namely "The Birth of Tragedy" [7]. There, the German philosopher reconstructs the social and political context that gave birth to ancient drama, especially tragedy, in Ancient Athens and draws important lessons that could be valid for modern societies in terms of pursuing a synthesis between the so called "Dionysian" (the power of emotions and instincts) with the "Apollonian" (the power of reason and logical thinking).

Hyper-connectivity presents an important opportunity to achieve a Dionysian—Apollonian synthesis, like the synthesis achieved, according to Nietzsche [7], in Ancient Athens. A synthesis that is also related to patterns of "dramatic interaction" in public life and especially in political life as described by Mackenzie and Porter [8] who identify what they call Method of Dramatization that links drama to political theory. This method, founded on the philosophical work of Deleuze [9], aims at determining the quality of ideas and concepts by bringing them to life in a way that is similar to the way that characters are brought to life through a playscript. In this respect, the approach presented here addresses some important constraints initially posed by Laurel [4] regarding the applicability of her theatrical approach to application domains of ICT beyond entertainment. The conclusion is that this approach, as enriched and extended following the thought of philosophers like Nietzsche, Deleuze and many scholars from social and human sciences, provides a generic framework equally applicable to all application domains of ICT addressing issues of the new reality codified with the term "hyper-connectivity" in the Onlife Manifesto [1].

2. Theater as a model for computer mediated activities

The book Computers as Theater by Laurel [4] was initially published in 1993. It initiated an insightful discussion on an alternative understanding of digital technologies, an understanding that is based on theater as a model for human-human interaction and extending to human-technology interaction. Laurel underlines the fact that when using computers, people are essentially interacting with representational worlds in a way that resembles how characters interact in theatrical plays [4] (p. xvii). Laurel's ideas were subsequently mainstreamed in computer science after the first publication of her book. The computer science field that was mainly influenced is certainly the field of Human Computer Interaction. Don Norman, cognitive expert and usability engineering pioneer, in the foreword of the second edition of the book, underlines the importance of moving from a traditional interface-oriented conception of computer systems to a theater-oriented conceptual framework:

> *When I first encountered Brenda's ideas, I envisioned them being applied to the formal elements of display screens and the early devices used for interaction. This is a very limited viewpoint. It is better to think of these systems and their programmed applications as a platform, the stage upon which the dramas are enacted.*

> *[...] Thinking about interfaces is thinking too small. Designing human-computer experience isn't about building a better desktop. It's about creating imaginary worlds that have a special relationship to reality—worlds in which we can extend, amplify, and enrich our own capacities to think, feel, and act. [4] (p. xii)*

This is indeed an important aspect of ICT: the ability to bring into life imaginary worlds. To put it in another perspective, we could argue that the power of ICT is the capability to bring into life what resides in our minds, incarnating our ideas, so that our senses can grasp and interact with these ideas. In this respect, the computer code of any software system could be considered as the "rules" that we provide to a computer system to follow in order to create entities (i.e. symbols on screens, movements of computer controlled devices etc.) that are experienced by humans in a way that helps them construct representational worlds that extend, amplify and enrich their own capacities to think, feel and act (or better, interact) with these entities and through these interactions possibly create very real effects into the actual world.

Laurel makes emphasizes once more the capability of ICT to create representations that extend human agencies when she elaborates on the concept of "interface":

> *[...] the computer [is] a machine naturally suited for representing things that you could see, control and play with. Its interesting potential lay not simply in its ability to perform calculations, but in its capacity to co-create and represent actions with human participants.*
>
> *[...] reconceptualizing what computers do as enabling and representing actions that involve both human and technological participants suggests a design philosophy that diverges significantly from much of the received wisdom about interface design. [4] (p. 2)*

This capacity of computers to represent actions is very much related to the structure of theatrical plays:

> *"All the world's a stage," said Jacques in William Shakespeare's As You Like It, "and all the men and women merely players." For us, the computer and its various programs and applications are the stage, providing the platform on which we enact our own scenes and activities. Much as plays are divided into acts, sometimes with intermissions, our computer-based activities are divided into sessions, sometimes separated by short periods and other times by long breaks. [4] (p. xiii)*

The above comment also underlines the need to support engagement (sessions) and detachment (short or long breaks) during an activity and bridge the gaps between different sessions through reminders, prompts etc. This is an important aspect of computers as means to represent action: The capacity to support human interactors with the ability to select when, where and how they will engage with the computer supported actions and disengage if needed.

Another important concept in Laurel's proposed framework is the notion of common ground: It refers to mutual knowledge, beliefs and assumptions between participants in an interaction, human and computer agents: All collective actions are built on common ground and its articulations. Laurel explains:

> *The concept of common ground not only provides a superior model of the conversational process, but it also supports the idea that an interface is not simply the means whereby a person and a computer represent themselves to one another; rather, it forms a shared context for action in which both are agents. When the old tit-for-tat*

> *paradigm intrudes, the "conversation" is likely to break down, once again relegating*
> *person and computer to opposite sides of a "mystic gulf" filled with hidden pro-*
> *cesses, arbitrary understandings and misunderstandings, and power relationships*
> *that are competitive rather than cooperative. Mistakes, unanticipated outcomes,*
> *and error messages are typical evidence of such a breakdown in communication, in*
> *which the common ground becomes a sea of misunderstanding.* [4] *(p. 5)*

This is indeed an important point from the perspective of the need to support effective coordination between human and computer agents in hyper-connected environments. In other words, the need to design systems with appropriate "common ground" that will promote the collaboration between human and computer agents becomes critical. Such a common ground is related to the "intelligence" accommodated in computer agents from the one side and with the necessary skills and knowledge of human agents regarding the nature and the capabilities of ICT (codified with the terms digital literacy and digital fluency) on the other side. It is important to note that following the advances in AI, machine learning and other domains related to the development of smart computer agents, various initiatives are put forth the recent years addressing the need to educate the young generations in computational thinking and computer programming as a way to understand deeper the ICT and be able to participate in the digital culture in an active way [10].

In order to justify the capability of humans to combine worlds of representations created by computers and the physical world, i.e. human agency of creating mental models, Laurel emphasizes the role of imagination or fantasy and how theater creates imaginary worlds that have real world consequences [4] (pp. 35–38). Fantasy could be considered as the laboratory for virtual experiments related to problem solving. Arts can be described as the concrete representation of things initially emerging in artists' minds. This aspect of arts to bring mental realities into existence has been identified and used from the dawn of civilization. With the advent of computers, human societies have access to a new kind of "machine": One that can emulate any known medium, as Alan Kay (1984) observed:

> *The protean nature of the computer is such that it can act like a machine or like a*
> *language to be shaped and exploited. It is a medium that can dynamically simulate*
> *the details of any other medium, including media that cannot exist physically. It*
> *is not a tool, although it can act like many tools. It is the first metamedium, and*
> *as such it has degrees of freedom for representation and expression never before*
> *encountered and as yet barely investigated.* [11] *(p. 59)*

3. Human fantasy and the blurring between the virtual and the real creating universal objects

Within the new social context brought about by ICT, fantasy is a core concept to understand how the "blurring between the virtual and the real" is happening. The key observation here, made by Laurel, is related to causality as a way to understand reality and interact with it in a mindful way:

> *The fact that people seek to understand causality in representational worlds*
> *provides the basis for Aristotle's definition of universality. In the colloquial view,*
> *an action is universal if everybody can understand it, regardless of cultural and*
> *other differences among individuals. This would seem to limit the set of universal*
> *actions to things that everyone on the planet does: eat, sleep, love, etc. Aristotle*
> *posits that any action can be "universalized" simply by revealing its cause; that*

> *is, understanding the cause is sufficient for understanding the action, even if it is*
> *something alien to one's culture, background, or personal "reality." [4] (p. 94)*

It is important to understand that the "blurring of the distinction between reality and virtuality" in the hyper-connected era [1] (p. 7) is related to the transformation of real world objects into universal ones, following the above Aristotelian definition as described by Laurel. A real world object or process that has been enriched with new capabilities for interaction with humans via computer hardware and software integrated into it is more understandable in terms of causal relationships, more predictable in terms of its behaviors, less chaotic in its reactions to human actions. Consider any kind of cyber-physical system such as autonomous automobile systems, medical monitoring systems, robots, or autopilots. All these systems are essentially enhancing real world objects or processes with "computer intelligence" that makes them more human friendly: easier to understand and interact with them. Due to the embedded digital technologies the capabilities of such objects or processes seem more "natural" as they provide affordances that are more intuitive for humans interacting with them. In this respect, the meaning of the word virtual is not to be used as a synonym for artificial as in terms like virtual reality or virtual world. It is rather reframed to denote potentiality as being equally real to actuality, but in a different manner. This is exactly what Deleuze describes in his treatise of Bergsonism [12] (pp. 96–98). This potentiality that is the essence of Deleuze's virtuality is the key concept that enables the exploration of how human Logos (reason), through causality, is transforming disconnected reality into hyperconnected stages where meaningful action and interaction is possible.

At this point, it is important to add Laurel's [4] (p. 94) additional comment on how fantasy works, in relation to causality, offering the basis for make-believe environments:

> *We need only look to works of fantasy to find obvious examples of how universalization via causality works. Actions that are patently impossible in the real world (such as a person flying) can be made believable and understandable in their dramatic context if probability is established. This fact led Aristotle to observe that in dramatic action, an impossible probability is preferable to an improbable possibility. We can believe that Peter Pan flies because of the way the potential of his world is revealed, through the way his character is established in the action, and through dramatic situations that provide him with causes to use his ability to fly. [4] (p. 94)*

One can see here that causality is considered far more important than real possibility. In other words, reality is better understood and given meaning if it obeys causal relationships. This is indeed very much facilitated with the use of ICT, if systems are properly designed. Consequently, one can find here an important imperative for the designers of digital technologies: To effectively support the construction of causal mental models that can then be followed in order to enhance the interactions between humans and computer agents.

It is interesting to note here that although Laurel succeeds in capturing the most intrinsic characteristics of digital technologies, the characteristics that explain their success in enabling meaningful interpretations of reality through its "virtualization", she maintains a rather conservative view on the applicability of her ideas. The engagement that digital systems can offer to their users is considered from an entertainment point of view only:

> *Engagement, as I use the concept in this book, is similar in many ways to the*
> *theatrical notion of the "willing suspension of disbelief," a concept introduced by*

> *early 19th-century critic and poet Samuel Taylor Coleridge. It is the state of mind*
> *that one must attain in order to enjoy a representation of an action. [4] (p. 139)*

This phenomenon of "willing suspension of disbelief" can be clearly seen in both drama and computer games where the audience and the players respectively feel for and with the characters in essentially the same way: Someone might cry when watching a film or share other feelings with the characters within a virtual setting. However, as Laurel puts it, "spreadsheets aren't pretend!" She argues that the activity within a virtual setting should be separated from its artifacts: The representation of a text, spreadsheet, database or any other artifact residing at computers, as it is being manipulated on the screen is in fact pretend, as compared to physical artifacts like printed text or files in computer storage. The artifacts are real much like actors, lighting instruments, and scenery in a theatrical play, but the working rules related to the representations of dramatic actions or interactions are distinct from the artifacts. Consequently, it is important to understand the fact that the notion of representation is the key to understand what one can do, the affordances attributed to the artifacts. Furthermore, their special status as representations affects human emotions about them, enabling experiences that are much more pleasurable than those we regularly feel in real life, as Laurel argues. The distinguishing characteristic of the emotions triggered in a representational context is that there is no threat of pain or harm in the real world, she adds. Finally, Laurel emphasizes the playful attitude of humans when interacting with such representations and warns against the dangers this attitude may have in certain situations:

> *Further, engagement entails a kind of playfulness: the ability to fool around, to*
> *spin out "what if" scenarios. Such "playful" behavior is easy to see in the way that*
> *people use photo editing suites and document creation software. The key quality*
> *that a system must possess in order to foster this kind of engagement is revers-*
> *ibility; that is, the ability to take something back. In the age of the Internet, taking*
> *something back once it is published is nearly impossible. We and our children need*
> *to understand that; fooling around is playful, but publishing is forever. [4] (p. 140)*

In a footnote, Laurel further analyses this distinction between the uses of computers for entertainment from the uses in other contexts:

> *This principle suggests that activities like running a nuclear reactor or launching a*
> *spacecraft—things with real potential in the real world—should be taken off the*
> *table when we talk about dramatic interaction. For example, the control system on*
> *a nuclear reactor involves many, many representations of the state and operations*
> *of various system components, but in the context of real-world consequence, these*
> *representational affordances are much more about human factors and tele-opera-*
> *tions than they are about the pleasure of interaction. [4] (p. 140)*

Form another point of view, however, dramatic interaction (or meaningful performance) is not related to entertainment alone. It is also present in other kind of human activities, much more serious, as in politics and social interactions in workplaces, education, economic transactions etc. In domains where the decisions taken and the actions initiated have very important real consequences that may not be reversible as in entertainment-oriented contexts while, at the same time, exhibit clear dramatic character. In this respect, the work of important scholars from the humanities and social sciences that are linked with the so called performative turn is relevant. This is the topic of the next section.

4. The performative turn in social sciences and humanities

Human behavior can be understood and analyzed by assuming that all human practices are performed so that actions can be seen as a public presentation of self. This is the conceptual basis of the methodological breakthrough titled the performative turn. The term turn signifies the trend to reverse the ontological premises that reality corresponds to particular objects, entities, and configurations that exist in and of themselves exhibiting certain essential qualities towards a new central hypothesis that objects are textures of partially coherent and partially coordinated performances existing through multiple situated practices [13].

This trend entered in cultural studies, social sciences and humanities in late 20th century and has greatly influenced disciplines like ethnology, anthropology, and sociology, bringing an alternative way to look at how members of groups and society at large interact, work, and share knowledge within the context of groups and societies [13]. The major premise is that people create and recreate meaning and knowledge in social settings through performance. And even more: The social reality itself is created through the actions of its members. Thus, the focus is redirected to "the active social construction of reality rather than its representation" [14] (p. 4).

The roots of this approach can be attributed to the need to move beyond the prevailing focus on texts or symbolic representations to capture meaning. Performance is, above all, a meaning making bodily practice. Consequently, it is related to rituals and other forms of spectacles and social practices. Moreover, performance can be related to lifeless mediating objects, such as architectural objects or, in modern days, digital systems that constitute our hyper-connected societies [15].

The performative assumption is that reality becomes in the process of knowing and it implies that the object that is known and the subject that does the knowing are co-produced in and by the same performance. This has paramount significance for the epistemological problem (what is true) and the ontological question (what is): They are both resolved (or remain unresolved) in the same moment [13]. This is a quite important and thought-provoking claim that proved very fruitful in renovating many disciplines and creating a movement towards the performative understanding of various phenomena on the one hand and the adoption of research tools that explicitly focus on the performative aspects of human behavior in order to reveal the performative aspects of life and describe them with rigor on the other hand [16]. Therefore, the idea of a "performative turn" evokes a more historical attitude, which was exhibited by individuals that have deliberatively turned away from representationalism to adopt action-oriented and embodied perspectives.

Recently, scientists and scholars from various fields have adopted performance as their research subject or method [16]. It is indeed offering an interesting framework for understanding and describing meaningful action. Beyond the main premises and the theoretical justification of the validity of performativity, one could attribute the significance of this paradigm to an inherent dramatic quality of human experience. This is one of the major claims of this chapter. Furthermore, this scholarly and scientific focus on performance that begun at the dawn of the hyper-connected era, and steadily continues to evolve as the infrastructures of the hyper-connected societies evolve as well, seems to be closely related to the capacity of digital technologies to provide new ground for dramatic interaction (i.e. meaningful bodily and symbolic actions).

One of the seminal books in establishing the performative turn in social sciences is certainly Erwin Goffman's The Presentation of Self in Everyday Life [17]. In that book, Goffman adopts theater as a model to frame face-to-face interactions based on the assumption that when an individual interacts with other people, both at

informal and formal settings within the context of social institutions, the individual tries to control the impressions of the other people, thus building a self-identity. In parallel, the other people that interact with the individual are seeking to form and obtain the identity of the individual. This framework ultimately promotes a dramaturgical analysis as a basis for microsociology employing terms such as front region vs. back region (like stage and backstage in theater) to distinguish between the playing of the individual's role in front of the audience and the preparation of the individual respectively.

When it comes to the domain of politics Mackenzie and Porter remind us that:

> *The idea that drama can serve as a medium for the expression of political ideas*
> *and debates is virtually co-extensive with the history of drama itself: from the*
> *early Greek plays to the recent theatrical reenactments of politically charged public*
> *inquiries. Equally, the idea that political theory often contains dramatic elements*
> *and references within it is hardly contentious. For example, it has been said that*
> *Plato's Republic owes a 'debt to Aristophanic comedy' [...] In a general sense,*
> *moreover, we are familiar with the political theorist as a kind of director, staging*
> *a situation for the reader that presents a dramatic version of the problem being*
> *addressed. [8] (p. 483)*

In modern times, we find again this double relation between politics and theater: Not only does theater play an active role in society as an important means to influence the political understanding of citizens and their political actions, but also philosophy in general and political philosophy in particular have adopted dramatization as a method of presenting their concepts and claims. One contemporary political thinker who explicitly used dramatization as a method to bring political ideas into life and put them in action is Gilles Deleuze [9]. He adopts theater as a model for his theory of singular events claiming that theater, as any performance-based art, is based on activity that is happening in front of us in contrast with an approach that is based on symbolic representations or texts. His conception of theater is completely free of any representationalism. Drama is ultimately used as a model to frame purposeful action to interact with the world and bring real changes to the world.

In an attempt to summarize the recent discourse about performativity, three intertwined aspects could be highlighted: (a) reality is understood as incessant creation or practice; (b) matter itself is understood as entangled intrarelation; and (c) individuals do not preexist their interactions in any essentialist, objectivistic sense. As Cabitza and Simone argue:

> *The concept of performativity therefore invites us to abandon the Kantian notion*
> *of "thing per se" (at least in system design) to recognize the relational and manifold*
> *nature of any perceived phenomenon, irrespective of its seeming solidity, as well as*
> *the co-constitutive entanglement of the social and the technological (i.e., material)*
> *and "the performance of the emergent sociomaterial assemblage". [13] (p. 222)*

Consequently:

> *[...] researchers adopting a performative turn put first in their research agenda the*
> *study of the contingencies of time, space, technology, materiality, or discourse, [...]*
> *all things that the more classical "representational" model of thinking [...] i.e., the*
> *one assuming a detached observer that studies real objects and their essential prop-*
> *erties in an objective world (or that designs and puts new objects into the world),*
> *escapes either consciously or unaware with profound consequences also on the*
> *conception of the role of technology in society and of its "designers". [13] (p. 224)*

By attributing to our daily lives a performative quality, the close relationship between drama as an art and drama as a social process is evident. The next section explores this relationship.

5. Social drama and stage drama

William Beeman offers a very interesting comparison and in-depth analysis of the relation between theater and other performative genres:

> *Revolutions, public demonstrations, campaigns, strikes, and other forms of participatory public action all have performative dimensions. Moreover, they share certain features with the fundamental ritual processes [...] Such "social dramas" involve a break with "normal" structures of ongoing life, the entrance of groups of individuals into liminal transitory states, and the reincorporation of the liminal- ized individuals into a re-constituted social order. The efficacy/entertainment distinction is a way of separating ritual from theatre, but other performance genres also fall under the general functional rubric of entertainment. [18] (p. 379)*

Furthermore, Beeman [18] identifies three descriptive dimensions that can illuminate the relation between theater and other performance genres such as public speaking (e.g. lectures, sermons), exhibitions, demonstrations etc.: (a) efficacy vs. entertainment in intent, (b) participation vs. observation in the audience's role, and (c) symbolic representation vs. literal self-presentation in the performer's role.

Based on the above distinction, Beeman goes on to analyze the interrelationship of stage drama, as a generalization of theater, and social drama, as an inclusive term to describe all performative genres that aim at changing actual reality, employing a scheme initially proposed by cultural anthropologist Victor Turner [19]. This scheme is depicted below (**Figure 1**).

The two rectangles above the horizontal line represent what is actual, visible and public while the two rectangles below the horizontal line what is hidden and virtual, i.e. implicit and internal. The left rectangles represents social drama, i.e. all performative genres related to social life. The right rectangles represents any genre of cultural performance, any kind of aesthetic or stage drama. The interesting point is how these parts communicate (following the arrows between rectangles) thus creating a process with four distinct feedback directions:

1. Manifest social drama (i.e. visible social and political action) feeds into the hidden space of esthetic drama influencing both form and content of the latter.

2. The latent space of stage drama feeds into manifest performance. This way, stage drama operates as an active or "magic" mirror meant to do more than entertain being a metacommentary on the major social dramas within the wider sociocultural context such as wars, revolutions, scandals, institutional changes etc.

3. Stage performance, within its own turn, feeds into the latent realm of social drama with its message and its rhetoric and partly account for its ritualization.

4. Finally, life itself stands as a mirror of art, of the stage drama, and the living perform their lives in a way that the protagonists of life are equipped with salient opinions, imageries and ideological perspectives created in stage drama.
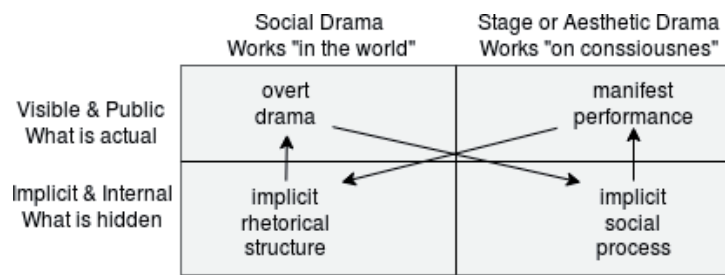
Figure 1.
The interrelationship between social drama and esthetic (or stage) drama. The concepts depicted are based on Schechner [20] following the ideas of Turner [19].

The above feedback loop continues not as cycle but rather as a helix: At each exchange new elements are added and other elements are left behind (forgotten or discarded). Turner underlines that:

Human beings learn through experience, though all too often they repress painful experience, and perhaps the deepest experience is through drama; not through social drama, or stage drama (or its equivalent) alone, but in the circulatory or oscillatory process of their mutual and incessant modification.

> *[…] the interrelation of social drama to stage drama is not in an endless, cyclical, repetitive pattern; it is a spiraling one. The spiraling process is responsive to inventions and the changes in the mode of production in the given society. Individuals can make an enormous impact on the sensibility and understanding of members of society. Philosophers feed their work into the spiraling process; poets feed poems into it; politicians feed their acts into it; and so on. Thus the result is not an endless cyclical repetitive pattern or a stable cosmology. The cosmology has always been destabilized, and society has always had to make efforts, through both social dramas and esthetic dramas, to restabilize and actually produce cosmos. [19] (p. 17–18)*

Following the social-stage drama interrelationship, some interesting conclusions can be drawn on how hyper-connected activity can be framed as a unified space where stage and social drama, the real and the virtual, promote the emergence of a new synthesis between the chaos of raw reality (Dionysian) with human Logos (Apollonian) in a way similar to the vision presented by Nietzsche [7] drawing inspiration from a certain conception of Ancient Tragedy.

6. Conclusion: the rebirth of tragedy?

Tracing back the appeal of theater in Western thought as a framework to understand reality in its deepest interaction with human psyche, we reach one of Friedrich Nietzsche's first works: The Birth of Tragedy [7]. In this book Nietzsche aims to pave a new way for meaningful life by proposing a synthesis to the dichotomy between the Dionysian and the Apollonian spirit inspired by the Ancient Greek tragedy. In Nietzsche's view, the way to achieve a new synthesis in his times was through music.

In his effort to trace the origins of tragedy, Nietzsche makes important arguments that are, in some sense, prophetic in the way that digital technologies give rise again to the dramatic notion of life especially with respect to the relation of the spectator to the spectacle not as an esthetic relation but as an experiential one. In a comment about the origins of tragedy in general and the chorus in particular, Nietzsche [7] brings in front the argument of Schickel, who considers the chorus as the "ideal spectator". Nietzsche contrasts this view with the usual belief that a real spectator is

expected to "remain conscious of having before him a work of art, and not an empiric reality" (p. 57). And he continues with the following important remarks:

> *[...] whereas the tragic chorus of the Greeks is compelled to recognise real beings in the figures of the stage. [...] We had believed in an aesthetic public, and considered the individual spectator the better qualified the more he was capable of viewing a work of art as art, that is, aesthetically; but now the Schlegelian expression has intimated to us, that the perfect ideal spectator does not at all suffer the world of the scenes to act aesthetically on him, but corporeo-empirically. Oh, these Greeks! we have sighed; they will upset our aesthetics! [7] (p. 57)*

This insight of Nietzsche to consider the chorus as the impersonation of the spectator that confronts the characters on stage as real is indeed very close to the experiences promoted with virtual reality and augmented reality systems. The immersion induced in these experiences and the phenomenon of flow [21] signifies the entering of the interactor into the stage. The ideal spectator approaches the action on stage not aesthetically but empirically.

Nietzsche's approach recalls Schiller in the celebrated Preface to his Bride of Messina:

> *[...] where he regarded the chorus as a living wall which tragedy draws round herself to guard her from contact with the world of reality, and to preserve her ideal domain and poetical freedom. [...] It is on this foundation that tragedy grew up, and so it could of course dispense from the very first with a painful portrayal of reality. Yet it is not an arbitrary world placed by fancy betwixt heaven and earth; rather is it a world possessing the same reality and trustworthiness that Olympus with its dwellers possessed for the believing Hellene. [7] (pp. 58–59)*

A few pages later, Nietzsche concludes:

> *[...] the public of the Attic tragedy rediscovered itself in the chorus of the orchestra, that there was in reality no antithesis of public and chorus: for all was but one great sublime chorus of dancing and singing satyrs, or of such as allowed themselves to be represented by the satyrs. The Schlegelian observation must here reveal itself to us in a deeper sense. The chorus is the "ideal spectator" insofar as it is the only beholder of the visionary world of the scene. A public of spectators, as known to us, was unknown to the Greeks. In their theatres the terraced structure of the spectators' space rising in concentric arcs enabled everyone, in the strictest sense, to overlook the entire world of culture around him, and in surfeited contemplation to imagine himself a chorist. [7] (p. 65)*

This is indeed an important note: The physical organization of the ancient theater brings the spectator into the stage as part of the chorus, inside the representational worlds created by the theatrical plays. However, in order to achieve this harmonious resonance between the chorus on stage and the spectators, the people of the democratic Polis, a mediator is necessary: The author of the dramatic play that is living the reality that subsequently is made visible through the theatrical play. Nietzsche notes on the qualities of this mediator:

> *[...] at bottom the aesthetic phenomenon is simple: let a man but have the faculty of perpetually seeing a lively play and of constantly living surrounded by hosts of spirits, then he is a poet: let him but feel the impulse to transform himself and to talk from out the bodies and souls of others, then he is a dramatist.*

> *The Dionysian excitement is able to impart to a whole mass of men this artistic faculty of seeing themselves surrounded by such a host of spirits, with whom they know themselves to be inwardly one. This function of the tragic chorus is the proto-phenomenon: to see one's self transformed before one's self, and then to act as if one had really entered into another body, into another character. This function stands at the beginning of the development of the drama. [7] (p. 67)*

This is indeed the ideal of virtual reality within hyper-connected activities: To provide the means to surpass the "raw reality". The dramatist can do this without the use of additional facilities. Theater, then, is in its essence a means for creating virtual realities. And there are two options here: Either the virtual reality corresponds to actual experiences that are difficult or impossible to be reproduced in another way (e.g. historical experience that cannot be reproduced due to different technology, conceptual frameworks etc.) or it is an imagined experience. In this last case, the theater does not mimic a reference reality but creates a new reality for the first time, a reality that corresponds to the imaginative creativity of the creator.

Nietzsche compares drama with the art of rhapsodist:

> *Here we have something different from the rhapsodist, who does not blend with his pictures, but only sees them, like the painter, with contemplative eye outside of him; here we actually have a surrender of the individual by his entering into another nature. Moreover this phenomenon appears in the form of an epidemic: a whole throng feels itself metamorphosed in this wise. [7] (p. 67)*

In this final comment Nietzsche distinguishes drama from other art forms that assume a kind of external description of the reference reality. In drama, the reference reality is experienced from the inside in a way that spreads over all participants. This magical transformation resembles what happens inside the magic circle [22] in games where objects, behaviors and actions take unique meaning within fantasy worlds when someone goes beyond this conceptual membrane: a shield of sorts, protecting the fantasy world from the outside world.

In the ancient (and modern) theater, the spectator is invited to transform himself during the play in order to transform the world. Within the realm of hyper-connectivity the interactor is invited to take part actively in the transformation of her/his own existence and the world in parallel! The magic transformation is the basis of the dramatic art and ICT can be considered as a global form of dramatic art that breaks the barriers of the theatrical stage and brings the theatrical interaction anywhere anytime.

Laurel [4] (pp. 44–46) provides a short summary of the function of theater in ancient Athens and reminds us of the fact that the stories enacted in Ancient Tragedies were already known to the audience. The interesting thing about those performances, always given in pubic feasts with massive participation of the Athenian people, was that they provided the means for public discourse taking into account the current situation within the Polis. Within this context, the chorus played a very important role:

> *The Chorus in the Greek Theatre was like a mass character representing what might be cast as the citizens' responses through dance and song.*
>
> *[…] Greek drama was the way that Greek culture publicly thought and felt about the most important issues of humanity, including ethics, morality, government, and religion. To call drama merely "entertainment" in this context is to miss most of the picture. [4] (p. 46)*

It is indeed important to note once more as concluding remark that tragedy (and comedy) was born in Ancient Athens within the context of a historical development that employed drama as a means for collective reflection and discourse in the Polis. Theater provided the means (stories, characters, social gatherings) to experience, not just discuss, the public issues and, this way, educate the democratic citizens, the members of the General Assembly (Ecclesia of Demos) that was the ultimate decision making body, in order to act as responsible decision makers.

It is interesting to note that Turkle attributes a rather similar function to computers, which she describes as "an evocative object, an object that fascinates disturbs equanimity, and precipitates thought." [23] (p. 19).

Turkle and Papert directly link computers with philosophy from a performative point of view i.e. from a perspective that addresses philosophical issues not as mere texts presenting abstract ideas but as concrete things in action, as agents interacting with other agents:

> *The computer stands betwixt and between the world of formal systems and physical things; it has the ability to make the abstract concrete. In the simplest case, an object moving on a computer screen might be defined by the most formal of rules and so be like a construct in pure mathematics; but at the same time it is visible, almost tangible, and allows a sense of direct manipulation that only the encultured mathematician can feel in traditional formal systems [...] The computer has a theoretical vocation: to bring the philosophical down to earth. [24] (p. 162)*

Within this broader perspective, one could argue that digital technologies update theater (and representational arts in general) in their "ancient" form giving new birth to the dramatic view of social life, transforming social spaces into stages and social life to social drama in a unified hyper-connected space where stage drama and social drama are fused together as onlife drama. In such a setting we humans, as logical/social beings, are living inside two realities: The virtual reality of our concepts, our language, or ideas etc. and the actual realities of our bodies, the material requirements of our existence. Culture is the embodiment of virtual realities into actual realities (e.g. architecture, food culture, clothing, science, language etc.) specifying the way, the mode of living in order to bring our virtual realities into existence. The problem of identity and the continuous "creation" of reality within the performative approaches of social sciences and humanities reflect exactly these facts. With hyper-connectivity a new culture is emerging, or better a meta-culture in the same way that a computer is not a medium but a meta-medium that emulates all other media [11]. This new culture can be better understood and engineered if we go beyond conceptions focusing on representations and the dichotomy between the virtual and the real. The challenge is to raise our awareness of the dramatic character of the hyper-connected era that promotes performative interpretations within contexts that enrich reality with universal entities that follow causal rules thus promoting mindful actions and interactions.

Acknowledgements

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