From: The Spam Book: On Viruses, Spam, and Other Anomalies from the Dark Side of Digital Culture. Eds. Jussi Parikka & Tony Sampson. Cresskill: Hampton Press.

Chapter four

Unpredictable Legacies: Viral Games in the Networked World *

Roberta Buiani

Viral Proliferations

Between 1983 and 1986, a series of consecutive publications officially announced the cause of AIDS, now attributed to the retrovirus known as HIV. In the same period, Fred Cohen introduced a "major security problem called virus."1 Although his description was rudimentary and, according to some computer virus analysts, not fully accurate,2 it was immediately adopted universally. "Computer viruses" and other electronic-based "anomalous" agents were soon proclaimed a "high tech disease."3

Today, most of what media and popular culture tend to call viruses does not pertain to one specific variety of computer viruses, and clearly, it does not regard those computer viruses once described by Cohen. Other coded substances and agents carrying a set of characteristics that approximately fit the original definition of virus have been annexed to the same macro-category, as if they were part of the same family. Parasitic nature, general modality of proliferation as well as capacity to "hide" or move furtively within the most recondite strata of computer systems are features that can be ascribed to most network pests.

The single expression that conveniently summarizes and evokes any of the above features is the "viral:" all agents that fall under this category are said to contain a viral behavior, feature, or code. A number of recent internet security handbooks

has placed computer viruses (code that recursively replicates a possibly evolved copy of itself) side by side with worms (network viruses), Trojan horses (name given to a variety of malicious programs), logic bombs (programmed malfunction of a legitimate application) and other types of malware such as spyware, spammer programs and flooders— to mention a few of the most popular network annoyances — and have made them the subjects of one single field of inquiry, computer virus research.4 Although this field, which includes affiliates of anti-virus (AV) and the security industry, virus writers5 and computer analysts, classifies malicious agents according to their distinct technical features, it ultimately groups them under the same macro-category. In the same way, popular media and the ordinary user appear to see any unwelcome computer disruption as viral.

The use of the viral as a widely applicable term is a thread. Its function as a receptacle of diverse material features, behavioral aspects and connotations suggests that it can be applied well-beyond the limited territory of computer virus research. Accordingly, biological and computer viruses have ceased to be the only viral items in circulation. Since the end of the nineties, attributing the term viral to phenomena that only vaguely remind us of viruses has become a common practice. For instance, viral marketing has become an increasingly adopted form of advertisement or promotion for a variety of enterprises as diverse as the software or the cinema industry. Very much linked to this phenomenon (although different in scope and purpose) are viral videos. With the recent popularity of blogs and online sharing websites such as YouTube and GoogleVideo, viral videos constitute a series of often amateur shorts that reach unexpected popularity among peers and visitors without any particular reason. The term viral has also been associated with specific forms of media activism. The expression viral tactics was coined by Nathan Martin in 2003 during a speech delivered at the festival of tactical media Next Five Minutes, and has since become a form of media activism.6

By organizing, within the same expression, significant features common to

viruses, this expanded use of the viral term engenders divergent outcomes. First, one could infer that the use, or abuse, of such a term is symptomatic of an essentialist tendency that uses the viral as a sort of "dump" wherein one can just throw anything pertaining to viruses. In fact, it appears to obliterate all possible differences that could help distinguish between the increasingly heterogeneous variety of multifunctional digital agents and, say, viral media. However, this constitutes just one superficial facet of the viral –an aspect, that, nonetheless, should not be ignored and will be treated in the course of this paper.

Second, as a catalyst of popular and well-known features, the viral is a flexible term. Computer viruses, viral marketing, viral videos and viral tactics are distinct phenomena. Not only do they operate on different registers and communication codes (computer language, media language and/or cultural discourse), but they also affect different environments (computer networks and human networks). In addition, their level of engagement with and mode of appropriation of various viral materials are substantially different. In other words, they utilize and interpret the viral in quite different ways. The emerging of diverse phenomena that share the same suffix, and yet, interpret it in such different fashions, reveals that the viral should not be dismissed as "generalist" or "essentialist." On the one hand, the above mentioned phenomena stem from culturally and popularly accepted characteristics from selected features of viruses. However, these characteristics are neither identical nor do they manifest in uniform fashions. One could say that they aggregate unevenly and crystallize to form different manifestations of the viral. On the other hand, the same characteristics can be applied to a diverse range of activities. In this case, they appear to attest possible transformations of the viral into a reservoir of tactics and actions.

The above double articulation of the viral as extensive or customary application (often leading to essentialist interpretations of viruses) and as open-ended use sheds a new light over this term. First, rather than understanding the application of this suffix in negative terms, as a homogenizing expression, merely capturing the non-specific side of viruses, one could rethink of it positively, as a term that

differentiates, that helps formulate, re-define and diversify novel phenomena. Second, it contextualizes the phenomena it fosters in relation to both the user and the objects that interact with it. In this way, the viral can be understood as a vessel of powerful potentials, originating from the generalized and generalizing aspects of viruses.

The result is not only a new way of understanding the notion(s) associated with the viral and the original agents (viruses) from which they emanate, but also a new way of re-interpreting the role of the users as active players. With the users' appropriation and active application of the viral to forms of advertisement, media phenomena and human practices, viruses can no longer be understood as faceless, anomalous and/or superfluous substances that exist within or colonize the media and human environment with their intrinsic and immutable characteristics. Increasingly, they become the generators of unexpected and unconventional creative uses and initiatives.

A general acknowledgement of viruses as elements internal to, or inseparable from, a multifaceted and multi-directionally transforming system is hardly new. Scholars in different disciplines have pointed out the status of viruses and worms as both expressions of and co-contributors to the media and network culture. 7 Like each element that forms the above system, be it technological, political, or cultural in nature (a program, a concept or a phenomenon, or, as Fuller defines it, a media ecology)8, viruses are dynamically linked to, and intersect, at different levels and degrees, with the other components. Thus, it is inevitable to reinterpret viruses as potential producers of creative outcomes, rather than just threats.

Analyzing viral interaction within the system itself and with the actors that utilize the system (the users) helps us understand how viruses might contribute to foster open-ended reconfigurations of a system's architecture (the network physics, as Terranova explains). However, it is also crucial to gain awareness on how they might also fuel the user's novel "active engagement with the dynamics of information flows" (the network politics).9

A lot of attention has been devoted to situate viruses in relation to network culture and to uncover the role they might play in contributing to and modifying a dynamic, "turbulent" ecology of media.10 In most circumstances, it has been demonstrated that viruses do indeed contain a great deal of potential for the development and transformation of network culture. However, where can we actually see their contributions? How, thanks to what mechanisms and in what form does this contribution surface and manifest through concrete practices or phenomena? In other words, we know that viruses have potentials, but what do the existing possibilities look like?11 Using the viral as a marker of the presence and the contribution of viruses in network culture and beyond may help pinpoint and identify these manifestations.

A Viral Guide to the Viral

As mentioned above, Viruses' characteristics converging and/or summarized by the viral can be understood as expression of a first habitual or conventional instance of the viral. In this case, the use of this nomenclature to indicate any incarnation of computer malware has practical purposes. First, it serves as an umbrella term that collects, under the same category, all malicious agents existing within network systems. Second, it allows the average user to perform a quick identification of said agents.

However, the use of the viral is clearly not limited to practical necessities. The convergence of several functions in one single term illustrates its significance as a motif. Interpreting this motif as a set of specific or literally identical features that recur in all its manifestations would be inappropriate. In fact, uttering the word viral means signaling features that evoke, yet do not exactly reproduce such features. A number of entities and agents, despite their diversity, can be easily included under the viral label. This means that the viral can exceed the domain of computer (or biological) virus research and, possibly, penetrate other disciplinary and cultural realms.

The wide diffusion and use of the viral, then, cannot just be accredited to its value

as a generic container of various characteristics, but is dictated, each time, by the types of aspects evoked when they converge in this particular expression. While the extensive use of the viral can be detected as the sum of quintessential elements that reside within and emanate from viruses, in the second case, the very aspects that characterize viruses and viral entities, or a portion thereof, appear to be removed from the initial source (viruses) and, more or less purposely, appropriated and re-elaborated in an open-ended fashion. At this point, viruses undergo a radical transformation of their functional qualities. Instead of retaining their nature as agents that live out of a certain ecology of media, they are turned into a resource that can be selectively employed and re-assembled to describe and even devise many other different activities. From being entities that live, exploit, and interact "with" the context they inhabit, viruses are turned into expressions of other subjectivities that operate, this time, "upon" such context. For instance, viral marketing has appropriated the distributed nature of viruses in general, has drawn upon the aggressive replicating mechanisms of biological and computer viruses, and has adopted their easy-to-remember name. Similarly, viral tactics seem to utilize viruses' capacity to infiltrate and merge with elements of their host.

Extensive (or customary) and open-ended uses that characterize the viral are not the result of different interpretations of the same notion of virus. Rather, they are consubstantial to its existence. In fact, the two aspects are indivisible, as they tend to coexist in each phenomenon examined. For example, stating that viral marketing, viral videos and viral tactics are solely the manifestation of an open-ended use of the viral would be incorrect. It is because of the recognition of certain conventional features intrinsic in viruses, which are then selected and finally transferred onto and collected into the viral, that the above phenomena were named and formulated. Thus, the viral is both an indication of the multidirectional and productive forces directly deriving from viruses and an expression of the performative forces imparted by individuals upon viruses.

The above coexistence of the two aspects suggests that the viral, as a

nomenclature that incorporates the interaction between viruses, users and other objects, acts as a means that facilitates potential processes of transformation. The condition of "being viral" implies the presence of qualities proper of viruses that may enable individuals to appropriate them and "become viral" themselves. While the condition of "being viral" emphasizes the very role that viruses play in the construction and circulation of the viral as a set of conventional features, the promise of "becoming viral" promotes its open-ended use, that is the free intervention of the user as active player able to open-up and manipulate the trajectories of the viral.

The above distinction made between two different instances of the viral seems to confirm, while re-directing, Bardini's recent remarks that viruses are redefining postmodern culture as a viral ecology. As a master trope of postmodern culture, Bardini argues, viruses could be grouped as one encompassing category, the "Hypervirus," whose logistic curve can be located at the beginning of the Eighties, with the advent of AIDS. Since then, Bardini adds, "[by] materializing the cybernetic convergence of carbon and silicon, [the hypervirus] infected computers and humans alike at unprecedented levels."12 The Hypervirus, metaphorically described as a "pandemic," has manifested in a variety of forms and through all sectors of culture: the virus, seen as a parasite, introduces disorder into communication, represents a cell of terrorism that emerge, with its viral mechanism of duplication, from the very system that has created it. Ruling our times "as [an] indifferent despot[s]" THE virus 13 can be considered master-trope of postmodern culture.

Both the multiform manifestation and the user appropriation of the viral can be easily assimilated to the notion of the Hypervirus. It is thanks to the features and to the current popularity disseminated by viruses through the viral that individuals are enticed to appropriate and adapt the nomenclature to unknown or new phenomena. However, by accepting Bardini's notion of Hypervirus, and the characterization of postmodern culture as a "viral ecology," we also accept the unquestioned dominance of viruses. This perspective does not seem to emphasize

the proactive intervention of users in re-inventing the course of the viral. While confirming its legacy and popularity, any creative re-elaboration and re-utilization of the viral seems to acknowledge and restore the user's agency and increasingly move away from, rather than confirming, the notion of viruses as a given, or as sole fosterers of phenomena or actions.

The Viral in Viruses (Being Viral)

One way to detect the convergence of expressions in the construction of the viral is by reviewing the role of the biological and informational components in the formulation of the viral.

A number of scholars have drawn attention to the "traffic," as Eve Keller has suggested,14 existing between biology and computer science. Biology, and other—carbon based related—life-sciences have lent computer science their characteristics and connotations by means of a variety of metaphoric translations and in accordance with particular circumstances, direction of research, scientific assumptions or ideological agendas15. The resulting field of study manifests its connection with the biological through a series of repetitions and/or recurrences that run across horizontally and vertically, like a grid of sometimes intersecting threads. In doing so, these threads shape the discourse and the configuration of computer science, while the latter folds back onto the sciences by lending them elements that have been reworked and transformed.

Seeing biology and the life sciences (such as medicine, microbiology or virology) as the precursors of computer viruses would not be entirely accurate. This statement would neglect the role played by popular imagination in the notion of infectious diseases, long before their molecular causes were officially detected and classified. Furthermore, it would downplay the concurrence of political and rhetorical agendas not only in delineating the connection between biological and computer viruses, but also in affecting their function, as well as their behavior. Ross, for instance, notes how the media commentaries that followed the computer viruses' rise in popularity showed that "the rhetoric of computer

culture, in common with the medical discourse of AIDS research, [had] fallen in line with the paranoid, strategic mode of defense Department rhetoric established by the Cold War."16 Thus, the appearance on the scene of computer viruses was conveniently channeled to articulate "the continuity of the media scare with those historical fears about bodily invasion, individual and national that are endemic to the paranoid style of American political culture."17

Galloway notes that the zterm virus was only applied to self-replicating programs after their risky potential was realized. The reason for this assimilation, then, should be found in the political and cultural atmosphere existing in the particular decade of their release: AIDS violently emerged and gained momentum in the media in the mid-eighties, exactly at the same time Cohen was formulating his definition of computer viruses.18 However, it was not the scientific precision of this definition, and its place in popular culture, that Cohen was looking for, but instead a broad, somehow cursory, albeit well-identifiable and "tangible" description. According to Galloway, had computer viruses emerged in the successive decade, today we probably would not call them viruses.19 Although it is arguable that AIDS was the sole responsible for giving computer viruses a name, it was probably one of the main factors that consolidated the association between biological viruses and self-replicating programs and the further inclusion of such programs in the broader categorization of viruses.

Not only do Galloway and Ross, among others, provide explanations of how the connection between computer and biological viruses has happened, but they also suggest more profound ramifications, articulations and manifestations that can be detected while viruses make their way through information networks as programs, as well as ideas in people's imagination. The above examples, in particular, reveal the multilayered-ness of computer viruses. The convergence of diverse expressions originating from contemporary events and the subsequent induction of cultural and social fears reveals the participation of culture at large in establishing the reputation of viruses, by modifying and manipulating their configurations and effects.

The different trajectories that have concurred to form the notion of viruses in general, and computer viruses in particular, seem to indicate their conceptualization as both repositories and generators of discursive formations. In The Archaeology of Knowledge, Foucault analyzes the existence of continuities and coexistences of fragments of discourse between heterogeneous fields. The existence of such coexistences and continuities may be signaled through the following categories: naming (the existence of an identical object studied across disciplines), style (a constant manner of statement, or how a certain corpus of knowledge has presupposed "the same way of looking at things,"20), established groups of statements ("a definite number of concepts whose content has been established once and for all"),21 and persistence of themes. However, the detection of continuities is not sufficient to group all the above as "unities."22 Instead, they describe systems of dispersions, that is, "series full of gaps, intertwined with one another, interplays of differences, distances, substitutions, transformations"23 all linked together through a variety of regularities. In fact, simply put, while naming might be the same, the subject is never quite identical, as it changes and continuously transforms through time, according to various circumstances and mutations of perspectives. Moreover, identical style is not applied to identical technologies and established rules are often not attached to the same concepts. Finally, the same themes are applied to different subjects with different purposes and effects and produce different connotations.

While maintaining elements in common, the above series are, indeed, separate entities. As Foucault explains, these systems of dispersion will probably never form unities, yet they are somehow connected through a variety of regularities and elements that keep repeating across enunciations. The challenge in finding and analyzing discursive formations lies, therefore, in identifying the "coexistence of dispersed and heterogeneous statements"24 and in being able to describe and define a regularity, that is an "order, correlations, positions" between "a number of statements…objects, concepts etc."25 Following this analysis, one may observe that computer viruses do not belong to the same realm, nor would their structure and configuration make them comparable to biological

viruses. Yet, they share the same name and some common features. Such features, alone, are present as regularities or as recurring discourses in a number of types of viruses. Moreover, viruses too can be said to recur as regular objects, whose qualities mutate with disciplinary, historical and cultural contexts, as well as dimensional realms.

The regular or reoccurring features of viruses as discursive formations intersect with material practices and coagulate to form dissimilar objects that maintain different characteristics each time. The viral, alone, is a statement that may summarize just about anything related to viruses and incorporate the different forms that viruses can take. However, this does not mean that it maintains identical or unalterable features, or that it can be freely applied, as an unbreakable totality, to any object. Rather, while maintaining a set of underlying and collectively established (or perceived) qualities, it can be also subject to continuous interpretations and modifications enacted by individuals and by the objects with which it is coupled.

The viral is never found alone, but it is always accompanied by different entities (viral agents), phenomena (viral marketing) or actions (viral tactics). When the viral nomenclature is combined with other words or objects (viral marketing, viral videos) it mutates or is adapted to lend such activities and phenomena features they need (such as a behavior, a reproductive set of mechanics or just its connotations). These features assume different weight or priority according to, or to the benefit of, any agent (or the phenomenon) to which the term is accompanied. The resulting connection of the viral to the designated object sanctions the formation of independent, specific and novel entities or phenomena, whose characteristics retain features originating from their accompanying attribute (the viral) and the elements that previously characterized the object itself (videos, marketing, etc..). The materialization of the new object is a concrete assemblage. It is the result of the encounter and the concrete realization of the relation between different forces.26 Not only does the viral incorporate, on the one hand, all the relations, transformations and dense

interpolation between viruses, and their entire surroundings (including society, history as well as other disciplines, such as biology), but also, on the other hand, it acts as that element that simultaneously marks the presence of a concrete assemblage, and facilitates its formation.

The Use of the Viral (Becoming Viral)

When Haraway observes that "organisms are not born, but they are made"27 she refers to the impossibility to interpret "natural" objects (natural or technological in this case) as self-referential, as exclusively born with "boundaries already established and awaiting the right kind of instrument to note them correctly."28 As part of a media ecology where "'organisms' or 'components' participate in the autopoiesis of the ..digital culture of networking"29 viruses can, then, be assimilated to "natural" digital objects. Like other entities or elements whose sum contributes to and, at the same time, affects the entire system, viruses emerge from a complex and often gradual transformative discourse that affects them, and which they affect. In fact, there exists a concerted interconnection between single users, the collectivity of users (the network culture in its diversified articulations), and inherent or perceived characteristics of viruses. All of the above actors are involved in assessing and in determining the course, the diffusion and the additional features of viruses. The appearance of new disciplines, commercial industries, as well as new groups that dealt with and that revolved around viruses may exemplify this autopoietic scenario.

Both the anti-virus industry and virus writers are products of the diffusion of computer viruses. Having sprung up from, and by surviving on the very existence of the diffusion of viral code, these industries and countercultures contribute to the further dissemination (both in terms of popularity and territorial diffusion) and circulation of numerous and complex families of viruses. By drawing parallels between living beings and computational artifacts, some authors have supported a similar autopoietic idea. Computer virus researcher Peter Szor seems to subscribe to this very tradition: the interaction between viruses and anti-virus

software is not destined to end, as the existence of the former is essential to the generation of the latter. In order to illustrate the competitive, and rather hostile confrontation happening between distinct virus “fighters” and virus writers, he combines the notion of networks as autopoietic systems with the Darwinian idea of “struggle for existence.”30 The result is a portrayal of network systems where malware, operative systems and anti-virus software appear to generate recursively the same network of processes which produced them. At the same time, viruses, which he identifies with the whole apparatus of malware and viral agents, engage in a daily and cyclical struggle that constitutes an “evolutionary” step for the development of the digital world.31For Szor users, AV analysts and computer virus writers are equally contributing to and furthering the viral traffic that happens within and between their machines. As newer security operations are developed to confront the spread of viral code, proposing new strategies that could possibly anticipate next-generation viral attacks, virus writers' reactions will follow in the form of new viral agents aimed at shattering newly built security shields.

As already mentioned, the viral signals the formation of concrete assemblages or clusters of meaning that sit outside the strict domain of the informational. The active contribution of individuals or groups to forge and name such assemblages is crucial. Forms of micro-appropriations can, then, be considered expression of the encounter between viruses, modified and experienced under the label of the viral, and the agency of individuals and groups who, like computer analysts and virus writers, have engaged with and elaborated on their features and attributes.

Drawing from Guattari’s ecosophy, Fuller explains how these processes may happen within media ecologies. He interprets these as “massive and dynamic correlations of processes and objects,”32 where “objects” encompass a variety of elements, from the very code that constitutes media to the products of, and the human relation to, the production of media. He observes how every component of an apparatus (or a machine) is dynamically integrated into the whole and, at the same time, is connected to the single parts. Thanks to the interchangeability

and the recombinant characteristics of the single parts, the system has the potentials to build infinite realities. These realities are not just the result of the interconnection of elements internal to specific forms of media, but originate from a more complex cross-fertilization between media, social conglomerates and contingent occasions. As potentials are always unrealized or yet-to realize, turning them into realities implies the creation of particular conditions that allow or direct their realization. For instance, the use of the viral epithet as a "coagulator" or a conveyor of meaning may trigger the emergence of the above realities.

The manipulations and micro-appropriations resulting from users' active contribution could happen through what Guattari calls the work of "subjective productions."33 In a fairly static "capitalistic order of things" where "nothing can evolve unless everything else remains in place,"34 Guattari sees the transformativity and the eternal unfolding of media as preparing the "ideal conditions for future forms of subjectivations."35 Turning the "natural" or present chaotic overlapping of the "mental, social and natural"36 into a possible future realizable project, is the only way out of the impasse created by an imposed media system that compels its players to "submit to the axioms of equilibrium, equivalence, constancy, eternity."37

Subjective productions are strongly involved in expropriating the qualities and functions found in a particular context, in displacing them and in forging other "existential chemistries,"38 which can then re-used in unconventional ways. These subjective productions are both individualized and collective. Individualized as the product of the individual's responsibility, who situates him/herself "within relations of alterity governed by familial habits, local customs, juridical laws, etc."39 Collective, as a

> …multiplicity that deploys itself as much beyond the individual, on the side of the socius, as before the person, on the side of preverbial intensities, indicating a logic of affects rather than a logic of delimited sets.40

Collective and individualized forms of subjectivation are called to continuously add novel functions and features and, therefore, to generate novel viral assemblages. The viral seems to incorporate and make visible not only the manifestation of viruses as (self) assembled beings with their own properties, but also as entities that can be manipulated, based on assumed features perceived through collective and "common sense" experience, and on the creative re-direction of individual users or programmers.

When applying the term viral, chosen features deriving from viruses are transferred to a diverse range of phenomena or activities. While the term remains unchanged, the newly created items have little to do with its original meaning. Practices that stem from fields as diverse as the arts, marketing, or advertisement, increasingly incorporate single or multiple features of viruses that can easily be summarized as viral. In this scenario, the viral serves as a means of productive re-location of the features of viruses in dimensions different from the initial conception, and also fosters an infinite number of emergences and expressions (virtually, as hypothesis or potential), and a finite number of concrete assemblages (pragmatically, or as a material, visible possibility).

Viral Conundrums

The current extended use of the viral is revealing of the potentials that make its dissemination and use in other cultural dimensions and technological levels possible. While its flexibility proves advantageous for the inclusion of new forms of digital code in the list of malware, and for the designation of new non-digital phenomena, it can also be an obstacle when one tries to designate, identify and constrain specific viruses to well-defined boundaries. However, far from representing the downside of the viral, this obstacle can be interpreted as one of the many ways and instances through which the viral is made visible. If seen in this way, said obstacles are no longer impediments, but concrete products and reflections derived from the viral through the meshing and convergence of the media ecology.

The viral has been used to evoke and pull together a series of elements that appear to fit many objects at a time, but that do not characterize one specific object in a detailed fashion. In this sense, one can say that the viral constitutes an element of connectivity between various manifestations. The term is equally used in computer science to indicate specific features that might characterize malware as a series of coded items, as well as to designate a general behavioral pattern that makes the recognition of malware easier to a non-expert.

The non-specific use of the viral is, on the one hand, justified as a result of the ever-changing nature and variety of malware manifestations within a complex and fast moving networked system. On the other hand, it reflects the sense of emergency and time-sensitiveness of malware research and antivirus industry. In both cases, using the term viral code is more convenient and faster than having to specify the category and the specific name of each new malware. However, while the term is employed to convey the presence of affinities between diverse objects, the perspectives, the technical specifications and the area of application are slightly different. For instance, saying that the viral incorporates a parasitic and/or opportunistic behavior with a series of assumed aggressive connotations does not seem to help point to any malicious agent in particular. This might result in difficulties when attempting to separate the non-specific and generalized notion of the viral (i.e. when the viral is used to generally indicate malicious code) from the single features that the viral is said to incorporate. In this case, virus analysts, security experts and computer scientists seem to stumble upon disagreements and complications when it comes to the identification, the classification and the naming of viruses. This is especially true when computer experts try to provide fast detection, real-time mapping and elimination of the annoyance.

Moreover, the simultaneously general and specific use of the viral can create a disconnect that prevents both expert and non expert from either classifying viruses as coded objects following consistent methods, or from properly distinguishing them according to their specific peculiarities (as worms, Trojan

horses, logic bombs etc...).

Conventionally, it is not up to the virus writers, but to the AV researchers to assign names to viruses. According to the online magazine Computer Knowledge, it is unlikely that virus writers name their fabricated malware: " those virus writers that insist on a particular name have to identify themselves in the process. Something they usually don't want to do" as this would facilitate their exposure and increase their liability41. However, the AV industry does not appear to be fully cohesive when it comes to classifying viruses as most attempts of this kind have produced different and conflicting results. The reason could be found in the relative novelty of the discipline that examines computer viruses, in their speed of reproduction and emergence and, finally, in the goals the security industry establishes when hunting down viruses.

As Gordon argues, while science has relied on

> ..a sample-based naming scheme, so that a new plant is ultimately identified by comparing it to reference samples of known plants...the problem with applying this approach in the anti-virus world has been the lack of a reference collection or even a central naming body.42

One of the major problems, she argues, does not necessarily lie in the classification method "per se", but in how naming is applied within this classification. In fact, it is mostly agreed that all viruses are classified according to a well-established sequence, by type (usually w32), name (Bagle, Klez, etc..), strain (usually one or two letters added to the previous) and alias (usually the common or popular name). Since new computer viruses are discovered at a very fast rate, each anti-virus company proceeds independently by what Gordon calls "interim naming,"43 that is by applying a temporary name to each newly detected virus. Naming is most of the times made in a state of emergency. Thus, the name chosen for viruses might not always be consistent, at the point that two separate companies might go ahead and use two different names to identify the same virus or, vice-versa, use the same name to identify two different viruses.

Although classification is needed for research purposes, it is mostly used as a temporary solution to allow the infected user to find the right anti-virus patch. In fact, naming is irrelevant for users, as their preoccupation lies primarily with detection and removal. Since anti-virus products are usually customer-oriented, the need for accuracy of naming and classification for research purposes is deemed not vital and even superfluous. Speedy viral detection (whatever that is) and resolution, not accuracy, is the primary goal. To explain this tendency, a spokesperson from Wildlist.Org, the organization that collects detection of viruses from individuals and anti-virus companies and monitors computer viruses in the wild, offers the following example to explain the disinterest in classification for the sake of research:

> There's a weed growing in my back yard. I call it Lamb's Quarters. It's a very common weed, and is also known as Goose Foot, Pig Weed, Sow Bane, and a few other things. I don't know what it's called in South Africa, Hungary, India, or Taiwan, but I'm sure it has lots and lots of names. .. I'm not a biological researcher. I'm just an end user. I yank the weeds and mow the lawn. I call it Lambs Quarters and don't care what it's called in Hungary.44

The elusive behavior and fast pace of emergent viruses prompts anti-virus companies to react rapidly against multiplying threats. In these conditions, a precise taxonomy of malware is almost impossible, especially when it needs to be done in a timely manner and, anyway, before the infection starts creating substantial damage.

In terms of the rules that make classification possible, the very communities that create and disseminate classifications contribute to, and even enhance, the difficulties of naming viruses.

The problem of classification has repercussions on the way the non-expert and the popular press interpret viruses. In fact, with the fast changing pace combined with an internal instability, the system is unable to provide clues that would allow the user to identify, with any certainty, the presence of a particular type of

malware or to distinguish between different strains of malicious software. While the average user is left with a general notion of viral code, consisting of fragmentary information that adds nothing to his/her knowledge of computer viruses, this system displays a particular use of the viral consisting in the reproduction of old assumptions and general perceptions of viruses that dominates the sciences and the popular imagination alike.

Ciack! (Viral) Action!

At a different level, dealing with a generalized notion of the viral becomes a point of advantage and a source of potential undertakings for those who wish to actively engage with the features of viruses. In its continuous unfolding and constant transformation, the viral can be interpreted as a pool of opportunities and possible re-configurations that might be used to generate and describe a variety of new concrete assemblages. Using a number of creative tactics individuals can appropriate and manipulate the features that characterize viruses and turn them to their advantage.

Whereas the peculiar functioning of viruses could be adopted as a tactic in itself, the variety and degrees of appropriation and utilization of the viral appear to reflect its two major aspects: its manifestation resulting from the features, the popular connotations and assumptions it collects, (extensive use) as well as its manifestation as a variety of purposefully appropriated aspects (open-ended use). As it will be clear from the examples, this operation is the result of both collective and individual subjective forms of productivity.

As a manifestation of its extensive use, the viral has infiltrated a variety of phenomena through inadvertent and sometimes unacknowledged assimilation. Features of the viral have been absorbed almost automatically, as a result of the dramatic impact that viruses imparted on culture. The viral, in this case, is acknowledged as a behavioral template. Phenomena that utilize such model automatically become, to some degree, also manifestation of the second aspect (the open-ended use of the viral). Although they usually do not acknowledge the

viral as a source of inspiration, they are able to creatively use the above model and apply it in a variety of contexts.

The phenomenon of franchise business could be interpreted as an example of how the viral (in the form of selected number of characteristics) has been silently assimilated. In fact, franchise enterprises have multiplied and spread across the globe, acting as fosterers of a new economic trend and as witnesses of a newly distributed post-capitalist structure. According to Shaw, franchisors simultaneously operate their outlets under two distinct incentive schemes or modes of organization: franchising and company ownership. In the first case, the manager owns the outlet but has to pay a regular fee to the franchisor. In the second case, the franchisor acts as employer by offering a regular salary and performing direct control over the manager. Despite different ownership schemes, in either case the franchisor's goal is to protect his/her brands from the "franchisee free-riding."45 The result is a multiplication of franchise outlets whose style, products and management are maintained consistently and where small changes or attempts by the outlet to adapt to the surrounding environment are regulated according to precise contracts.

For instance, in order to establish their branches in different parts of the world, Starbucks and McDonald's had to undergo a few stylistic form and product modifications to allow the company a minimal integration with the host location, while the key elements that characterize the original brand (the most visible being the logo) remained unchanged. Such diffusion appears to have drawn inspiration from viral replication in so far as they perform slightly different functions but still maintain the same old and easily recognizable main functions.

While the franchise model appears to have inadvertently inherited and productively appropriated the functioning of a virus without yet adopting its name, other enterprises were not afraid to admit their purposeful association with a certain viral behavior. This is the case of viral marketing, where terminology openly credits viruses. Viral marketing is often described as "the

tactic of 'creating a process where interested people can market to each other."46 By referencing information process theory, Subramani and Rajagopalan classify this tactic as a specific manifestation of the "more general phenomenon of knowledge-sharing and influence among individuals in social networks." Viral marketing (VM) utilizes densely knit network clusters to spread "recommendations" about products in a process that simulates word-of-mouth (WOM) and face-to-face (F2F) communication. Its effectiveness lies in the fact that the recommendation to buy, to use or to download a product may come directly from a friend or from a trusted authority (often a sport or a Hollywood star). Subramani and Rajagopalan mention the recent Gmail phenomenon as one of the most successful cases of viral marketing: every new member has the option of inviting five friends to open an account. In turn, the said member had been invited to sign up by a friend. 47 Major software companies often use viral tactics to promote software such as AIM (AOL Instant Messanger) Macromedia packages, Realplayer etc.., in order to attract new users and to guarantee or establish constant monopoly.

As Boase and Wellman note, viral marketing is not new.48 Rosen adds that the first commercial viral marketing campaigns were introduced in the 1940s.49 However, the label viral has only recently been applied to marketing tactics introduced on the Web. The new denomination would not have been adopted, had there not been any acknowledgment of the benefits that this new formula would generate. Clearly, viral marketers knew that using the term viral would have attracted a great deal of publicity. In addition to reminding one of the resemblance between this marketing tactic and the spread of computer and biological viruses, the term seems to be adopted as a way to guarantee penetration capacity, as well as attract the attention of the user or the prospective adopter.

One might object that the viral mechanism of diffusion is a rehash of the broadcast pattern.50 To demonstrate that this is not the case, and to illustrate how the act of combining viral and marketing comes from an understanding of a

different, fluid and rather processual diffusion, Pedercini explains that viral dynamics of diffusion move through a surface that is anything but smooth. The diffusion happens by consensus and not by coercion: viral marketing, in fact, counts on a multiplicity of interested and conscious actors to function properly. As opposed to what happens with the computer virus spread, this time the user is not only active, but also conscious and willing to participate in the operation, otherwise the tactic would not succeed.51

The above observation illustrates the existing connection between a particular practice that is carried out openly on the Internet and the substances that circulate at its deeper coded level. Moreover, it testifies to the degree of re-elaboration and transformation of a term that has come to characterize several items at a time. The viral, in this case, only maintains a few of its original qualities. Once it is coupled with the above practice, its function and meaning undergo substantial transformations, marking the formation and materialization of new concrete viral assemblages. Viral marketing then, could not be just an exception. In fact, other online phenomena have recorded unprecedented and sometimes unexpected levels of diffusion, thanks to a proliferation technique that is said to mimic the mechanism of spreading viruses. Not by chance these phenomena have often deserved the viral nomenclature. “Viral or contagious media,” “virals” and “viral videos” are the latest additions to the army of the viral.

Once named, the above articulations do not remain immutable. Given the multiplicity that characterizes the active interventions that bring to life or define such articulations, all viral phenomena are in constant fluctuation. Viral marketing can be subject to transformations according to diversified uses or distinct contexts. In turn, phenomena that carry different names but share the same viral suffix (i.e. viral videos) may retain close resemblance to viral marketing. Individuals or groups deciding to employ forms of viral media make the ultimate decision according to personalized or contingent modalities of use.

One of the first examples of viral videos was marked by a May 2005 contest

(Contagious Media Showdown), followed by an exhibition at the New Museum of Contemporary Art (New York), organized by Jonah Peretti.52 The term "contagious" or viral media was coined to define those sites, which, recently and inexplicably, had reached a great amount of popularity among online strollers. These sites are often built by amateurs and are mostly unsophisticated in terms of style and content. Nonetheless, a dense crowd, without apparent reasons, avidly visited and interacted with them. The competition awarded the first price based on the number of hits a site received. Peretti explains:

> ..That's an increasingly popular way of thinking about something that is usually random: a designer makes a dancing baby and is completely taken aback that it spreads everywhere. A silly video circulates all over the web. Much of that is completely unintentional53

What is interesting about this event is not the originality of display or the artistic capability demonstrated by the creators of the sites, but the very popularity that, quite inexplicably, they were able to generate, as well as the mechanisms that enabled such outcomes.

The contagious media devised by Peretti anticipated a much larger online phenomenon that occurs today thanks to video sharing websites such as YouTube and Google Video, as well as social network hubs such as MySpace. Collecting a variety of short videos that range from TV program recordings and amateurial and/or self-promotion clips, to short documentaries and activist videos, viral videos have quickly become one of the most popular phenomena of online sharing and online entertainment54. Given the diversity of audience and contributors, as well as the openness and relative flexibility of video sharing websites, viral videos often have little in common in terms of purposes, style and even audience. In addition to constituting continuous source of entertainment for a wide and increasing audience, they are part of a rather random and fairly unpredictable cycle of content sharing, socialization and exchange network, originated from recommendations forwarded by friends and groups to which each viewer is connected. No surprise, then, that viral videos have increasingly

become (self) promotion tools. Impressed by the popularity reached by a few video uploaders, many frequenters of YouTube or Google Video have increasingly developed similar ambitions.

The combination of this latter function and their unpredictable mechanism of spread make viral videos and viral media in general almost comparable to viral marketing. In fact, all these phenomena spread through "word of mouse"55 recommendations and personal notifications among online users. Their convergence becomes clear when one looks at similar early phenomena that spread before the mass use of social network software. One might remember, for instance, the excitement and curiosity generated in 1998 by the "Blair Witch Project" website, an early example of viral media whose goal was to promote the homonymous independently-produced, low-budget movie. The website created much media-hype months before the movie itself was released and guaranteed a stunning spectator turnout.56 Because of its original intentions, this example can be easily understood as simultaneously a form of viral media and a particular type of viral marketing, along with more recent fortunate promotional campaigns spread thanks to the active click of the user.

Following unexpected successes, and despite the unpredictability of their outcomes, it is no wonder commercial enterprises have started using social networks as possible channels to spread their ads or to promote their products. One major question that corporations increasingly ask is "how do we do this intentionally?"57 – Contests, such as the one launched by the UN Food Program, among others, encourage contenders to upload their viral video entries onto YouTube.58 In a similar vein to the unavoidable and unpredictable performance of viral media are the attempts to launch viral projects that would briefly disrupt the goals of designated targets. For example, in 2005 the Ars Electronica Festival (Linz, 1-6 September 2005) awarded GWEI.org (Google Will Eat Itself) a special honorary prize. Hans Bernhard, spokesperson of the collectives in charge of this site, Ubermorgen.com and Neural.it, describes the project as a 'social virus':

Our website generates money by serving Google text advertisements on our hidden web-sites and our show-case site. With this money we automatically buy Google shares via our Swiss e-banking account.59

After creating a basic website, the group joined Google Adsense program,60 an agreement that requests website owners to place small texts advertisement on their pages. In exchange, they receive a small amount of money for each click generated from the text ad. Google, in turn, would receive from the advertising company the same amount of money in addition to the percentage already retained for its services. “Instead of passively submitting to Google cyclical re-generation of money,”61 Ubermorgen/Neural found a way to turn the mechanism to their own advantage. By notifying their community members to click on the ads found on their website, and by simulating visitations thanks to an automated robot, they could increase their entries and reinvest the money received to buy Google shares. Not only did they create a viral enterprise that, in the long run, had potentials for slowly consuming the monopolist position of Google, but they were also able to lay bare the advertisement mechanisms that regulate the World Wide Web.

Unfortunately for the collective, this tactic was short lived. The very mechanism that could bring considerable disturbance to Google was soon tracked down and ousted. GWEI.org is now fully censored on all Google search indexes worldwide. In a gesture of solidarity and to protest against the incorrect censorship imposed by Google, The Institute for Network Culture (a research centre that studies and promotes initiatives in the area of Internet and new media) has recently released a call for support that requests sympathizers to insert links in their websites pointing to GWEI. This tactic is substantially viral, as its goal is to re-disseminate the content of the website by making it visible through the alternative social sharing techniques of multiple linking.62

GWEI.org, with its tongue-in-cheek attitude, is part of a series of hit-and-run interventions typical of tactical media (TM). Like other similar interventions,

GWEI.org had an ephemeral and short lived existence. However, it was able to attain fast and unpredictable results. Its contribution consisted in small, imperceptible micro-changes that filtrated its target (Google in this case) slowly and invisibly. Like viruses, GWEI.org initiated subtle changes that could not be detected as soon as they hit, but which could be intercepted only later, when the impact had already been experienced and could no longer be reversed. Like viruses again, GWEI.org disseminated unpredictably through the network. Laura U. Marks classifies practices that function in this way as "invisible media,"63 recognizing their similarity with what Hakim Bey's Temporary Autonomous Zone: "a guerrilla operation which liberates an area…and then dissolves itself to re-form elsewhere/elsewhen, before the state can crash it."64 One could argue that, given the formulation of T.A.Z. and invisible media in general, the introduction of the term viral tactic is superfluous. However, the term constitutes an "updated" version of the above operations, one that can be easily adopted to designate similar actions online. In addition, it exploits the imaginative impression and the popularity of viruses to allow a decisively immediate and more graphic recognition.

Arguably, viruses have left a visible mark on people's imagination and practices that goes well beyond the domains of biology and information technology. However, the above examples show that this impact has not signified a passive acceptance. Western cultures have dealt with viruses by engaging in a series of confrontations, selections and assimilations, appropriations and transmissions, adoptions and adaptations to their features. When extensively applied to a diverse range of objects and activities the viral proper of viruses (their being viral) works as a signature or a mark of their passage. Whether constituting an obstacle or generating positive and creative outcomes, the viral is also able to engender a number of artifacts and concrete possibilities. The battle between virus writers and virus fighters, the controversy about their names and groups seizing of viral properties to the benefit of the creation of new practices are all products of the sometimes unpredictable productivity of viruses as simply, inherently, or problematically viral. The above diversity of phenomena generated

and continuously emerging from the viral are concrete products of its open-ended use and of the ability of individuals to "become viral" themselves.

Acknowledgements

* This essay was possible thanks to the support of the Canadian Media Research Consortium (CMRC) and the Robarts Centre for Canadian Studies

References

---

1. Documented in Fred Cohen, "Computer Viruses: Theory and Experiments." *Computers and Security* 6, no.1 (1987): 22-35. and Frederick B. Cohen, *A Short Course on Computer Viruses*. 2nd ed, *Wiley Professional Computing*. (New York: Toronto: Wiley, 1994).
2 . Peter Szor, *The Art of Computer Virus Research and Defense*. (Symantec Press, 2005).
3. Ralf Burger, *Computer Viruses : A High-Tech Disease*. (Grand Rapids, MI: Abacus, 1989).
4. Szor, Computer Virus Research, 28. Szor's approach is particularly useful in this context: his book provides a collection of just anything that can be labeled as "viral threat," "viral code," or "malware." To justify this choice, he credits a long list of security researchers, computer scientists, cybernetics scholars as well as virus writers/hackers. Since von Neumann's self-replicating structures, these authors have gradually built a corpus of knowledge and expertise that, today, constitutes the field of computer virus research.
5. Although their intentions/goals might differ from other computer analysts, virus writers can be considered computer virus researchers. Building increasingly complex computer viruses implies a thorough knowledge of and (self)training in computer science. VX heavens, a website that collects multidisciplinary information on computer viruses, provides an opening commentary that could be understood as a definition of the computer virus researcher: "This site is dedicated to providing information about computer viruses to anyone who is interested in this topic. [It contains] a massive, continuously updated collection of magazines, virus samples, virus sources, polymorphic engines, virus generators, virus writing tutorials, articles, books, news archives etc. Some of you might reasonably say that it is illegal to offer such content on the net. Or that this information can be misused by "malicious people". I only want to ask that person: "Is ignorance a defence?"'VXheavens. http://www.netlux.org/
6. Nathan Martin, Parasitic Media. In *Next Five Minutes Reader*. International Festival of Tactical Media (Amsterdam, September 11-14, 2003), 13 Http://www.N5M4.org.
7. Jussi Parikka, "The Universal Viral Machine." *CTheory*, Dec.15 (2005). In general, the present paper is informed by notions of media ecology and turbulent media also

supported by Fuller and Terranova.
8. This idea is laid in visually evident terms by Fuller. Inspired by the Schwitters' Dadaist eccentric method of intermingling objects, he argues: "Parts not only exist simply as discrete bits that stay separate: they set in play a process of mutual stimulation that exceeds what they are as a set. They get busy, become *merzbilder*." See Matthew Fuller, *Media Ecologies* (Cambridge, MA: MIT Press, 2005), 1
9. Tiziana Terranova, *Network Culture. Politics for the Information Age* (Ann Arbor: Pluto Press, 2004), 3
10. Ibid. 4.
11. Massumi defines the distinction between potential and possibility as "a distinction between conditions of emergence and re-conditioning of the emerged." While the former is virtual and "one with becoming," the latter represents its coming into shape: "Emergence emerges." Brian Massumi, *Parables of the Virtual*. (Durham and London: Duke University Press, 2002), 10-11.
12. Thierry Bardini, "Hypervirus: A Clinical Report." *CTheory*, Feb. 02 (2006), http://www.ctheory.net/articles.aspx?id=504 (accessed May 10, 2007).
13. Ibid. The use of capital THE is crucial for Bardini, as it indicates a "cathegorical THE," a "virus mechanism, locking you in THE virus universe"
14. Evelyn Fox-Keller, *Refiguring Life* (New York: University of Columbia Press, 1995), 10
15. Lily Kay notes how, in the 1950s, the relation between biology and computer science became quite explicit, when the information discourse was described as a system of representations. Kay describes this "implosion of informatics and biologics" (Haraway 1997) as a new form of biopower, where "material control was supplemented by the control of genetic information" (Keller 2000).
16. Andrew Ross, "Hacking Away at the Counterculture." In *Strange Weather. Culture, Science and Technology in the Age of Limits* (London, New York: Verso, 1991), 75
17. Ibid., 76
18. Alexander Galloway, *Protocol*. (Cambridge, MA: MIT Press, 2004).
19. Bardini confirms: "it is worth noting that if a virus were to attain a state of wholly benign equilibrium with its host cell it is unlikely that its presence would be readily detected OR THAT IT WOULD BE NECESSARILY BE RECOGNIZED AS A VIRUS." Bardini, "Hypervirus."
20. Michel Foucault, *The Archaeology of Knowledge* (London-New York: Routledge, 1989), 36. This is what Deleuze and Guattari call "plane of immanence."
21. Ibid., 37
22. Ibid., 35
23. Ibid., 41
24. Ibid., 39
25. Ibid., 41
26. In his volume on Foucault, Deleuze uses "concrete assemblages" to define the products and the executioners of the relations produced by the abstract machine. The abstract Machine, is, in his interpretation "…like the cause of the concrete assemblages that execute its relations; and these relations between forces take place not 'above' but within the very tissue of the assemblage they produce." See Gilles Deleuze, *Foucault*

(London: Athlone Press, 1988), 37. In *A Thousands Plateaus*, the abstract machine is "that which constructs a real that is yet to come, a new type of reality." See Gilles Deleuze, and Felix Guattari. *A Thousand Plateaus : Capitalism and Schizophrenia* (London: Athlone Press, 1988), 142. The combined use of both philosophers is necessary at this point of the paper, not because of their (legitimate) similarities. While Foucault's analysis of discursive formations is an excellent resource to map the conditions that allow the viral to produce so many different instances, Deleuze is needed to portray the dynamic mode through which such instances come to form and their irreducibility to fixed or immanent categories.

27. Donna Haraway, *Modest_Witness@Second _Millennium.Femaleman© _Meets_Oncomouse™ :Feminism and Technoscience* (New York: Routledge. 1997), 295.
28. Ibid.,296
29. Parikka, "The Universal Viral Machine."
30. Szor here credits in particular John von Neumann, Edward Fredkin, J.H. Conway and Robert Morris Sr.'s Core War. Szor, Computer Virus Research, 11
31. Ibid. 12
32. Fuller, *Media Ecologies*, 2
33. The topic is equally treated in Félix Guattari, "On the Production of Subjectivity" In *Chaosmosis: An Ethico-Aesthetic Paradigm* (Blomington and Indianapolis: Indiana University Press, 1995) and Félix Guattari, *Soft Subversions* (New York: Semiotext(e), 1996).
34. Ibid., 110
35. Ibid., 111
36. See Guattari elaborated in Fuller, *Media Ecologies*, 5
37. Guattari. *Soft Subversions*, 110
38. Ibid., 111
39. Guattari. Chaosmosis, 9
40. Ibid. 10
41. *ComputerKnowledge Online*. Virus Naming. (June 2006) http://www.cknow.com/vtutor/VirusNames.html (accessed May 10, 2007). Clearly, the issue is more complex. For the sake of clarity, in this paper only the so-called "mainstream" opinion is mentioned. In fact, the issue of "naming" would deserve a whole chapter in itself. One should keep in mind that the "exclusion" of virus writers from naming viruses cannot be limited to the mentioned reasons.
42. Sarah Gordon, "What's in a Name?" *SC Magazine Online*, (June 2002). http://www.scmagazine.com (accessed May 10, 2007).
43. Ibid., 9
44. Wildlist.org. *Naming and Taxonomy*, http://www.wildlist.org (accessed May 10, 2007).
45. Kathryn L. Shaw, "Targeting Managerial Control: Evidence from Franchise." *Working Paper. University of Michigan Business School* (2001): 18
46. Mani.R. Subramani and Balaji Rajagopalan. "Knowledge Sharing and Influence in Online Networks via Viral Marketing." *Communications of the ACM* (2003): 300
47. Ibid., 301
48. Jeffrey Boase and Barry Wellman. "A Plague of Viruses: Biological, Computer and

Marketing." *Current Sociology* (2001).
49. Emanuel Rosen, *The Anatomy of Buzz* (New York: Doubleday, 2000).
50. Paolo Pedercini, Infectious Media. http://www.molleindustria.org (accessed August 2005).
51. Ibid.,5.
52. Contagious Media Showdown, http://showdown.contagiousmedia.org/ (accessed May 10, 2007).
53. Carrie McLaren, "Media Virus. How silly videos and email pranks created the Bored at Work Network." *Stay Free Magazine*, no. 25 (February 2006).
54. Noticing the wide-spread popularity of such networks and the entertainment function they seem to embody, Peretti has coined the definition Bored at Work Networks (BWN). See McLaren, "Media Virus."
55. Subramani and Rajagopalan. "Viral Marketing", 302
56. See the Blair Witch Project Website: http://www.blairwitch.com/ (accessed May 10, 2007).
57. McLaren, "Media Virus."
58. Fighthunger.org. The winning entries to our viral video contest. http://www.fighthunger.org/contest/?src=fighthunger468x60 (accessed May 10, 2007).
59. From the GWEI website: http://www.gwei.org (accessed May 10, 2007).
60. The Google Adsense reads: "Google AdSense is a fast and easy way for website publishers of all sizes to display relevant Google ads on their website's content pages and earn money." From http://www.google.com/adsense (accessed May 10, 2007).
61. GWEI.org
62. See Call for Support: Link to Google Will Eat Itself by Geert Lovink http://www.networkcultures.org/geert/2007/03/22/call-for-support-link-to-google-will-eat-itself/ (accessed May 10, 2007).
63. Laura U. Marks, "Invisible Media." *Public*, no. 25 (2002).
64. Hakim Bey, *T.A.Z.: The Temporary Autonomous Zone, Ontological Anarchy, Poetic Terrorism*. (New York: Autonomedia 1991), 101.