

Semiotics of natural disaster discourse in post-tsunami world: A theoretical framework

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Abstract. The study of natural disaster and its discursive dimensions from a semiotic perspective can provide a theoretical frame for the scientific communication of global catastrophes. In this paper I will suggest two models; one is a semiotic model on the natural catastrophic events and the other is a hexagon model composed of semiotic dimensions of natural disaster discourse. The six main modules include narration, description, explication, visualization, prevention, and recovery action.

1. Introduction: Context

Tsunami, Katrina, Kashmir, we have rarely witnessed human tragedy on these scales. Contemporary natural catastrophes are often represented in media with rhetoric and imagery taken from the Tsunami. This paper does not deal with how media visualize the event of the Tsunami itself, but focused on the semiotic implications of the Tsunami discourse represented in media. It considers natural disasters as a semiotic object and a discourse of enormous cultural capital and argues that the persistent recurrence of natural catastrophes and the practice of its transfer images raise many important questions for the economy of representation in narration, description and explication of news events. In the global appropriations of cultural meaning of natural catastrophes a significant shift has happened from the natural disaster as event to natural disaster theory: the use of the natural catastrophe and its cultural representation as a political and critical tool and as

a genre, as well as its commodification within and for contemporary media discourse production. With this shift, the Tsunami has been integrated into global scientific consciousness. According to Marc Augé (2005), it signaled the planetary consciousness of global threats. With increased removal from its primary referent, the natural catastrophe itself and the uses of its images turns more and more into an imaginary, the French idea of ‘*imaginaire*’ as the constructed mental landscape of collective aspirations.

2. Objective and method

Tsunami should be able to play an important role in the development of a semiotics of catastrophes. In the representation of catastrophic events, Tsunami has come to influence and structuralize the media’s narratives of natural disasters. Tsunami has also come to generate the critical apparatus for theorizing this representation: the various epistemological and semiotic approaches, ideas about the role of the media in catastrophic events, about how to disseminate and construct a communication strategy of such event and ultimately about how to analyze and gain a semiotic understanding of contemporary natural disaster discourses.

The question is what kind of scripts has been formed out of natural disaster discourse about how to represent, think and experience science in the face of catastrophe. The purpose of this paper is to conduct a preliminary speculation on what kind of epistemological move has been performed when production and consumption of natural disaster discourses took place within the framework of Tsunami event. The topic will be considered with a focus on the uses of Tsunami imagery.

This paper will bring three areas of expertise (structural semiotics, discourse analysis, and scientific communication) together to this end and make an attempt to explore the techniques of constructing highly ambivalent images that represent sciences either as adjuvants or criticize them as powerless, incapable of resolving this kind of natural event.

3. Natural disasters and globalization: Ambivalence of sciences in an era of globalization

In modern “risk society”, everybody is obliged to deal with uncertainties and their consequences (Beck 1992). Facing risks has been part of

everyday life nowadays. In fact, in global ecological threats, a lack of confidence in science may result in various, contradictory fears. People may fear the possibility in which science is powerless in the face of natural disasters. In other cases, people may also be concerned about that science is so superhumanly powerful that some scientific inventions could be even harmful to the human benefit.

In sum, recent natural disasters have caused an increased feeling of insecurities and a mixture of great expectations and fear about science. If it is correct to refer to the popular perceptions of the sciences as “a mixture of great expectations, fears, utilitarian interests, curiosities, ancient prejudices, and superstition” (Gerbner 1987: 110), other visual medias such as Film and TV can be interpreted as a major source for these ambivalent attitudes represented in public images.

When confronted with the applications of scientific research, or with new technologies, people may be torn between a frenetic desire to consume, particularly when given with new possibilities of communication, and ancestral fears reactivated and updated, like the fear of the year 2000. Such two kinds of contradictory feelings are all related to transformation of world view. The world of news and images which submerges us merely confirms our feeling that we are living in a global situation from which no escape is possible. The future of our societies, indeed the future of the planet as an array of societies, cannot be imagined without science (Augé 2005).

The paper's working premise is that contemporary natural disasters should be considered as effects of, as well as media and catalysts for, processes of globalization. They are distinguishable from earlier large-scale disasters by the various forms of transnational causal chains in which they are involved. Because contemporary natural disasters are embedded in globalizing processes, they should be studied in the context of the various facets of globalization. In this regard, it's timely helpful to get ideas from global semiotics which focuses on the interconnection among signs and all forms over the planet, and their relations of interdependence. In this vein it seems to me relevant to apply a theoretical framework of global semiotics to the phenomena of natural disaster (Chang 2006).

4. Socio-semiotic features of contemporary natural disasters

Let me briefly mention some semiotic features of contemporary natural disasters.

4.1. Social constructedness

Unlike ordinary natural disasters, the social constructedness of these events is a crucial aspect of the experience of those who undergo or witness a natural catastrophe. What characterizes contemporary natural disasters is the fact that nature has been entirely socialized and natural causal chains cannot be disassociated from social ones.

4.2. Multi-dimensionality and liminality

Compared to their precedents, then, contemporary natural disasters might be determined as large scale, multi-dimensional events that transcend any specific boundaries and resist to conventional causal explanations and traditional ways to contain and manage the rapid dissemination of their destructive effects.

Some of the most terrible natural disasters do not obey such model of the demarcated event as its relatively clear delimitation between center and periphery, event and context, before and after. Such catastrophes are not concentric, site-specific events, and can be perceived only as a multiple network, or a rhizome (to use Deleuze and Guattari's notion). They lack any clear temporality, and their effects are still being disseminated over vast and distinct regions (Deleuze, Guattari 1987).

4.3. Interdependency between globalization and natural catastrophe

As the news reports have made clear about the Tsunami catastrophe, this natural disaster can properly be called a planetary catastrophe. Although many scientists would easily agree that natural disasters today could not be studied out of the context of globalization, one

could invert this line of thought, and study globalization itself through the special perspective obtained through contemporary natural disasters. Natural disasters will be interpreted as productive events, i.e., not only as effects of, but also as media and catalysis for, processes of globalization.

This paper's thesis is that contemporary natural disasters enhance novel global orders of human existence, transform social cultural and economic relations, promote new forms of morality and shape new forms of political governance.

5. Semiotic configurations of natural disasters

5.1. Semiotic modeling of natural disasters

Given Umberto Eco's (1984) recognition that any natural event can be a sign, it might be possible to conceive a semiotics of natural disaster in the framework of natural semiotics. In this context Eco underlined an essential role of diverse inferences which are at work at every level of semiosis in the understanding of natural signs, in order to demonstrate that "the understanding of signs is not a mere matter of recognition (of a stable equivalence); it is a matter of interpretation" (Eco 1984: 43).

Here I would present a morphodynamic model of René Thom's (Thom 1983). His ideas from a morphosemiotic and topological perspective is an example of semiotics of natural disaster par excellence. There is semiosis — participation of the semiotic — in all morphological process of (spatio-temporal) transfer: Source–Message–Receptor that one can symbolize as the Figure 1 (Thom 1981: 301).

This model may raise some objections especially because it lacks subject-predicate structure characteristic in language, intention for communication, and rules of interpretation. There are processes of purely physical transfer, for them, a priori, which cannot be accepted as a semiotic interpretation. Therefore, when Tsunami took place, nobody imagined some semiotic configuration. However, in this process of Tsunami, some dynamic elements are actually contained in the entire processes of conventional communication. An essential criterion (a priori) of semiotic characteristic of a transfer concerns the intentionality of sender subject who wishes that the content of message

would be absorbed by the receiver. If one interprets natural disasters semiotically, one might invoke the effect of a malevolent intentionality which used a giant wave of water as an instrument. There was an assertion that nature was not so small and diminished but more powerful than our plans and impositions.

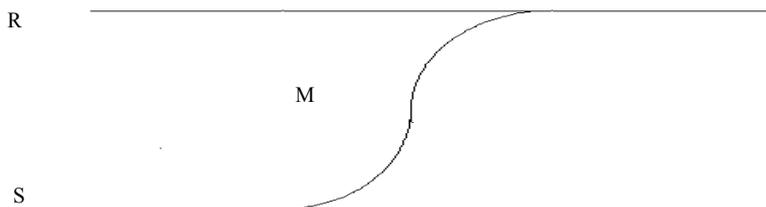


Figure 1. Catastrophic schema: Source (S) — message (M) — receptor (R).

Thom's model poses some very subtle questions concerning the agency of interpretation, the inferential nature of sign and also reminds us of the notions of natural signs in the pre-history of semiotics (Manetti 1993; Peirce 1998). In the case of Tsunami the tectonic slide-tsunami waves connection as a sign of possible future event would indeed lack both a sender and a message-goal. But, it might be admissible to argue for the existence of a natural phenomena as a kind of sign producer or source in this case and the sign-receiver or destination serving to designate whoever might observe the tectonic slide and make a connection that produces an intelligible sign indicating potential tsunami waves.

5.2. Syntactics, semantics, pragmatics

The discussion above may serve as the point of departure for our investigation into natural disaster as sign. Whether it is an earthquake or a tsunami, a natural disaster involves at least three phases: (1) occurrence of a natural event, (2) representations of it, and (3) after-effects of the happening.

This brings us to a number of principles of narratology, which center on the concepts of transformation, desire, and lack. As a narrative, natural disaster is a form of expression that deals with transformations. This is illustrated by Arthur Danto's tripartite formula for an event, defined as a transformation in time and of time (Danto 1968).

- (1) X is F at time t_1
- (2) E happens to X at time t_2
- (3) X is G at time t_3

In the present case, X is the affected place by natural disasters. Narratives are about protagonists attempting to attain a goal, that is to say an object of value, which they attain or do not attain. Taking the principles of desire and transformation together, we can say that all transformations lead to a conjunction or a disjunction. In common language the word "disaster" is used to refer to a distinct event that interrupts habitual flow of everyday life. It seems very interesting to remark that the narrative structures of disasters are similar to Aristotle's rules of drama: there are a beginning and a middle and an end. On the contrary, Tsunami disaster does not adhere to all the rules of plot in generating epistemological confusion and ontological uncertainty.

5.3. Syncretism of nature and culture

Wikipedia, the free encyclopedia, defines natural disaster as 'the consequence of a natural hazard and human activities. The key concept here is the human vulnerability which determines the translation of natural hazard into structural human and cultural losses. This point is demonstrated by biosemiotics. The impact on both nature and culture, resulting from the tsunami, is considerable, particularly with regard to damage of coastal ecosystems and of cultural assets. Such losses may affect the rich cultural life in crisis-stricken countries and can threaten traditional livelihoods. Given the fact that there are different Natures in semiosphere embedded in cultural and cosmological context, there cannot be a transparent naturalness (Kull 1998). The explanatory divisions between nature and culture are no longer consistently sustained. These points suggest that we live, as Haraway might put it, in "nature-

culture”. In this vein I want to propose the following typology of disasters by using semiotic square (see Fig. 2).

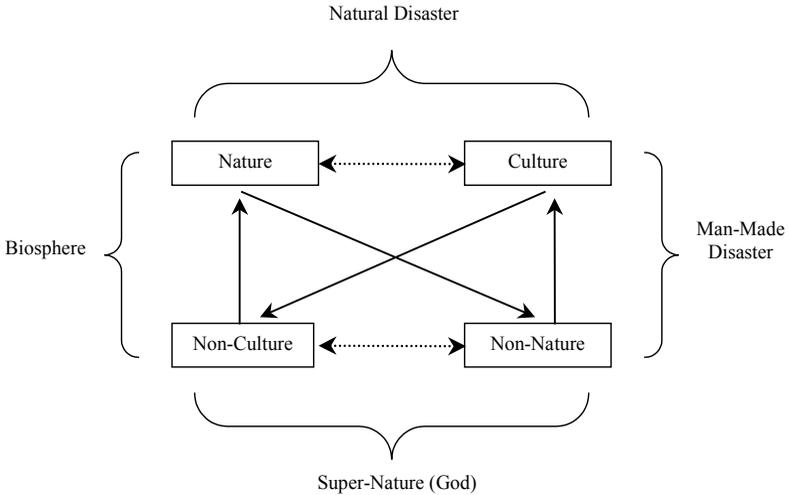


Figure 2. Semiotic square of natural disaster.

**6. Semiotic dimensions of natural disaster discourse:
A hexagon model**

The paper’s key point is to present a semiotic approach to contemporary natural disaster discourses that takes into account their visual, narrative and scientific aspects. I propose a hexagon model which shows semiotic constitution of natural disaster discourse (see Fig. 3).

6.1. Visual discourse: Ecology of images

Photography, film and electronic media are the most popular sources of pictures which shape and influence collective memory. Very little is known about the formation of popular images of science in general

and even less in relation to the impact that visual media could have on the perception of the sciences in the context of natural disasters.

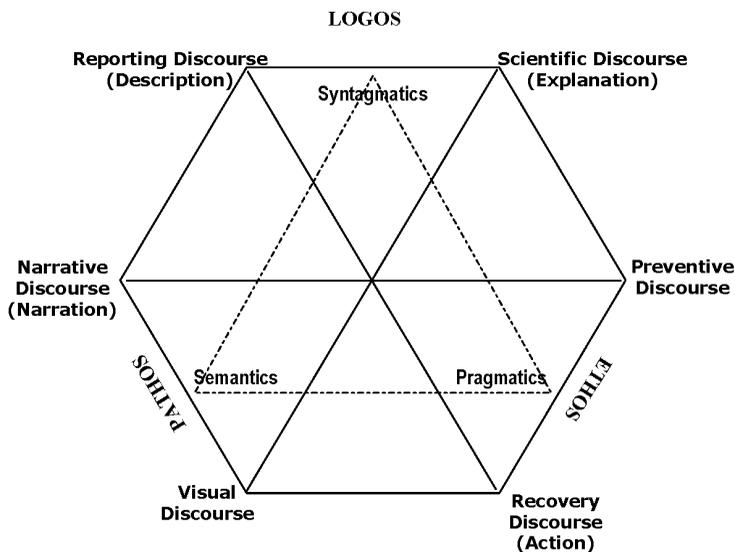


Figure 3. Semiotic dimensions of natural disaster discourse.

The images of the Tsunami cause distress. They serve to make us feel ourselves present at the site of disaster, to make visible, imaginable what has happened. They also bring about as much empathy as understanding. The dimension of pathos is most conspicuous here.

Susan Sontag suggested that photographs must be weighted against the obliviousness they dispel as well as against the cruel disregard they might drive, the exploitation they might cause, and the perils of interpretation. In her most recent book, *Regarding the Pain of Others*, S. Sontag remarked that being a spectator of natural or human disasters taking place in another country is fundamentally modern experience. She argued that we should construct an ecology of images to maintain feeling of compassion. What is now most striking now about Sontag's argument is that it is not so much about visual image but about compassion, an emotion and an ethic that visual can awaken or undermine (Sontag 2001; 2004).

6.2. Narrative discourse

Narrative dimension of natural disaster discourse forms a network consisting of multiple scientific and folkloric interpretations of series of transformations amongst iconic, indexical and symbolic signs. In fact, many narratives of the tsunami disaster under discussion correspond to this folkloric nature, including animistic belief in the rage of sea god and animals' sixth sense saving their lives, etc. (Chang 2006). In fact natural disasters are represented as acts of God or caprices of amoral nature. Consequently, there is always a dimension of narrativity (a story to be told about them), and deontic and ethic dimensions (a moral lesson to be drawn from them, always a share of blame to be assigned). There are many genres of narratives from sound geophysical readings to eyewitness narratives of various points of views. It is possible to talk of 'the public interpretation' of natural disasters although these interpretations based upon Peirce's abduction and Eco's encyclopedia are often overcoded by religion and superstition. In sum it is important to recognize the yawning gap between the big stories like scientific narratives of explication and the small local forms of testimony.

6.3. Media's reporting discourse

Most of the information we have about natural disaster discourse comes to us by the way of the mass media. But, it does not, for the most part, come as explicit reporting about risk. Instead, most reporting about hazards and their associated risks comes in the guise of news and feature stories about accidents, illnesses, natural disasters, and scientific breakthroughs.

6.4. Science's explicative discourse

The scientific discourse on the natural disasters is causal in nature. Not surprisingly, the central cause target of such explanation is the elucidation of cause-effect relationships among variables of interests. Although the scientific discourse is upon the observation of natural phenomena, scientists confess they cannot explain everything. Scien-

tific discourse does not always address the most fundamental causes of the disaster; when, where and why to happen, etc.

The semiotic analysis of scientific discourse is framed by a sophisticated theory of how language and other semiotic resource systems are put together as the means through which meanings are fabricated. In this vein, we need to investigate actantial structures and deontic doing of scientific discourse (Greimas 1976). This has important implications for a general semiotic theory on the processes of social meaning.

The social heteroglossia should demonstrate how the meaning-making practices of a given community construct systems of relations among texts, or give voice to, the different cultural positionings and social view in a given community.

6.5. Recovery actional discourse

Contemporary natural disasters exemplify a field of interaction between scientific organizations that try to address the root causes of catastrophes and those organizations that specialize in relief operations and the delivery of aid in emergencies. While subjects of the first type address themselves to the wider context of catastrophes (which are usually yet to come), agents of the second type underline the black hole itself in which whole life-world including cultural defenses has been collapsed. Humanitarians are gradually establishing themselves as prominent mediators of moral sensibility and responsibility. The two parties, however, have tendency to manipulate different ideological and semiotic discourses.

6.6. Preventive discourse

The core idea of prevention discourse is that prevention is the best defense against natural disasters. We can reduce the damage from these disasters through effective prevention measures. In order to better protect communities under threat from natural disasters, it is crucial to fully integrate disaster prevention into reconstruction efforts. For example, UNESCO is extending its long experience in tsunami mitigation, for the establishment of an Early Warning System for the Indian Ocean, as the first step towards a global alert system. First of

all, the distribution in time and space of these phenomena must be evaluated through the scientific means at our disposal. Indigenous prevention measures are also an important factor. In the area of natural disasters, semiotics' role is to bring about a better understanding of the semiotic features of this preventive discourse. Semiotically oriented scientific communication can contribute, with others, against disasters in world communities, through a better awareness of the seriousness of these natural disasters and the need to promote means of prevention as an integral part of sustainable development.

7. Conclusion

This preliminary study is a semiotic approach to the semiosis of natural disaster and semiotic constitution of natural disaster discourses. In order to implement this semiotic modeling, the parameters must be more precisely defined and some empirical research should be done to testify the validity of this model.

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¹ See [http://www.korea.ac.kr/~korea100/paper/auge_culture_planetaire\[1\].doc](http://www.korea.ac.kr/~korea100/paper/auge_culture_planetaire[1].doc).

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Семиотика природных катастроф: теоретическое обрамление

Изучение природных катастроф и их дискурсивных измерений в семиотической перспективе нуждается в теоретическом обрамлении, позволяющем развить научную дискуссию о сущности глобальных катастроф. В данной статье предлагаются две модели: семиотическая модель природной катастрофы как события и шестиугольная (гексагонная) модель семиотических измерений дискурса природной катастрофы. Основные шесть модулей последней модели: наррация (рассказ), описание, выражение, визуализация, предотвращение и восстановление.

**Looduskatastroofi semiootika tsunamijärgses maailmas:
teoreetiline raamistik**

Looduskatastroofide ja selle diskursiivsete dimensioonide uurimine semiootilises perspektiivis vajab teoreetilist raamistikku, mis võimaldaks arendada teaduslikku diskussiooni globaalkatastroofide üle. Artiklis pakutakse välja kaks võimalikku mudelit: üks on looduskatastroofide kui sündmuste semiootiline mudel ja teine — looduskatastroofidiskursuse semiootiliste dimensioonide heksagonaalne mudel. Viimase kuus põhimoodulit on jutustamine, kirjeldus, väljendus, visualiseerimine, preventioon ja taastamine.