Signs, Systems and Complexity of Transmedia Storytelling

Renira Rampazzo Gambarato
Tallinn University Baltic Film and Media School, Estonia
E-mail: `renira@tlu.ee`

Abstract

This article addresses key concepts such as sign, system and complexity in order to approach transmedia storytelling and better understand its intricate nature. The theoretical framework chosen to investigate transmedia storytelling meanders is Semiotics by Charles Sanders Peirce (1839-1914) and General Systems Theory by Mario Bunge (1919-). The complexity of transmedia storytelling is not simply the one of the signs of the works included in a transmedia franchise. It also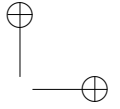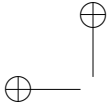 includes the complexity of the dispositions of users/consumers/players as interpreters of semiotic elements (e.g. characters, themes, environments, events and outcomes) presented by transmedia products. It extends further to the complexity of social, cultural, economical and political constructs. The German transmedia narrative *The Ultimate SuperHero-Blog* by Stefan Gieren and *Sofia's Diary*, a Portuguese multiplatform production by BeActive, are presented as examples of closed and open system transmedia storytelling respectively.

Keywords: sign, system, complexity, transmedia storytelling

THIS article addresses key concepts such as sign, system and complexity in order to approach transmedia storytelling (TS) and better understand its intricate nature. The theoretical framework chosen to investigate TS meanders is Semiotics by Charles Sanders Peirce (1839-1914) and General Systems Theory by Mario Bunge (1919-) due to the consonance that both share: Semiotics is known as the General Theory of Signs, thus it involves signs and sign systems, i.e. signs and the relations between them (Vieira, 2003).

Semiotics, systems, and language intertwine and the liaison element is the sign, which represents, to a certain extent, something to the mind. Peirce's triadic sign model is based on the trichotomy sign-object-interpretant: The sign has an open nature, meaning that it is anything of any one sort – a thought,
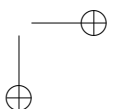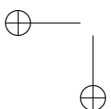
action, feeling, image, word, library; anything can work as a sign. In Peirce's words, "anything should be a sign" (CP 2.230). The sign is a First, which is in real relation of substitution with a Second, the object, through the generation of a Third, the interpretant. When we operate this substitution, we create an interpretant. Yet nothing is a sign unless it is interpreted as a sign (CP 2.308) by means of triadic relations leading to each successive sign becoming an interpretant for the preceding one. This continuous action of the sign generating *ad infinitum* interpretants is called semiosis. Indeed, according to Peirce:

> A sign, or *representamen*, is something which stands to somebody for something in some respect or capacity. It addresses somebody, that is, creates in the mind of that person an equivalent sign, or perhaps a more developed sign. That sign which it creates I call the *interpretant* of the first sign. The sign stands for something, its *object*. It stands for that object, not in all respects, but in reference to a sort of idea, which I have sometimes called the *ground* of the representamen (CP 2.228).

Peirce also highlights the notion of sign as mediation between mind and matter. The polarity between mind and the world of matter – interior and exterior – can be overcome only by sign mediation, through which these two worlds intersect (Santaella, 1992: 104).

Another important colligated concept to be pondered is system. Although there are several and different definitions of system, the notion of system has become especially universal and is being extensively used *urbi et orbi*. It refers mostly to an assemblage of parts forming a unitary whole, but since Aristotle, the idea behind it is that the whole is something over and above its parts. The set of correlated parts is not just the sum of them basically due to changeable interactions that form the integrated whole. The separation of the parts of a system would modify the significance of the whole and the alteration of any given part would affect its set.

System will be defined in the sphere of General Systems Theory, which was initially developed by Ludwig von Bertalanffy (1901-1972) (1993), in 1950. Nevertheless, his classical approach to scientific methodology will be not discussed; instead, Mario Bunge's scientific ontology will be refered, which focuses on structural characteristics of systems and serves our purpose. Bunge considers that systems theories are ontological, i.e. they describe extremely general properties of things.
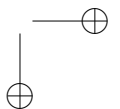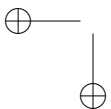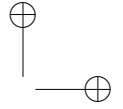
According to Bunge (1979: 4), a system is a complex object, whose components are more interrelated than loose. Reality is systemic and the universe is the generator system of all other systems. Reality is not composed of isolated systems – the ones that do exchange neither energy nor matter – but by open systems at some level – the ones that do exchange energy and matter with the environment. The formal definition of system developed by Bunge represents exactly this relationship with the environment, connecting things between themselves and things with their *Umwelt*[1]. A system σ is an ordered triple (Bunge, 1979: 5):

$\sigma = < C, E, S >$

Where:
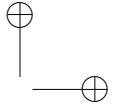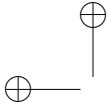C = composition (set of components)
E = environment (milieu)
S = structure (set of relations on the union of C and E)

A system may be said to have a definite composition [C], a definite environment [E], and a definite structure [S]. The composition of a system is the set of its components; the environment, the set of items with which it is connected; and the structure, the relations among its components, as well as among these and the environment. For example, a theory is composed of propositions or statements; its environments is the body of knowledge to which it belongs (e.g., algebra or ecology); and its structure is the entailment or logical consequence relation. (. . .) And the composition of a school is the union of its staff and pupils; the environment is the natural and social milieu, and the structure consists of the relations of teaching and learning, managed and being managed, and others. (Bunge, 1979: 4-5)

Relations among components are denominated *internal structure* and relations between components and elements of the environment are designated *external structure*. When the external structure is empty, the system is called

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1. Although the German word *Umwelt* simply means environment (surrounding world), in the semiotic realm, the concept of *Umwelt* developed by the biologist Jakob von Uexküll (1864-1944) designates a subjective universe, a self-centered world. Uexküll's theory states that organisms may have different *Umwelten* even if they live in the same place. It is a matter of perception. Each organism actively creates its Umwelt through interactions with the world (Uexküll, 1987; Kull, 1998; Sharov, 2001).
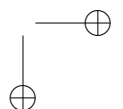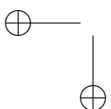
closed. Consequently, when a system presents external structure, it is named *open* (Weingartner and Dorn, 1990: 8). Moreover, the properties of a system can vary with time (t). Thus, Bunge's definition of closed system presupposes that: "Let σ be a system with environment $E(\sigma, t)$. Then σ is closed at t iff $E(\sigma, t) = \varnothing$ – otherwise σ is open" (1979: 9). Nonetheless, Bunge states that a system may be open in some aspects and closed in others:
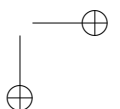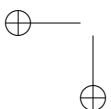
> Let *P* be a property of a system σ in an environment $E(\sigma, t)$. The σ *is open with respect to P at t* iff *P* is related, at *t*, to at least one property of things in $E(\sigma, t)$ – otherwise σ is closed in the respect *P* (1979: 10).

A system is open with respect to a certain property P if this can be related to a property of the environment. Furthermore, parts of a system can also be systems in their turn, i.e. a *subsystem*. Conversely, the whole surroundings of a system can be a system as well and in this case it is called a *supersystem*. The definition of a system should consider characterizations of the supersystem that includes the system and the subsystems included in it (Weingartner and Dorn, 1990: 9).

In order to discuss how signs and systems could be then related to TS, it is necessary to introduce the transmedia phenomenon. The term TS was first coined in 2003 by Professor Henry Jenkins in an article published by *Technology Review* (2003). As a work in progress, three years later he improved the concept and published its definition in his book *Convergence Culture: Where Old and New Media Collide* (2006).

A transmedia story unfolds across multiple media platforms with each new text making a distinctive and valuable contribution to the whole. In the ideal form of transmedia storytelling, each medium does what it does best—so that a story might be introduced in a film, expanded through television, novels, and comics; its world might be explored through game play or experienced as an amusement park attraction (Jenkins, 2006: 95–6).

Although the precise definition of TS is still open and it seems that there is no consensus around it yet, in this article TS, at least, refers to inter-related and integrated media experiences that occur amongst a variety of media. A transmedia narrative tells multiple stories over multiple platforms that together tell one big pervasive story, attracting audience engagement. It is not about offering the same content in different media platforms, but it is the worldbuilding experience, unfolding content and generating the possibilities for the story to
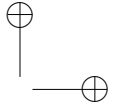
evolve with new and pertinent content. Thus, transmedia stories are built over multiple sign systems. "Transmedia signs do not require anchorage in definite objects; they form systems of cross-reference which may be open or closed" (Lemke, 2011: 585). Mario Bunge states:

Systems of different kinds have different compositions or different structures. (. . .) In our view there is no such thing as a hierarchy of structures. (Etymologically 'hierarchy' means a set of sacred components ordered by a power or domination relation.) What we do have here is a system of nested systems, i.e. a collection of systems each of which is a subsystem of a larger system (or supersystem) (1979: 11-12).

Considering this statement, a transmedia story could be seem as a supersystem composed of nested systems and subsystem like Russian dolls or Chinese boxes, for instance. Therefore, the TS supersystem would be composed by systems such as story, experience, platforms, audience, business model, and so forth. For example, the story system would have subsystems such as plot, characters, time, location, genre, etc. If Mario Bunge's system $\sigma = < C, E, S >$ is transposed to the realm of TS, each [super][sub]system has its set of constituent elements (C), its environment (E), and the relations between them (S). For instance:

Supersystem
TS = < (story, experience, platforms, audience, business model, etc.), (community of people who share common interests related to the storyworld), (interaction, participation) >

System
Story = < (plot, characters, time, location, genre, settings, world, etc.), (community of people who share common interests related to the storyworld), (interaction, participation) >

Subsystem
Character = < (demographics, psychographics, role, hero's journey, location, etc.), (storyworld), (connection, integration) >

Gary Hayes, in his transmedia production template (2011), organized a guide to the development of a property across multiple media platforms. He
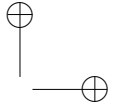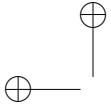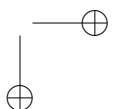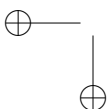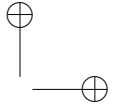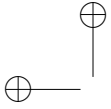
subdivided a transmedia project in five main sections and each of them has its specifics constituent elements. As suggested by Hayes, a transmedia production (supersystem) would involve, at least, five main areas (systems): Treatment, functional specification, design specification, technology specification, and business & marketing. Treatment, for instance, is the section responsible for the story elements and has as subsystems: Plot points, context, characters and attitude, scripts, and scenarios. Thus, independently of the nomenclature or the number of subdivisions, a transmedia project can be characterized as a supersystem that incorporates a series of complex objects, its systems and subsystems, in the process of unfolding content and evolving the storyworld.

A fundamental aspect of TS yet is the relationship between the story and people interested in it, which could correspond to the essential relationship between the constituent elements of a system and its environment. Henry Jenkins named 'performance' the TS principle related to the ability of transmedia extensions to lead to audience participation. He introduced two related concepts – "cultural attractors (a phrase borrowed from Pierre Levy) and cultural activators. Cultural attractors draw together a community of people who share common interests (...). Cultural activators give that community something to do" (2009a). Hence, interactivity and moreover participation are key aspects of TS. These two terms, indeed, cause confusion and are commonly used as synonyms. However, they are different: An interactive project allows the audience to relate to it somehow, for instance, by pressing a button or control, deciding the path to experiencing it, but not being able to co-create and change the story; a participatory project invites viewers/users/players to engage in a way that expresses their creativity in a unique, and surprising manner, allowing them to influence the final result. The American filmmaker Lance Weiler, recognized for innovations in the realm of TS and responsible for transmedia experiences such as Pandemic 1.0, states:

> Audience is dead. The reality is that what was once an audience is now what I consider to be collaborators. The relationship has totally changed. Democratization of tools turns audiences into their own media companies free to push button publish for the world to see. Authorship is shifting and as a result more people can be part of the storytelling. So in that sense participatory storytelling is an opportunity to take advantage of the connected world we currently live in. For me personally transmedia asks people to collaborate and to co-create stories that can be jumping off points to social
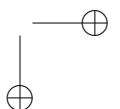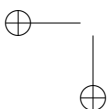
connections and if I do that the stories will surely spread (Giovagnoli, 2011: 92-93).

Participatory transmedia stories are in consonance with open systems, in which the relations (S) between composition (C) and environment (E) effectively exist and lead to collaboration. Open systems allow participation, i.e. participants can influence on the result, change the story, and co-create. Participation (S) occurs when the community of people who share common interests (E) can, with respect at least to a certain property (P), influence on the set (C) of components such as the story. There are several ways to promote participation in TS, such as voting, casting, community discussion forums, live events, live chats, etc.

Sofia's Diary, a Portuguese multiplatform production by BeActive, is an example of open system TS. The project was created in 2003 and produced in different countries (Portugal, Brazil, UK, USA, Germany, Turkey, Vietnam, Chile, etc), mixing TV, Internet, mobile and other media such as books and magazines. The strategy of *Sofia's Diary* is based on the community that was built around the main character. Sofia is a sort of virtual friend who interacts with audience and allows people to participate in a way that their voices can be heard. Nuno Bernardo, the responsible for the project, defines that "Sofia is a teenage girl who asks for your help to survive high school" (Bernardo, 2011: 61). Bernardo started *Sofia's Diary* as a web/mobile blog and afterwards it was extended to TV, radio, magazines, books, CDs, and so forth. The relationship between the story and audience was possible by daily SMS/MMS [2] alerts sent by Sofia, voting service to decide next episode, and premium call service with the summary of daily episode, for instance. Sofia communicates with her friends, the audience. She also tweets; she blogs and the content of her messages are presented by the episodes. Above all, the project allows audience participation. Participants also communicate and get heard. As friends, they express their opinions in different ways (voting, discussing, blogging, tweeting, for instance) to help Sofia to solve her dilemmas. The production company was able to effectively incorporate audience inputs, giving the possibility to participants to shape the content. Thus, they become part of the experience, they

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2. SMS (Short Message Service) is a text messaging service through web or mobile communication systems that allows you to send only text. MMS (Multimedia Message Service) allows you to send not only text but pictures, sounds, videos, or any combination of them. MMS message can carry a larger size of content than SMS.
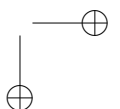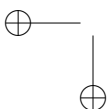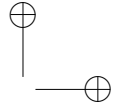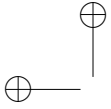
own the content. In "owning" the transmedia story, participants feel that this is their story and if it is yours, you will probably defend, recommend and promote it. That is the logic behind the success of *Sofia's Dairy*, a truly open system experience. Besides interactivity, open system TS presupposes participation.

On the other hand, transmedia stories that do not allow participation can be considered as closed systems, in which audience can act/react/interact but cannot interfere with the narrative. Closed system TS involves interaction but not participation, in the sense that audience can decide the path to experiencing it, can click here or there, can react to social media entries, but it is not able to collaborate and co-create.

The Ultimate SuperHero-Blog is a transmedia project by Stefan Gieren structured as a closed system TS. This German multiplatform story was supported by First Motion [3] and produced by Fiction Zwei Null, in 2010. *The Ultimate SuperHero-Blog* was built mainly around 55 video-blog episodes, a feature length mockumentary, and social media networks interactions. The story is focused on the high-school graduate Robin W. Schrader who wants to become a superhero. In order to do so, he starts an internship at the legendary Captain Impact cave in New York. His experiences as a superhero apprentice were screened as video-blog entries on Facebook, Twitter and YouTube. In February 2011, once the TS had ended via social media channels, the feature length *SuperHero-Blog: The Documentary* premiered in Berlin.

The emphasis on social media networks naturally provokes audience interaction trough feedback and comments. However, the project was designed not to incorporate any of the audience insights. All the story development was already planned and controlled by the producers without fans participation. Audience could react to the protagonist actions, but could not influence the story whatsoever, which configures a closed system TS. Most of transmedia stories are still being designed as closed system, including both independent and major productions. Although participation is one of the TS pillars, user empowerment is a trend, and concepts such as *prosumption* and *produsage* are a hit, it seems that producers nevertheless want to retain control of their projects and user's contributions are largely restricted yet (Bolin, 2010).

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3. First Motion is the European Union cooperative project for the Baltic Sea Region (Denmark, Estonia, Germany, Latvia, Norway, Poland, and Sweden) that supports new formats and ideas of multiplatform productions for audiovisual industries.
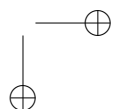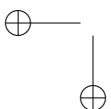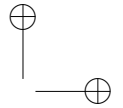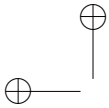
From the semiotic point of view, the constituent elements of a transmedia project, i.e. its systems and respective subsystems, are signs disposed to constant turning of interpretants generated incessantly. Signs are the result of semiosis, which creates and attributes their significance in a continuous dialogue of incentives, a *continuum* between mind and matter in the same sense as Peirce's synechism.[4] A transmedia project involves a continuous flow of images, videos, texts, sounds and so forth, which are signs able to generate interpretants uninterruptedly. In this sense, our interpretation is part of the story too, once it generates interpretants from the transmedia experience and completes the sign process, the semiosis. The wealth of the sign is revealed in the variability of interpretants that can be generated by the interpreter (Gambarato and Malaguti, 2006: 157).

Systems involve essential parameters that occur in any system, regardless of their particularities. Such features can be subdivided in basic (remain the same, independently of evolutionary processes) and evolutionary (can fluctuate over time). The basic features are: Permanence (tendency to stay), environment (surroundings) and autonomy (memory function, storage of information). The evolutionary features include: Composition, connection, structure, integration, functionality, organization and complexity. According to the focus of interest in this article, connection, integration and complexity will be addressed.
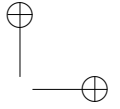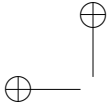
Complexity of TS

In order to better understand complexity, this feature will be approached in the realm of General Systems Theory throughout two other interrelated parameters: Connection and integration. Connection, as the source of relations, can reveal complexity by the number and diversity of these relations. Integration is characterized by the emergence of subsystems and can increase the

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4. A true *continuum* is something whose possibilities of determination no multitude of individuals can exhaust. Thus, no collection of points placed upon a truly continuous line can fill the line so as to leave no room for others, although that collection had a point for every value towards which numbers, endlessly continued into the decimal places, could approximate. (. . .) It would be in the general spirit of synechism to hold that time ought to be supposed truly continuous in that sense (CP 6.170). The term synechism was suggested and used by C. S. Peirce in 1892.
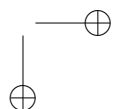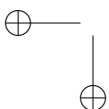
systemic complexity through both the number of subsystems and the emergence of shared properties.

Connection is a feature that expresses the capacity that constituent parts of the system have to develop a set of relations or connections. Connection is an intense relation that will affect the history of at least one of its elements; there is action between the elements involved.

We must distinguish between a mere relation, such as that of being older, and a connection, such as that of exerting pressure. Unlike a mere relation, a connection makes some difference to its relata. That is, two things are connected just in case at least one of them acts upon the other – where the action need not consist in eventuating something but may consist in either cutting out or opening up certain possibilities. In turn, we say that *acts* upon another if it modifies the latter's behavior line, or trajectory, or history (Bunge, 1979: 6).

Given sets A and B, there is the Cartesian product P = A x B defined as following:

$$P = \{ < x, y > / x \in A \ \& \ y \in B \}$$

P is built by arrangements between elements of A and B, but there may be some rule, law or restriction that guides the selection of these ordered pairs. Thus, the rule will select a subset R (relation) as follows:

$$R = \{ < x, y > \subset P \}$$

Another strong aspect of connection is the variation of intensity over time. Connections keep the system over time. Therefore, this feature is responsible for a sort of systemic stability and permanence, which is called cohesion. In Semiotics, cohesion corresponds to the concept of syntax: A property built on the set R of relations. Syntax is the set of rules that underlies the relations (Vieira, 2003: 24).

In the context of TS, connection is a crucial capability to develop relations (R), especially participation, in which the environment (E) acts upon the composition (C) and vice versa. People interested in a transmedia project connect to its elements, influencing on the story development. Their collaboration is, conversely, oriented according to the unfolding storytelling. The internal structure of the supersystem, i.e. connections among its constituent elements,
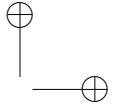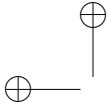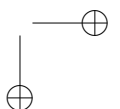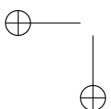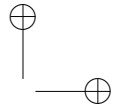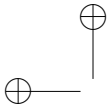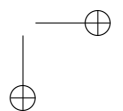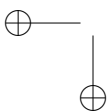
is equally important to assure the coherence of the story. Jenkins denominated 'continuity' this principle of TS (2009). Connection is also the attribute that collaborates to keep the transmedia experience over time.

Integration, in addition, is the strategy used by a system to subdivide itself into subsystems through the emergence of new shared properties. The degree of integration depends on the connections between the components of the system "relative to the disintegrating actions of the environment" (Bunge 1979, 35). Systems whose components are tightly connected normally have a high degree of integration. Integration refers to the way subsystems are connected. The integration of subsystems communicates the content (information) to be interpreted.

Integration, the ability to subdivide itself into subsystems, is inherent to TS. A transmedia experience (supersystem) involves an unfolding story, which consequently generates other systems and subsystems. The principle of 'worldbuilding' stressed by Jenkins (2009a) is related to the notion of integration: A transmedia story is indeed a storyworld capable to support multiple characters and multiple narratives across multiple media.

Complexity can manifest itself in a variety of manners in the midst of systemic parameters. It is considered a free parameter difficult to be defined but, to a certain extent, complexity is always present. Complex systems tend to persist and in order to succeed they develop strategies for adaptation to the environment. The inability to adapt suppresses the permanence of a system organization in space and time. Hence, the complexity of TS is associated to the adaptation to the environment as well. The environment of a transmedia project, as mentioned earlier, is the community of people who share common interests related to the storyworld. Furthermore, the complexity of TS contributes to the permanence of the story over time. Thus, a transmedia project is more complex if it allows user's participation that will lead to unpredictable developments of the story and enhance the whole experience, contributing to its permanence. Accordingly, *Sofia's Diary*, as a participatory (open system) TS example, is not just more complex than *The Ultimate SuperHero-Blog* (closed system), but it has much more impact on users over time and lead to a higher level of commitment between the transmedia property and people interested in it. For instance, in a period of approximately two years (2010-2012), the Facebook page of *The Ultimate SuperHero-Blog* protagonist counts around 3,600 friends and the video-blogs available on YouTube chan-

nel were viewed around 21,000 times. [5] In the first two years of *Sofia's Diary*
(2003-2005) in Portugal, the project's web site received over 75,000 visits,
Sofia received around 3,000 e-mails per month and *Sofia's Diary* books sold
100,000 copies in the same period (Link Consulting, 2005: 31).

Transmedia stories, however, as complex pervasive narratives, can evoke
confusion, disorder, and disorientation. Complexity, indeed, can be chao-
tic, entropic, but can also be organized (Vieira, 2003: 26). In an interview
to Pessis-Pasternak, Jean-Pierre Dupuy warns us to consider the differences
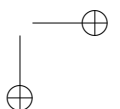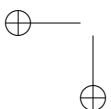between complexity and disorder:

> Why do we say that a system is complex, and not disordered? Both cases
> mean a deficit of understanding, an apparent lack of regularity. What is the
> difference between complexity and disorder? (...) The distinction that is
> established between a complex system and a disordered one is that, in the
> first case, there are functional properties: The system does something! One
> can then say that a complex system is a system *apparently* disordered, but
> behind it there is a hidden order (Pessis-Pasternak, 1992: 110-1).
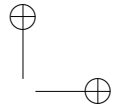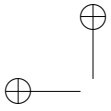
Overall, the complexity of a system, in association with connection and
integration, is based on the difference, on the heterogeneity of its constituent
elements among themselves and in relation to the environment. These diffe-
rences can be understood as information and they act on us. A way to define
information resides in consider it as an entity capable of reducing uncertainty
(Nöth, 1995: 142) or as the difference between the existing relations of sys-
tem components. TS is not about offering the same content in different media
platforms, but it is the worldbuilding experience with the possibility for the
story to evolve through new and pertinent content; new and different informa-
tion. The connection between subsystems, with the consequent transport of
information, generates the condition where each subsystem is mediated by or
mediates others. This behavior and the sign action in Peircean Semiotics are
alike. It is sign mediation enriched by diversity, complexity. Bunge also refers
to different levels or degrees of complexity, i.e. distinct intensities of the same
property in a given system (1979: 13).

The secret of successful transmedia franchises or complexes is that they
make us into ideal transmedia consumers, ones who will in fact construe sa-

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5. Numbers according to the Facebook account `http://www.facebook.com/`
`robinwschrader` and YouTube channel `http://www.youtube.com/user/`
`robinw18?feature=watch` on August 20, 2012.

tisfying transmedia meanings across these media presentations of universes (...) (Lemke, 2011: 587).

As interpreters of transmedia projects, audience does not see isolated parts or systems. They see them in the relationship between themselves and in relation to the context of their own knowledge. Thus, there is not only what they know literally, but what they conjecture, imagine and presuppose. This repertoire rebuilds the road of the sign, and in a way, reveals it. With the interpreter's constructive participation (semiosis), an image, object, shape, sound or color can say a thousand words (Gambarato and Malaguti, 2006: 158).

Let us try to build up, step by step, some of the complexity of transmedia. That complexity, I am arguing, is not simply the multimodal complexity of the signs of the works included in the franchise. It also includes the complexity of the dispositions of users to interpret and identify with (or dis-identify from) semiotic elements (e.g. characters, themes, environments, events and outcomes) presented by the works. It extends further to the complexity of the identity markets which help shape our dispositions, and to the social networks within which we conduct our interactions with the works. We must never forget that the meanings of a sign are determined not by its qualities alone, but by the interpretive conventions of a community (Lemke, 2011: 583).
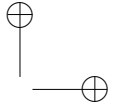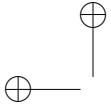
Complexity of TS definitely embodies intricate involvements between all the constituent elements of [super][sub]systems, i.e. set of components, environment and set of relations. Moreover, TS is not isolated from the complex social, cultural, economical and political constructs.

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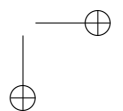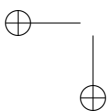
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